Bank of America

“Our responsible growth strategy is delivering strong, consistent, high-quality results.”

Bank of America Corporation 2016 Annual Report

Contents


Our purpose is to help make financial lives better, through the power of every connection.

A Letter from Chairman and CEO Brian Moynihan

Our strategy of responsible growth delivered in 2016, as we earned nearly $18 billion, up 13 percent from a year ago. To put this into perspective, this was the second-most profitable year in our company's history, exceeded only by the $21 billion we earned in 2006, prior to the economic and financial crisis.

Our strong performance allowed us to return $6.6 billion in capital to shareholders through a higher dividend, and by repurchasing common shares. The latter helped offset significant shareholder dilution that occurred during the financial crisis, which I discuss in more detail below. These results reflect years of work to simplify the company, rebuild and strengthen the balance sheet, and focus on serving our core customers.

In a dynamic operating environment characterized by unexpected events around the world, we saw the benefits of remaining nimble, adapting to change in the near term, while adhering to our long-term strategy to support our customers and clients and deliver for our shareholders.

Through our responsible growth strategy, we grew revenue, reduced expenses, managed risks and continued to invest in our workforce and our capabilities. We also made steady progress relative to our long-term financial goals (return on tangible common equity of 12 percent and a return on assets of 1 percent). Our return on tangible common equity increased to 9.5 percent, while our return on assets improved to 0.82 percent. The efficiency ratio improved from 70 percent to 66 percent. Tangible book value per share, which measures the value we are creating for you, increased 9 percent in 2016 to $16.95. In 2017, we will continue to drive this company further toward our goals.

We drove these results in part through operational excellence, working hard to manage expenses and reinvest in our capabilities. We reduced expenses by $3 billion last year, and while we have more work to do, expenses are down $22 billion, or nearly 30 percent, from their peak of $77 billion in 2011.

It's important to note that we did this while growing the business. This created the operating leverage we need to invest for the future. We also accomplished this in a slow-growth U.S. and global economy.

However, as U.S. interest rates begin to rise, I am encouraged by what this signifies: an improving U.S. economy marked by low unemployment and increasing consumer and business confidence. It's our job to nurture this growth and help drive the real economy in the U.S. and around the world.

Committed to Capital Returns

I want to focus on what our results mean for long-term shareholder value, but a little background is necessary. In 2006, we earned the most in our history ($21 billion). We had 4.6 billion shares outstanding, meaning our diluted earnings per share was $4.58. We also paid a common stock dividend of $2.12 per share, or 46 percent of our earnings. Now, compare this to our 2016 results: earnings were $18 billion, but because we had more than twice as many shares outstanding, our EPS was $1.50 per diluted share, and our common stock dividend was $0.25 per share, or 17 percent of earnings.

The biggest difference between the two periods is the increase in common shares and a reduction in the dividend. Both were necessary to stabilize the company after the worst economic crisis since the Great Depression, and now that our company is stronger, we are focused on reducing the dilution and increasing the dividend.

Our shares outstanding, on a fully diluted basis, peaked at 11.6 billion. We issued more than 7 billion common shares during the crisis. We funded acquisitions, strengthened our balance sheet to meet higher capital requirements, and repaid the government's TARP investment within 13 months. We are working the share count down; at year end, we were at 11 billion shares. The market value of our company remains strong. As I write this letter, our market capitalization on a fully diluted basis is at an all-time high of more than $280 billion.

Chairman and CEO Brian Moynihan
(Charlotte, N.C.)

We are also focused on increasing the dividend. Last June, we increased the quarterly common stock dividend by 50 percent, made possible by all the work we've done to simplify the company, strengthen the balance sheet and rebuild capital.

What are the lessons we learned from this?

First, we must grow organically. Acquisitions are not part of our strategy so we don't have to issue shares.

Second, our businesses generate more than sufficient capital to fund their growth. We have shed non-core businesses and we have everything we need to serve our clients, so we can focus on building stronger relationships with them and optimizing returns.

Third, we need to continue to reduce the number of shares outstanding. This is essential if we want our stock price to exceed the record highs we have achieved in our market capitalization and in our tangible book value per share. And, because our stock is trading at a price that is close to our book value, repurchasing shares now creates long-term value for remaining shareholders when we buy from the selling shareholders at this level.

Finally, by staying focused on these things, and executing our strategy of responsible growth, we can deliver the returns that you expect from us and continue to return excess capital to you through dividends and common stock repurchases.

Responsible Growth Is Working

We will remain on the path that led us to near-record earnings in 2016. Responsible growth means remaining steadfast in delivering on our purpose to help our customers and clients live their financial lives by connecting them to all of our capabilities.

This strategy has four tenets:

- Grow and win in the market, no excuses.
- Grow with our customer-focused strategy.
- Grow within our Risk Framework.
- Grow in a sustainable manner.

To put it more simply: Not every dollar is a good dollar, unless it comes from activities that satisfy a customer need and fit our risk parameters. We are here to serve our customers and clients and to nurture those relationships and drive growth with the leading capabilities we have across our company. Ours is a relationship business, and in this report, you will read about the relationships we've built with several client companies and how we've helped them achieve their financial goals.

Advancing the Goals of People, Companies, and Institutional Investors

I'll begin with the people we serve. We serve 46 million households, and every week, we interact with customers more than 130 million times. In the time it takes you to read this letter, we will have had more than 100,000 contacts with customers.

Last year, our Consumer and Wealth Management segments grew deposits by $57 billion, or 7 percent, and increased loans by $29 billion, or 8 percent. We originated $79 billion in residential mortgages, up 13 percent, helping more than 260,000 families buy or refinance a home.

We continue to see strong enrollment in our preferred rewards program, up more than 40 percent from 2015, and we're seeing a 99 percent retention rate in this program. We have more than 33 million online customers, and nearly 22 million mobile banking users. You can learn more about how we are redefining the retail financial services experience in the comments from Dean Athanasia and Thong Nguyen, the co-heads of our Consumer Banking business, on pages 10–11.

In Merrill Lynch and U.S. Trust, we have two of the best brands in the wealth management business, as well as the No. 1 market position across assets, deposits and loans. As Merrill Lynch Private Wealth Advisor Raj Sharma explains on page 10, these businesses continue to integrate the broad capabilities of our company to meet client needs.

Turning to the companies we serve, our Global Banking business works with virtually every one of the S&P 500 firms. In addition to a range of lending and other solutions, we have one of the world's top-tier investment banks, ranked No. 3 globally in investment banking fees last year. We also are one of the largest lenders to mid-sized companies and to small businesses. As you will see from the stories of our great clients Cisco, WeWork, and Yoobi in this report, we bring the broadest array of capabilities to our clients—cash management, trade financing, lending in local currencies, and more—to support businesses that are driving the real economy here in the U.S. and around the world.

Finally, through our Global Markets business, we serve many of the world's largest institutional investors, who are managing savings and investments through pension and retirement funds. This is a balanced business, narrower in its scope of activities than before the financial crisis, and focused on clients needing to raise capital and investors seeking the best opportunities to put their capital to work.

Because of our balanced approach, Global Markets can weather market volatility and make money in a wide range of economic scenarios. Our sales and trading business was profitable on all but three days last year, despite the volatility caused by macroeconomic events, including the United Kingdom vote to leave the European Union and the U.S. elections.

A differentiator for us is our Global Research team. For the sixth year in a row, our team was ranked No. 1 in the world by Institutional Investor magazine. Our research capabilities help drive our entire company, providing valuable insights to our markets business, corporate banking, and our wealth management clients.

Managing Risk Well Is Central to Everything We Do

In addition to keeping a clear focus on customers and clients, our responsible growth strategy includes growing within a clear Risk Framework so that we can maintain our balanced, stable and financially strong platform. This means understanding the risk and reward in everything we do and empowering our teammates to share their opinions and ideas so we make better decisions.

In the last quarter of 2016, we had the lowest charge-off ratio in our company's history. For all of 2016, we grew core loan balances by 6 percent, yet charge-offs declined by 12 percent, which demonstrates our focus on growing the right way. In this report, Chief Risk Officer Geoff Greener discusses how we continue to strengthen our risk management so that every employee understands his or her role.

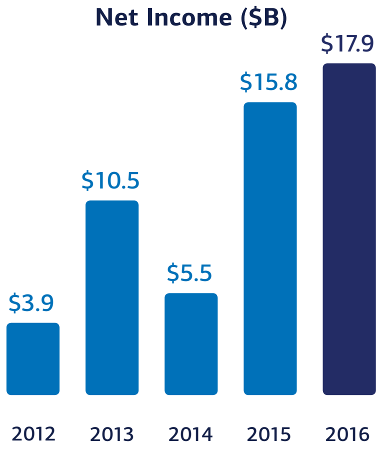
Ensuring Our Growth Is Sustainable

The final tenet of responsible growth is that we must grow in a sustainable manner. That means we must adhere to rigorous standards of corporate governance; we must invest in our communities; and we must strive to be the best place to work by helping our 200,000 teammates achieve their goals and aspirations.

Our environmental, social, and governance (ESG) practices are central to growing in a sustainable manner. A special ESG supplement enclosed in our Annual Report mailing this year provides additional details. There is also an extended discussion of our ESG practices in the proxy statement. Let me highlight a few key elements.

We are committed to best practices in corporate governance, including a strong, independent Board of Directors and other measures. The Board oversees our responsible growth strategy to deliver long-term value for you, our shareholders. Also, the Board has empowered a lead independent director whose duties and responsibilities meet or exceed corporate best practices. You can learn more about how the Board discharges its responsibilities in the Q&A with Lead Independent Director Jack Bovender in this report, and in the 2017 proxy statement. We also view the nearly $200 million in philanthropic investments we make in communities around the world, and the nearly 2 million volunteer hours our teammates commit to the causes they care about, as critical to creating the conditions for long-term, sustainable growth.

Also critical to fostering sustainable growth is the way we invest in our workforce and create an environment where they can thrive. As of early 2017, we've increased our minimum wage so that all employees earn more than $15 an hour. We will continue to adjust that, as we have regularly for several years now. In 2016, we also increased our fully paid parental leave from 12 to 16 weeks for all new parents. We create sustainable results through our Simplify and Improve (SIM) program, as well. Driven by thousands of ideas generated by our own teammates, SIM is our ongoing process of simplifying our company, eliminating or streamlining our internal and external processes, and reducing costs so we can reinvest in future growth.



It's the hard work of our team that makes everything we are sharing with you on these pages possible. And, it's our duty to create an environment that reflects and honors the diversity they represent, promotes inclusiveness and the sharing of different viewpoints, and provides benefits and career development opportunities so they can continue to grow and thrive.

Helping to Drive the Economy

To continue the strong performance we saw in 2016, we remain focused on executing our responsible growth strategy. There will be external impacts from changes in the markets, driven by political and economic factors that we cannot predict. We may see changes to banking laws, or to how regulations are implemented, in the United States and in other jurisdictions where we operate. Reasonable regulation is important for the safety and soundness of our financial system, and we support a review by policymakers and elected officials to ensure they strike the right balance to drive responsible economic growth.

As always, we must be agile and adaptive, but what will not change are the principles upon which we run our company. In both the near term and for the long term, given the current regulatory environment and because of the way we rebuilt our balance sheet and how we are executing our responsible growth strategy, we will have excess capital to put to work driving the economy. We are lending, and we will continue returning capital to shareholders through dividends and stock repurchases. There is a discussion in some quarters about perceived trade-offs between those important objectives, but we can do both while growing the company. We will continue investing in our business, our people, and our communities because we understand that when our customers, communities and employees succeed, we all succeed.

Thank you for investing in Bank of America.

Brian Moynihan
March 3, 2017

Working together to reinvent the future of work

When co-founders Adam Neumann and Miguel McKelvey started WeWork, they spent nearly six months trying to find the right name for the business. They wanted something that spoke to what they thought the mission of business should be: to create a world where people work to make a life, not just a living.

WeWork's first step for achieving its mission can be seen in its custom-designed office spaces, which are intended to allow colleagues, creators and collaborators to share a stimulating environment, explore new ideas, and ignite the creative spark that's vital for any successful new business today.

Today, six years after the company launched, the vision for WeWork goes beyond a new way of working. WeWork is now being approached by some of the world's largest companies — Bank of America included — to create spaces that allow for creative thinking and positive social engagement. And WeLive, the company's new community-based living offering, saw a high-profile launch in 2016.

Connecting with Bank of America

WeWork's founders knew that delivering a new kind of work experience required partners who shared their vision. Bank of America not only had the foresight to grasp the potential in WeWork's concept, but also the ability to work across various business lines to support them as they grew and evolved.

The relationship between WeWork and Bank of America began with an innovative joint initiative. Building on our position as a leader in providing credit and digital solutions to small businesses, we stationed small business officers in several WeWork locations in the U.S. Bringing the bank to the customer in this way provided WeWork members access to an array of products and services, from business checking and credit cards to lines of credit and cash management.

Over time, the relationship progressed to other financing and capital markets services. Bank of America Merrill Lynch's Cross Asset Solutions and Strategies Group, started by Karen Fang, was able to bring together solutions and expertise from every corner of the organization. The team also recognized the importance of providing a relatively young company the right kind of services at the right time, consistent with our responsible growth principles. For example, we are providing a creative real estate financing solution that will enable WeWork to create a flagship location in New York City combining both its workspace and WeLive concept.

Since launching its first shared workspace in New York City's SoHo neighborhood in 2010, WeWork has grown to over 100,000 members who collaborate in person at more than 130 locations across 10 countries. In 2016 alone, the company doubled its number of buildings, cities, countries and members, as well as revenue run rate, and tripled gross profit in locations open longer than 18 months.

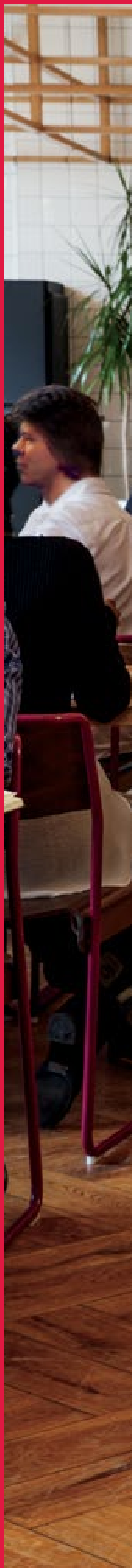
The efforts of the Cross Asset Solutions and Strategies Group were vital to the success of the WeWork relationship. "The bank empowered a team that could focus on the 'big picture' strategic needs of clients, and was well-versed in what we could provide across our platform so we were able to deliver solutions across small business banking, investment banking, capital markets, and global markets sales and trading," said Fang, who continues to support WeWork as head of Americas Fixed Income, Currency and Commodities Sales. "This approach differentiated Bank of America from the competition and was viewed by WeWork as thoughtful and strategic."

"Call me old fashioned but I still believe in relationship banking. Tom Montag, Karen Fang and the team at Bank of America understand this and know that these things take time and commitment. They took our business and our vision seriously, made the introductions to people across the bank that we need to flourish and helped us along our journey," said WeWork CEO Adam Neumann.

"As our business has grown, and our needs have grown, we've been able to call on different areas of the bank,"

continued Neumann. "Best of all, from our point of view, the bank is a believer in the WeWork mission and has seen the value that WeWork can create through its thoughtful approach to design and the creative and collaborative communities that it generates."

The way we have built and grown our relationship with WeWork is an excellent example of how the bank has gone to great lengths to make our global resources available to clients in an integrated manner. As innovative companies reinvent the way people and companies work, Bank of America is changing the way they bank.



Adam Neumann, WeWork CEO
(New York City, N.Y.)

Chuck Robbins, Cisco CEO
(San Jose, Calif.)

Delivering for a global networking giant

Cisco Systems, the world's largest networking solutions company, knows a thing or two about the power of connections. Cisco helps customers embrace the opportunities of our increasingly connected world by providing highly secure, automated, and intelligent solutions that connect nearly everything that can be digitally connected.

Serving the financial needs of a global networking giant requires an equally pioneering provider with vast global resources, a role the team at Bank of America Merrill Lynch (BofAML) has played for nearly 20 years.

With our help, Cisco is forging ahead in the rapidly evolving technology industry with an innovation strategy that integrates its ability to build, buy, partner, invest, and codevelop to create the next generation of industry-changing solutions.

Few financial companies can assemble the range of leading products and solutions that we can provide around the world. For example, Cisco relies on our Global Transaction Services team to seamlessly transact and move money around the globe, while our leading foreign exchange capabilities allow Cisco to book global revenue more confidently and with less earnings volatility by managing the risk that comes from conducting business in multiple currencies. Whether our teammates are working in Singapore, Switzerland or San Jose, Cisco knows the transactions will follow our high standards for customer service, while delivering the local knowledge required to competently execute transactions.

"Because we've worked with Cisco for so long, our relationship and understanding of where they're going is so deep; we're their trusted adviser," said Gary Kirkham, senior investment banker at BofAML. "And because we can execute 24 hours a day, seven days a week, we deliver the full capabilities of Bank of America to the Cisco team."

"Bank of America Merrill Lynch is a trusted and valued one-stop shop," said Cisco CEO Chuck Robbins.

"Their 360-degree offering, whether helping employees through their retail capabilities, advising on strategic mergers and acquisitions, or providing treasury services, drives efficiencies and productivity globally."

Our long-term support of Cisco includes helping the company access credit markets to fund its innovation and growth strategy. We have been a bookrunner for Cisco in all eight debt issuances in the company's history, totaling in excess of $45 billion, with the most recent transaction exceeding $6 billion in September 2016. We also have advised Cisco on numerous acquisitions through the years as Cisco seeks to enhance its capabilities, with such notable acquisitions as Meraki, Sourcefire and Acano.

Robbins added, "BofAML understands Cisco's strategic objectives. Their full suite of institutional offerings, including advisory services and corporate and investment banking, has consistently provided best-in-class solutions to help Cisco attain its goals. In addition, BofAML is a consistent leader in deploying innovative new technology to enable its business. This forward-leaning posture helps Cisco evaluate new technology areas and consistently improve our innovation in core businesses."

Bonds for a better planet

Members of the BofAML Green Bonds underwriting team
Left: Natalie Mordi-Hillaert, Jeff Tannenbaum and Suzanne Buchta (London)
Right: Rebecca Burns and Ariana Meinz (New York City)

The ultimate win-win in global banking may be the green bond, an innovative financial product that allows investors to support the growth of eco-friendly projects, such as clean energy, while receiving market returns.

Bank of America played a pivotal role in developing the green bond market, both as an issuer and as an underwriter. To date, we've issued a total of $2.1 billion in three separate offerings, including a $1 billion offering in November 2016. Through these offerings, we are advancing renewable energy generation by financing new projects, such as a multi-state residential solar portfolio and a utility scale wind farm in Oklahoma.

"Our responsible growth strategy includes the belief that we have an important role to play in funding the future of clean energy and using our expertise in global banking to help clients fund their organization's environmental and sustainable initiatives," said Vice Chairman Anne Finucane.

In addition to issuing our own bonds, Bank of America Merrill Lynch (BofAML) was the top underwriter of green bonds in 2014, 2015 and 2016[1]. In 2016 alone, we underwrote more than $25 billion in green bonds on behalf of 27 unique clients, and led offerings for clients including the Chinese automobile company Zhejiang Geely Holdings ($400 million), the New York Metropolitan Transportation Authority ($588 million), Banco Nacional de Costa Rica ($500 million) and the European Investment Bank (five bonds in 2016 totalling $3.6 billion). Proceeds from these bonds are helping to finance various emissions-reducing projects.

"The global green bond market has seen rapid growth driven by a growing number of environmentally conscious clients, investors and shareholders," said Suzanne Buchta, managing director, Green Bonds, at BofAML. "In driving the growth of the green bond market, our teams at Bank of America have helped clients access capital, diversify their funding opportunities, create jobs through new investments and advance alternative energy sources, while delivering returns for our shareholders."

[1]Bloomberg New Energy Finance

Focusing on client goals

A conversation with Merrill Lynch Private Wealth Advisor Raj Sharma

Q: ***How do you feel you help clients make their financial lives better?***

A: We live in a world of infinite information, filled with constant change. Understandably, clients are seeking clarity and peace of mind. They want to be sure someone is looking out for them. Our job is to distill all of that information and help our clients pursue their goals.

To do that, we start by focusing on what they want to accomplish. So, whether it is saving for college, retirement, supporting philanthropy or ensuring their legacy, we help our clients clarify their objectives and goals. Often, our clients ask their children to join these discussions because they want them to look at their inheritance as something to preserve, enhance and use to do great things in the world.

Raj Sharma

Through these conversations, we construct an investment strategy and create a personalized portfolio. The process recognizes the need for review and, sometimes, rebalancing. Markets can be volatile. While we strive to remain calm and steadfast, we also understand the importance of managing change.

Q: ***What does responsible growth mean to you and your practice?***

A: Responsible growth means never compromising our standards of service. It means accepting responsibility to ensure systems and processes are in place to monitor what we do, and help to deliver what our clients need and expect. Put simply, we work to serve. Our goal is to gain our clients' confidence so they will entrust us with their wealth and refer new clients. That's how we pursue responsible growth. The key, just as Charlie Merrill said more than 100 years ago, is always putting the clients' interests first.

Q: ***How does being part of Bank of America help your business succeed?***

A: When I came to Merrill Lynch, I thought we had good capabilities. What I see today, thanks to the broader Bank of America platform, is far more than that. We have the intellectual capital and experience to provide access to compelling solutions to meet virtually any challenge — in estate planning services, alternative investments, and lending from Bank of America, N.A. I believe our capabilities are unmatched — and I'm excited to see this great company uniting around Brian's vision to make our clients' lives better, one connection at a time.

Redefining the client experience

Dean Athanasia and Thong Nguyen, co-heads of Consumer Banking, on the future of banking

Technology is transforming financial services, fundamentally changing the relationship people have with their bank by delivering the best of high tech and high touch. Mobility, in particular, is dramatically improving access to financial services, regardless of income, geography or technological familiarity.

While our more than 65 million consumer and small business clients have many different needs, they generally agree on three things: they want everyday banking to be easy enough that they don't have to think about it; they want us to be there when they really need us; and they want us to help them reach their financial goals.

We're turning more of our financial centers into destination centers, where clients can speak to a representative face to face and get advice.

That's why we've made changes in how we work with clients across every channel: when they come into a financial center, when they use their computer or mobile device, and when they call us on the phone. Each of these avenues has been revolutionized by technology.

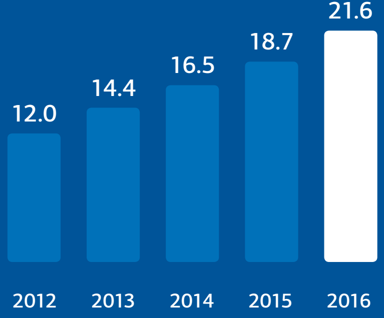
For example, more than five years ago, two-thirds of deposits were made at financial centers; today, that proportion has been cut in half. At the time, we had just over 9 million mobile banking users; now, that number is close to 22 million, and mobile logins have increased 1,000 percent.

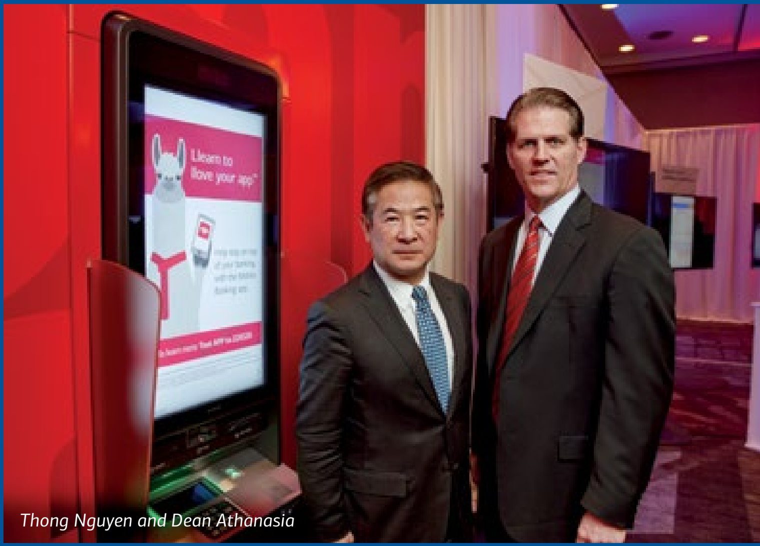
Mobile banking goes far beyond checking balances and transferring money. Today, clients can deposit checks, manage their investments, and get an auto or home loan. Nearly nine in 10 clients also use mobile banking alerts, helping them reduce fees, track their finances, manage spending and budgeting, and improve decision-making. They can also choose to navigate our mobile banking app in either English or Spanish.

But this is just the beginning of the mobile revolution, especially as mobile payments begin to transform how people pay each other and buy goods. In 2017, we're making it easier for clients to send, receive and request money, allowing them to use the existing contacts on their mobile device to securely transfer money to (or request money from) almost anyone, regardless of where they bank. They'll be able to split expenses among multiple contacts or friends — such as a group dinner check — and they can even add a personal note along with the payment transfer or request.

Innovation is also changing the way we help our clients pursue their life priorities, such as saving for a home, for their children's education and for retirement. We recently introduced Merrill Edge Guided Investing, which delivers the simplicity of online investing, backed by an investment strategy designed by experts from Global Wealth and Investment Management's Chief Investment Office. By giving our clients the freedom to choose how, when and where they invest — independently, with an advisor or a combination of both — we're integrating advice with technology to create deeper relationships with our clients.

Number of Mobile Banking Active Users (in millions)





Thong Nguyen and Dean Athanasia

Still, when it comes to making big financial decisions, there is no substitute for meeting face to face with the people we serve.

That's why we're investing heavily in improving our financial centers, making them destinations for our clients when they need expert help and advice. Over the next few years, we plan to open nearly 300 new centers, including some in new markets, while upgrading more than 1,500 others to a more modern and client-friendly format, staffing the centers with professionals to provide solutions and guidance to clients. We also recently introduced the first community-focused financial center, with 25 more planned for 2017. These centers are designed to help us better serve our clients in low- to moderate-income communities by providing the services and connections they need most, such as increased access to financial coaching and education that will help them stay financially on track. Also, we have deployed even more Digital Ambassadors to help them get the most out of our latest technology.

Smart use of innovation to deliver the best of high tech and high touch is the key to building stronger connections with our clients and communities, and improving financial lives to make a positive and lasting impact on the overall economy. It's a better way to accomplish what has always been our purpose and mission.

Ido Leffler, Yoobi CEO (Los Angeles, Calif.)

How a bank and Yoobi make school more fun

Ido Leffler is a serial entrepreneur with a passion for making a difference.

So when he learned that the average school teacher spends almost $500 of his or her own money each year on basic classroom supplies, he decided to do something about it. Leffler, the son of a teacher, and his business partners co-founded Yoobi to transform the school and office supply industries by making colorful, vibrant tools that spark learning and creativity while giving back to classrooms in need across the United States. Yoobi embodies social entrepreneurship through its buy one, give one business model. For every item purchased, Yoobi donates an item to a classroom in need in the U.S. The donations come in the form of a "Yoobi Classroom Pack," which contains hundreds of items for a class of up to 30 students, including pencil cases, crayons, markers, pencils, folders, glue, erasers and much more — all of the core learning tools students need in order to succeed in their schoolwork. Since its launch in June 2014, Yoobi has impacted the lives of more than 2 million kids in the U.S.

Bank of America's Role

With his vision set, Leffler set out to find a bank that would help him achieve his goals. At first, he wasn't sure he would find a banker who would embrace Yoobi's social mission and understand its unique business model. But fortunately, he didn't have to look too far. Jeff Klinger, his Merrill Lynch Private Wealth Advisor, saw the potential and immediately started connecting him to the vast banking resources of Bank of America Merrill Lynch (BofAML).

"When they found out what we could do for them and saw our banking capabilities, not only on the cash management side, but also on some of our trade finance products and services, they were definitely pretty excited about it," said Rob Glenn, a commercial banker with BofAML. "Now, they are using us for global treasury and financing to buy their new office building and to provide solutions to help them grow."

Building a business like Yoobi comes with a number of challenges, and the operation has grown rapidly, with international transactions scaling up from hundreds of thousands to millions of dollars. Each stage of growth presents a new set of challenges, and BofAML has been there through it all.

"Having one bank that could handle our international, domestic and overarching business needs meant that we could operate more efficiently and work better with our suppliers and retailers," Leffler said. "We wouldn't be able to do what we do, genuinely, if it weren't for the help of Bank of America. As we've needed to grow, scale, move, and dream bigger, they've been with us each step of the way."

Now in its third year of operation, Yoobi offers over 500 different items, available at Target stores nationwide, on Yoobi.com and at Yoobi's flagship store. For more information on Yoobi and its social mission, visit www.yoobi.com. Stay connected by following Yoobi on Twitter, Facebook, Instagram and more.

From dollars to yuan: Helping clients manage global payments

A look at how Bank of America Merrill Lynch is helping clients do business in a global market by Ather Williams III, head of Bank of America Merrill Lynch's Global Transaction Services

Ather Williams III

When it comes to moving money with speed and precision, there aren't many organizations who can do what we do. With our capabilities in 68 countries, delivered through Bank of America Merrill Lynch (BofAML) offices and strategic relationships, we help our clients make and receive payments, manage liquidity, safeguard assets and connect with suppliers, customers, employees and shareholders all around the globe.

Each day, we process $1.4 trillion on behalf of our clients. In a world of big numbers, that might not sound like a lot, but consider this — if you took all the money we process every day in dollar bills and laid them out end to end, you could circle the Earth 4,000 times.

In addition to processing transactions, we help our clients collect and report on their receivables, and guide them through their migration from paper to electronic payments, all with the ultimate goal of helping them maximize their working capital, gain operational efficiencies and mitigate risk.

Our experienced specialists work with clients to understand what they need and provide insights and solutions to help them reach their goals. For example, let's say a company is concerned about currency exposure and counterparty risk in its global supply chain. With access to a comprehensive suite of foreign exchange and trade finance solutions and robust hedging tools, we can help companies transact payments in 140 currencies and 230 countries and territories while facilitating payment for the exchange of goods or services.

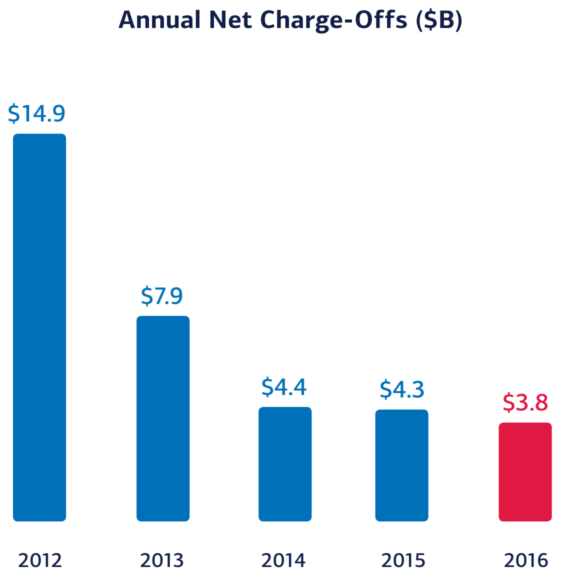
And, when the time comes to expand into new markets, we have the systems and connections in place to help companies of all sizes conduct and grow their business across borders.

Payments are the lifeblood of every business, and as the payments landscape evolves exponentially — a result of technological advances, increased globalization and changing consumer buying habits — we are preparing for the next generation of solutions, such as digital wallets, digital identity, blockchain technology and artificial intelligence. We are investing alongside technology startups to develop these innovations that will help our clients conduct business efficiently and safely across borders. The new technologies will complement our worldwide client access channel, CashPro®, which allows companies to connect to virtually all the treasury, liquidity, trade and foreign exchange solutions they need through a single secure sign-on.

At BofAML, we're committed to helping our clients achieve their goals within a dynamic, evolving global economy by delivering comprehensive solutions for their needs, wherever in the world they operate.

Growing within our Risk Framework

A conversation about managing risk with Bank of America's Chief Risk Officer Geoff Greener



Q: ***What is responsible growth?***

A: Responsible growth means being true to our purpose and values, growing with our core customers and always being there to help them achieve their financial goals. It means we proactively and thoroughly assess risk and reward so we can stand tall through economic cycles and provide sustainable returns for our shareholders over time. No matter where we work in the organization, managing risk well is foundational to delivering responsible growth. Our success depends on the intellectual curiosity and sound judgment of every employee across the company.

Q: ***How do you know you make the right decisions?***

A: At the end of the day, our job is to understand the risk and reward in what we do. We work hard to create an environment where our teams can challenge conventional wisdom and think outside the box to identify the risks we face, regardless of the likelihood of them occurring at a given point in time. We also believe that the more our teammates feel empowered to speak up and share their views, and the more we listen carefully to one another, the better informed our decisions will be.

Q: ***How do you measure success?***

A: The most direct signs of success can be found in our financial results and in key risk metrics. In 2016, net charge-offs, delinquencies and nonperforming assets all improved, and we had positive trading revenue on all but three trading days. Just as important, throughout the company, teammates are identifying areas for greater effectiveness and efficiency and driving change one step at a time. To me, this shows a culture of humility and a hunger to keep improving.

Finally, we measure success in how we live our purpose — helping our customers and clients live better financial lives and by having a positive impact on the communities we serve.

We've built a strong balance sheet and transformed the way we manage risk to be more proactive, foster debate and challenge, with strong independent oversight and governance. These efforts have positioned us to grow responsibly and be there to serve our customers and clients through good times and bad.

A Q&A with Lead Independent Director Jack Bovender

Q: ***Tell us how the Board addresses the responsibility to represent the interests of shareholders.***

A: Our shareholders are represented by an experienced, independent Board of Directors with diverse perspectives. The only non-independent director is our CEO, Brian Moynihan. In 2016, we added two directors: a seasoned financial services executive and a leader in consumer business and technology. We focus on maintaining the right balance between new and longer-seated directors. The average director tenure is about five and a half years, significantly below the S&P 500 average of over eight years.

Q: ***What is the Board's role in helping set the company's strategy? How do you and the other directors balance near-term issues with long-term goals?***

A: It starts with the Board's regular engagement with the company's management about the issues we face and the environment in which we operate. These meetings extend well into the company, including business leaders, risk and audit executives, and others. The independent directors also meet privately after all Board meetings.

We focus on the long term through our year-round strategic assessment and planning process, during which we review with management the company's multi-year responsible growth strategy. The process begins over several days each fall, when we conduct a detailed assessment of the company's progress, highlight areas of focus and adjustment to management, and reaffirm the strategy. As we proceed through the year, we receive regular updates from management to evaluate our company's performance against the plan. We temper and shape our long-term view though ongoing discussions with management regarding industry trends and other macro and geopolitical developments that may impact our strategy, including input from investors.

Q: ***How do you stay connected with shareholders and key stakeholders?***

A: The directors and management engage stockholders and solicit their views and input on matters including the company's performance, governance practices, environmental, social, and governance (ESG) priorities, executive compensation, and how we maximize the potential of our greatest asset — our employees. In 2016, we contacted our 100 largest shareholders representing nearly half of our outstanding shares, discussed regular updates regarding developments at the company, and invited them to meet with our directors. In addition to stockholders, I maintain a regular dialogue with our company's regulators. We often include regulators in our in-person Board meetings, too. Hearing directly from shareholders and from regulators provides the independent Board members important perspective. We will continue this engagement in 2017.

Jack Bovender

Key Statistics Regarding Our Board

Average tenure — below the 8.3-year S&P 500 average: **5.6 yrs**

93% are independent

have CEO experience: **64%**

Bank of America Corporation — Financial Highlights

Bank of America Corporation (NYSE: BAC) is headquartered in Charlotte, North Carolina. As of December 31, 2016, we operated in all 50 states, the District of Columbia, the U.S. Virgin Islands, Puerto Rico and more than 35 countries. Through our banking and various nonbank subsidiaries throughout the United States and in international markets, we provide a diversified range of banking and nonbank financial services and products through four business segments: Consumer Banking, Global Wealth and Investment Management, Global Banking, and Global Markets.

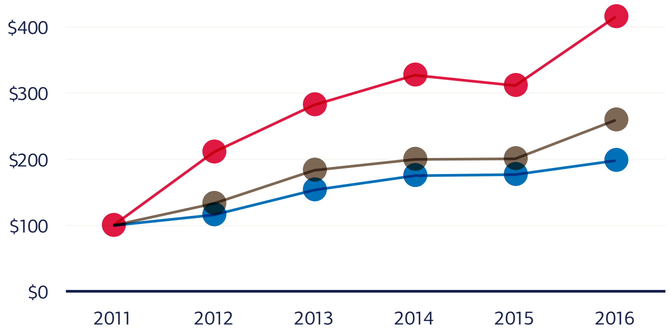
Financial Highlights (in millions, except per share information)

For the year	2016	2015	2014
Revenue, net of interest expense	**$ 83,701**	$ 82,965	$ 85,894
Net income	**17,906**	15,836	5,520
Earnings per common share	**1.58**	1.37	0.43
Diluted earnings per common share	**1.50**	1.31	0.42
Dividends paid per common share	**$ 0.25**	$ 0.20	$ 0.12
Return on average assets	**0.82%**	0.73%	0.26%
Return on average tangible common shareholders' equity[1]	**9.54**	9.08	2.98
Efficiency ratio	**65.65**	69.59	88.08
Average diluted common shares issued and outstanding	**11,036**	11,214	10,585

At year-end	2016	2015	2014
Total loans and leases	**$ 906,683**	$ 896,983	$ 876,104
Total assets	**2,187,702**	2,144,287	2,104,539
Total deposits	**1,260,934**	1,197,259	1,118,936
Total shareholders' equity	**266,840**	256,176	243,476
Book value per common share	**24.04**	22.53	21.32
Tangible book value per common share[1]	**16.95**	15.62	14.43
Market price per common share	**$ 22.10**	$ 16.83	$ 17.89
Common shares issued and outstanding	**10,053**	10,380	10,517
Tangible common equity ratio[1]	**8.1%**	7.8%	7.5%

[1]Represents a non-GAAP financial measure. For more information on these measures and ratios, and a corresponding reconciliation to GAAP financial measures, see Supplemental Financial Data on page 26 and Statistical Table XV on page 106 of the 2016 Financial Review section.

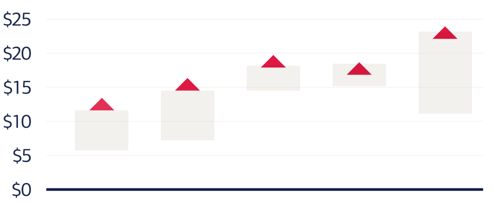
Total Cumulative Shareholder Return[2]



December 31	2011	2012	2013	2014	2015	2016
Bank of America Corporation	$100	$210	$282	$327	$311	**$415**
KBW Bank Sector Index	100	133	183	200	201	**259**
S&P 500 COMP	100	116	154	175	177	**198**

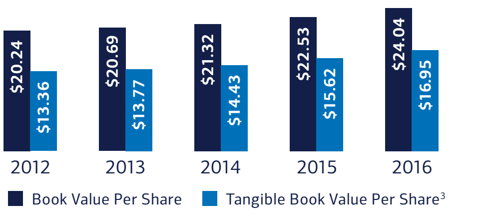
[2]This graph compares the yearly change in the Corporation's total cumulative shareholder return on its common stock with (i) the Standard & Poor's 500 Index and (ii) the KBW Bank Index for the years ended December 31, 2011 through 2016. The graph assumes an initial investment of $100 at the end of 2011 and the reinvestment of all dividends during the years indicated.

BAC Five-Year Stock Performance



	2012	2013	2014	2015	2016
HIGH	$11.61	$15.88	$18.13	$18.45	**$23.16**
LOW	5.80	11.03	14.51	15.15	**11.16**
CLOSE	11.61	15.57	17.89	16.83	**22.10**

Book Value Per Share/Tangible Book Value Per Share



[3]Tangible book value per share is a non-GAAP financial measure.

Bank of America

Financial Review

2016

Financial Review
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Management's Discussion and Analysis of Financial Condition and Results of Operations

Bank of America Corporation (the "Corporation") and its management may make certain statements that constitute "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995. These statements can be identified by the fact that they do not relate strictly to historical or current facts. Forward-looking statements often use words such as "anticipates," "targets," "expects," "hopes," "estimates," "intends," "plans," "goals," "believes," "continue," "suggests" and other similar expressions or future or conditional verbs such as "will," "may," "might," "should," "would" and "could." Forward-looking statements represent the Corporation's current expectations, plans or forecasts of its future results, revenues, expenses, efficiency ratio, capital measures, and future business and economic conditions more generally, and other future matters. These statements are not guarantees of future results or performance and involve certain known and unknown risks, uncertainties and assumptions that are difficult to predict and are often beyond the Corporation's control. Actual outcomes and results may differ materially from those expressed in, or implied by, any of these forward-looking statements.

You should not place undue reliance on any forward-looking statement and should consider the following uncertainties and risks, as well as the risks and uncertainties more fully discussed under Item 1A. Risk Factors of our 2016 Annual Report on Form 10-K and in any of the Corporation's subsequent Securities and Exchange Commission filings: the Corporation's ability to resolve representations and warranties repurchase and related claims, including claims brought by investors or trustees seeking to distinguish certain aspects of the New York Court of Appeals' ACE Securities Corp. v. DB Structured Products, Inc. (ACE) decision or to assert other claims seeking to avoid the impact of the ACE decision; the possibility that the Corporation could face increased servicing, securities, fraud, indemnity, contribution or other claims from one or more counterparties, including trustees, purchasers of loans, underwriters, issuers, other parties involved in securitizations, monolines or private-label and other investors; the possibility that future representations and warranties losses may occur in excess of the Corporation's recorded liability and estimated range of possible loss for its representations and warranties exposures; potential claims, damages, penalties, fines and reputational damage resulting from pending or future litigation and regulatory proceedings, including the possibility that amounts may be in excess of the Corporation's recorded liability and estimated range of possible loss for litigation exposures; the possible outcome of LIBOR, other reference rate, financial instrument and foreign exchange inquiries, investigations and litigation; uncertainties about the financial stability and growth rates of non-U.S. jurisdictions, the risk that those jurisdictions may face difficulties servicing their sovereign debt, and related stresses on financial markets, currencies and trade, and the Corporation's exposures to such risks, including direct, indirect and operational; the impact of U.S. and global interest rates (including rising, negative or continued low interest rates), currency exchange rates and economic conditions; the possibility that future credit losses may be higher than currently expected due to changes in economic assumptions, customer behavior and other uncertainties; the impact on the Corporation's business, financial condition and results of operations of a potential higher interest rate environment; the impact on the Corporation's business, financial condition and results of operations from a protracted period of lower oil prices or ongoing volatility with respect to oil prices; the Corporation's ability to achieve its expense targets or net interest income or other projections; adverse changes to the Corporation's credit ratings from the major credit rating agencies; estimates of the fair value of certain of the Corporation's assets and liabilities; uncertainty regarding the content, timing and impact of regulatory capital and liquidity requirements, including the potential impact of total loss-absorbing capacity requirements; potential adverse changes to our global systemically important bank (G-SIB) surcharge; the potential for payment protection insurance exposure to increase as a result of Financial Conduct Authority actions; the impact of Federal Reserve actions on the Corporation's capital plans; the possible impact of the Corporation's failure to remediate shortcomings identified by banking regulators in the Corporation's Resolution Plan; the impact of implementation and compliance with U.S. and international laws, regulations and regulatory interpretations, including, but not limited to, recovery and resolution planning requirements, Federal Deposit Insurance Corporation (FDIC) assessments, the Volcker Rule, fiduciary standards and derivatives regulations; a failure in or breach of the Corporation's operational or security systems or infrastructure, or those of third parties, including as a result of cyberattacks; the impact on the Corporation's business, financial condition and results of operations from the potential exit of the United Kingdom (U.K.) from the European Union (EU); and other similar matters.

Forward-looking statements speak only as of the date they are made, and the Corporation undertakes no obligation to update any forward-looking statement to reflect the impact of circumstances or events that arise after the date the forward-looking statement was made.

Notes to the Consolidated Financial Statements referred to in the Management's Discussion and Analysis of Financial Condition and Results of Operations (MD&A) are incorporated by reference into the MD&A. Certain prior-year amounts have been reclassified to conform to current-year presentation. Throughout the MD&A, the Corporation uses certain acronyms and abbreviations which are defined in the Glossary.

Executive Summary

Business Overview

The Corporation is a Delaware corporation, a bank holding company (BHC) and a financial holding company. When used in this report, "the Corporation" may refer to Bank of America Corporation individually, Bank of America Corporation and its subsidiaries, or certain of Bank of America Corporation's subsidiaries or affiliates. Our principal executive offices are located in Charlotte, North Carolina. Through our banking and various nonbank subsidiaries throughout the U.S. and in international markets, we provide a diversified range of banking and nonbank financial services and products through four business segments: *Consumer Banking*, *Global Wealth & Investment Management (GWIM)*, *Global Banking* and *Global Markets*, with the remaining operations recorded in *All Other*. We operate our banking activities primarily under the Bank of America, National Association (Bank of America, N.A. or BANA) charter. At December 31, 2016, the Corporation had approximately $2.2 trillion in assets and approximately 208,000 full-time equivalent employees.

As of December 31, 2016, we operated in all 50 states, the District of Columbia, the U.S. Virgin Islands, Puerto Rico and more than 35 countries. Our retail banking footprint covers approximately 80 percent of the U.S. population, and we serve approximately 46 million consumer and small business relationships with approximately 4,600 retail financial centers, approximately 15,900 ATMs, and leading online (www.bankofamerica.com) and mobile banking platforms with approximately 34 million active accounts and more than 22 million mobile active users. We offer industry-leading support to approximately three million small business owners. Our wealth management businesses, with client balances of approximately $2.5 trillion, provide tailored solutions to meet client needs through a full set of investment management, brokerage, banking, trust and retirement products. We are a global leader in corporate and investment banking and trading across a broad range of asset classes serving corporations, governments, institutions and individuals around the world.

2016 Economic and Business Environment

The economy in the U.S. grew in 2016 for the seventh consecutive year. Following a soft start to the year partly reflecting severe winter weather, domestic demand grew at a moderate pace over the remainder of the year. Suppressed by a slowdown in housing gains and a decrease in state and local government purchases, domestic spending growth was less than two percent, while weak exports, in part a lagged response to the sharp U.S. dollar appreciation of recent years, and continued inventory reductions by businesses also had a negative impact on GDP growth.

Meanwhile, the labor market continued to tighten, and average hourly earnings increased at the fastest pace since 2008. Payroll gains remained solid, and the unemployment rate trended downward, with the decline limited by stabilizing labor force participation. With employment and wages both rising, consumer spending, the largest component of the U.S. economy, was an economic bright spot. Core inflation (which, unlike headline inflation, excludes certain items subject to frequent volatile price change such as food and energy) also increased during 2016, but remained below the Federal Reserve System's (Federal Reserve) longer-term target of two percent. Meanwhile, headline inflation recovered, as energy costs began to reverse some of their large declines of recent years.

Following a weak start, equity markets advanced in 2016. Higher energy costs improved the trajectory of the manufacturing sector and the outlook for business investment. Treasury yields decreased in the first half of the year, but more than reversed their declines during the second half, especially in the fourth quarter. The U.S. dollar followed a similar pattern, depreciating in the first half only to reverse the losses later in the year.

For a second consecutive year, the Federal Open Market Committee raised its target range for the Federal funds rate by 25 basis points (bps) at the year's final meeting. With a stronger economy, rising inflation and continued labor market tightening, Federal Reserve members raised expectations that if economic growth continued, the pace of rate increases will pick up in 2017, although the removal of accommodation would remain gradual. The contrast between U.S. tightening and quantitative easing in Europe and Japan remained a source of dollar strength.

Internationally, the Eurozone grew moderately in 2016 amid increasing political uncertainty and fragmentation which led to political impasse and fragile governments in many countries, including Italy and Spain. In this context, the European Central Bank extended its quantitative easing program, albeit at a slower pace. At the same time, the U.K. surprised financial markets by voting in favor of leaving the EU. Despite this decision, the U.K. economy proved resilient. Activity in Japan continued to expand in 2016. However, inflation fell back into negative territory for most of the year, forcing the Bank of Japan to adopt a new monetary policy framework aimed at targeting sovereign yields. Aided in part by the increase in oil prices, the Russian and Brazilian economies showed signs of stabilizing following their deep recessions. China's economy decelerated modestly during the year, as its transition towards a growth model less focused on trade, and public investment continued.

Recent Events

Capital Management

During 2016, we repurchased approximately $5.1 billion of common stock pursuant to the Board of Directors' (the Board) authorization of our 2016 and 2015 Comprehensive Capital Analysis and Review (CCAR) capital plans and to offset equity-based compensation awards. Also, in addition to the previously announced repurchases associated with the 2016 CCAR capital plan, on January 13, 2017, we announced a plan to repurchase an additional $1.8 billion of common stock during the first half of 2017, to which the Federal Reserve did not object. For additional information, see Capital Management on page 44.

Sale of Non-U.S. Consumer Credit Card Business

On December 20, 2016, we entered into an agreement to sell our non-U.S. consumer credit card business to a third party. Subject to regulatory approval, this transaction is expected to close by mid-2017. After closing, we will retain substantially all payment protection insurance (PPI) exposure above existing reserves. We have considered this exposure in our estimate of a small after-tax gain on the sale. This transaction, once completed, will reduce risk-weighted assets and goodwill, benefiting regulatory capital. At December 31, 2016, the assets of this business, which are presented in assets of business held for sale on the Consolidated Balance Sheet, included non-U.S. credit card loans of $9.2 billion. This business is included in *All Other* for reporting purposes. For more information on the assets and liabilities of this business, see *Note 1 – Summary of Significant Accounting Principles* to the Consolidated Financial Statements.

Selected Financial Data

Table 1 provides selected consolidated financial data for 2016 and 2015.

Table 1 Selected Financial Data

(Dollars in millions, except per share information)	2016	2015
Income statement		
Revenue, net of interest expense	$ 83,701	$ 82,965
Net income	17,906	15,836
Diluted earnings per common share	1.50	1.31
Dividends paid per common share	0.25	0.20
Performance ratios		
Return on average assets	0.82%	0.73%
Return on average common shareholders' equity	6.71	6.24
Return on average tangible common shareholders' equity (1)	9.54	9.08
Efficiency ratio	65.65	69.59
Balance sheet at year end		
Total loans and leases	$ 906,683	$ 896,983
Total assets	2,187,702	2,144,287
Total deposits	1,260,934	1,197,259
Total common shareholders' equity	241,620	233,903
Total shareholders' equity	266,840	256,176

(1) Return on average tangible common shareholders' equity is a non-GAAP financial measure. For additional information, see Supplemental Financial Data on page 26, and for corresponding reconciliations to accounting principles generally accepted in the United States of America (GAAP) financial measures, see Statistical Table XV.

Financial Highlights

Net income was $17.9 billion, or $1.50 per diluted share in 2016 compared to $15.8 billion, or $1.31 per diluted share in 2015. The results for 2016 compared to 2015 were driven by higher net interest income and lower noninterest expense, partially offset by a decline in noninterest income and higher provision for credit losses.

Table 2 Summary Income Statement

(Dollars in millions)	2016	2015
Net interest income	$ 41,096	$ 38,958
Noninterest income	42,605	44,007
Total revenue, net of interest expense	83,701	82,965
Provision for credit losses	3,597	3,161
Noninterest expense	54,951	57,734
Income before income taxes	25,153	22,070
Income tax expense	7,247	6,234
Net income	17,906	15,836
Preferred stock dividends	1,682	1,483
Net income applicable to common shareholders	$ 16,224	$ 14,353
Per common share information		
Earnings	$ 1.58	$ 1.37
Diluted earnings	1.50	1.31

Net Interest Income

Net interest income increased $2.1 billion to $41.1 billion in 2016 compared to 2015. The net interest yield increased seven bps to 2.21 percent for 2016. These increases were primarily driven by growth in commercial loans, the impact of higher short-end interest rates and increased debt securities balances, as well as a charge of $612 million in 2015 related to the redemption of certain trust preferred securities, partially offset by lower loan spreads and market-related hedge ineffectiveness. We expect net interest income to increase approximately $600 million per quarter beginning in the first quarter of 2017, assuming interest rates remain at the year-end 2016 level and modest growth in loans and deposits.

Noninterest Income

Table 3 Noninterest Income

(Dollars in millions)	2016	2015
Card income	$ 5,851	$ 5,959
Service charges	7,638	7,381
Investment and brokerage services	12,745	13,337
Investment banking income	5,241	5,572
Trading account profits	6,902	6,473
Mortgage banking income	1,853	2,364
Gains on sales of debt securities	490	1,138
Other income	1,885	1,783
Total noninterest income	$ 42,605	$ 44,007

Noninterest income decreased $1.4 billion to $42.6 billion for 2016 compared to 2015. The following highlights the significant changes.

- Service charges increased $257 million primarily due to higher treasury-related revenue.
- Investment and brokerage services income decreased $592 million driven by lower transactional revenue, and decreased asset management fees due to lower market valuations, partially offset by the impact of higher long-term assets under management (AUM) flows.
- Investment banking income decreased $331 million driven by lower equity issuance fees and advisory fees due to a decline in market fee pools.
- Trading account profits increased $429 million due to a stronger performance across credit products led by mortgages and continued strength in rates products, partially offset by reduced client activity in equities.
- Mortgage banking income decreased $511 million primarily driven by a decline in production income, higher representations and warranties provision and lower servicing income, partially offset by more favorable mortgage servicing rights (MSR) results, net of the related hedge performance.
- Gains on sales of debt securities decreased $648 million primarily driven by lower sales volume.

- Other income increased $102 million primarily due to lower debit valuation adjustment (DVA) losses on structured liabilities, improved results from loans and the related hedging activities in the fair value option portfolio, and lower PPI expense, partially offset by lower gains on asset sales. DVA losses related to structured liabilities were $97 million in 2016 compared to $633 million in 2015.

Provision for Credit Losses

The provision for credit losses increased $436 million to $3.6 billion for 2016 compared to 2015 due to a slower pace of credit quality improvement in the consumer portfolio and an increase in energy sector reserves for the higher risk energy sub-sectors in the commercial portfolio. For more information on the provision for credit losses, see Provision for Credit Losses on page 74. For more information on our energy sector exposure, see Commercial Portfolio Credit Risk Management – Industry Concentrations on page 70.

Noninterest Expense

Table 4 Noninterest Expense

(Dollars in millions)	2016	2015
Personnel	$ 31,616	$ 32,868
Occupancy	4,038	4,093
Equipment	1,804	2,039
Marketing	1,703	1,811
Professional fees	1,971	2,264
Amortization of intangibles	730	834
Data processing	3,007	3,115
Telecommunications	746	823
Other general operating	9,336	9,887
Total noninterest expense	**$ 54,951**	$ 57,734

Noninterest expense decreased $2.8 billion to $55.0 billion for 2016 compared to 2015. Personnel expense decreased $1.3 billion as we continue to manage headcount and achieve cost savings. Continued expense management, as well as the expiration of advisor retention awards, more than offset the increases in client-facing professionals. Professional fees decreased $293 million primarily due to lower legal fees. Other general operating expense decreased $551 million primarily driven by lower foreclosed properties expense and lower brokerage fees, partially offset by higher FDIC expense.

We have previously announced an annual noninterest expense target of approximately $53 billion for full-year 2018.

Income Tax Expense

Table 5 Income Tax Expense

(Dollars in millions)	2016	2015
Income before income taxes	$ 25,153	$ 22,070
Income tax expense	7,247	6,234
Effective tax rate	28.8%	28.2%

The effective tax rate for 2016 was driven by our recurring tax preferences and net tax benefits related to various tax audit matters, partially offset by a charge for the impact of the U.K. tax law changes discussed below. The effective tax rate for 2015 was driven by our recurring tax preferences and by tax benefits related to certain non-U.S. restructurings, partially offset by a charge for the impact of the U.K. tax law change enacted in 2015.

The U.K. Finance Bill 2016 was enacted on September 15, 2016. The changes included reducing the U.K. corporate income tax rate by one percent to 17 percent, effective April 1, 2020. This reduction favorably affects income tax expense on future U.K. earnings, but required a remeasurement of our U.K. net deferred tax assets using the lower tax rate. Accordingly, upon enactment, we recorded an income tax charge of $348 million. In addition, for banking companies, the portion of U.K. taxable income that can be reduced by existing net operating loss carryforwards in any one taxable year has been reduced from 50 percent to 25 percent retroactive to April 1, 2016.

Our U.K. deferred tax assets, which consist primarily of net operating losses, are expected to be realized by certain subsidiaries over a number of years. Significant changes to management's earnings forecasts for those subsidiaries, changes in applicable laws, further changes in tax laws or changes in the ability of our U.K. subsidiaries to conduct business in the EU, could lead management to reassess our ability to realize the U.K. deferred tax assets. For additional information, see Item 1A. Risk Factors of our 2016 Annual Report on Form 10-K.

Table 6 Selected Balance Sheet Data

(Dollars in millions)	December 31 2016	2015	% Change
Assets			
Cash and cash equivalents	**$ 147,738**	$ 159,353	(7)%
Federal funds sold and securities borrowed or purchased under agreements to resell	**198,224**	192,482	3
Trading account assets	**180,209**	176,527	2
Debt securities	**430,731**	406,888	6
Loans and leases	**906,683**	896,983	1
Allowance for loan and lease losses	**(11,237)**	(12,234)	(8)
All other assets	**335,354**	324,288	3
Total assets	**$ 2,187,702**	$ 2,144,287	2
Liabilities			
Deposits	**$ 1,260,934**	$ 1,197,259	5
Federal funds purchased and securities loaned or sold under agreements to repurchase	**170,291**	174,291	(2)
Trading account liabilities	**63,031**	66,963	(6)
Short-term borrowings	**23,944**	28,098	(15)
Long-term debt	**216,823**	236,764	(8)
All other liabilities	**185,839**	184,736	1
Total liabilities	**1,920,862**	1,888,111	2
Shareholders' equity	**266,840**	256,176	4
Total liabilities and shareholders' equity	**$ 2,187,702**	$ 2,144,287	2

Assets

At December 31, 2016, total assets were approximately $2.2 trillion, up $43.4 billion from December 31, 2015. The increase in assets was primarily due to higher debt securities driven by the deployment of deposit inflows, an increase in loans and leases driven by client demand for commercial loans, and higher securities borrowed or purchased under agreements to resell due to increased customer financing activity. These increases were partially offset by a decrease in cash and cash equivalents as excess cash was deployed.

Cash and Cash Equivalents

Cash and cash equivalents decreased $11.6 billion primarily driven by loan growth, net securities purchases and net debt maturities.

Federal Funds Sold and Securities Borrowed or Purchased Under Agreements to Resell

Federal funds transactions involve lending reserve balances on a short-term basis. Securities borrowed or purchased under agreements to resell are collateralized lending transactions utilized to accommodate customer transactions, earn interest rate spreads, and obtain securities for settlement and for collateral. Federal funds sold and securities borrowed or purchased under agreements to resell increased $5.7 billion due to a higher level of customer financing activity.

Trading Account Assets

Trading account assets consist primarily of long positions in equity and fixed-income securities including U.S. government and agency securities, corporate securities and non-U.S. sovereign debt. Trading account assets increased $3.7 billion primarily driven by client demand within *Global Markets*.

Debt Securities

Debt securities primarily include U.S. Treasury and agency securities, mortgage-backed securities (MBS), principally agency MBS, non-U.S. bonds, corporate bonds and municipal debt. We use the debt securities portfolio primarily to manage interest rate and liquidity risk and to take advantage of market conditions that create economically attractive returns on these investments. Debt securities increased $23.8 billion primarily driven by the deployment of deposit inflows. For more information on debt securities, see *Note 3 – Securities* to the Consolidated Financial Statements.

Loans and Leases

Loans and leases increased $9.7 billion compared to December 31, 2015. The increase consisted of $18.9 billion in net loan growth driven by strong client demand for commercial loans, partially offset by $9.2 billion in non-U.S. credit card loans that were reclassified from loans and leases to assets of business held for sale, which is included in all other assets in the table above. For more information on the loan portfolio, see Credit Risk Management on page 54.

Allowance for Loan and Lease Losses

The allowance for loan and lease losses decreased $1.0 billion primarily due to the impact of improvements in credit quality from a stronger economy. For additional information, see Allowance for Credit Losses on page 74.

All Other Assets

All other assets increased $11.1 billion driven by the reclassification of $10.7 billion in assets related to our non-U.S. credit card business primarily from loans and leases and debt securities to assets of business held for sale, which is included in all other assets in Table 6.

Liabilities

At December 31, 2016, total liabilities were approximately $1.9 trillion, up $32.8 billion from December 31, 2015, primarily due to an increase in deposits, partially offset by a decrease in long-term debt.

Deposits

Deposits increased $63.7 billion primarily due to an increase in retail deposits.

Federal Funds Purchased and Securities Loaned or Sold Under Agreements to Repurchase

Federal funds transactions involve borrowing reserve balances on a short-term basis. Securities loaned or sold under agreements to repurchase are collateralized borrowing transactions utilized to accommodate customer transactions, earn interest rate spreads and finance assets on the balance sheet. Federal funds purchased and securities loaned or sold under agreements to repurchase decreased $4.0 billion primarily due to a decrease in repurchase agreements.

Trading Account Liabilities

Trading account liabilities consist primarily of short positions in equity and fixed-income securities including U.S. Treasury and agency securities, corporate securities and non-U.S. sovereign debt. Trading account liabilities decreased $3.9 billion primarily due to lower levels of short U.S. Treasury positions driven by less client demand within *Global Markets*.

Short-term Borrowings

Short-term borrowings provide an additional funding source and primarily consist of Federal Home Loan Bank (FHLB) short-term borrowings, notes payable and various other borrowings that generally have maturities of one year or less. Short-term borrowings decreased $4.2 billion primarily due to a decrease in short-term bank notes, partially offset by an increase in short-term FHLB Advances. For more information on short-term borrowings, see *Note 10 – Federal Funds Sold or Purchased, Securities Financing Agreements and Short-term Borrowings* to the Consolidated Financial Statements.

Long-term Debt

Long-term debt decreased $19.9 billion primarily driven by maturities and redemptions outpacing issuances. For more information on long-term debt, see *Note 11 – Long-term Debt* to the Consolidated Financial Statements.

All Other Liabilities

All other liabilities increased $1.1 billion due to an increase in derivative liabilities.

Shareholders' Equity

Shareholders' equity increased $10.7 billion driven by earnings and preferred stock issuances, partially offset by returns of capital to shareholders of $9.4 billion through common and preferred stock dividends and share repurchases, as well as a decrease in accumulated other comprehensive income (OCI) primarily due to an increase in unrealized losses on available-for-sale (AFS) debt securities as a result of higher interest rates.

Cash Flows Overview

The Corporation's operating assets and liabilities support our global markets and lending activities. We believe that cash flows from operations, available cash balances and our ability to generate cash through short- and long-term debt are sufficient to fund our operating liquidity needs. Our investing activities primarily include the debt securities portfolio and loans and leases. Our financing activities reflect cash flows primarily related to customer deposits, securities financing agreements and long-term debt. For additional information on liquidity, see Liquidity Risk on page 50.

Table 7 Five-year Summary of Selected Financial Data

(In millions, except per share information)	2016	2015	2014	2013	2012
Income statement					
Net interest income	$ 41,096	$ 38,958	$ 40,779	$ 40,719	$ 40,135
Noninterest income	42,605	44,007	45,115	46,783	42,663
Total revenue, net of interest expense	83,701	82,965	85,894	87,502	82,798
Provision for credit losses	3,597	3,161	2,275	3,556	8,169
Noninterest expense	54,951	57,734	75,656	69,213	72,094
Income before income taxes	25,153	22,070	7,963	14,733	2,535
Income tax expense (benefit)	7,247	6,234	2,443	4,194	(1,320)
Net income	17,906	15,836	5,520	10,539	3,855
Net income applicable to common shareholders	16,224	14,353	4,476	9,190	2,427
Average common shares issued and outstanding	10,284	10,462	10,528	10,731	10,746
Average diluted common shares issued and outstanding	11,036	11,214	10,585	11,491	10,841
Performance ratios					
Return on average assets	0.82%	0.73%	0.26%	0.49%	0.18%
Return on average common shareholders' equity	6.71	6.24	2.01	4.21	1.12
Return on average tangible common shareholders' equity [(1)]	9.54	9.08	2.98	6.35	1.71
Return on average shareholder's equity	6.72	6.28	2.32	4.51	1.64
Return on average tangible shareholders' equity [(1)]	9.19	8.80	3.34	6.58	2.40
Total ending equity to total ending assets	12.20	11.95	11.57	11.06	10.72
Total average equity to total average assets	12.16	11.66	11.11	10.81	10.75
Dividend payout	15.86	14.56	28.20	4.66	18.03
Per common share data					
Earnings	$ 1.58	$ 1.37	$ 0.43	$ 0.86	$ 0.23
Diluted earnings	1.50	1.31	0.42	0.83	0.22
Dividends paid	0.25	0.20	0.12	0.04	0.04
Book value	24.04	22.53	21.32	20.69	20.24
Tangible book value [(1)]	16.95	15.62	14.43	13.77	13.36
Market price per share of common stock					
Closing	$ 22.10	$ 16.83	$ 17.89	$ 15.57	$ 11.61
High closing	23.16	18.45	18.13	15.88	11.61
Low closing	11.16	15.15	14.51	11.03	5.80
Market capitalization	$ 222,163	$ 174,700	$ 188,141	$ 164,914	$ 125,136

(1) Tangible equity ratios and tangible book value per share of common stock are non-GAAP financial measures. For more information on these ratios, see Supplemental Financial Data on page 26, and for corresponding reconciliations to GAAP financial measures, see Statistical Table XV on page 107.
(2) For more information on the impact of the purchased credit-impaired (PCI) loan portfolio on asset quality, see Consumer Portfolio Credit Risk Management on page 55.
(3) Includes the allowance for loan and lease losses and the reserve for unfunded lending commitments.
(4) Balances and ratios do not include loans accounted for under the fair value option. For additional exclusions from nonperforming loans, leases and foreclosed properties, see Consumer Portfolio Credit Risk Management – Nonperforming Consumer Loans, Leases and Foreclosed Properties Activity on page 63 and corresponding Table 30, and Commercial Portfolio Credit Risk Management – Nonperforming Commercial Loans, Leases and Foreclosed Properties Activity on page 69 and corresponding Table 37.
(5) Asset quality metrics include $243 million of non-U.S. credit card allowance for loan and lease losses and $9.2 billion of non-U.S. credit card loans, which are included in assets of business held for sale on the Consolidated Balance Sheet at December 31, 2016.
(6) Primarily includes amounts allocated to the U.S. credit card and unsecured consumer lending portfolios in *Consumer Banking*, PCI loans and the non-U.S. credit card portfolio in *All Other*.
(7) Net charge-offs exclude $340 million, $808 million, $810 million, $2.3 billion and $2.8 billion of write-offs in the PCI loan portfolio for 2016, 2015, 2014, 2013 and 2012 respectively. For more information on PCI write-offs, see Consumer Portfolio Credit Risk Management – Purchased Credit-impaired Loan Portfolio on page 61.
(8) Risk-based capital ratios are reported under Basel 3 Advanced - Transition at December 31, 2016 and 2015. We reported risk-based capital ratios under Basel 3 Standardized - Transition at December 31, 2014 and under the general risk-based approach at December 31, 2013 and 2012. For additional information, see Capital Management on page 44.
n/a = not applicable

Table 7 Five-year Summary of Selected Financial Data (continued)

(Dollars in millions)	**2016**	2015	2014	2013	2012
Average balance sheet					
Total loans and leases	**$ 900,433**	$ 876,787	$ 898,703	$ 918,641	$ 898,768
Total assets	**2,189,971**	2,160,197	2,145,393	2,163,296	2,191,361
Total deposits	**1,222,561**	1,155,860	1,124,207	1,089,735	1,047,782
Long-term debt	**228,617**	240,059	253,607	263,417	316,393
Common shareholders' equity	**241,621**	230,173	222,907	218,340	216,999
Total shareholders' equity	**266,277**	251,981	238,317	233,819	235,681
Asset quality (2)					
Allowance for credit losses (3)	**$ 11,999**	$ 12,880	$ 14,947	$ 17,912	$ 24,692
Nonperforming loans, leases and foreclosed properties (4)	**8,084**	9,836	12,629	17,772	23,555
Allowance for loan and lease losses as a percentage of total loans and leases outstanding (4, 5)	**1.26%**	1.37%	1.66%	1.90%	2.69%
Allowance for loan and lease losses as a percentage of total nonperforming loans and leases (4, 5)	**149**	130	121	102	107
Allowance for loan and lease losses as a percentage of total nonperforming loans and leases, excluding the PCI loan portfolio (4, 5)	**144**	122	107	87	82
Amounts included in allowance for loan and lease losses for loans and leases that are excluded from nonperforming loans and leases (6)	**$ 3,951**	$ 4,518	$ 5,944	$ 7,680	$ 12,021
Allowance for loan and lease losses as a percentage of total nonperforming loans and leases, excluding the allowance for loan and lease losses for loans and leases that are excluded from nonperforming loans and leases (4, 6)	**98%**	82%	71%	57%	54%
Net charge-offs (7)	**$ 3,821**	$ 4,338	$ 4,383	$ 7,897	$ 14,908
Net charge-offs as a percentage of average loans and leases outstanding (4, 7)	**0.43%**	0.50%	0.49%	0.87%	1.67%
Net charge-offs as a percentage of average loans and leases outstanding, excluding the PCI loan portfolio (4)	**0.44**	0.51	0.50	0.90	1.73
Net charge-offs and PCI write-offs as a percentage of average loans and leases outstanding (4)	**0.47**	0.59	0.58	1.13	1.99
Nonperforming loans and leases as a percentage of total loans and leases outstanding (4, 5)	**0.85**	1.05	1.38	1.87	2.52
Nonperforming loans, leases and foreclosed properties as a percentage of total loans, leases and foreclosed properties (4, 5)	**0.89**	1.10	1.45	1.93	2.62
Ratio of the allowance for loan and lease losses at December 31 to net charge-offs (5, 7)	**3.00**	2.82	3.29	2.21	1.62
Ratio of the allowance for loan and lease losses at December 31 to net charge-offs, excluding the PCI loan portfolio (5)	**2.89**	2.64	2.91	1.89	1.25
Ratio of the allowance for loan and lease losses at December 31 to net charge-offs and PCI write-offs (5)	**2.76**	2.38	2.78	1.70	1.36
Capital ratios at year end (8)					
Risk-based capital:					
Common equity tier 1 capital	**11.0%**	10.2%	12.3%	n/a	n/a
Tier 1 common capital	**n/a**	n/a	n/a	10.9%	10.8%
Tier 1 capital	**12.4**	11.3	13.4	12.2	12.7
Total capital	**14.3**	13.2	16.5	15.1	16.1
Tier 1 leverage	**8.9**	8.6	8.2	7.7	7.2
Tangible equity (1)	**9.2**	8.9	8.4	7.8	7.6
Tangible common equity (1)	**8.1**	7.8	7.5	7.2	6.7

For footnotes see page 25.

Supplemental Financial Data

In this Form 10-K, we present certain non-GAAP financial measures. Non-GAAP financial measures exclude certain items or otherwise include components that differ from the most directly comparable measures calculated in accordance with GAAP. Non-GAAP financial measures are provided as additional useful information to assess our financial condition, results of operations (including period-to-period operating performance) or compliance with prospective regulatory requirements. These non-GAAP financial measures are not intended as a substitute for GAAP financial measures and may not be defined or calculated the same way as non-GAAP financial measures used by other companies.

We view net interest income and related ratios and analyses on an fully taxable-equivalent (FTE) basis, which when presented on a consolidated basis, are non-GAAP financial measures. To derive the FTE basis, net interest income is adjusted to reflect tax-exempt income on an equivalent before-tax basis with a corresponding increase in income tax expense. For purposes of this calculation, we use the federal statutory tax rate of 35 percent and a representative state tax rate. In addition, certain performance measures including the efficiency ratio and net interest yield utilize net interest income (and thus total revenue) on an FTE basis. The efficiency ratio measures the costs expended to generate a dollar of revenue, and net interest yield measures the bps we earn over the cost of funds. We believe that presentation of these items on an FTE basis allows for comparison of amounts from both taxable and tax-exempt sources and is consistent with industry practices.

We may present certain key performance indicators and ratios excluding certain items (e.g., DVA) which result in non-GAAP financial measures. We believe that the presentation of measures that exclude these items are useful because they provide additional information to assess the underlying operational performance and trends of our businesses and to allow better comparison of period-to-period operating performance.

We also evaluate our business based on certain ratios that utilize tangible equity, a non-GAAP financial measure. Tangible equity represents an adjusted shareholders' equity or common shareholders' equity amount which has been reduced by goodwill and certain acquired intangible assets (excluding MSRs), net of related deferred tax liabilities. These measures are used to evaluate our use of equity. In addition, profitability, relationship and investment models use both return on average tangible common shareholders' equity and return on average tangible shareholders' equity as key measures to support our overall growth goals. These ratios are as follows:

- Return on average tangible common shareholders' equity measures our earnings contribution as a percentage of adjusted common shareholders' equity. The tangible common equity ratio represents adjusted ending common shareholders' equity divided by total assets less goodwill and certain acquired intangible assets (excluding MSRs), net of related deferred tax liabilities.
- Return on average tangible shareholders' equity measures our earnings contribution as a percentage of adjusted average total shareholders' equity. The tangible equity ratio represents adjusted ending shareholders' equity divided by total assets less goodwill and certain acquired intangible assets (excluding MSRs), net of related deferred tax liabilities.
- Tangible book value per common share represents adjusted ending common shareholders' equity divided by ending common shares outstanding.

We believe that the use of ratios that utilize tangible equity provides additional useful information because they present measures of those assets that can generate income. Tangible book value per share provides additional useful information about the level of tangible assets in relation to outstanding shares of common stock.

The aforementioned supplemental data and performance measures are presented in Table 7 and Statistical Table XII.

Statistical Tables XV and XVI on pages 107 and 108 provide reconciliations of these non-GAAP financial measures to GAAP financial measures.

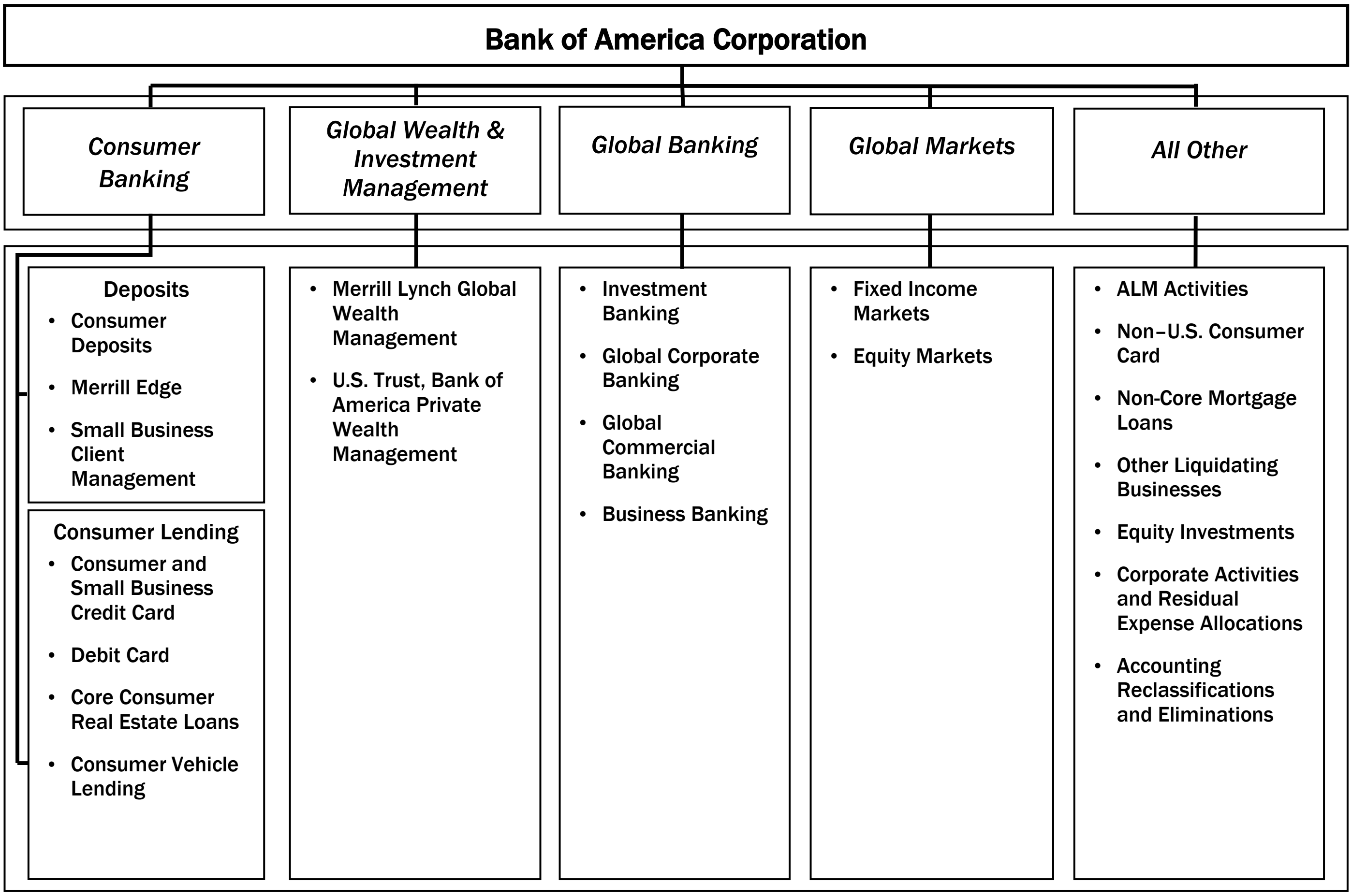
Table 8 Five-year Supplemental Financial Data

(Dollars in millions, except per share information)	**2016**	2015	2014	2013	2012
Fully taxable-equivalent basis data					
Net interest income	**$ 41,996**	$ 39,847	$ 41,630	$ 41,578	$ 41,036
Total revenue, net of interest expense	**84,601**	83,854	86,745	88,361	83,699
Net interest yield	**2.25%**	2.19%	2.30%	2.29%	2.22%
Efficiency ratio	**64.95**	68.85	87.22	78.33	86.13

Business Segment Operations

Segment Description and Basis of Presentation

We report our results of operations through the following four business segments: *Consumer Banking*, *GWIM*, *Global Banking* and *Global Markets*, with the remaining operations recorded in *All Other*. The primary activities, products and businesses of the business segments and *All Other* are shown below.



We periodically review capital allocated to our businesses and allocate capital annually during the strategic and capital planning processes. We utilize a methodology that considers the effect of regulatory capital requirements in addition to internal risk-based capital models. Our internal risk-based capital models use a risk-adjusted methodology incorporating each segment's credit, market, interest rate, business and operational risk components. For more information on the nature of these risks, see Managing Risk on page 40. The capital allocated to the business segments is referred to as allocated capital. For purposes of goodwill impairment testing, we utilize allocated equity as a proxy for the carrying value of our reporting units. Allocated equity in the reporting units is comprised of allocated capital plus capital for the portion of goodwill and intangibles specifically assigned to the reporting unit. For additional information, see *Note 8 – Goodwill and Intangible Assets* to the Consolidated Financial Statements.

For more information on the basis of presentation for business segments and reconciliations to consolidated total revenue, net income and year-end total assets, see *Note 24 – Business Segment Information* to the Consolidated Financial Statements.

(Dollars in millions)	Deposits 2016	Deposits 2015	Consumer Lending 2016	Consumer Lending 2015	Total Consumer Banking 2016	Total Consumer Banking 2015	% Change
Net interest income (FTE basis)	**$ 10,701**	$ 9,635	**$ 10,589**	$ 10,793	**$ 21,290**	$ 20,428	4%
Noninterest income:							
Card income	**9**	11	**4,926**	4,926	**4,935**	4,937	—
Service charges	**4,141**	4,100	**1**	1	**4,142**	4,101	1
Mortgage banking income	**—**	—	**960**	1,332	**960**	1,332	(28)
All other income	**403**	483	**1**	244	**404**	727	(44)
Total noninterest income	**4,553**	4,594	**5,888**	6,503	**10,441**	11,097	(6)
Total revenue, net of interest expense (FTE basis)	**15,254**	14,229	**16,477**	17,296	**31,731**	31,525	1
Provision for credit losses	**174**	200	**2,541**	2,146	**2,715**	2,346	16
Noninterest expense	**9,678**	9,856	**7,975**	8,860	**17,653**	18,716	(6)
Income before income taxes (FTE basis)	**5,402**	4,173	**5,961**	6,290	**11,363**	10,463	9
Income tax expense (FTE basis)	**1,992**	1,521	**2,198**	2,293	**4,190**	3,814	10
Net income	**$ 3,410**	$ 2,652	**$ 3,763**	$ 3,997	**$ 7,173**	$ 6,649	8
Net interest yield (FTE basis)	**1.79%**	1.75%	**4.37%**	4.70%	**3.38%**	3.52%	
Return on average allocated capital	**28**	22	**17**	19	**21**	20	
Efficiency ratio (FTE basis)	**63.44**	69.27	**48.41**	51.23	**55.63**	59.37	
Balance Sheet							
Average							
Total loans and leases	**$ 4,809**	$ 4,713	**$ 240,999**	$227,719	**$ 245,808**	$232,432	6
Total earning assets [(1)]	**598,043**	549,600	**242,445**	229,579	**629,990**	580,095	9
Total assets [(1)]	**624,592**	576,569	**254,287**	242,707	**668,381**	620,192	8
Total deposits	**592,417**	544,685	**7,237**	8,191	**599,654**	552,876	8
Allocated capital	**12,000**	12,000	**22,000**	21,000	**34,000**	33,000	3
Year end							
Total loans and leases	**$ 4,938**	$ 4,735	**$ 254,053**	$234,116	**$ 258,991**	$238,851	8
Total earning assets [(1)]	**631,172**	576,108	**255,511**	235,496	**662,704**	605,012	10
Total assets [(1)]	**658,316**	603,448	**268,002**	248,571	**702,339**	645,427	9
Total deposits	**625,727**	571,467	**7,063**	6,365	**632,790**	577,832	10

(1) In segments and businesses where the total of liabilities and equity exceeds assets, we allocate assets from *All Other* to match the segments' and businesses' liabilities and allocated shareholders' equity. As a result, total earning assets and total assets of the businesses may not equal total *Consumer Banking*.

Consumer Banking, which is comprised of Deposits and Consumer Lending, offers a diversified range of credit, banking and investment products and services to consumers and small businesses. Our customers and clients have access to a coast to coast network including financial centers in 33 states and the District of Columbia. Our network includes approximately 4,600 financial centers, 15,900 ATMs, nationwide call centers, and online and mobile platforms.

Consumer Banking Results

Net income for *Consumer Banking* increased $524 million to $7.2 billion in 2016 compared to 2015 primarily driven by lower noninterest expense and higher revenue, partially offset by higher provision for credit losses. Net interest income increased $862 million to $21.3 billion primarily due to the beneficial impact of an increase in investable assets as a result of higher deposits. Noninterest income decreased $656 million to $10.4 billion due to lower mortgage banking income and gains in 2015 on certain divestitures.

The provision for credit losses increased $369 million to $2.7 billion in 2016 primarily driven by a slower pace of improvement in the credit card portfolio. Noninterest expense decreased $1.1 billion to $17.7 billion driven by improved operating efficiencies and lower fraud costs, partially offset by higher FDIC expense.

The return on average allocated capital was 21 percent, up from 20 percent, reflecting higher net income. For additional information on capital allocations, see Business Segment Operations on page 28.

Deposits

Deposits includes the results of consumer deposit activities which consist of a comprehensive range of products provided to consumers and small businesses. Our deposit products include traditional savings accounts, money market savings accounts, CDs and IRAs, noninterest- and interest-bearing checking accounts, as well as investment accounts and products. The revenue is allocated to the deposit products using our funds transfer pricing process that matches assets and liabilities with similar interest rate sensitivity and maturity characteristics. Deposits generates fees such as account service fees, non-sufficient funds fees, overdraft charges and ATM fees, as well as investment and brokerage fees from Merrill Edge accounts. Merrill Edge is an integrated investing and banking service targeted at customers with less than $250,000 in investable assets. Merrill Edge provides investment advice and guidance, client brokerage asset services, a self-directed online investing platform and key banking capabilities including access to the Corporation's network of financial centers and ATMs.

Deposits includes the net impact of migrating customers and their related deposit and brokerage asset balances between Deposits and *GWIM* as well as other client-managed businesses. For more information on the migration of customer balances to or from *GWIM*, see *GWIM* - Net Migration Summary on page 33.

Net income for Deposits increased $758 million to $3.4 billion in 2016 driven by higher revenue and lower noninterest expense. Net interest income increased $1.1 billion to $10.7 billion primarily due to the beneficial impact of an increase in investable assets as a result of higher deposits. Noninterest income decreased $41 million to $4.6 billion due to gains in the prior year on certain divestitures.

The provision for credit losses decreased $26 million to $174 million. Noninterest expense decreased $178 million to $9.7 billion primarily driven by improved operating efficiencies, partially offset by higher FDIC expense.

Average deposits increased $47.7 billion to $592.4 billion in 2016 driven by a continuing customer shift to more liquid products in the low rate environment. Growth in checking, traditional savings and money market savings of $53.8 billion was partially offset by a decline in time deposits of $6.1 billion. As a result of our continued pricing discipline and the shift in the mix of deposits, the rate paid on average deposits declined by one bp to four bps.

Key Statistics – Deposits

	2016	2015
Total deposit spreads (excludes noninterest costs) [1]	1.65%	1.62%
Year end		
Client brokerage assets (in millions)	$ 144,696	$122,721
Online banking active accounts (units in thousands)	33,811	31,674
Mobile banking active users (units in thousands)	21,648	18,705
Financial centers	4,579	4,726
ATMs	15,928	16,038

(1) Includes deposits held in Consumer Lending.

Client brokerage assets increased $22.0 billion in 2016 driven by client flows and strong market performance. Mobile banking active users increased 2.9 million reflecting continuing changes in our customers' banking preferences. The number of financial centers declined 147 driven by changes in customer preferences to self-service options as we continue to optimize our consumer banking network and improve our cost-to-serve.

Consumer Lending

Consumer Lending offers products to consumers and small businesses across the U.S. The products offered include credit and debit cards, residential mortgages and home equity loans, and direct and indirect loans such as automotive, recreational vehicle and consumer personal loans. In addition to earning net interest spread revenue on its lending activities, Consumer Lending generates interchange revenue from credit and debit card transactions, late fees, cash advance fees, annual credit card fees, mortgage banking fee income and other miscellaneous fees. Consumer Lending products are available to our customers through our retail network, direct telephone, and online and mobile channels. Consumer Lending results also include the impact of servicing residential mortgages and home equity loans in the core portfolio, including loans held on the balance sheet of Consumer Lending and loans serviced for others.

We classify consumer real estate loans as core or non-core based on loan and customer characteristics such as origination date, product type, loan-to-value (LTV), Fair Isaac Corporation (FICO) score and delinquency status. Total owned loans in the core portfolio held in Consumer Lending increased $10.6 billion to $101.2 billion in 2016 primarily driven by higher residential mortgage balances, partially offset by a decline in home equity balances. For more information on the core and non-core portfolios, see Consumer Portfolio Credit Risk Management on page 55.

Consumer Lending includes the net impact of migrating customers and their related loan balances between Consumer Lending and *GWIM*. For more information on the migration of customer balances to or from *GWIM*, see *GWIM* on page 32.

Net income for Consumer Lending decreased $234 million to $3.8 billion in 2016 driven by a decline in revenue and higher provision for credit losses, partially offset by lower noninterest expense. Net interest income decreased $204 million to $10.6 billion primarily driven by higher funding costs, partially offset by the impact of an increase in consumer auto lending balances. Noninterest income decreased $615 million to $5.9 billion driven by lower mortgage banking income and gains in 2015 on certain divestitures.

The provision for credit losses increased $395 million to $2.5 billion in 2016 primarily driven by a slower pace of improvement in the credit card portfolio. Noninterest expense decreased $885 million to $8.0 billion primarily driven by improved operating efficiencies and lower fraud costs due to the benefit of the Europay, MasterCard and Visa (EMV) chip implementation, as well as lower personnel expense.

Average loans increased $13.3 billion to $241.0 billion in 2016 primarily driven by increases in residential mortgages and consumer vehicle loans, partially offset by lower home equity loans.

Key Statistics – Consumer Lending

(Dollars in millions)	2016	2015
Total U.S. credit card [1]		
Gross interest yield	9.29%	9.16%
Risk-adjusted margin	9.04	9.31
New accounts (in thousands)	4,979	4,973
Purchase volumes	$ 226,432	$221,378
Debit card purchase volumes	$ 285,612	$277,695

(1) In addition to the U.S. credit card portfolio in *Consumer Banking*, the remaining U.S. credit card portfolio is in *GWIM*.

During 2016, the total U.S. credit card risk-adjusted margin decreased 27 bps primarily driven by the impact of gains in 2015 on certain divestitures and a decrease in net interest margin, partially offset by an improvement in credit quality in the U.S. Card portfolio. Total U.S. credit card purchase volumes increased $5.1 billion to $226.4 billion and debit card purchase volumes increased $7.9 billion to $285.6 billion, reflecting higher levels of consumer spending. The increase in total U.S. credit card purchase volumes was partially offset by the impact of certain divestitures.

Mortgage Banking Income

Mortgage banking income is earned primarily in *Consumer Banking* and *All Other*. Total production income within mortgage banking income is comprised primarily of revenue from the fair value gains and losses recognized on our interest rate lock commitments (IRLCs) and loans held-for-sale (LHFS), the related secondary market execution, and costs related to representations and warranties made in the sales transactions along with other obligations incurred in the sales of mortgage loans. Servicing income within mortgage banking income includes income earned in connection with servicing activities and MSR valuation adjustments, net of results from risk management activities used to hedge certain market risks of the MSRs. Servicing income for the core portfolio is recorded in *Consumer Banking*. Servicing income for the non-core portfolio, including hedge ineffectiveness on MSR hedges, is recorded in *All Other*. The costs associated with our servicing activities are included in noninterest expense.

The table below summarizes the components of mortgage banking income. Amounts for mortgage banking income in *All Other* are included in this *Consumer Banking* table to show the components of consolidated mortgage banking income.

Mortgage Banking Income

(Dollars in millions)	2016	2015
Consumer Banking mortgage banking income		
Total production income	$ 663	$ 950
Net servicing income		
Servicing fees	708	855
Amortization of expected cash flows (1)	(577)	(661)
Fair value changes of MSRs, net of risk management activities used to hedge certain market risks (2)	166	188
Total net servicing income	297	382
Total Consumer Banking mortgage banking income	960	1,332
Other mortgage banking income		
Servicing fees	452	540
Amortization of expected cash flows (1)	(74)	(77)
Fair value changes of MSRs, net of risk management activities used to hedge certain market risks (2)	546	426
Other	(31)	143
Total other mortgage banking income (3)	893	1,032
Total consolidated mortgage banking income	**$ 1,853**	$ 2,364

(1) Represents the net change in fair value of the MSR asset due to the recognition of modeled cash flows.
(2) Includes changes in fair value of MSRs due to changes in inputs and assumptions, net of risk management activities, and gains (losses) on sales of MSRs. For additional information, see *Note 23 – Mortgage Servicing Rights* to the Consolidated Financial Statements.
(3) Includes $889 million and $1.0 billion of mortgage banking income recorded in *All Other* for 2016 and 2015.

Total production income for *Consumer Banking* decreased $287 million to $663 million in 2016 due to a decrease in production volume to be sold, resulting from a decision to retain certain residential mortgage loans in *Consumer Banking*.

Servicing

The costs associated with servicing activities related to the residential mortgage and home equity loan portfolios, including owned loans and loans serviced for others (collectively, the mortgage serviced portfolio) are allocated to the business segment that owns the loans or MSRs or *All Other*.

Servicing activities include collecting cash for principal, interest and escrow payments from borrowers, disbursing customer draws for lines of credit, accounting for and remitting principal and interest payments to investors and escrow payments to third parties, and responding to customer inquiries. Our home retention efforts, including single point of contact resources, are also part of our servicing activities, along with supervision of foreclosures and property dispositions. Prior to foreclosure, we evaluate various workout options in an effort to help our customers avoid foreclosure.

Consumer Banking servicing income decreased $85 million to $297 million in 2016 driven by lower servicing fees, partially offset by lower amortization of expected cash flows due to a smaller servicing portfolio. Servicing fees declined $147 million to $708 million in 2016 reflecting the decline in the size of the servicing portfolio.

Mortgage Servicing Rights

At December 31, 2016, the core MSR portfolio, held within Consumer Lending, was $2.1 billion compared to $2.3 billion at December 31, 2015. The decrease was primarily driven by the amortization of expected cash flows, which exceeded new additions, as well as changes in fair value due to changes in inputs and assumptions. For more information on MSRs, see *Note 23 – Mortgage Servicing Rights* to the Consolidated Financial Statements.

Key Statistics

(Dollars in millions)	2016	2015
Loan production (1):		
Total (2):		
First mortgage	$ 64,153	$ 56,930
Home equity	15,214	13,060
Consumer Banking:		
First mortgage	$ 44,510	$ 40,878
Home equity	13,675	11,988

(1) The loan production amounts represent the unpaid principal balance of loans and in the case of home equity, the principal amount of the total line of credit.
(2) In addition to loan production in *Consumer Banking*, there is also first mortgage and home equity loan production in *GWIM.*

First mortgage loan originations in *Consumer Banking* and for the total Corporation increased $3.6 billion and $7.2 billion in 2016 compared to 2015 driven by improving housing trends and a lower rate environment.

Home equity production for the total Corporation increased $2.2 billion in 2016 compared to 2015 due to a higher demand in the market based on improving housing trends, as well as improved financial center engagement with customers and more competitive pricing.

Global Wealth & Investment Management

(Dollars in millions)	2016	2015	% Change
Net interest income (FTE basis)	**$ 5,759**	$ 5,527	4%
Noninterest income:			
Investment and brokerage services	**10,316**	10,792	(4)
All other income	**1,575**	1,715	(8)
Total noninterest income	**11,891**	12,507	(5)
Total revenue, net of interest expense (FTE basis)	**17,650**	18,034	(2)
Provision for credit losses	**68**	51	33
Noninterest expense	**13,182**	13,943	(5)
Income before income taxes (FTE basis)	**4,400**	4,040	9
Income tax expense (FTE basis)	**1,629**	1,473	11
Net income	**$ 2,771**	$ 2,567	8
Net interest yield (FTE basis)	**2.09%**	2.13%	
Return on average allocated capital	**21**	21	
Efficiency ratio (FTE basis)	**74.68**	77.32	
Balance Sheet			
Average			
Total loans and leases	**$ 142,429**	$ 132,499	7
Total earning assets	**275,800**	259,020	6
Total assets	**291,479**	275,950	6
Total deposits	**256,425**	244,725	5
Allocated capital	**13,000**	12,000	8
Year end			
Total loans and leases	**$ 148,179**	$ 139,039	7
Total earning assets	**283,152**	279,597	1
Total assets	**298,932**	296,271	1
Total deposits	**262,530**	260,893	1

GWIM consists of two primary businesses: Merrill Lynch Global Wealth Management (MLGWM) and U.S. Trust, Bank of America Private Wealth Management (U.S. Trust).

MLGWM's advisory business provides a high-touch client experience through a network of financial advisors focused on clients with over $250,000 in total investable assets. MLGWM provides tailored solutions to meet our clients' needs through a full set of investment management, brokerage, banking and retirement products.

U.S. Trust, together with MLGWM's Private Banking & Investments Group, provides comprehensive wealth management solutions targeted to high net worth and ultra high net worth clients, as well as customized solutions to meet clients' wealth structuring, investment management, trust and banking needs, including specialty asset management services.

Client assets managed under advisory and/or discretion of *GWIM* are AUM and are typically held in diversified portfolios. The majority of client AUM have an investment strategy with a duration of greater than one year and are, therefore, considered long-term AUM. Fees earned on long-term AUM are calculated as a percentage of total AUM. The asset management fees charged to clients per year are dependent on various factors, but are generally driven by the breadth of the client's relationship and generally range from 50 to 150 bps on their total AUM. The net client long-term AUM flows represent the net change in clients' long-term AUM balances over a specified period of time, excluding market appreciation/depreciation and other adjustments.

Client assets under advisory and/or discretion of *GWIM* in which the investment strategy seeks current income, while maintaining liquidity and capital preservation, are considered liquidity AUM. The duration of these strategies is primarily less than one year. The change in AUM balances from the prior year is primarily the net client flows for liquidity AUM.

Net income for *GWIM* increased $204 million to $2.8 billion in 2016 compared to 2015 driven by a decrease in noninterest expense, partially offset by a decrease in revenue.

Net interest income increased $232 million to $5.8 billion driven by the impact of growth in loan and deposit balances. Noninterest income, which primarily includes investment and brokerage services income, decreased $616 million to $11.9 billion. The decline in noninterest income was driven by lower transactional revenue and decreased asset management fees primarily due to lower market valuations in 2016, partially offset by the impact of long-term AUM flows. Noninterest expense decreased $761 million to $13.2 billion primarily due to the expiration of advisor retention awards, lower revenue-related incentives and lower operating and support costs, partially offset by higher FDIC expense.

Return on average allocated capital was 21 percent for both 2016 and 2015.

Key Indicators and Metrics

(Dollars in millions, except as noted)	2016	2015
Revenue by Business		
Merrill Lynch Global Wealth Management	**$ 14,486**	$ 14,926
U.S. Trust	**3,075**	3,032
Other (1)	**89**	76
Total revenue, net of interest expense (FTE basis)	**$ 17,650**	$ 18,034
Client Balances by Business, at year end		
Merrill Lynch Global Wealth Management	**$ 2,102,175**	$ 1,986,502
U.S. Trust	**406,392**	388,604
Other (1)	**—**	82,929
Total client balances	**$ 2,508,567**	$ 2,458,035
Client Balances by Type, at year end		
Long-term assets under management	**$ 886,148**	$ 817,938
Liquidity assets under management (1)	**—**	82,925
Assets under management	**886,148**	900,863
Brokerage assets	**1,085,826**	1,040,938
Assets in custody	**123,066**	113,239
Deposits	**262,530**	260,893
Loans and leases (2)	**150,997**	142,102
Total client balances	**$ 2,508,567**	$ 2,458,035
Assets Under Management Rollforward		
Assets under management, beginning of year	**$ 900,863**	$ 902,872
Net long-term client flows	**38,572**	34,441
Net liquidity client flows	**(7,990)**	6,133
Market valuation/other (1)	**(45,297)**	(42,583)
Total assets under management, end of year	**$ 886,148**	$ 900,863
Associates, at year end (3, 4)		
Number of financial advisors	**16,830**	16,687
Total wealth advisors, including financial advisors	**18,688**	18,515
Total primary sales professionals, including financial advisors and wealth advisors	**19,676**	19,462
Merrill Lynch Global Wealth Management Metric (4)		
Financial advisor productivity (5) (in thousands)	**$ 979**	$ 1,024
U.S. Trust Metric, at year end (4)		
Primary sales professionals	**1,678**	1,595

(1) Includes the results of BofA Global Capital Management, the cash management division of Bank of America, and certain administrative items. Also reflects the sale to a third party of approximately $80 billion of BofA Global Capital Management's AUM during the three months ended June 30, 2016.
(2) Includes margin receivables which are classified in customer and other receivables on the Consolidated Balance Sheet.
(3) Includes financial advisors in the *Consumer Banking* segment of 2,201 and 2,187 at December 31, 2016 and 2015.
(4) Associate headcount computation is based upon full-time equivalents.
(5) Financial advisor productivity is defined as MLGWM total revenue, excluding the allocation of certain asset and liability management (ALM) activities, divided by the total number of financial advisors (excluding financial advisors in the *Consumer Banking* segment).

Client balances increased $50.5 billion, or two percent, to more than $2.5 trillion at December 31, 2016, driven by market valuation increases and positive net flows, partially offset by the impact of the sale of BofA Global Capital Management's AUM.

The number of wealth advisors increased one percent, due to continued investment in the advisor development programs, competitive recruiting and near historically low advisor attrition levels.

In 2016, revenue from MLGWM of $14.5 billion was down three percent driven by a decline in noninterest income due to lower transactional revenue and asset management fees primarily related to lower market valuations, partially offset by the impact of long-term AUM flows. Net interest income was up, primarily driven by growth in loan and deposit balances. U.S. Trust revenue of $3.1 billion was up one percent primarily driven by higher net interest income due to higher loan and deposit balances.

Net Migration Summary

GWIM results are impacted by the net migration of clients and their corresponding deposit, loan and brokerage balances primarily to or from *Consumer Banking,* as presented in the table below. Migrations result from the movement of clients between business segments to better align with client needs.

Net Migration Summary (1)

(Dollars in millions)	2016	2015
Total deposits, net – from *GWIM*	**$ (1,319)**	$ (218)
Total loans, net – from *GWIM*	**(7)**	(97)
Total brokerage, net – from *GWIM*	**(1,972)**	(2,416)

(1) Migration occurs primarily between *GWIM* and *Consumer Banking*.

Global Banking

(Dollars in millions)	2016	2015	% Change
Net interest income (FTE basis)	**$ 9,942**	$ 9,244	8%
Noninterest income:			
Service charges	**3,094**	2,914	6
Investment banking fees	**2,884**	3,110	(7)
All other income	**2,510**	2,353	7
Total noninterest income	**8,488**	8,377	1
Total revenue, net of interest expense (FTE basis)	**18,430**	17,621	5
Provision for credit losses	**883**	686	29
Noninterest expense	**8,486**	8,481	—
Income before income taxes (FTE basis)	**9,061**	8,454	7
Income tax expense (FTE basis)	**3,341**	3,114	7
Net income	**$ 5,720**	$ 5,340	7
Net interest yield (FTE basis)	**2.86%**	2.90%	
Return on average allocated capital	**15**	15	
Efficiency ratio (FTE basis)	**46.04**	48.13	
Balance Sheet			
Average			
Total loans and leases	**$ 333,820**	$ 303,907	10
Total earning assets	**347,489**	318,977	9
Total assets	**396,705**	369,001	8
Total deposits	**304,101**	294,733	3
Allocated capital	**37,000**	35,000	6
Year end			
Total loans and leases	**$ 339,271**	$ 323,687	5
Total earning assets	**356,241**	334,766	6
Total assets	**408,268**	386,132	6
Total deposits	**306,430**	296,162	3

Global Banking, which includes Global Corporate Banking, Global Commercial Banking, Business Banking and Global Investment Banking, provides a wide range of lending-related products and services, integrated working capital management and treasury solutions, and underwriting and advisory services through our network of offices and client relationship teams. Our lending products and services include commercial loans, leases, commitment facilities, trade finance, real estate lending and asset-based lending. Our treasury solutions business includes treasury management, foreign exchange and short-term investing options. We also provide investment banking products to our clients such as debt and equity underwriting and distribution, and merger-related and other advisory services. Underwriting debt and equity issuances, fixed-income and equity research, and certain market-based activities are executed through our global broker-dealer affiliates which are our primary dealers in several countries. Within *Global Banking,* Global Commercial Banking clients generally include middle-market companies, commercial real estate firms and not-for-profit companies. Global Corporate Banking clients generally include large global corporations, financial institutions and leasing clients. Business Banking clients include mid-sized U.S.-based businesses requiring customized and integrated financial advice and solutions.

Net income for *Global Banking* increased $380 million to $5.7 billion in 2016 compared to 2015 as higher revenue more than offset an increase in the provision for credit losses.

Revenue increased $809 million to $18.4 billion in 2016 compared to 2015 driven by higher net interest income, which increased $698 million to $9.9 billion driven by the impact of growth in loans and leases and higher deposits. Noninterest income increased $111 million to $8.5 billion primarily due to the impact from loans and the related loan hedging activities in the fair value option portfolio and higher treasury-related revenues, partially offset by lower investment banking fees.

The provision for credit losses increased $197 million to $883 million in 2016 driven by increases in energy-related reserves as well as loan growth. For additional information, see Commercial Portfolio Credit Risk Management – Industry Concentrations on page 70. Noninterest expense of $8.5 billion remained relatively unchanged in 2016 as investments in client-facing professionals in Commercial and Business Banking, higher severance costs and an increase in FDIC expense were largely offset by lower operating and support costs.

The return on average allocated capital remained unchanged at 15 percent, as higher net income was partially offset by an increased capital allocation. For more information on capital allocated to the business segments, see Business Segment Operations on page 28.

Global Corporate, Global Commercial and Business Banking

Global Corporate, Global Commercial and Business Banking each include Business Lending and Global Transaction Services activities. Business Lending includes various lending-related products and services, and related hedging activities, including commercial loans, leases, commitment facilities, trade finance, real estate lending and asset-based lending. Global Transaction Services includes deposits, treasury management, credit card, foreign exchange and short-term investment products.

The table below and following discussion presents a summary of the results, which exclude certain investment banking activities in *Global Banking*.

Global Corporate, Global Commercial and Business Banking

	Global Corporate Banking		Global Commercial Banking		Business Banking		Total	
(Dollars in millions)	**2016**	2015	**2016**	2015	**2016**	2015	**2016**	2015
Revenue								
Business Lending	**$ 4,285**	$ 3,981	**$ 4,140**	$ 3,968	**$ 376**	$ 352	**$ 8,801**	$ 8,301
Global Transaction Services	**2,982**	2,793	**2,718**	2,649	**739**	703	**6,439**	6,145
Total revenue, net of interest expense	**$ 7,267**	$ 6,774	**$ 6,858**	$ 6,617	**$ 1,115**	$ 1,055	**$ 15,240**	$ 14,446
Balance Sheet								
Average								
Total loans and leases	**$ 152,944**	$138,025	**$ 163,341**	$148,735	**$ 17,506**	$ 17,072	**$ 333,791**	$303,832
Total deposits	**142,593**	138,142	**126,253**	123,007	**35,256**	33,588	**304,102**	294,737
Year end								
Total loans and leases	**$ 152,589**	$146,803	**$ 168,864**	$159,720	**$ 17,846**	$ 17,165	**$ 339,299**	$323,688
Total deposits	**142,815**	133,742	**128,210**	128,656	**35,409**	33,767	**306,434**	296,165

Business Lending revenue increased $500 million in 2016 compared to 2015 driven by the impact of growth in loans and leases, as well as the impact from loans and the related loan hedging activities in the fair value option portfolio.

Global Transaction Services revenue increased $294 million in 2016 compared to 2015 driven by growth in treasury-related revenue as well as higher net interest income driven by the beneficial impact of an increase in investable assets as a result of higher deposits.

Average loans and leases increased 10 percent in 2016 compared to 2015 driven by growth in the commercial and industrial, and leasing portfolios. Average deposits increased three percent due to continued portfolio growth with new and existing clients.

Global Investment Banking

Client teams and product specialists underwrite and distribute debt, equity and loan products, and provide advisory services and tailored risk management solutions. The economics of certain investment banking and underwriting activities are shared primarily between *Global Banking* and *Global Markets* under an internal revenue-sharing arrangement. To provide a complete discussion of our consolidated investment banking fees, the following table presents total Corporation investment banking fees and the portion attributable to *Global Banking.*

Investment Banking Fees

	Global Banking		Total Corporation	
(Dollars in millions)	**2016**	2015	**2016**	2015
Products				
Advisory	**$ 1,156**	$ 1,354	**$ 1,269**	$ 1,503
Debt issuance	**1,407**	1,296	**3,276**	3,033
Equity issuance	**321**	460	**864**	1,236
Gross investment banking fees	**2,884**	3,110	**5,409**	5,772
Self-led deals	**(49)**	(57)	**(168)**	(200)
Total investment banking fees	**$ 2,835**	$ 3,053	**$ 5,241**	$ 5,572

Total Corporation investment banking fees of $5.2 billion, excluding self-led deals, included within *Global Banking* and *Global Markets,* decreased six percent in 2016 compared to 2015 driven by lower equity issuance fees and advisory fees due to a decline in market fee pools.

Global Markets

(Dollars in millions)	2016	2015	% Change
Net interest income (FTE basis)	$ 4,558	$ 4,191	9%
Noninterest income:			
Investment and brokerage services	2,102	2,221	(5)
Investment banking fees	2,296	2,401	(4)
Trading account profits	6,550	6,109	7
All other income	584	91	n/m
Total noninterest income	11,532	10,822	7
Total revenue, net of interest expense (FTE basis)	16,090	15,013	7
Provision for credit losses	31	99	(69)
Noninterest expense	10,170	11,374	(11)
Income before income taxes (FTE basis)	5,889	3,540	66
Income tax expense (FTE basis)	2,072	1,117	85
Net income	$ 3,817	$ 2,423	58
Return on average allocated capital	10%	7%	
Efficiency ratio (FTE basis)	63.21	75.75	
Balance Sheet			
Average			
Trading-related assets:			
Trading account securities	$ 185,135	$ 195,650	(5)
Reverse repurchases	89,715	103,506	(13)
Securities borrowed	87,286	79,494	10
Derivative assets	50,769	54,519	(7)
Total trading-related assets [1]	412,905	433,169	(5)
Total loans and leases	69,641	63,443	10
Total earning assets [1]	423,579	430,468	(2)
Total assets	585,342	594,057	(1)
Total deposits	34,250	38,074	(10)
Allocated capital	37,000	35,000	6
Year end			
Total trading-related assets [1]	$ 380,562	$ 373,926	2
Total loans and leases	72,743	73,208	(1)
Total earning assets [1]	397,023	384,046	3
Total assets	566,060	548,790	3
Total deposits	34,927	37,038	(6)

[1] Trading-related assets include derivative assets, which are considered non-earning assets.
n/m = not meaningful

Global Markets offers sales and trading services, including research, to institutional clients across fixed-income, credit, currency, commodity and equity businesses. *Global Markets* product coverage includes securities and derivative products in both the primary and secondary markets. *Global Markets* provides market-making, financing, securities clearing, settlement and custody services globally to our institutional investor clients in support of their investing and trading activities. We also work with our commercial and corporate clients to provide risk management products using interest rate, equity, credit, currency and commodity derivatives, foreign exchange, fixed-income and mortgage-related products. As a result of our market-making activities in these products, we may be required to manage risk in a broad range of financial products including government securities, equity and equity-linked securities, high-grade and high-yield corporate debt securities, syndicated loans, MBS, commodities and asset-backed securities (ABS). The economics of certain investment banking and underwriting activities are shared primarily between *Global Markets* and *Global Banking* under an internal revenue-sharing arrangement. *Global Banking* originates certain deal-related transactions with our corporate and commercial clients that are executed and distributed by *Global Markets*. For information on investment banking fees on a consolidated basis, see page 35.

Net income for *Global Markets* increased $1.4 billion to $3.8 billion in 2016 compared to 2015. Net DVA losses were $238 million compared to losses of $786 million in 2015. Excluding net DVA, net income increased $1.1 billion to $4.0 billion in 2016 compared to 2015 primarily driven by higher sales and trading revenue and lower noninterest expense, partially offset by lower investment banking fees and investment and brokerage services revenue. Sales and trading revenue, excluding net DVA, increased $638 million primarily due to a stronger performance globally across credit products led by mortgages and continued strength in rates products. The increase was partially offset by challenging credit market conditions in early 2016 as well as reduced client activity in equities, most notably in Asia, and a less favorable trading environment for equity derivatives. Noninterest expense decreased $1.2 billion to $10.2 billion primarily due to lower litigation expense and lower revenue-related expenses.

Average earning assets decreased $6.9 billion to $423.6 billion in 2016 primarily driven by a decrease in match book financing activity and a reduction in trading inventory, partially offset by higher loans and other customer financing. Year-end trading-related assets increased $6.6 billion in 2016 primarily driven by higher securities borrowed or purchased under agreements to resell due to increased customer financing activity as well as higher trading account assets due to client demand.

The return on average allocated capital was 10 percent, up from seven percent, reflecting an increase in net income, partially offset by an increase in allocated capital.

Sales and Trading Revenue

Sales and trading revenue includes unrealized and realized gains and losses on trading and other assets, net interest income, and fees primarily from commissions on equity securities. Sales and trading revenue is segregated into fixed-income (government debt obligations, investment and non-investment grade corporate debt obligations, commercial MBS, residential mortgage-backed securities (RMBS), collateralized loan obligations (CLOs), interest rate and credit derivative contracts), currencies (interest rate and foreign exchange contracts), commodities (primarily futures, forwards, swaps and options) and equities (equity-linked derivatives and cash equity activity). The following table and related discussion present sales and trading revenue, substantially all of which is in *Global Markets,* with the remainder in *Global Banking*. In addition, the following table and related discussion present sales and trading revenue excluding the impact of net DVA, which is a non-GAAP financial measure. We believe the use of this non-GAAP financial measure provides additional useful information to assess the underlying performance of these businesses and to allow better comparison of period-to-period operating performance.

Sales and Trading Revenue (1, 2)

(Dollars in millions)	2016	2015
Sales and trading revenue		
Fixed-income, currencies and commodities	**$ 9,373**	$ 7,869
Equities	**4,017**	4,335
Total sales and trading revenue	**$ 13,390**	$ 12,204
Sales and trading revenue, excluding net DVA (3)		
Fixed-income, currencies and commodities	**$ 9,611**	$ 8,632
Equities	**4,017**	4,358
Total sales and trading revenue, excluding net DVA	**$ 13,628**	$ 12,990

(1) Includes FTE adjustments of $184 million and $182 million for 2016 and 2015. For more information on sales and trading revenue, see *Note 2 – Derivatives* to the Consolidated Financial Statements.

(2) Includes *Global Banking* sales and trading revenue of $406 million and $424 million for 2016 and 2015.

(3) Fixed-income, currencies and commodities (FICC) and Equities sales and trading revenue, excluding net DVA, is a non-GAAP financial measure. FICC net DVA losses were $238 million for 2016 compared to net DVA losses of $763 million in 2015. Equities net DVA losses were $0 for 2016 compared to net DVA losses of $23 million in 2015.

The explanations for period-over-period changes in sales and trading, FICC and Equities revenue, as set forth below, would be the same if net DVA was included.

FICC revenue, excluding net DVA, increased $979 million as rates products improved on increased customer flow, and mortgages recorded strong results. This was partially offset by a weaker performance in commodities, as lower volatility dampened client activity. Equities revenue, excluding net DVA, decreased $341 million to $4.0 billion primarily driven by lower levels of client activity, primarily in Asia, which benefited in 2015 from increased market volumes relating to stock markets rallies in the region, as well as weaker trading performance in derivatives. For more information on sales and trading revenue, see *Note 2 – Derivatives* to the Consolidated Financial Statements.

(Dollars in millions)	2016	2015	% Change
Net interest income (FTE basis)	$ 447	$ 457	(2)%
Noninterest income:			
Card income	189	260	(27)
Mortgage banking income	889	1,022	(13)
Gains on sales of debt securities	490	1,126	(56)
All other loss	(1,315)	(1,204)	9
Total noninterest income	253	1,204	(79)
Total revenue, net of interest expense (FTE basis)	700	1,661	(58)
Provision for credit losses	(100)	(21)	n/m
Noninterest expense	5,460	5,220	5
Loss before income taxes (FTE basis)	(4,660)	(3,538)	32
Income tax benefit (FTE basis)	(3,085)	(2,395)	29
Net loss	$ (1,575)	$ (1,143)	38
Balance Sheet [1]			
Average			
Total loans and leases	$ 108,735	$ 144,506	(25)
Total deposits	28,131	25,452	11
Year end			
Total loans and leases [2]	$ 96,713	$ 122,198	(21)
Total deposits	24,257	25,334	(4)

(1) In segments where the total of liabilities and equity exceeds assets, which are generally deposit-taking segments, we allocate assets from *All Other* to those segments to match liabilities (i.e., deposits) and allocated shareholders' equity. Such allocated assets were $500.0 billion and $463.4 billion for 2016 and 2015, and $518.7 billion and $489.0 billion at December 31, 2016 and 2015.

(2) Includes $9.2 billion of non-U.S. credit card loans, which are included in assets of business held for sale on the Consolidated Balance Sheet.

n/m = not meaningful

All Other consists of ALM activities, equity investments, the non-U.S. consumer credit card business, non-core mortgage loans and servicing activities, the net impact of periodic revisions to the MSR valuation model for both core and non-core MSRs, other liquidating businesses, residual expense allocations and other. ALM activities encompass certain residential mortgages, debt securities, interest rate and foreign currency risk management activities, the impact of certain allocation methodologies and accounting hedge ineffectiveness. The results of certain ALM activities are allocated to our business segments. For more information on our ALM activities, see *Note 24 – Business Segment Information* to the Consolidated Financial Statements. Equity investments include our merchant services joint venture as well as Global Principal Investments (GPI) which is comprised of a portfolio of equity, real estate and other alternative investments. For more information on our merchant services joint venture, see *Note 12 – Commitments and Contingencies* to the Consolidated Financial Statements.

On December 20, 2016, we entered into an agreement to sell our non-U.S. consumer credit card business to a third party. Subject to regulatory approval, this transaction is expected to close by mid-2017. For more information on the sale of our non-U.S. consumer credit card business, see Recent Events on page 20 and *Note 1 – Summary of Significant Accounting Principles* to the Consolidated Financial Statements.

The Corporation classifies consumer real estate loans as core or non-core based on loan and customer characteristics such as origination date, product type, LTV, FICO score and delinquency status. Residential mortgage loans that are held for interest rate or liquidity risk management purposes are presented on the balance sheet of *All Other*. For more information on our interest rate and liquidity risk management activities, see Liquidity Risk on page 50 and Interest Rate Risk Management for the Banking Book on page 83. During 2016, residential mortgage loans held for ALM activities decreased $8.5 billion to $34.7 billion at December 31, 2016 primarily as a result of payoffs, paydowns and loan sales outpacing new volume. Non-core residential mortgage and home equity loans, which are principally run-off portfolios, including certain loans accounted for under the fair value option and MSRs pertaining to non-core loans serviced for others, are also held in *All Other*. During 2016, total non-core loans decreased $15.7 billion to $53.1 billion at December 31, 2016 due largely to payoffs and paydowns, as well as loan sales.

The net loss for *All Other* increased $432 million to $1.6 billion in 2016 primarily due to lower gains on the sale of debt securities, lower mortgage banking income, lower gains on sales of consumer real estate loans and an increase in noninterest expense, partially offset by an improvement in the provision for credit losses and a decrease of $174 million in PPI costs.

Mortgage banking income decreased $133 million primarily due to higher representations and warranties provision, partially offset by more favorable MSR results, net of the related hedge performance, which includes a net $306 million increase in MSR fair value due to a revision of certain MSR valuation assumptions. Gains on the sales of loans, including nonperforming and other delinquent loans were $232 million compared to gains of $1.0 billion in 2015.

The benefit in the provision for credit losses improved $79 million to a benefit of $100 million in 2016 primarily driven by lower loan and lease balances from continued run-off of non-core consumer real estate loans. Noninterest expense increased $240 million to $5.5 billion driven by litigation expense.

The income tax benefit was $3.1 billion in 2016 compared to a benefit of $2.4 billion in 2015 with the increase driven by the change in the pretax loss and net tax benefits related to various tax audit matters, partially offset by a $348 million tax charge in 2016 related to the change in the U.K. corporate tax rate compared to a $290 million charge in 2015. Both periods include income tax benefit adjustments to eliminate the FTE treatment of certain tax credits recorded in *Global Banking*.

Off-Balance Sheet Arrangements and Contractual Obligations

We have contractual obligations to make future payments on debt and lease agreements. Additionally, in the normal course of business, we enter into contractual arrangements whereby we commit to future purchases of products or services from unaffiliated parties. Purchase obligations are defined as obligations that are legally binding agreements whereby we agree to purchase products or services with a specific minimum quantity at a fixed, minimum or variable price over a specified period of time. Included in purchase obligations are vendor contracts, the most significant of which include communication services, processing services and software contracts. Debt, lease and other obligations are more fully discussed in *Note 11 – Long-term Debt* and *Note 12 – Commitments and Contingencies* to the Consolidated Financial Statements.

Other long-term liabilities include our contractual funding obligations related to the Qualified Pension Plan, Non-U.S. Pension Plans, Nonqualified and Other Pension Plans, and Postretirement Health and Life Plans (collectively, the Plans). Obligations to the Plans are based on the current and projected obligations of the Plans, performance of the Plans' assets, and any participant contributions, if applicable. During 2016 and 2015, we contributed $256 million and $234 million to the Plans, and we expect to make $215 million of contributions during 2017. The Plans are more fully discussed in *Note 17 – Employee Benefit Plans* to the Consolidated Financial Statements.

We enter into commitments to extend credit such as loan commitments, standby letters of credit (SBLCs) and commercial letters of credit to meet the financing needs of our customers. For a summary of the total unfunded, or off-balance sheet, credit extension commitment amounts by expiration date, see Credit Extension Commitments in *Note 12 – Commitments and Contingencies* to the Consolidated Financial Statements.

Table 9 includes certain contractual obligations at December 31, 2016 and 2015.

Table 9 Contractual Obligations

	December 31, 2016					December 31 2015
(Dollars in millions)	Due in One Year or Less	Due After One Year Through Three Years	Due After Three Years Through Five Years	Due After Five Years	Total	Total
Long-term debt	$ 43,964	$ 60,106	$ 26,034	$ 86,719	**$ 216,823**	$ 236,764
Operating lease obligations	2,324	3,877	2,908	4,511	**13,620**	13,681
Purchase obligations	2,089	2,019	604	1,030	**5,742**	5,350
Time deposits	65,112	5,961	3,369	502	**74,944**	73,974
Other long-term liabilities	1,991	837	648	1,091	**4,567**	4,311
Estimated interest expense on long-term debt and time deposits (1)	4,814	9,852	4,910	19,871	**39,447**	43,898
Total contractual obligations	$ 120,294	$ 82,652	$ 38,473	$ 113,724	**$ 355,143**	$ 377,978

(1) Represents forecasted net interest expense on long-term debt and time deposits based on interest rates at December 31, 2016. Forecasts are based on the contractual maturity dates of each liability, and are net of derivative hedges, where applicable.

Representations and Warranties

We securitize first-lien residential mortgage loans generally in the form of RMBS guaranteed by the government-sponsored enterprises (GSEs), which include Freddie Mac (FHLMC) and Fannie Mae (FNMA), or by the Government National Mortgage Association (GNMA) in the case of Federal Housing Administration (FHA)-insured, U.S. Department of Veterans Affairs (VA)-guaranteed and Rural Housing Service-guaranteed mortgage loans, and sell pools of first-lien residential mortgage loans in the form of whole loans. In addition, in prior years, legacy companies and certain subsidiaries sold pools of first-lien residential mortgage loans and home equity loans as private-label securitizations or in the form of whole loans. In connection with these transactions, we or certain of our subsidiaries or legacy companies made various representations and warranties. Breaches of these representations and warranties have resulted in and may continue to result in the requirement to repurchase mortgage loans or to otherwise make whole or provide other remedies to investors, securitization trusts, guarantors, insurers or other parties (collectively, repurchases).

At December 31, 2016, we had $18.3 billion of unresolved repurchase claims, predominately related to subprime and pay option first-lien loans and home equity loans, compared to $18.4 billion at December 31, 2015. Outstanding repurchase claims remain unresolved primarily due to (1) the level of detail, support and analysis accompanying such claims, which impact overall claim quality and, therefore, claim resolution and (2) the lack of an established process to resolve disputes related to these claims.

In addition to unresolved repurchase claims, we have received notifications from sponsors of third-party securitizations with whom we engaged in whole-loan transactions indicating that we may have indemnity obligations with respect to loans for which we have not received a repurchase request. These outstanding notifications totaled $1.3 billion and $1.4 billion at December 31, 2016 and 2015.

The liability for representations and warranties and corporate guarantees is included in accrued expenses and other liabilities on the Consolidated Balance Sheet and the related provision is included in mortgage banking income in the Consolidated

Statement of Income. At December 31, 2016 and 2015, the liability for representations and warranties was $2.3 billion and $11.3 billion. The representations and warranties provision was $106 million for 2016 compared to a benefit of $39 million for 2015.

In addition, we currently estimate that the range of possible loss for representations and warranties exposures could be up to $2 billion over existing accruals at December 31, 2016. The estimated range of possible loss represents a reasonably possible loss, but does not represent a probable loss, and is based on currently available information, significant judgment and a number of assumptions that are subject to change.

Future provisions and/or ranges of possible loss associated with obligations under representations and warranties may be significantly impacted if future experiences are different from historical experience or our understandings, interpretations or assumptions. Adverse developments, with respect to one or more of the assumptions underlying the liability for representations and warranties and the corresponding estimated range of possible loss, such as investors or trustees successfully challenging or avoiding the application of the relevant statute of limitations, could result in significant increases to future provisions and/or the estimated range of possible loss. For more information on representations and warranties, see *Note 7 – Representations and Warranties Obligations and Corporate Guarantees* to the Consolidated Financial Statements and, for more information related to the sensitivity of the assumptions used to estimate our liability for representations and warranties, see Complex Accounting Estimates – Representations and Warranties Liability on page 89.

Other Mortgage-related Matters

We continue to be subject to additional mortgage-related litigation and disputes, as well as governmental and regulatory scrutiny and investigations, related to our past and current origination, servicing, transfer of servicing and servicing rights, servicing compliance obligations, foreclosure activities, indemnification obligations, and mortgage insurance and captive reinsurance practices with mortgage insurers. The ongoing environment of additional regulation, increased regulatory compliance obligations, and enhanced regulatory enforcement, combined with ongoing uncertainty related to the continuing evolution of the regulatory environment, has resulted in increased operational and compliance costs and may limit our ability to continue providing certain products and services. For more information on management's estimate of the aggregate range of possible loss for certain litigation matters and on regulatory investigations, see *Note 12 – Commitments and Contingencies* to the Consolidated Financial Statements.

Managing Risk

Overview

Risk is inherent in all our business activities. Sound risk management enables us to serve our customers and deliver for our shareholders. If not managed well, risks can result in financial loss, regulatory sanctions and penalties, and damage to our reputation, each of which may adversely impact our ability to execute our business strategies. We take a comprehensive approach to risk management with a defined Risk Framework and an articulated Risk Appetite Statement which are approved annually by the Enterprise Risk Committee (ERC) and the Board.

The seven key types of risk faced by the Corporation are strategic, credit, market, liquidity, compliance, operational and reputational risks.

- Strategic risk is the risk resulting from incorrect assumptions about external or internal factors, inappropriate business plans, ineffective business strategy execution, or failure to respond in a timely manner to changes in the regulatory, macroeconomic or competitive environments.
- Credit risk is the risk of loss arising from the inability or failure of a borrower or counterparty to meet its obligations.
- Market risk is the risk that changes in market conditions may adversely impact the value of assets or liabilities, or otherwise negatively impact earnings.
- Liquidity risk is the inability to meet expected or unexpected cash flow and collateral needs while continuing to support our businesses and customers with the appropriate funding sources under a range of economic conditions.
- Compliance risk is the risk of legal or regulatory sanctions, material financial loss or damage to the reputation of the Corporation arising from the failure of the Corporation to comply with the requirements of applicable laws, rules, regulations and related self-regulatory organizations' standards and codes of conduct.
- Operational risk is the risk of loss resulting from inadequate or failed internal processes, people and systems, or from external events.
- Reputational risk is the risk that negative perceptions of the Corporation's conduct or business practices may adversely impact its profitability or operations through an inability to establish new or maintain existing customer/client relationships or otherwise adversely impact relationships with key stakeholders, such as investors, regulators, employees and the community.

The following sections address in more detail the specific procedures, measures and analyses of the major categories of risk. This discussion of managing risk focuses on the current Risk Framework that, as part of its annual review process, was approved by the ERC and the Board.

As set forth in our Risk Framework, a culture of managing risk well is fundamental to our values and operating principles. It requires us to focus on risk in all activities and encourages the necessary mindset and behavior to enable effective risk management, and promotes sound risk-taking within our risk appetite. Sustaining a culture of managing risk well throughout the organization is critical to our success and is a clear expectation of our executive management team and the Board.

Our Risk Framework is the foundation for comprehensive management of the risks facing the Corporation. The Risk Framework sets forth clear roles, responsibilities and accountability for the management of risk and provides a blueprint for how the Board, through delegation of authority to committees and executive officers, establishes risk appetite and associated limits for our activities.

Executive management assesses, with Board oversight, the risk-adjusted returns of each business. Management reviews and approves the strategic and financial operating plans, as well as the capital plan and Risk Appetite Statement, and recommends them annually to the Board for approval. Our strategic plan takes into consideration return objectives and financial resources, which must align with risk capacity and risk appetite. Management sets financial objectives for each business by allocating capital and setting a target for return on capital for each business. Capital allocations and operating limits are regularly evaluated as part of our overall governance processes as the businesses and the economic environment in which we operate continue to evolve. For more information regarding capital allocations, see Business Segment Operations on page 28.

Our Risk Appetite Statement is how we maintain an acceptable risk profile by providing a common framework and a comparable set of measures for senior management and the Board to clearly indicate the level of risk we are willing to accept. Risk appetite is aligned with the strategic, capital and financial operating plans to maintain consistency with our strategy and financial resources. Our line of business strategies and risk appetite are also similarly aligned. For a more detailed discussion of our risk management activities, see the discussion below and pages 43 through 86.

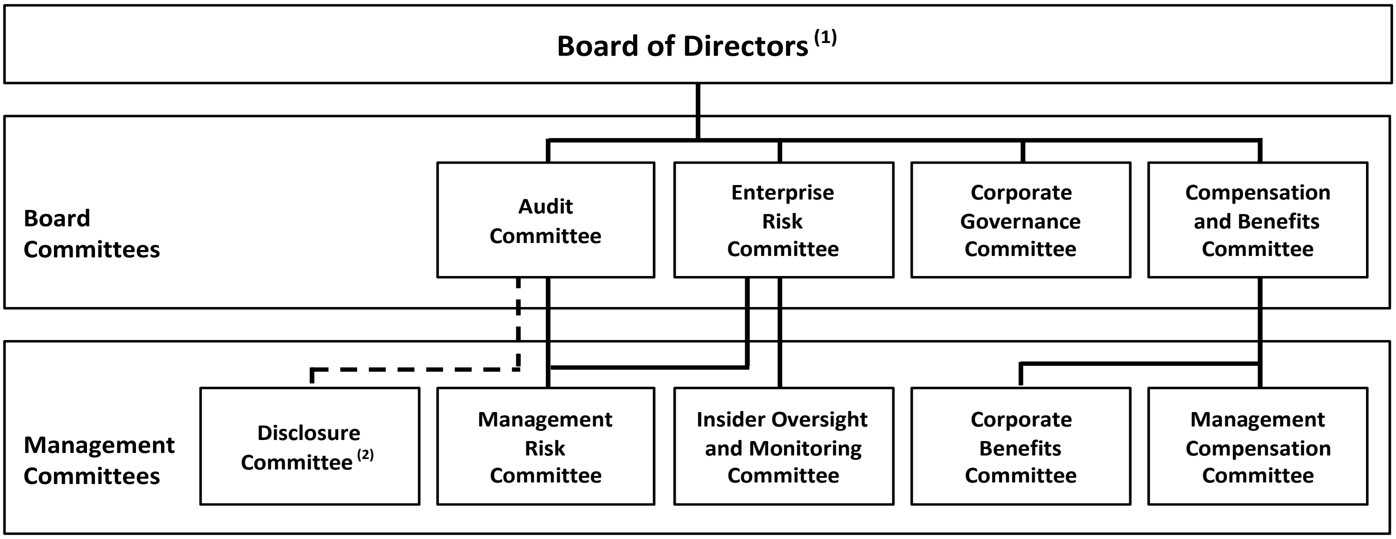
Our overall capacity to take risk is limited; therefore, we prioritize the risks we take in order to maintain a strong and flexible financial position so we can withstand challenging economic conditions and take advantage of organic growth opportunities. Therefore, we set objectives and targets for capital and liquidity that are intended to permit us to continue to operate in a safe and sound manner, including during periods of stress.

Our lines of business operate with risk limits (which may include credit, market and/or operational limits, as applicable) that are based on the amount of capital, earnings or liquidity we are willing to put at risk to achieve our strategic objectives and business plans. Executive management is responsible for tracking and reporting performance measurements as well as any exceptions to guidelines or limits. The Board, and its committees when appropriate, oversees financial performance, execution of the strategic and financial operating plans, adherence to risk appetite limits and the adequacy of internal controls.

Risk Management Governance

The Risk Framework describes delegations of authority whereby the Board and its committees may delegate authority to management-level committees or executive officers. Such delegations may authorize certain decision-making and approval functions, which may be evidenced in, for example, committee charters, job descriptions, meeting minutes and resolutions.

The chart below illustrates the inter-relationship among the Board, Board committees and management committees that have the majority of risk oversight responsibilities for the Corporation.



(1) This presentation does not include committees for other legal entities.

(2) Reports to the CEO and CFO with oversight by the Audit Committee.

Board of Directors and Board Committees

The Board is comprised of 14 directors, all but one of whom are independent. The Board authorizes management to maintain an effective Risk Framework, and oversees compliance with safe and sound banking practices. In addition, the Board or its committees conduct inquiries of, and receive reports from management on risk-related matters to assess scope or resource limitations that could impede the ability of independent risk management (IRM) and/or Corporate Audit to execute its responsibilities. The Board committees discussed below have the principal responsibility for enterprise-wide oversight of our risk management activities. Through these activities, the Board and applicable committees are provided with information on our risk profile, and oversee executive management addressing key risks we face. Other Board committees as described below provide additional oversight of specific risks.

Each of the committees shown on the above chart regularly reports to the Board on risk-related matters within the committee's responsibilities, which is intended to collectively provide the Board with integrated insight about our management of enterprise-wide risks.

Audit Committee

The Audit Committee oversees the qualifications, performance and independence of the Independent Registered Public Accounting Firm, the performance of our corporate audit function, the integrity of our consolidated financial statements, our compliance with legal and regulatory requirements, and makes inquiries of management or the Corporate General Auditor (CGA) to determine whether there are scope or resource limitations that impede the ability of Corporate Audit to execute its responsibilities. The Audit Committee is also responsible for overseeing compliance risk pursuant to the New York Stock Exchange listing standards.

Enterprise Risk Committee

The ERC has primary responsibility for oversight of the Risk Framework and key risks we face. It approves the Risk Framework and the Risk Appetite Statement and further recommends these documents to the Board for approval. The ERC oversees senior management's responsibilities for the identification, measurement, monitoring and control of key risks we face. The ERC may consult with other Board committees on risk-related matters.

Other Board Committees

Our Corporate Governance Committee oversees our Board's governance processes, identifies and reviews the qualifications of potential Board members, recommends nominees for election to our Board, recommends committee appointments for Board approval and reviews our stockholder engagement activities.

Our Compensation and Benefits Committee oversees establishing, maintaining and administering our compensation programs and employee benefit plans, including approving and recommending our Chief Executive Officer's (CEO) compensation to our Board for further approval by all independent directors, and reviewing and approving all of our executive officers' compensation.

Management Committees

Management committees may receive their authority from the Board, a Board committee, another management committee or from one or more executive officers. Our primary management-level risk committee is the Management Risk Committee (MRC). Subject to Board oversight, the MRC is responsible for management oversight of key risks we face. The MRC provides management oversight of our compliance and operational risk programs, balance sheet and capital management, funding activities and other liquidity activities, stress testing, trading activities, recovery and resolution planning, model risk, subsidiary governance and activities between member banks and their nonbank affiliates pursuant to Federal Reserve rules and regulations, among other things.

Lines of Defense

In addition to the role of Executive Officers in managing risk, we have clear ownership and accountability across the three lines of defense: Front Line Units (FLUs), IRM and Corporate Audit. We also have control functions outside of FLUs and IRM (e.g., Legal and Global Human Resources). The three lines of defense are integrated into our management-level governance structure. Each of these is described in more detail below.

Executive Officers

Executive officers lead various functions representing the functional roles. Authority for functional roles may be delegated to executive officers from the Board, Board committees or management-level committees. Executive officers, in turn, may further delegate responsibilities, as appropriate, to management-level committees, management routines or individuals. Executive officers review our activities for consistency with our Risk Framework, Risk Appetite Statement and applicable strategic, capital and financial operating plans, as well as applicable policies, standards, procedures and processes. Executive officers and other employees make decisions individually on a day-to-day basis, consistent with the authority they have been delegated. Executive officers and other employees may also serve on committees and participate in committee decisions.

Front Line Units

FLUs include the lines of business as well as the Global Technology and Operations Group, and are responsible for appropriately assessing and effectively managing all of the risks associated with their activities.

Three organizational units that include FLU activities and control function activities, but are not part of IRM are the Chief Financial Officer (CFO) Group, Global Marketing and Corporate Affairs (GM&CA) and the Chief Administrative Officer (CAO) Group.

Independent Risk Management

IRM is part of our control functions and includes Global Risk Management and Global Compliance. We have other control functions that are not part of IRM (other control functions may also provide oversight to FLU activities), including Legal, Global Human Resources and certain activities within the CFO Group, GM&CA and the CAO Group. IRM, led by the Chief Risk Officer (CRO), is responsible for independently assessing and overseeing risks within FLUs and other control functions. IRM establishes written enterprise policies and procedures that include concentration risk limits where appropriate. Such policies and procedures outline how aggregate risks are identified, measured, monitored and controlled.

The CRO has the authority and independence to develop and implement a meaningful risk management framework. The CRO has unrestricted access to the Board and reports directly to both the ERC and to the CEO. Global Risk Management is organized into enterprise risk teams, FLU risk teams and control function risk teams that work collaboratively in executing their respective duties.

Within IRM, Global Compliance independently assesses compliance risk, and evaluates adherence to applicable laws, rules and regulations, including identifying compliance issues and risks, performing monitoring and testing, and reporting on the state of compliance activities across the Corporation. Additionally, Global Compliance works with FLUs and control functions so that day-to-day activities operate in a compliant manner.

Corporate Audit

Corporate Audit and the CGA maintain their independence from the FLUs, IRM and other control functions by reporting directly to the Audit Committee or the Board. The CGA administratively reports to the CEO. Corporate Audit provides independent assessment and validation through testing of key processes and controls across the Corporation. Corporate Audit includes Credit Review which periodically tests and examines credit portfolios and processes.

Risk Management Processes

The Risk Framework requires that strong risk management practices are integrated in key strategic, capital and financial planning processes and day-to-day business processes across the Corporation, with a goal of ensuring risks are appropriately considered, evaluated and responded to in a timely manner.

We employ a risk management process, referred to as Identify, Measure, Monitor and Control (IMMC), as part of our daily activities.

Identify – To be effectively managed, risks must be clearly defined and proactively identified. Proper risk identification focuses on recognizing and understanding key risks inherent in our business activities or key risks that may arise from external factors. Each employee is expected to identify and escalate risks promptly. Risk identification is an ongoing process, incorporating input from FLUs and control functions, designed to be forward looking and capture relevant risk factors across all of our lines of business.

Measure – Once a risk is identified, it must be prioritized and accurately measured through a systematic risk quantification process including quantitative and qualitative components. Risk is measured at various levels including, but not limited to, risk type, FLU, legal entity and on an aggregate basis. This risk quantification process helps to capture changes in our risk profile due to changes in strategic direction, concentrations, portfolio quality and the overall economic environment. Senior management considers how risk exposures might evolve under a variety of stress scenarios.

Monitor – We monitor risk levels regularly to track adherence to risk appetite, policies, standards, procedures and processes. We also regularly update risk assessments and review risk exposures. Through our monitoring, we can determine our level of risk relative to limits and can take action in a timely manner. We also can determine when risk limits are breached and have processes to appropriately report and escalate exceptions. This includes requests for approval to managers and alerts to executive management, management-level committees or the Board (directly or through an appropriate committee).

Control – We establish and communicate risk limits and controls through policies, standards, procedures and processes that define the responsibilities and authority for risk-taking. The limits and controls can be adjusted by the Board or management when conditions or risk tolerances warrant. These limits may be absolute (e.g., loan amount, trading volume) or relative (e.g., percentage of loan book in higher-risk categories). Our lines of business are held accountable to perform within the established limits.

The formal processes used to manage risk represent a part of our overall risk management process. Corporate culture and the actions of our employees are also critical to effective risk management. Through our Code of Conduct, we set a high standard for our employees. The Code of Conduct provides a framework for all of our employees to conduct themselves with the highest integrity. We instill a strong and comprehensive culture of managing risk well through communications, training, policies, procedures and organizational roles and responsibilities. Additionally, we continue to strengthen the link between the employee performance management process and individual compensation to encourage employees to work toward enterprise-wide risk goals.

Corporation-wide Stress Testing

Integral to our Capital Planning, Financial Planning and Strategic Planning processes, we conduct capital scenario management and forecasting on a periodic basis to better understand balance sheet, earnings and capital sensitivities to certain economic and business scenarios, including economic and market conditions that are more severe than anticipated. These forecasts provide an understanding of the potential impacts from our risk profile on the balance sheet, earnings and capital, and serve as a key component of our capital and risk management practices. The intent of stress testing is to develop a comprehensive understanding of potential impacts of on- and off-balance sheet risks at the Corporation and how they impact financial resiliency.

Contingency Planning

We have developed and maintain contingency plans that are designed to prepare us in advance to respond in the event of potential adverse economic, financial or market stress. These contingency plans include our Capital Contingency Plan, Contingency Funding Plan and Recovery Plan, which provide monitoring, escalation, actions and routines designed to enable us to increase capital, access funding sources and reduce risk through consideration of potential options that include asset sales, business sales, capital or debt issuances, or other de-risking strategies. We also maintain a Resolution Plan to limit adverse systemic impacts that could be associated with a potential resolution of Bank of America.

Strategic Risk Management

Strategic risk is embedded in every business and is one of the major risk categories along with credit, market, liquidity, compliance, operational and reputational risks. This risk results from incorrect assumptions about external or internal factors, inappropriate business plans, ineffective business strategy execution, or failure to respond in a timely manner to changes in the regulatory, macroeconomic or competitive environments, in the geographic locations in which we operate, such as competitor actions, changing customer preferences, product obsolescence and technology developments. Our strategic plan is consistent with our risk appetite, capital plan and liquidity requirements, and specifically addresses strategic risks.

On an annual basis, the Board reviews and approves the strategic plan, capital plan, financial operating plan and Risk Appetite Statement. With oversight by the Board, executive management directs the lines of business to execute our strategic plan consistent with our core operating principles and risk appetite. The executive management team monitors business performance throughout the year and provides the Board with regular progress reports on whether strategic objectives and timelines are being met, including reports on strategic risks and if additional or alternative actions need to be considered or implemented. The regular executive reviews focus on assessing forecasted earnings and returns on capital, the current risk profile, current capital and liquidity requirements, staffing levels and changes required to support the strategic plan, stress testing results, and other qualitative factors such as market growth rates and peer analysis.

Significant strategic actions, such as capital actions, material acquisitions or divestitures, and Resolution Plans are reviewed and approved by the Board. At the business level, processes are in place to discuss the strategic risk implications of new, expanded or modified businesses, products or services and other strategic initiatives, and to provide formal review and approval where required. With oversight by the Board and the ERC, executive management performs similar analyses throughout the year, and evaluates changes to the financial forecast or the risk, capital or liquidity positions as deemed appropriate to balance and optimize achieving the targeted risk appetite, shareholder returns and maintaining the targeted financial strength. Proprietary models are used to measure the capital requirements for credit, country, market, operational and strategic risks. The allocated capital assigned to each business is based on its unique risk profile. With oversight by the Board, executive management assesses the risk-adjusted returns of each business in approving strategic and financial operating plans. The businesses use allocated capital to define business strategies, and price products and transactions.

Capital Management

The Corporation manages its capital position so its capital is more than adequate to support its business activities and to maintain capital, risk and risk appetite commensurate with one another. Additionally, we seek to maintain safety and soundness at all times, even under adverse scenarios, take advantage of organic growth opportunities, meet obligations to creditors and counterparties, maintain ready access to financial markets, continue to serve as a credit intermediary, remain a source of strength for our subsidiaries, and satisfy current and future regulatory capital requirements. Capital management is integrated into our risk and governance processes, as capital is a key consideration in the development of our strategic plan, risk appetite and risk limits.

We conduct an Internal Capital Adequacy Assessment Process (ICAAP) on a periodic basis. The ICAAP is a forward-looking assessment of our projected capital needs and resources, incorporating earnings, balance sheet and risk forecasts under baseline and adverse economic and market conditions. We utilize periodic stress tests to assess the potential impacts to our balance sheet, earnings, regulatory capital and liquidity under a variety of stress scenarios. We perform qualitative risk assessments to identify and assess material risks not fully captured in our forecasts or stress tests. We assess the potential capital impacts of proposed changes to regulatory capital requirements. Management assesses ICAAP results and provides documented quarterly assessments of the adequacy of our capital guidelines and capital position to the Board or its committees.

We periodically review capital allocated to our businesses and allocate capital annually during the strategic and capital planning processes. For additional information, see Business Segment Operations on page 28.

CCAR and Capital Planning

The Federal Reserve requires BHCs to submit a capital plan and requests for capital actions on an annual basis, consistent with the rules governing the CCAR capital plan.

In April 2016, we submitted our 2016 CCAR capital plan and related supervisory stress tests. The 2016 CCAR capital plan included requests: (i) to repurchase $5.0 billion of common stock over four quarters beginning in the third quarter of 2016, (ii) to repurchase common stock to offset the dilution resulting from certain equity-based compensation awards, and (iii) to increase the quarterly common stock dividend from $0.05 per share to $0.075 per share. On June 29, 2016, following the Federal Reserve's non-objection to our 2016 CCAR capital plan, the Board authorized the common stock repurchase beginning July 1, 2016. Also, in addition to the previously announced repurchases associated with the 2016 CCAR capital plan, on January 13, 2017, we announced a plan to repurchase an additional $1.8 billion of common stock during the first half of 2017, to which the Federal Reserve did not object. The common stock repurchase authorization includes both common stock and warrants.

During 2016, we repurchased approximately $5.1 billion of common stock pursuant to the Board’s authorization of our 2016 and 2015 CCAR capital plans and to offset equity-based compensation awards.

The timing and amount of common stock repurchases will be subject to various factors, including the Corporation’s capital position, liquidity, financial performance and alternative uses of capital, stock trading price, and general market conditions, and may be suspended at any time. The common stock repurchases may be effected through open market purchases or privately negotiated transactions, including repurchase plans that satisfy the conditions of Rule 10b5-1 of the Securities Exchange Act of 1934. As a “well-capitalized” BHC, we may notify the Federal Reserve of our intention to make additional capital distributions not to exceed one percent of Tier 1 capital (0.25 percent of Tier 1 capital beginning April 1, 2017), and which were not contemplated in our capital plan, subject to the Federal Reserve's non-objection.

Regulatory Capital

As a financial services holding company, we are subject to regulatory capital rules issued by U.S. banking regulators including Basel 3, which includes certain transition provisions through January 1, 2019. The Corporation and its primary affiliated banking entity, BANA, are Basel 3 Advanced approaches institutions.

Basel 3 Overview

Basel 3 updated the composition of capital and established a Common equity tier 1 capital ratio. Common equity tier 1 capital primarily includes common stock, retained earnings and accumulated OCI, net of deductions and adjustments primarily related to goodwill, deferred tax assets, intangibles, MSRs and defined benefit pension assets. Under the Basel 3 regulatory capital transition provisions, certain deductions and adjustments to Common equity tier 1 capital are phased in through January 1, 2018. In 2016, under the transition provisions, 60 percent of these deductions and adjustments were recognized. Basel 3 also revised minimum capital ratios and buffer requirements, added a supplementary leverage ratio (SLR), and addressed the adequately capitalized minimum requirements under the Prompt Corrective Action (PCA) framework. Finally, Basel 3 established two methods of calculating risk-weighted assets, the Standardized approach and the Advanced approaches. The Standardized approach relies primarily on supervisory risk weights based on exposure type and the Advanced approaches determines risk weights based on internal models.

As an Advanced approaches institution, we are required to report regulatory risk-based capital ratios and risk-weighted assets under both the Standardized and Advanced approaches. The approach that yields the lower ratio is used to assess capital adequacy including under the PCA framework.

Minimum Capital Requirements

Minimum capital requirements and related buffers are being phased in from January 1, 2014 through January 1, 2019. Effective January 1, 2015, the PCA framework was also amended to reflect the requirements of Basel 3. The PCA framework establishes categories of capitalization, including “well capitalized,” based on regulatory ratio requirements. U.S. banking regulators are required to take certain mandatory actions depending on the category of capitalization, with no mandatory actions required for “well-capitalized” banking organizations, which included BANA at December 31, 2016.

On January 1, 2016, we became subject to a capital conservation buffer, a countercyclical capital buffer and a global systemically important bank (G-SIB) surcharge which will be phased in over a three-year period ending January 1, 2019. Once fully phased in, the Corporation’s risk-based capital ratio requirements will include a capital conservation buffer greater than 2.5 percent, plus any applicable countercyclical capital buffer and a G-SIB surcharge in order to avoid restrictions on capital distributions and discretionary bonus payments. The buffers and surcharge must be composed solely of Common equity tier 1 capital. Under the phase-in provisions, we were required to maintain a capital conservation buffer greater than 0.625 percent plus a G-SIB surcharge of 0.75 percent in 2016. The countercyclical capital buffer is currently set at zero. We estimate that our fully phased-in G-SIB surcharge will be 2.5 percent. The G-SIB surcharge may differ from this estimate over time.

Supplementary Leverage Ratio

Basel 3 also requires Advanced approaches institutions to disclose an SLR. The numerator of the SLR is quarter-end Basel 3 Tier 1 capital. The denominator is total leverage exposure based on the daily average of the sum of on-balance sheet exposures less permitted Tier 1 deductions, as well as the simple average of certain off-balance sheet exposures, as of the end of each month in a quarter. Effective January 1, 2018, the Corporation will be required to maintain a minimum SLR of 3.0 percent, plus a leverage buffer of 2.0 percent in order to avoid certain restrictions on capital distributions and discretionary bonus payments. Insured depository institution subsidiaries of BHCs will be required to maintain a minimum 6.0 percent SLR to be considered "well capitalized" under the PCA framework.

Capital Composition and Ratios

Table 10 presents Bank of America Corporation’s transition and fully phased-in capital ratios and related information in accordance with Basel 3 Standardized and Advanced approaches as measured at December 31, 2016 and 2015. Fully phased-in estimates are non-GAAP financial measures that the Corporation considers to be useful measures in evaluating compliance with new regulatory capital requirements that are not yet effective. For reconciliations to GAAP financial measures, see Table 13. As of December 31, 2016 and 2015, the Corporation meets the definition of “well capitalized” under current regulatory requirements.

Table 10 Bank of America Corporation Regulatory Capital under Basel 3 (1)

	December 31, 2016					
	Transition			Fully Phased-in		
(Dollars in millions)	Standardized Approach	Advanced Approaches	Regulatory Minimum (2, 3)	Standardized Approach	Advanced Approaches (4)	Regulatory Minimum (5)
Risk-based capital metrics:						
Common equity tier 1 capital	**$ 168,866**	**$ 168,866**		**$ 162,729**	**$ 162,729**	
Tier 1 capital	**190,315**	**190,315**		**187,559**	**187,559**	
Total capital (6)	**228,187**	**218,981**		**223,130**	**213,924**	
Risk-weighted assets (in billions)	**1,399**	**1,530**		**1,417**	**1,512**	
Common equity tier 1 capital ratio	**12.1%**	**11.0%**	**5.875%**	**11.5%**	**10.8%**	**9.5%**
Tier 1 capital ratio	**13.6**	**12.4**	**7.375**	**13.2**	**12.4**	**11.0**
Total capital ratio	**16.3**	**14.3**	**9.375**	**15.8**	**14.2**	**13.0**
Leverage-based metrics:						
Adjusted quarterly average assets (in billions) (7)	**$ 2,131**	**$ 2,131**		**$ 2,131**	**$ 2,131**	
Tier 1 leverage ratio	**8.9%**	**8.9%**	**4.0**	**8.8%**	**8.8%**	**4.0**
SLR leverage exposure (in billions)					**$ 2,702**	
SLR					**6.9%**	**5.0**
	December 31, 2015					
Risk-based capital metrics:						
Common equity tier 1 capital	$ 163,026	$ 163,026		$ 154,084	$ 154,084	
Tier 1 capital	180,778	180,778		175,814	175,814	
Total capital (6)	220,676	210,912		211,167	201,403	
Risk-weighted assets (in billions)	1,403	1,602		1,427	1,575	
Common equity tier 1 capital ratio	11.6%	10.2%	4.5%	10.8%	9.8%	9.5%
Tier 1 capital ratio	12.9	11.3	6.0	12.3	11.2	11.0
Total capital ratio	15.7	13.2	8.0	14.8	12.8	13.0
Leverage-based metrics:						
Adjusted quarterly average assets (in billions) (7)	$ 2,103	$ 2,103		$ 2,102	$ 2,102	
Tier 1 leverage ratio	8.6%	8.6%	4.0	8.4%	8.4%	4.0
SLR leverage exposure (in billions)					$ 2,727	
SLR					6.4%	5.0

(1) As an Advanced approaches institution, we are required to report regulatory capital risk-weighted assets and ratios under both the Standardized and Advanced approaches. The approach that yields the lower ratio is to be used to assess capital adequacy and was the Advanced approaches method at December 31, 2016 and 2015.
(2) The December 31, 2016 amount includes a transition capital conservation buffer of 0.625 percent and a transition G-SIB surcharge of 0.75 percent. The 2016 countercyclical capital buffer is zero.
(3) To be "well capitalized" under the current U.S. banking regulatory agency definitions, we must maintain a Total capital ratio of 10 percent or greater.
(4) Basel 3 fully phased-in Advanced approaches estimates assume approval by U.S. banking regulators of our internal analytical models, including approval of the internal models methodology (IMM). As of December 31, 2016, we did not have regulatory approval of the IMM model.
(5) Fully phased-in regulatory minimums assume a capital conservation buffer of 2.5 percent and estimated G-SIB surcharge of 2.5 percent. The estimated fully phased-in countercyclical capital buffer is zero. We will be subject to fully phased-in regulatory minimums on January 1, 2019. The fully phased-in SLR minimum assumes a leverage buffer of 2.0 percent and is applicable on January 1, 2018.
(6) Total capital under the Advanced approaches differs from the Standardized approach due to differences in the amount permitted in Tier 2 capital related to the qualifying allowance for credit losses.
(7) Reflects adjusted average total assets for the three months ended December 31, 2016 and 2015.

Common equity tier 1 capital under Basel 3 Advanced – Transition was $168.9 billion at December 31, 2016, an increase of $5.8 billion compared to December 31, 2015 driven by earnings, partially offset by dividends, common stock repurchases and the impact of certain transition provisions under the Basel 3 rules. During 2016, Total capital increased $8.1 billion primarily driven by the same factors that drove the increase in Common equity tier 1 capital as well as issuances of preferred stock and subordinated debt.

Risk-weighted assets decreased $72 billion during 2016 to $1,530 billion primarily due to lower market risk, and lower exposures and improved credit quality on legacy retail products.

Table 11 presents the capital composition as measured under Basel 3 – Transition at December 31, 2016 and 2015.

Table 11 Capital Composition under Basel 3 – Transition [1, 2]

(Dollars in millions)	December 31 2016	2015
Total common shareholders' equity	$ 241,620	$ 233,932
Goodwill	(69,191)	(69,215)
Deferred tax assets arising from net operating loss and tax credit carryforwards	(4,976)	(3,434)
Adjustments for amounts recorded in accumulated OCI attributed to defined benefit postretirement plans	1,392	1,774
Net unrealized (gains) losses on debt and equity securities and net (gains) losses on derivatives recorded in accumulated OCI, net-of-tax	1,402	1,220
Intangibles, other than mortgage servicing rights and goodwill	(1,198)	(1,039)
DVA related to liabilities and derivatives	413	204
Other	(596)	(416)
Common equity tier 1 capital	**168,866**	163,026
Qualifying preferred stock, net of issuance cost	25,220	22,273
Deferred tax assets arising from net operating loss and tax credit carryforwards	(3,318)	(5,151)
Trust preferred securities	—	1,430
Defined benefit pension fund assets	(341)	(568)
DVA related to liabilities and derivatives under transition	276	307
Other	(388)	(539)
Total Tier 1 capital	**190,315**	180,778
Long-term debt qualifying as Tier 2 capital	23,365	22,579
Eligible credit reserves included in Tier 2 capital	3,035	3,116
Nonqualifying capital instruments subject to phase out from Tier 2 capital	2,271	4,448
Other	(5)	(9)
Total Basel 3 Capital	**$ 218,981**	$ 210,912

(1) See Table 10, footnote 1.
(2) Deductions from and adjustments to regulatory capital subject to transition provisions under Basel 3 are generally recognized in 20 percent annual increments, and will be fully recognized as of January 1, 2018. Any assets that are a direct deduction from the computation of capital are excluded from risk-weighted assets and adjusted average total assets.

Table 12 presents the components of our risk-weighted assets as measured under Basel 3 – Transition at December 31, 2016 and 2015.

Table 12 Risk-weighted assets under Basel 3 – Transition

	December 31			
	2016		2015	
(Dollars in billions)	Standardized Approach	Advanced Approaches	Standardized Approach	Advanced Approaches
Credit risk	$ 1,334	$ 903	$ 1,314	$ 940
Market risk	65	63	89	86
Operational risk	n/a	500	n/a	500
Risks related to CVA	n/a	64	n/a	76
Total risk-weighted assets	**$ 1,399**	**$ 1,530**	$ 1,403	$ 1,602

n/a = not applicable

Table 13 presents a reconciliation of regulatory capital in accordance with Basel 3 Standardized – Transition to the Basel 3 Standardized approach fully phased-in estimates and Basel 3 Advanced approaches fully phased-in estimates at December 31, 2016 and 2015.

Table 13 Regulatory Capital Reconciliations between Basel 3 Transition to Fully Phased-in [1]

	December 31	
(Dollars in millions)	**2016**	2015
Common equity tier 1 capital (transition)	**$ 168,866**	$ 163,026
Deferred tax assets arising from net operating loss and tax credit carryforwards phased in during transition	**(3,318)**	(5,151)
Accumulated OCI phased in during transition	**(1,899)**	(1,917)
Intangibles phased in during transition	**(798)**	(1,559)
Defined benefit pension fund assets phased in during transition	**(341)**	(568)
DVA related to liabilities and derivatives phased in during transition	**276**	307
Other adjustments and deductions phased in during transition	**(57)**	(54)
Common equity tier 1 capital (fully phased-in)	**162,729**	154,084
Additional Tier 1 capital (transition)	**21,449**	17,752
Deferred tax assets arising from net operating loss and tax credit carryforwards phased out during transition	**3,318**	5,151
Trust preferred securities phased out during transition	**—**	(1,430)
Defined benefit pension fund assets phased out during transition	**341**	568
DVA related to liabilities and derivatives phased out during transition	**(276)**	(307)
Other transition adjustments to additional Tier 1 capital	**(2)**	(4)
Additional Tier 1 capital (fully phased-in)	**24,830**	21,730
Tier 1 capital (fully phased-in)	**187,559**	175,814
Tier 2 capital (transition)	**28,666**	30,134
Nonqualifying capital instruments phased out during transition	**(2,271)**	(4,448)
Other adjustments to Tier 2 capital	**9,176**	9,667
Tier 2 capital (fully phased-in)	**35,571**	35,353
Basel 3 Standardized approach Total capital (fully phased-in)	**223,130**	211,167
Change in Tier 2 qualifying allowance for credit losses	**(9,206)**	(9,764)
Basel 3 Advanced approaches Total capital (fully phased-in)	**$ 213,924**	$ 201,403
Risk-weighted assets – As reported to Basel 3 (fully phased-in)		
Basel 3 Standardized approach risk-weighted assets as reported	**$ 1,399,477**	$ 1,403,293
Changes in risk-weighted assets from reported to fully phased-in	**17,638**	24,089
Basel 3 Standardized approach risk-weighted assets (fully phased-in)	**$ 1,417,115**	$ 1,427,382
Basel 3 Advanced approaches risk-weighted assets as reported	**$ 1,529,903**	$ 1,602,373
Changes in risk-weighted assets from reported to fully phased-in	**(18,113)**	(27,690)
Basel 3 Advanced approaches risk-weighted assets (fully phased-in) [2]	**$ 1,511,790**	$ 1,574,683

(1) See Table 10, footnote 1.

(2) Basel 3 fully phased-in Advanced approaches estimates assume approval by U.S. banking regulators of our internal analytical models, including approval of the IMM. As of December 31, 2016, we did not have regulatory approval for the IMM model.

Bank of America, N.A. Regulatory Capital

Table 14 presents transition regulatory capital information for BANA in accordance with Basel 3 Standardized and Advanced approaches as measured at December 31, 2016 and 2015. As of December 31, 2016, BANA met the definition of "well capitalized" under the PCA framework.

Table 14 Bank of America, N.A. Regulatory Capital under Basel 3

	December 31, 2016					
	Standardized Approach			Advanced Approaches		
(Dollars in millions)	Ratio	Amount	Minimum Required [1]	Ratio	Amount	Minimum Required [1]
Common equity tier 1 capital	**12.7%**	**$ 149,755**	**6.5%**	**14.3%**	**$ 149,755**	**6.5%**
Tier 1 capital	**12.7**	**149,755**	**8.0**	**14.3**	**149,755**	**8.0**
Total capital	**13.9**	**163,471**	**10.0**	**14.8**	**154,697**	**10.0**
Tier 1 leverage	**9.3**	**149,755**	**5.0**	**9.3**	**149,755**	**5.0**
	December 31, 2015					
Common equity tier 1 capital	12.2%	$ 144,869	6.5%	13.1%	$ 144,869	6.5%
Tier 1 capital	12.2	144,869	8.0	13.1	144,869	8.0
Total capital	13.5	159,871	10.0	13.6	150,624	10.0
Tier 1 leverage	9.2	144,869	5.0	9.2	144,869	5.0

(1) Percent required to meet guidelines to be considered "well capitalized" under the PCA framework.

Regulatory Developments

Minimum Total Loss-Absorbing Capacity

On December 15, 2016, the Federal Reserve issued a final rule establishing external total loss-absorbing capacity (TLAC) requirements to improve the resolvability and resiliency of large, interconnected BHCs. The rule will be effective January 1, 2019 and U.S. G-SIBs will be required to maintain a minimum external TLAC. We estimate our minimum required external TLAC would be the greater of 22.5 percent of risk-weighted assets or 9.5 percent of SLR leverage exposure. In addition, U.S. G-SIBs must meet a minimum long-term debt requirement. Our minimum required long-term debt is estimated to be the greater of 8.5 percent of risk-weighted assets or 4.5 percent of SLR leverage exposure. The impact of the TLAC rule is not expected to be material to our results of operations. The Corporation issued $11.6 billion of TLAC compliant debt in early 2017.

Revisions to Approaches for Measuring Risk-weighted Assets

The Basel Committee has several open proposals to revise key methodologies for measuring risk-weighted assets. The proposals include a standardized approach for credit risk, standardized approach for operational risk, revisions to the credit valuation adjustment (CVA) risk framework and constraints on the use of internal models. The Basel Committee has also finalized a revised standardized model for counterparty credit risk, revisions to the securitization framework and its fundamental review of the trading book, which updates both modeled and standardized approaches for market risk measurement. These revisions are to be coupled with a proposed capital floor framework to limit the extent to which banks can reduce risk-weighted asset levels through the use of internal models, both at the input parameter and aggregate risk-weighted asset level. The Basel Committee expects to finalize the outstanding proposals in 2017. U.S. banking regulators may update the U.S. Basel 3 rules to incorporate the Basel Committee revisions.

Single-Counterparty Credit Limits

On March 4, 2016, the Federal Reserve issued a notice of proposed rulemaking (NPR) to establish Single-Counterparty Credit Limits (SCCL) for large U.S. BHCs. The SCCL rule is designed to complement and serve as a backstop to risk-based capital requirements to ensure that the maximum possible loss that a bank could incur due to a single counterparty's default would not endanger the bank's survival. Under the proposal, U.S. BHCs must calculate SCCL by dividing the net aggregate credit exposure to a given counterparty by a bank's eligible Tier 1 capital base, ensuring that exposure to G-SIBs and other nonbank systemically important financial institutions does not breach 15 percent and exposures to other counterparties do not breach 25 percent.

Capital Requirements for Swap Dealers

On December 2, 2016, the Commodity Futures Trading Commission issued an NPR to establish capital requirements for swap dealers and major swap participants that are not subject to existing U.S. prudential regulation. Under the proposal, applicable subsidiaries of the Corporation must meet capital requirements under one of two approaches. The first approach is a bank-based capital approach which requires that firms maintain Common equity tier 1 capital greater than or equal to the larger of 8.0 percent of the entity's RWA as calculated under Basel 3, or 8.0 percent of the margin of the entity's cleared and uncleared swaps, security-based swaps, futures and foreign futures positions. The second approach is based on net liquid assets and requires that a firm maintain net capital greater than or equal to 8.0 percent of the margin as described above. The proposal also includes liquidity and reporting requirements.

Broker-dealer Regulatory Capital and Securities Regulation

The Corporation's principal U.S. broker-dealer subsidiaries are Merrill Lynch, Pierce, Fenner & Smith Incorporated (MLPF&S) and Merrill Lynch Professional Clearing Corp (MLPCC). MLPCC is a fully-guaranteed subsidiary of MLPF&S and provides clearing and settlement services. Both entities are subject to the net capital requirements of Securities and Exchange Commission (SEC) Rule 15c3-1. Both entities are also registered as futures commission merchants and are subject to the Commodity Futures Trading Commission Regulation 1.17.

MLPF&S has elected to compute the minimum capital requirement in accordance with the Alternative Net Capital Requirement as permitted by SEC Rule 15c3-1. At December 31, 2016, MLPF&S's regulatory net capital as defined by Rule 15c3-1 was $11.9 billion and exceeded the minimum requirement of $1.8 billion by $10.1 billion. MLPCC's net capital of $2.8 billion exceeded the minimum requirement of $481 million by $2.3 billion.

In accordance with the Alternative Net Capital Requirements, MLPF&S is required to maintain tentative net capital in excess of $1.0 billion, net capital in excess of $500 million and notify the SEC in the event its tentative net capital is less than $5.0 billion. At December 31, 2016, MLPF&S had tentative net capital and net capital in excess of the minimum and notification requirements.

Merrill Lynch International (MLI), a U.K. investment firm, is regulated by the Prudential Regulation Authority and the Financial Conduct Authority, and is subject to certain regulatory capital requirements. At December 31, 2016, MLI's capital resources were $34.9 billion which exceeded the minimum requirement of $14.8 billion.

Liquidity Risk

Funding and Liquidity Risk Management

Liquidity risk is the inability to meet expected or unexpected cash flow and collateral needs while continuing to support our businesses and customers with the appropriate funding sources under a range of economic conditions. Our primary liquidity risk management objective is to meet all contractual and contingent financial obligations at all times, including during periods of stress. To achieve that objective, we analyze and monitor our liquidity risk under expected and stressed conditions, maintain liquidity and access to diverse funding sources, including our stable deposit base, and seek to align liquidity-related incentives and risks.

We define liquidity as readily available assets, limited to cash and high-quality, liquid, unencumbered securities that we can use to meet our contractual and contingent financial obligations as those obligations arise. We manage our liquidity position through line of business and ALM activities, as well as through our legal entity funding strategy, on both a forward and current (including intraday) basis under both expected and stressed conditions. We believe that a centralized approach to funding and liquidity management within Corporate Treasury enhances our ability to monitor liquidity requirements, maximizes access to funding sources, minimizes borrowing costs and facilitates timely responses to liquidity events.

The Board approves our liquidity policy and the ERC approves the contingency funding plan, including establishing liquidity risk tolerance levels. The MRC monitors our liquidity position and reviews the impact of strategic decisions on our liquidity. The MRC is responsible for overseeing liquidity risks and directing management to maintain exposures within the established tolerance levels. The MRC reviews and monitors our liquidity position, cash flow forecasts, stress testing scenarios and results, and reviews and approves certain liquidity risk limits. For additional information, see Managing Risk on page 40. Under this governance framework, we have developed certain funding and liquidity risk management practices which include: maintaining liquidity at the parent company and selected subsidiaries, including our bank subsidiaries and other regulated entities; determining what amounts of liquidity are appropriate for these entities based on analysis of debt maturities and other potential cash outflows, including those that we may experience during stressed market conditions; diversifying funding sources, considering our asset profile and legal entity structure; and performing contingency planning.

Global Liquidity Sources and Other Unencumbered Assets

We maintain liquidity available to the Corporation, including the parent company and selected subsidiaries, in the form of cash and high-quality, liquid, unencumbered securities. Our liquidity buffer, referred to as Global Liquidity Sources (GLS), formerly Global Excess Liquidity Sources, is comprised of assets that are readily available to the parent company and selected subsidiaries, including holding company, bank and broker-dealer subsidiaries, even during stressed market conditions. Our cash is primarily on deposit with the Federal Reserve and, to a lesser extent, central banks outside of the U.S. We limit the composition of high-quality, liquid, unencumbered securities to U.S. government securities, U.S. agency securities, U.S. agency MBS and a select group of non-U.S. government and supranational securities. We believe we can quickly obtain cash for these securities, even in stressed conditions, through repurchase agreements or outright sales. We hold our GLS in legal entities that allow us to meet the liquidity requirements of our global businesses, and we consider the impact of potential regulatory, tax, legal and other restrictions that could limit the transferability of funds among entities.

Pursuant to the Federal Reserve and FDIC request disclosed in our Current Report on Form 8-K dated April 13, 2016, we provided our Resolution Plan submission to those regulators on September 30, 2016. In connection with our resolution planning activities, in the third quarter of 2016, we entered into intercompany arrangements with certain key subsidiaries under which we transferred certain of our parent company assets, and agreed to transfer certain additional parent company assets, to NB Holdings, Inc., a wholly-owned holding company subsidiary (NB Holdings). The parent company is expected to continue to have access to the same flow of dividends, interest and other amounts of cash necessary to service its debt, pay dividends and perform other obligations as it would have had if it had not entered into these arrangements and transferred any assets.

In consideration for the transfer of assets, NB Holdings issued a subordinated note to the parent company in a principal amount equal to the value of the transferred assets. The aggregate principal amount of the note will increase by the amount of any future asset transfers. NB Holdings also provided the parent company with a committed line of credit that allows the parent company to draw funds necessary to service near-term cash needs. These arrangements support our preferred single point of entry resolution strategy, under which only the parent company would be resolved under the U.S Bankruptcy Code. These arrangements include provisions to terminate the line of credit, forgive the subordinated note and require the parent company to transfer its remaining financial assets to NB Holdings if our projected liquidity resources deteriorate so severely that resolution of the parent company becomes imminent.

Our GLS are substantially the same in composition to what qualifies as High Quality Liquid Assets (HQLA) under the final U.S. Liquidity Coverage Ratio (LCR) rules. For more information on the final LCR rules, see Liquidity Risk – Basel 3 Liquidity Standards on page 52.

Our GLS were $499 billion and $504 billion at December 31, 2016 and 2015, and were as shown in Table 15.

Table 15 Global Liquidity Sources

(Dollars in billions)	December 31 2016	December 31 2015	Average for Three Months Ended December 31 2016
Parent company and NB Holdings	$ 76	$ 96	$ 77
Bank subsidiaries	372	361	389
Other regulated entities	51	47	49
Total Global Liquidity Sources	$ 499	$ 504	$ 515

As shown in Table 15, parent company and NB Holdings liquidity totaled $76 billion and $96 billion at December 31, 2016 and 2015. The decrease in parent company and NB Holdings liquidity was primarily due to the BNY Mellon settlement payment in the first quarter of 2016 and prepositioning liquidity to subsidiaries in connection with resolution planning. Typically, parent company and NB Holdings liquidity is in the form of cash deposited with BANA.

Liquidity held at our bank subsidiaries totaled $372 billion and $361 billion at December 31, 2016 and 2015. The increase in bank subsidiaries' liquidity was primarily due to deposit growth, partially offset by loan growth. Liquidity at bank subsidiaries excludes the cash deposited by the parent company and NB Holdings. Our bank subsidiaries can also generate incremental liquidity by pledging a range of unencumbered loans and securities to certain FHLBs and the Federal Reserve Discount Window. The cash we could have obtained by borrowing against this pool of specifically-identified eligible assets was $310 billion and $252 billion at December 31, 2016 and 2015. We have established operational procedures to enable us to borrow against these assets, including regularly monitoring our total pool of eligible loans and securities collateral. Eligibility is defined in guidelines from the FHLBs and the Federal Reserve and is subject to change at their discretion. Due to regulatory restrictions, liquidity generated by the bank subsidiaries can generally be used only to fund obligations within the bank subsidiaries and can only be transferred to the parent company or nonbank subsidiaries with prior regulatory approval.

Liquidity held at our other regulated entities, comprised primarily of broker-dealer subsidiaries, totaled $51 billion and $47 billion at December 31, 2016 and 2015. Our other regulated entities also held unencumbered investment-grade securities and equities that we believe could be used to generate additional liquidity. Liquidity held in an other regulated entity is primarily available to meet the obligations of that entity and transfers to the parent company or to any other subsidiary may be subject to prior regulatory approval due to regulatory restrictions and minimum requirements.

Table 16 presents the composition of GLS at December 31, 2016 and 2015.

Table 16 Global Liquidity Sources Composition

(Dollars in billions)	December 31 2016	December 31 2015
Cash on deposit	$ 106	$ 119
U.S. Treasury securities	58	38
U.S. agency securities and mortgage-backed securities	318	327
Non-U.S. government and supranational securities	17	20
Total Global Liquidity Sources	$ 499	$ 504

Time-to-required Funding and Liquidity Stress Analysis

We use a variety of metrics to determine the appropriate amounts of liquidity to maintain at the parent company and our subsidiaries. One metric we use to evaluate the appropriate level of liquidity at the parent company and NB Holdings is "time-to-required funding (TTF)." This debt coverage measure indicates the number of months the parent company can continue to meet its unsecured contractual obligations as they come due using only the parent company and NB Holdings' liquidity sources without issuing any new debt or accessing any additional liquidity sources. We define unsecured contractual obligations for purposes of this metric as maturities of senior or subordinated debt issued or guaranteed by Bank of America Corporation. These include certain unsecured debt instruments, primarily structured liabilities, which we may be required to settle for cash prior to maturity. Prior to the third quarter of 2016, TTF incorporated only the liquidity of the parent company. During the third quarter of 2016, TTF was expanded to include the liquidity of NB Holdings, following changes in our liquidity management practices, initiated in connection with the Corporation's resolution planning activities, that include maintaining at NB Holdings certain liquidity previously held solely at the parent company. Our TTF was 35 months at December 31, 2016.

We also utilize liquidity stress analysis to assist us in determining the appropriate amounts of liquidity to maintain at the parent company and our subsidiaries. The liquidity stress testing process is an integral part of analyzing our potential contractual and contingent cash outflows. We evaluate the liquidity requirements under a range of scenarios with varying levels of severity and time horizons. The scenarios we consider and utilize incorporate market-wide and Corporation-specific events, including potential credit rating downgrades for the parent company and our subsidiaries, and more severe events including potential resolution scenarios. The scenarios are based on our historical experience, experience of distressed and failed financial institutions, regulatory guidance, and both expected and unexpected future events.

The types of potential contractual and contingent cash outflows we consider in our scenarios may include, but are not limited to, upcoming contractual maturities of unsecured debt and reductions in new debt issuance; diminished access to secured financing markets; potential deposit withdrawals; increased draws on loan commitments, liquidity facilities and letters of credit; additional collateral that counterparties could call if our credit ratings were downgraded; collateral and margin requirements arising from market value changes; and potential liquidity required to maintain businesses and finance customer activities. Changes in certain market factors, including, but not limited to, credit rating downgrades, could negatively impact potential contractual and contingent outflows and the related financial instruments, and in some cases these impacts could be material to our financial results.

We consider all sources of funds that we could access during each stress scenario and focus particularly on matching available sources with corresponding liquidity requirements by legal entity. We also use the stress modeling results to manage our asset and liability profile and establish limits and guidelines on certain funding sources and businesses.

Basel 3 Liquidity Standards

Basel 3 has two liquidity risk-related standards: the LCR and the Net Stable Funding Ratio (NSFR).

The LCR is calculated as the amount of a financial institution's unencumbered HQLA relative to the estimated net cash outflows the institution could encounter over a 30-day period of significant liquidity stress, expressed as a percentage. The LCR regulatory requirement of 100 percent as of January 1, 2017 is applicable to the Corporation on a consolidated basis and to our insured depository institutions. As of December 31, 2016, the consolidated Corporation and its insured depository institutions were above the 2017 LCR requirements. Our LCR may fluctuate from period to period due to normal business flows from customer activity. On December 19, 2016, the Federal Reserve published the final LCR public disclosure requirements. Effective April 1, 2017, the final rule requires us to disclose publicly, on a quarterly basis, quantitative information about our LCR calculation and a discussion of the factors that have a significant effect on our LCR.

In April 2016, U.S. banking regulators issued a proposal for an NSFR requirement applicable to U.S. financial institutions following the Basel Committee's final standard in 2014. The U.S. NSFR would apply to the Corporation on a consolidated basis and to our insured depository institutions beginning on January 1, 2018. We expect to meet the NSFR requirement within the regulatory timeline. The standard is intended to reduce funding risk over a longer time horizon. The NSFR is designed to ensure an appropriate amount of stable funding, generally capital and liabilities maturing beyond one year, given the mix of assets and off-balance sheet items.

Diversified Funding Sources

We fund our assets primarily with a mix of deposits and secured and unsecured liabilities through a centralized, globally coordinated funding approach diversified across products, programs, markets, currencies and investor groups.

The primary benefits of our centralized funding approach include greater control, reduced funding costs, wider name recognition by investors and greater flexibility to meet the variable funding requirements of subsidiaries. Where regulations, time zone differences or other business considerations make parent company funding impractical, certain other subsidiaries may issue their own debt.

We fund a substantial portion of our lending activities through our deposits, which were \$1.26 trillion and \$1.20 trillion at December 31, 2016 and 2015. Deposits are primarily generated by our *Consumer Banking*, *GWIM* and *Global Banking* segments. These deposits are diversified by clients, product type and geography, and the majority of our U.S. deposits are insured by the FDIC. We consider a substantial portion of our deposits to be a stable, low-cost and consistent source of funding. We believe this deposit funding is generally less sensitive to interest rate changes, market volatility or changes in our credit ratings than wholesale funding sources. Our lending activities may also be financed through secured borrowings, including credit card securitizations and securitizations with GSEs, the FHA and private-label investors, as well as FHLB loans.

Our trading activities in other regulated entities are primarily funded on a secured basis through securities lending and repurchase agreements and these amounts will vary based on customer activity and market conditions. We believe funding these activities in the secured financing markets is more cost-efficient and less sensitive to changes in our credit ratings than unsecured financing. Repurchase agreements are generally short-term and often overnight. Disruptions in secured financing markets for financial institutions have occurred in prior market cycles which resulted in adverse changes in terms or significant reductions in the availability of such financing. We manage the liquidity risks arising from secured funding by sourcing funding globally from a diverse group of counterparties, providing a range of securities collateral and pursuing longer durations, when appropriate. For more information on secured financing agreements, see *Note 10 – Federal Funds Sold or Purchased, Securities Financing Agreements and Short-term Borrowings* to the Consolidated Financial Statements.

We issue long-term unsecured debt in a variety of maturities and currencies to achieve cost-efficient funding and to maintain an appropriate maturity profile. While the cost and availability of unsecured funding may be negatively impacted by general market conditions or by matters specific to the financial services industry or the Corporation, we seek to mitigate refinancing risk by actively managing the amount of our borrowings that we anticipate will mature within any month or quarter.

During 2016, we issued \$35.6 billion of long-term debt, consisting of \$27.5 billion for Bank of America Corporation, \$1.0 billion for Bank of America, N.A. and \$7.1 billion of other debt.

Table 17 presents our long-term debt by major currency at December 31, 2016 and 2015.

Table 17 Long-term Debt by Major Currency

	December 31	
(Dollars in millions)	**2016**	2015
U.S. Dollar	**\$ 172,082**	\$ 190,381
Euro	**28,236**	29,797
British Pound	**6,588**	7,080
Japanese Yen	**3,919**	3,099
Australian Dollar	**2,900**	2,534
Canadian Dollar	**1,049**	1,428
Other	**2,049**	2,445
Total long-term debt	**\$ 216,823**	\$ 236,764

Total long-term debt decreased $19.9 billion, or eight percent, in 2016, primarily due to maturities outpacing issuances. We may, from time to time, purchase outstanding debt instruments in various transactions, depending on prevailing market conditions, liquidity and other factors. In addition, our other regulated entities may make markets in our debt instruments to provide liquidity for investors. For more information on long-term debt funding, see *Note 11 – Long-term Debt* to the Consolidated Financial Statements.

We use derivative transactions to manage the duration, interest rate and currency risks of our borrowings, considering the characteristics of the assets they are funding. For further details on our ALM activities, see Interest Rate Risk Management for the Banking Book on page 83.

We may also issue unsecured debt in the form of structured notes for client purposes, certain of which qualify as TLAC eligible debt. During 2016, we issued $6.2 billion of structured notes, a majority of which were issued by Bank of America Corporation. Structured notes are debt obligations that pay investors returns linked to other debt or equity securities, indices, currencies or commodities. We typically hedge the returns we are obligated to pay on these liabilities with derivatives and/or investments in the underlying instruments, so that from a funding perspective, the cost is similar to our other unsecured long-term debt. We could be required to settle certain structured note obligations for cash or other securities prior to maturity under certain circumstances, which we consider for liquidity planning purposes. We believe, however, that a portion of such borrowings will remain outstanding beyond the earliest put or redemption date.

Substantially all of our senior and subordinated debt obligations contain no provisions that could trigger a requirement for an early repayment, require additional collateral support, result in changes to terms, accelerate maturity or create additional financial obligations upon an adverse change in our credit ratings, financial ratios, earnings, cash flows or stock price.

Contingency Planning

We maintain contingency funding plans that outline our potential responses to liquidity stress events at various levels of severity. These policies and plans are based on stress scenarios and include potential funding strategies and communication and notification procedures that we would implement in the event we experienced stressed liquidity conditions. We periodically review and test the contingency funding plans to validate efficacy and assess readiness.

Our U.S. bank subsidiaries can access contingency funding through the Federal Reserve Discount Window. Certain non-U.S. subsidiaries have access to central bank facilities in the jurisdictions in which they operate. While we do not rely on these sources in our liquidity modeling, we maintain the policies, procedures and governance processes that would enable us to access these sources if necessary.

Credit Ratings

Our borrowing costs and ability to raise funds are impacted by our credit ratings. In addition, credit ratings may be important to customers or counterparties when we compete in certain markets and when we seek to engage in certain transactions, including over-the-counter (OTC) derivatives. Thus, it is our objective to maintain high-quality credit ratings, and management maintains an active dialogue with the major rating agencies.

Credit ratings and outlooks are opinions expressed by rating agencies on our creditworthiness and that of our obligations or securities, including long-term debt, short-term borrowings, preferred stock and other securities, including asset securitizations. Our credit ratings are subject to ongoing review by the rating agencies, and they consider a number of factors, including our own financial strength, performance, prospects and operations as well as factors not under our control. The rating agencies could make adjustments to our ratings at any time, and they provide no assurances that they will maintain our ratings at current levels.

Other factors that influence our credit ratings include changes to the rating agencies' methodologies for our industry or certain security types; the rating agencies' assessment of the general operating environment for financial services companies; our relative positions in the markets in which we compete; our various risk exposures and risk management policies and activities; pending litigation and other contingencies or potential tail risks; our reputation; our liquidity position, diversity of funding sources and funding costs; the current and expected level and volatility of our earnings; our capital position and capital management practices; our corporate governance; the sovereign credit ratings of the U.S. government; current or future regulatory and legislative initiatives; and the agencies' views on whether the U.S. government would provide meaningful support to the Corporation or its subsidiaries in a crisis.

On January 24, 2017, Moody's Investors Services, Inc. (Moody's) improved its ratings outlook on the Corporation and its subsidiaries, including BANA, to positive from stable, based on the agency's view that there is an increased likelihood that the Corporation's profitability will strengthen on a sustainable basis over the next 12 to 18 months while the Corporation continues to adhere to its conservative risk profile, lowering its earnings volatility. The agency concurrently affirmed the current ratings of the Corporation and its subsidiaries, which have not changed since the conclusion of the agency's previous review of several global investment banking groups, including Bank of America, on May 28, 2015.

On December 16, 2016, Standard & Poor's Global Ratings (S&P) concluded its CreditWatch with positive implications for operating subsidiaries of four U.S. G-SIBs, including Bank of America. As a result, S&P upgraded the long-term senior debt ratings of BANA, MLPF&S, MLI and Bank of America Merrill Lynch International Limited (BAMLI) by one notch, to A+ from A. These ratings actions followed the Federal Reserve's publication of the TLAC final rule, which provided clarity on which debt instruments will count as external TLAC, and by extension, will also count under S&P's Additional Loss Absorbing Capacity (ALAC) framework. The ALAC framework details how a BHC's loss-absorbing debt and equity capital buffers may enable uplift to its operating subsidiaries' credit ratings. The Federal Reserve's decision to allow existing debt containing otherwise impermissible acceleration clauses to count as external TLAC improved the Corporation's ALAC calculation enough to warrant an additional notch of uplift under S&P's methodology. Following the upgrades, S&P revised the outlook for its ratings to stable on those four operating subsidiaries. The ratings of Bank of America Corporation, which does not receive any ratings uplift under S&P's ALAC framework, were not impacted by this ratings action and remain on stable outlook.

On December 13, 2016, Fitch Ratings (Fitch) completed its latest semi-annual review of 12 large, complex securities trading and universal banks, including Bank of America. The agency affirmed the long-term and short-term senior debt ratings of Bank of America Corporation and Bank of America, N.A., and maintained stable outlooks on those ratings. Fitch concurrently revised the outlooks for two of Bank of America's material international operating subsidiaries, MLI and BAMLI, to stable from positive due to a delay in host country internal TLAC proposals.

Table 18 presents the current long-term/short-term senior debt ratings and outlooks expressed by the rating agencies.

Table 18 Senior Debt Ratings

	Moody's Investors Service			Standard & Poor's Global Ratings			Fitch Ratings		
	Long-term	Short-term	Outlook	Long-term	Short-term	Outlook	Long-term	Short-term	Outlook
Bank of America Corporation	Baa1	P-2	Positive	BBB+	A-2	Stable	A	F1	Stable
Bank of America, N.A.	A1	P-1	Positive	A+	A-1	Stable	A+	F1	Stable
Merrill Lynch, Pierce, Fenner & Smith	NR	NR	NR	A+	A-1	Stable	A+	F1	Stable
Merrill Lynch International	NR	NR	NR	A+	A-1	Stable	A	F1	Stable

NR = not rated

A reduction in certain of our credit ratings or the ratings of certain asset-backed securitizations may have a material adverse effect on our liquidity, potential loss of access to credit markets, the related cost of funds, our businesses and on certain trading revenues, particularly in those businesses where counterparty creditworthiness is critical. In addition, under the terms of certain OTC derivative contracts and other trading agreements, in the event of downgrades of our or our rated subsidiaries' credit ratings, the counterparties to those agreements may require us to provide additional collateral, or to terminate these contracts or agreements, which could cause us to sustain losses and/or adversely impact our liquidity. If the short-term credit ratings of our parent company, bank or broker-dealer subsidiaries were downgraded by one or more levels, the potential loss of access to short-term funding sources such as repo financing and the effect on our incremental cost of funds could be material.

While certain potential impacts are contractual and quantifiable, the full scope of the consequences of a credit rating downgrade to a financial institution is inherently uncertain, as it depends upon numerous dynamic, complex and inter-related factors and assumptions, including whether any downgrade of a company's long-term credit ratings precipitates downgrades to its short-term credit ratings, and assumptions about the potential behaviors of various customers, investors and counterparties. For more information on potential impacts of credit rating downgrades, see Liquidity Risk – Time-to-required Funding and Stress Modeling on page 51.

For information on the additional collateral and termination payments that could be required in connection with certain OTC derivative contracts and other trading agreements as a result of such a credit rating downgrade, see *Note 2 – Derivatives* to the Consolidated Financial Statements.

Common Stock Dividends

For a summary of our declared quarterly cash dividends on common stock during 2016 and through February 23, 2017, see *Note 13 – Shareholders' Equity* to the Consolidated Financial Statements.

Credit Risk Management

Credit risk is the risk of loss arising from the inability or failure of a borrower or counterparty to meet its obligations. Credit risk can also arise from operational failures that result in an erroneous advance, commitment or investment of funds. We define the credit exposure to a borrower or counterparty as the loss potential arising from all product classifications including loans and leases, deposit overdrafts, derivatives, assets held-for-sale and unfunded lending commitments which include loan commitments, letters of credit and financial guarantees. Derivative positions are recorded at fair value and assets held-for-sale are recorded at either fair value or the lower of cost or fair value. Certain loans and unfunded commitments are accounted for under the fair value option. Credit risk for categories of assets carried at fair value is not accounted for as part of the allowance for credit losses but as part of the fair value adjustments recorded in earnings. For derivative positions, our credit risk is measured as the net cost in the event the counterparties with contracts in which we are in a gain position fail to perform under the terms of those contracts. We use the current fair value to represent credit exposure without giving consideration to future mark-to-market changes. The credit risk amounts take into consideration the effects of legally enforceable master netting agreements and cash collateral. Our consumer and commercial credit extension and review procedures encompass funded and unfunded credit exposures. For more information on derivatives and credit extension commitments, see *Note 2 – Derivatives* and *Note 12 – Commitments and Contingencies* to the Consolidated Financial Statements.

We manage credit risk based on the risk profile of the borrower or counterparty, repayment sources, the nature of underlying collateral, and other support given current events, conditions and expectations. We classify our portfolios as either consumer or commercial and monitor credit risk in each as discussed below.

We refine our underwriting and credit risk management practices as well as credit standards to meet the changing economic environment. To mitigate losses and enhance customer support in our consumer businesses, we have in place collection programs and loan modification and customer assistance infrastructures. We utilize a number of actions to mitigate losses in the commercial businesses including increasing the frequency and intensity of portfolio monitoring, hedging activity and our practice of transferring management of deteriorating commercial exposures to independent special asset officers as credits enter criticized categories.

For more information on our credit risk management activities, see Consumer Portfolio Credit Risk Management below, Commercial Portfolio Credit Risk Management on page 65, Non-U.S. Portfolio on page 73, Provision for Credit Losses on page 74, Allowance for Credit Losses on page 74, and *Note 4 – Outstanding Loans and Leases* and *Note 5 – Allowance for Credit Losses* to the Consolidated Financial Statements.

Consumer Portfolio Credit Risk Management

Credit risk management for the consumer portfolio begins with initial underwriting and continues throughout a borrower's credit cycle. Statistical techniques in conjunction with experiential judgment are used in all aspects of portfolio management including underwriting, product pricing, risk appetite, setting credit limits, and establishing operating processes and metrics to quantify and balance risks and returns. Statistical models are built using detailed behavioral information from external sources such as credit bureaus and/or internal historical experience. These models are a component of our consumer credit risk management process and are used in part to assist in making both new and ongoing credit decisions, as well as portfolio management strategies, including authorizations and line management, collection practices and strategies, and determination of the allowance for loan and lease losses and allocated capital for credit risk.

Consumer Credit Portfolio

Improvement in the U.S. unemployment rate and home prices continued during 2016 resulting in improved credit quality and lower credit losses across most major consumer portfolios compared to 2015. The 30 and 90 days or more past due balances declined across nearly all consumer loan portfolios during 2016 as a result of improved delinquency trends.

Improved credit quality, continued loan balance run-off and sales across the consumer portfolio drove a $1.2 billion decrease in the consumer allowance for loan and lease losses in 2016 to $6.2 billion at December 31, 2016. For additional information, see Allowance for Credit Losses on page 74.

For more information on our accounting policies regarding delinquencies, nonperforming status, charge-offs and troubled debt restructurings (TDRs) for the consumer portfolio, see *Note 1 – Summary of Significant Accounting Principles* to the Consolidated Financial Statements.

In connection with an agreement to sell our non-U.S. consumer credit card business, this business, which includes $9.2 billion of non-U.S. credit card loans and related allowance for loan and lease losses of $243 million, was reclassified to assets of business held for sale on the Consolidated Balance Sheet as of December 31, 2016. In this section, all applicable amounts and ratios include these balances, unless otherwise noted.

Table 19 presents our outstanding consumer loans and leases, and the PCI loan portfolio. In addition to being included in the "Outstandings" columns in Table 19, PCI loans are also shown separately in the "Purchased Credit-impaired Loan Portfolio" columns. The impact of the PCI loan portfolio on certain credit statistics is reported where appropriate. For more information on PCI loans, see Consumer Portfolio Credit Risk Management – Purchased Credit-impaired Loan Portfolio on page 61 and *Note 4 – Outstanding Loans and Leases* to the Consolidated Financial Statements.

Table 19 Consumer Loans and Leases

	December 31			
	Outstandings		Purchased Credit-impaired Loan Portfolio	
(Dollars in millions)	**2016**	2015	**2016**	2015
Residential mortgage (1)	**$ 191,797**	$ 187,911	**$ 10,127**	$ 12,066
Home equity	**66,443**	75,948	**3,611**	4,619
U.S. credit card	**92,278**	89,602	**n/a**	n/a
Non-U.S. credit card	**9,214**	9,975	**n/a**	n/a
Direct/Indirect consumer (2)	**94,089**	88,795	**n/a**	n/a
Other consumer (3)	**2,499**	2,067	**n/a**	n/a
Consumer loans excluding loans accounted for under the fair value option	**456,320**	454,298	**13,738**	16,685
Loans accounted for under the fair value option (4)	**1,051**	1,871	**n/a**	n/a
Total consumer loans and leases (5)	**$ 457,371**	$ 456,169	**$ 13,738**	$ 16,685

(1) Outstandings include pay option loans of $1.8 billion and $2.3 billion at December 31, 2016 and 2015. We no longer originate pay option loans.

(2) Outstandings include auto and specialty lending loans of $48.9 billion and $42.6 billion, unsecured consumer lending loans of $585 million and $886 million, U.S. securities-based lending loans of $40.1 billion and $39.8 billion, non-U.S. consumer loans of $3.0 billion and $3.9 billion, student loans of $497 million and $564 million and other consumer loans of $1.1 billion and $1.0 billion at December 31, 2016 and 2015.

(3) Outstandings include consumer finance loans of $465 million and $564 million, consumer leases of $1.9 billion and $1.4 billion and consumer overdrafts of $157 million and $146 million at December 31, 2016 and 2015.

(4) Consumer loans accounted for under the fair value option include residential mortgage loans of $710 million and $1.6 billion and home equity loans of $341 million and $250 million at December 31, 2016 and 2015. For more information on the fair value option, see *Note 21 – Fair Value Option* to the Consolidated Financial Statements.

(5) Includes $9.2 billion of non-U.S. credit card loans, which are included in assets of business held for sale on the Consolidated Balance Sheet at December 31, 2016.

n/a = not applicable

Table 20 presents consumer nonperforming loans and accruing consumer loans past due 90 days or more. Nonperforming loans do not include past due consumer credit card loans, other unsecured loans and in general, consumer loans not secured by real estate (loans discharged in Chapter 7 bankruptcy are included) as these loans are typically charged off no later than the end of the month in which the loan becomes 180 days past due. Real estate-secured past due consumer loans that are insured by the FHA or individually insured under long-term standby agreements with FNMA and FHLMC (collectively, the fully-insured loan portfolio) are reported as accruing as opposed to nonperforming since the principal repayment is insured. Fully-insured loans included in accruing past due 90 days or more are primarily from our repurchases of delinquent FHA loans pursuant to our servicing agreements with GNMA. Additionally, nonperforming loans and accruing balances past due 90 days or more do not include the PCI loan portfolio or loans accounted for under the fair value option even though the customer may be contractually past due.

Table 20 Consumer Credit Quality

	December 31			
	Nonperforming		Accruing Past Due 90 Days or More	
(Dollars in millions)	**2016**	2015	**2016**	2015
Residential mortgage [1]	**$ 3,056**	$ 4,803	**$ 4,793**	$ 7,150
Home equity	**2,918**	3,337	**—**	—
U.S. credit card	**n/a**	n/a	**782**	789
Non-U.S. credit card	**n/a**	n/a	**66**	76
Direct/Indirect consumer	**28**	24	**34**	39
Other consumer	**2**	1	**4**	3
Total [2]	**$ 6,004**	$ 8,165	**$ 5,679**	$ 8,057
Consumer loans and leases as a percentage of outstanding consumer loans and leases [2]	**1.32%**	1.80%	**1.24%**	1.77%
Consumer loans and leases as a percentage of outstanding loans and leases, excluding PCI and fully-insured loan portfolios [2]	**1.45**	2.04	**0.21**	0.23

(1) Residential mortgage loans accruing past due 90 days or more are fully-insured loans. At December 31, 2016 and 2015, residential mortgage included $3.0 billion and $4.3 billion of loans on which interest has been curtailed by the FHA, and therefore are no longer accruing interest, although principal is still insured, and $1.8 billion and $2.9 billion of loans on which interest was still accruing.
(2) Balances exclude consumer loans accounted for under the fair value option. At December 31, 2016 and 2015, $48 million and $293 million of loans accounted for under the fair value option were past due 90 days or more and not accruing interest.
n/a = not applicable

Table 21 presents net charge-offs and related ratios for consumer loans and leases.

Table 21 Consumer Net Charge-offs and Related Ratios

	Net Charge-offs [1]		Net Charge-off Ratios [1, 2]	
(Dollars in millions)	**2016**	2015	**2016**	2015
Residential mortgage	**$ 131**	$ 473	**0.07%**	0.24%
Home equity	**405**	636	**0.57**	0.79
U.S. credit card	**2,269**	2,314	**2.58**	2.62
Non-U.S. credit card	**175**	188	**1.83**	1.86
Direct/Indirect consumer	**134**	112	**0.15**	0.13
Other consumer	**205**	193	**8.95**	9.96
Total	**$ 3,319**	$ 3,916	**0.74**	0.84

(1) Net charge-offs exclude write-offs in the PCI loan portfolio. For more information on PCI write-offs, see Consumer Portfolio Credit Risk Management – Purchased Credit-impaired Loan Portfolio on page 61.
(2) Net charge-off ratios are calculated as net charge-offs divided by average outstanding loans and leases excluding loans accounted for under the fair value option.

Net charge-off ratios, excluding the PCI and fully-insured loan portfolios, were 0.09 percent and 0.35 percent for residential mortgage, 0.60 percent and 0.84 percent for home equity and 0.82 percent and 0.99 percent for the total consumer portfolio for 2016 and 2015, respectively. These are the only product classifications that include PCI and fully-insured loans.

Net charge-offs, as shown in Tables 21 and 22, exclude write-offs in the PCI loan portfolio of $144 million and $634 million in residential mortgage and $196 million and $174 million in home equity for 2016 and 2015. Net charge-off ratios including the PCI write-offs were 0.15 percent and 0.56 percent for residential mortgage and 0.84 percent and 1.00 percent for home equity in 2016 and 2015. For more information on PCI write-offs, see Consumer Portfolio Credit Risk Management – Purchased Credit-impaired Loan Portfolio on page 61.

Table 22 presents outstandings, nonperforming balances, net charge-offs, allowance for loan and lease losses and provision for loan and lease losses for the core and non-core portfolio within the consumer real estate portfolio. We categorize consumer real estate loans as core and non-core based on loan and customer characteristics such as origination date, product type, LTV, FICO score and delinquency status consistent with our current consumer and mortgage servicing strategy. Generally, loans that were originated after January 1, 2010, qualified under government-sponsored enterprise underwriting guidelines, or otherwise met our underwriting guidelines in place in 2015 are characterized as core loans. Loans held in legacy private-label securitizations, government-insured loans originated prior to 2010, loan products no longer originated, and loans originated prior to 2010 and classified as nonperforming or modified in a TDR prior to 2016 are generally characterized as non-core loans, and are principally run-off portfolios. Core loans as reported within Table 22 include loans held in the *Consumer Banking* and *GWIM* segments, as well as loans held for ALM activities in *All Other*. For more information on core and non-core loans, see *Note 4 – Outstanding Loans and Leases* to the Consolidated Financial Statements.

As shown in Table 22, outstanding core consumer real estate loans increased $9.2 billion during 2016 driven by an increase of $14.7 billion in residential mortgage, partially offset by a $5.5 billion decrease in home equity. The increase in residential mortgage was primarily driven by originations outpacing prepayments in *Consumer Banking* and *GWIM*. The decrease in home equity was driven by paydowns outpacing new originations and draws on existing lines.

Table 22 Consumer Real Estate Portfolio (1)

	December 31					
	Outstandings		Nonperforming		Net Charge-offs (2)	
(Dollars in millions)	**2016**	2015	**2016**	2015	**2016**	2015
Core portfolio						
Residential mortgage	**$ 156,497**	$ 141,795	**$ 1,274**	$ 1,825	**$ (29)**	$ 101
Home equity	**49,373**	54,917	**969**	974	**113**	163
Total core portfolio	**205,870**	196,712	**2,243**	2,799	**84**	264
Non-core portfolio						
Residential mortgage	**35,300**	46,116	**1,782**	2,978	**160**	372
Home equity	**17,070**	21,031	**1,949**	2,363	**292**	473
Total non-core portfolio	**52,370**	67,147	**3,731**	5,341	**452**	845
Consumer real estate portfolio						
Residential mortgage	**191,797**	187,911	**3,056**	4,803	**131**	473
Home equity	**66,443**	75,948	**2,918**	3,337	**405**	636
Total consumer real estate portfolio	**$ 258,240**	$ 263,859	**$ 5,974**	$ 8,140	**$ 536**	$ 1,109

	December 31			
	Allowance for Loan and Lease Losses		Provision for Loan and Lease Losses	
	2016	2015	**2016**	2015
Core portfolio				
Residential mortgage	**$ 252**	$ 319	**$ (98)**	$ (17)
Home equity	**560**	664	**10**	(33)
Total core portfolio	**812**	983	**(88)**	(50)
Non-core portfolio				
Residential mortgage	**760**	1,181	**(86)**	(277)
Home equity	**1,178**	1,750	**(84)**	257
Total non-core portfolio	**1,938**	2,931	**(170)**	(20)
Consumer real estate portfolio				
Residential mortgage	**1,012**	1,500	**(184)**	(294)
Home equity	**1,738**	2,414	**(74)**	224
Total consumer real estate portfolio	**$ 2,750**	$ 3,914	**$ (258)**	$ (70)

(1) Outstandings and nonperforming loans exclude loans accounted for under the fair value option. Consumer loans accounted for under the fair value option include residential mortgage loans of $710 million and $1.6 billion and home equity loans of $341 million and $250 million at December 31, 2016 and 2015. For more information on the fair value option, see *Note 21 – Fair Value Option* to the Consolidated Financial Statements.

(2) Net charge-offs exclude write-offs in the PCI loan portfolio. For more information on PCI write-offs, see Consumer Portfolio Credit Risk Management – Purchased Credit-impaired Loan Portfolio on page 61.

We believe that the presentation of information adjusted to exclude the impact of the PCI loan portfolio, the fully-insured loan portfolio and loans accounted for under the fair value option is more representative of the ongoing operations and credit quality of the business. As a result, in the following discussions of the residential mortgage and home equity portfolios, we provide information that excludes the impact of the PCI loan portfolio, the fully-insured loan portfolio and loans accounted for under the fair value option in certain credit quality statistics. We separately disclose information on the PCI loan portfolio on page 61.

Residential Mortgage

The residential mortgage portfolio makes up the largest percentage of our consumer loan portfolio at 42 percent of consumer loans and leases at December 31, 2016. Approximately 36 percent of the residential mortgage portfolio is in *All Other* and is comprised of originated loans, purchased loans used in our overall ALM activities, delinquent FHA loans repurchased pursuant to our servicing agreements with GNMA as well as loans repurchased related to our representations and warranties. Approximately 34 percent of the residential mortgage portfolio is in *GWIM* and represents residential mortgages originated for the home purchase and refinancing needs of our wealth management clients and the remaining portion of the portfolio is primarily in *Consumer Banking*.

Outstanding balances in the residential mortgage portfolio, excluding loans accounted for under the fair value option, increased $3.9 billion in 2016 as retention of new originations was partially offset by loan sales of $6.6 billion and run-off. Loan sales primarily included $3.1 billion of loans in consolidated agency residential mortgage securitization vehicles and $1.9 billion of nonperforming and other delinquent loans.

At December 31, 2016 and 2015, the residential mortgage portfolio included $28.7 billion and $37.1 billion of outstanding fully-insured loans. On this portion of the residential mortgage portfolio, we are protected against principal loss as a result of either FHA insurance or long-term standby agreements that provide for the transfer of credit risk to FNMA and FHLMC. At December 31, 2016 and 2015, $22.3 billion and $33.4 billion had FHA insurance with the remainder protected by long-term standby agreements. At December 31, 2016 and 2015, $7.4 billion and $11.2 billion of the FHA-insured loan population were repurchases of delinquent FHA loans pursuant to our servicing agreements with GNMA.

Table 23 presents certain residential mortgage key credit statistics on both a reported basis excluding loans accounted for under the fair value option, and excluding the PCI loan portfolio, our fully-insured loan portfolio and loans accounted for under the fair value option. Additionally, in the "Reported Basis" columns in the table below, accruing balances past due and nonperforming loans do not include the PCI loan portfolio, in accordance with our accounting policies, even though the customer may be contractually past due. As such, the following discussion presents the residential mortgage portfolio excluding the PCI loan portfolio, the fully-insured loan portfolio and loans accounted for under the fair value option. For more information on the PCI loan portfolio, see page 61.

Table 23 Residential Mortgage – Key Credit Statistics

	December 31			
	Reported Basis [1]		Excluding Purchased Credit-impaired and Fully-insured Loans	
(Dollars in millions)	**2016**	2015	**2016**	2015
Outstandings	**$ 191,797**	$ 187,911	**$ 152,941**	$ 138,768
Accruing past due 30 days or more	**8,232**	11,423	**1,835**	1,568
Accruing past due 90 days or more	**4,793**	7,150	**—**	—
Nonperforming loans	**3,056**	4,803	**3,056**	4,803
Percent of portfolio				
Refreshed LTV greater than 90 but less than or equal to 100	**5%**	7%	**3%**	5%
Refreshed LTV greater than 100	**4**	8	**3**	4
Refreshed FICO below 620	**9**	13	**4**	6
2006 and 2007 vintages [2]	**13**	17	**12**	17
Net charge-off ratio [3]	**0.07**	0.24	**0.09**	0.35

(1) Outstandings, accruing past due, nonperforming loans and percentages of portfolio exclude loans accounted for under the fair value option.
(2) These vintages of loans account for $931 million, or 31 percent, and $1.6 billion, or 34 percent, of nonperforming residential mortgage loans at December 31, 2016 and 2015. Additionally, these vintages accounted for net recoveries of $2 million in 2016 and net charge-offs of $136 million in 2015.
(3) Net charge-off ratios are calculated as net charge-offs divided by average outstanding loans excluding loans accounted for under the fair value option.

Nonperforming residential mortgage loans decreased $1.7 billion in 2016 as outflows, including sales of $1.4 billion, outpaced new inflows. Of the nonperforming residential mortgage loans at December 31, 2016, $1.0 billion, or 33 percent, were current on contractual payments. Accruing past due 30 days or more increased $267 million due to the timing impact of a consumer real estate payment servicer conversion that occurred during the fourth quarter of 2016.

Net charge-offs decreased $342 million to $131 million in 2016, compared to $473 million in 2015. This decrease in net charge-offs was primarily driven by charge-offs related to the consumer relief portion of the settlement with the U.S. Department of Justice (DoJ) of $402 million in 2015. Net charge-offs also included charge-offs of $26 million related to nonperforming loan sales during 2016 compared to recoveries of $127 million in 2015. Additionally, net charge-offs declined driven by favorable portfolio trends and decreased write-downs on loans greater than 180 days past due, which were written down to the estimated fair value of the collateral, less costs to sell, due in part to improvement in home prices and the U.S. economy.

Loans with a refreshed LTV greater than 100 percent represented three percent and four percent of the residential mortgage loan portfolio at December 31, 2016 and 2015. Of the loans with a refreshed LTV greater than 100 percent, 98 percent were performing at both December 31, 2016 and 2015. Loans with a refreshed LTV greater than 100 percent reflect loans where the outstanding carrying value of the loan is greater than the most recent valuation of the property securing the loan. The majority of these loans have a refreshed LTV greater than 100 percent primarily due to home price deterioration since 2006, partially offset by subsequent appreciation.

Of the $152.9 billion in total residential mortgage loans outstanding at December 31, 2016, as shown in Table 24, 37 percent were originated as interest-only loans. The outstanding balance of interest-only residential mortgage loans that have entered the amortization period was $11.0 billion, or 19 percent, at December 31, 2016. Residential mortgage loans that have entered the amortization period generally have experienced a higher rate of early stage delinquencies and nonperforming status compared to the residential mortgage portfolio as a whole. At December 31, 2016, $249 million, or two percent of outstanding interest-only residential mortgages that had entered the amortization period were accruing past due 30 days or more compared to $1.8 billion, or one percent for the entire residential mortgage portfolio. In addition, at December 31, 2016, $448 million, or four percent of outstanding interest-only residential mortgage loans that had entered the amortization period were nonperforming, of which $233 million were contractually current, compared to $3.1 billion, or two percent for the entire residential mortgage portfolio, of which $1.0 billion were contractually current. Loans that have yet to enter the amortization period in our interest-only residential mortgage portfolio are primarily well-collateralized loans to our wealth management clients and have an interest-only period of three to ten years. More than 80 percent of these loans that have yet to enter the amortization period will not be required to make a fully-amortizing payment until 2019 or later.

Table 24 presents outstandings, nonperforming loans and net charge-offs by certain state concentrations for the residential mortgage portfolio. The Los Angeles-Long Beach-Santa Ana Metropolitan Statistical Area (MSA) within California represented 15 percent and 14 percent of outstandings at December 31, 2016 and 2015. Loans within this MSA contributed net recoveries of $13 million within the residential mortgage portfolio during 2016 and 2015. In the New York area, the New York-Northern New Jersey-Long Island MSA made up 12 percent and 11 percent of outstandings during 2016 and 2015. Loans within this MSA contributed net charge-offs of $33 million and $101 million within the residential mortgage portfolio during 2016 and 2015.

Table 24 Residential Mortgage State Concentrations

	December 31					
	Outstandings (1)		Nonperforming (1)		Net Charge-offs (2)	
(Dollars in millions)	**2016**	2015	**2016**	2015	**2016**	2015
California	**$ 58,295**	$ 48,865	**$ 554**	$ 977	**$ (70)**	$ (49)
New York (3)	**14,476**	12,696	**290**	399	**18**	57
Florida (3)	**10,213**	10,001	**322**	534	**20**	53
Texas	**6,607**	6,208	**132**	185	**9**	10
Massachusetts	**5,344**	4,799	**77**	118	**3**	8
Other U.S./Non-U.S.	**58,006**	56,199	**1,681**	2,590	**151**	394
Residential mortgage loans (4)	**$ 152,941**	$ 138,768	**$ 3,056**	$ 4,803	**$ 131**	$ 473
Fully-insured loan portfolio	**28,729**	37,077				
Purchased credit-impaired residential mortgage loan portfolio (5)	**10,127**	12,066				
Total residential mortgage loan portfolio	**$ 191,797**	$ 187,911				

(1) Outstandings and nonperforming loans exclude loans accounted for under the fair value option.
(2) Net charge-offs exclude $144 million of write-offs in the residential mortgage PCI loan portfolio in 2016 compared to $634 million in 2015. For more information on PCI write-offs, see Consumer Portfolio Credit Risk Management – Purchased Credit-impaired Loan Portfolio on page 61.
(3) In these states, foreclosure requires a court order following a legal proceeding (judicial states).
(4) Amounts exclude the PCI residential mortgage and fully-insured loan portfolios.
(5) At December 31, 2016 and 2015, 48 percent and 47 percent of PCI residential mortgage loans were in California. There were no other significant single state concentrations.

Home Equity

At December 31, 2016, the home equity portfolio made up 15 percent of the consumer portfolio and is comprised of home equity lines of credit (HELOCs), home equity loans and reverse mortgages.

At December 31, 2016, our HELOC portfolio had an outstanding balance of $58.6 billion, or 88 percent of the total home equity portfolio compared to $66.1 billion, or 87 percent, at December 31, 2015. HELOCs generally have an initial draw period of 10 years and the borrowers typically are only required to pay the interest due on the loans on a monthly basis. After the initial draw period ends, the loans generally convert to 15-year amortizing loans.

At December 31, 2016, our home equity loan portfolio had an outstanding balance of $5.9 billion, or nine percent of the total home equity portfolio compared to $7.9 billion, or 10 percent, at December 31, 2015. Home equity loans are almost all fixed-rate loans with amortizing payment terms of 10 to 30 years and of the $5.9 billion at December 31, 2016, 56 percent have 25- to 30-year terms. At December 31, 2016, our reverse mortgage portfolio had an outstanding balance, excluding loans accounted for under the fair value option, of $1.9 billion, or three percent of the total home equity portfolio compared to $2.0 billion, or three percent, at December 31, 2015. We no longer originate reverse mortgages.

At December 31, 2016, approximately 67 percent of the home equity portfolio was in *Consumer Banking*, 26 percent was in *All Other* and the remainder of the portfolio was primarily in *GWIM*. Outstanding balances in the home equity portfolio, excluding loans accounted for under the fair value option, decreased $9.5 billion in 2016 primarily due to paydowns and charge-offs outpacing new originations and draws on existing lines. Of the total home equity portfolio at December 31, 2016 and 2015, $19.6 billion and $20.3 billion, or 29 percent and 27 percent, were in first-lien positions (31 percent and 28 percent excluding the PCI home equity portfolio). At December 31, 2016, outstanding balances in the home equity portfolio that were in a second-lien or more junior-lien position and where we also held the first-lien loan totaled $10.9 billion, or 17 percent of our total home equity portfolio excluding the PCI loan portfolio.

Unused HELOCs totaled $47.2 billion and $50.3 billion at December 31, 2016 and 2015. The decrease was primarily due to accounts reaching the end of their draw period, which automatically eliminates open line exposure, as well as customers choosing to close accounts. Both of these more than offset customer paydowns of principal balances and the impact of new production. The HELOC utilization rate was 55 percent and 57 percent at December 31, 2016 and 2015.

Table 25 presents certain home equity portfolio key credit statistics on both a reported basis excluding loans accounted for under the fair value option, and excluding the PCI loan portfolio and loans accounted for under the fair value option. Additionally, in the "Reported Basis" columns in the table below, accruing balances past due 30 days or more and nonperforming loans do not include the PCI loan portfolio, in accordance with our accounting policies, even though the customer may be contractually past due. As such, the following discussion presents the home equity portfolio excluding the PCI loan portfolio and loans accounted for under the fair value option. For more information on the PCI loan portfolio, see page 61.

Table 25 Home Equity – Key Credit Statistics

	December 31			
	Reported Basis [1]		Excluding Purchased Credit-impaired Loans	
(Dollars in millions)	**2016**	2015	**2016**	2015
Outstandings	**$ 66,443**	$ 75,948	**$ 62,832**	$ 71,329
Accruing past due 30 days or more [2]	**566**	613	**566**	613
Nonperforming loans [2]	**2,918**	3,337	**2,918**	3,337
Percent of portfolio				
Refreshed CLTV greater than 90 but less than or equal to 100	**5%**	6%	**4%**	6%
Refreshed CLTV greater than 100	**8**	12	**7**	11
Refreshed FICO below 620	**7**	7	**6**	7
2006 and 2007 vintages [3]	**37**	43	**34**	41
Net charge-off ratio [4]	**0.57**	0.79	**0.60**	0.84

(1) Outstandings, accruing past due, nonperforming loans and percentages of the portfolio exclude loans accounted for under the fair value option.
(2) Accruing past due 30 days or more includes $81 million and $89 million and nonperforming loans include $340 million and $396 million of loans where we serviced the underlying first-lien at December 31, 2016 and 2015.
(3) These vintages of loans have higher refreshed combined LTV ratios and accounted for 50 percent and 45 percent of nonperforming home equity loans at December 31, 2016 and 2015, and 54 percent of net charge-offs in both 2016 and 2015.
(4) Net charge-off ratios are calculated as net charge-offs divided by average outstanding loans excluding loans accounted for under the fair value option.

Nonperforming outstanding balances in the home equity portfolio decreased $419 million in 2016 as outflows, including sales of $234 million, outpaced new inflows. Of the nonperforming home equity portfolio at December 31, 2016, $1.5 billion, or 50 percent, were current on contractual payments. Nonperforming loans that are contractually current primarily consist of collateral-dependent TDRs, including those that have been discharged in Chapter 7 bankruptcy, junior-lien loans where the underlying first-lien is 90 days or more past due, as well as loans that have not yet demonstrated a sustained period of payment performance following a TDR. In addition, $876 million, or 30 percent of nonperforming home equity loans, were 180 days or more past due and had been written down to the estimated fair value of the collateral, less costs to sell. Accruing loans that were 30 days or more past due decreased $47 million in 2016.

In some cases, the junior-lien home equity outstanding balance that we hold is performing, but the underlying first-lien is not. For outstanding balances in the home equity portfolio on which we service the first-lien loan, we are able to track whether the first-lien loan is in default. For loans where the first-lien is serviced by a third party, we utilize credit bureau data to estimate the delinquency status of the first-lien. Given that the credit bureau database we use does not include a property address for the mortgages, we are unable to identify with certainty whether a reported delinquent first-lien mortgage pertains to the same property for which we hold a junior-lien loan. For certain loans, we utilize a third-party vendor to combine credit bureau and public record data to better link a junior-lien loan with the underlying first-lien mortgage. At December 31, 2016, we estimate that $1.0 billion of current and $149 million of 30 to 89 days past due junior-lien loans were behind a delinquent first-lien loan. We service the first-lien loans on $190 million of these combined amounts, with the remaining $980 million serviced by third parties. Of the $1.2 billion of current to 89 days past due junior-lien loans, based on available credit bureau data and our own internal servicing data, we estimate that approximately $428 million had first-lien loans that were 90 days or more past due.

Net charge-offs decreased $231 million to $405 million in 2016, compared to $636 million in 2015 driven by favorable portfolio trends due in part to improvement in home prices and the U.S. economy. Additionally, the decrease in net charge-offs was partly attributable to charge-offs of $75 million related to the consumer relief portion of the settlement with the DoJ in 2015.

Outstanding balances with refreshed combined loan-to-value (CLTV) greater than 100 percent comprised seven percent and 11 percent of the home equity portfolio at December 31, 2016 and 2015. Outstanding balances in the home equity portfolio with a refreshed CLTV greater than 100 percent reflect loans where our loan and available line of credit combined with any outstanding senior liens against the property are equal to or greater than the most recent valuation of the property securing the loan. Depending on the value of the property, there may be collateral in excess of the first-lien that is available to reduce the severity of loss on the second-lien. Of those outstanding balances with a refreshed CLTV greater than 100 percent, 95 percent of the customers were current on their home equity loan and 91 percent of second-lien loans with a refreshed CLTV greater than 100 percent were current on both their second-lien and underlying first-lien loans at December 31, 2016.

Of the $62.8 billion in total home equity portfolio outstandings at December 31, 2016, as shown in Table 26, 52 percent require interest-only payments. The outstanding balance of HELOCs that have entered the amortization period was $14.7 billion at December 31, 2016. The HELOCs that have entered the amortization period have experienced a higher percentage of early stage delinquencies and nonperforming status when compared to the HELOC portfolio as a whole. At December 31, 2016, $295 million, or two percent of outstanding HELOCs that had entered the amortization period were accruing past due 30 days or more. In addition, at December 31, 2016, $1.8 billion, or 12 percent of outstanding HELOCs that had entered the amortization period were nonperforming, of which $868 million were contractually current. Loans in our HELOC portfolio generally have an initial draw period of 10 years and 23 percent of these loans will enter the amortization period in 2017 and will be required to make fully-amortizing payments. We communicate to contractually current customers more than a year prior to the end of their draw period to inform them of the potential change to the payment structure before entering the amortization period, and provide payment options to customers prior to the end of the draw period.

Although we do not actively track how many of our home equity customers pay only the minimum amount due on their home equity loans and lines, we can infer some of this information through a review of our HELOC portfolio that we service and that is still in its revolving period (i.e., customers may draw on and repay their line of credit, but are generally only required to pay interest on a monthly basis). During 2016, approximately 34 percent of these customers with an outstanding balance did not pay any principal on their HELOCs.

Table 26 presents outstandings, nonperforming balances and net charge-offs by certain state concentrations for the home equity portfolio. In the New York area, the New York-Northern New Jersey-Long Island MSA made up 13 percent of the outstanding home equity portfolio at both December 31, 2016 and 2015. Loans within this MSA contributed 17 percent and 13 percent of net charge-offs in 2016 and 2015 within the home equity portfolio. The Los Angeles-Long Beach-Santa Ana MSA within California made up 11 percent and 12 percent of the outstanding home equity portfolio in 2016 and 2015. Loans within this MSA contributed zero percent and two percent of net charge-offs in 2016 and 2015 within the home equity portfolio.

Table 26 Home Equity State Concentrations

	December 31					
	Outstandings (1)		Nonperforming (1)		Net Charge-offs (2)	
(Dollars in millions)	**2016**	2015	**2016**	2015	**2016**	2015
California	**$ 17,563**	$ 20,356	**$ 829**	$ 902	**$ 7**	$ 57
Florida (3)	**7,319**	8,474	**442**	518	**76**	128
New Jersey (3)	**5,102**	5,570	**201**	230	**50**	51
New York (3)	**4,720**	5,249	**271**	316	**45**	61
Massachusetts	**3,078**	3,378	**100**	115	**12**	17
Other U.S./Non-U.S.	**25,050**	28,302	**1,075**	1,256	**215**	322
Home equity loans (4)	**$ 62,832**	$ 71,329	**$ 2,918**	$ 3,337	**$ 405**	$ 636
Purchased credit-impaired home equity portfolio (5)	**3,611**	4,619				
Total home equity loan portfolio	**$ 66,443**	$ 75,948				

(1) Outstandings and nonperforming loans exclude loans accounted for under the fair value option.
(2) Net charge-offs exclude $196 million of write-offs in the home equity PCI loan portfolio in 2016 compared to $174 million in 2015. For more information on PCI write-offs, see Consumer Portfolio Credit Risk Management – Purchased Credit-impaired Loan Portfolio on page 61.
(3) In these states, foreclosure requires a court order following a legal proceeding (judicial states).
(4) Amount excludes the PCI home equity portfolio.
(5) At both December 31, 2016 and 2015, 29 percent of PCI home equity loans were in California. There were no other significant single state concentrations.

Purchased Credit-impaired Loan Portfolio

Loans acquired with evidence of credit quality deterioration since origination and for which it is probable at purchase that we will be unable to collect all contractually required payments are accounted for under the accounting guidance for PCI loans. For more information on PCI loans, see *Note 1 – Summary of Significant Accounting Principles* and *Note 4 – Outstanding Loans and Leases* to the Consolidated Financial Statements.

Table 27 presents the unpaid principal balance, carrying value, related valuation allowance and the net carrying value as a percentage of the unpaid principal balance for the PCI loan portfolio.

Table 27 Purchased Credit-impaired Loan Portfolio

	December 31, 2016				
(Dollars in millions)	Unpaid Principal Balance	Gross Carrying Value	Related Valuation Allowance	Carrying Value Net of Valuation Allowance	Percent of Unpaid Principal Balance
Residential mortgage (1)	**$ 10,330**	**$ 10,127**	**$ 169**	**$ 9,958**	**96.40%**
Home equity	**3,689**	**3,611**	**250**	**3,361**	**91.11**
Total purchased credit-impaired loan portfolio	**$ 14,019**	**$ 13,738**	**$ 419**	**$ 13,319**	**95.01**
	December 31, 2015				
Residential mortgage	$ 12,350	$ 12,066	$ 338	$ 11,728	94.96%
Home equity	4,650	4,619	466	4,153	89.31
Total purchased credit-impaired loan portfolio	$ 17,000	$ 16,685	$ 804	$ 15,881	93.42

(1) Includes pay option loans with an unpaid principal balance of $1.9 billion and a carrying value of $1.8 billion at December 31, 2016. This includes $1.6 billion of loans that were credit-impaired upon acquisition and $226 million of loans that are 90 days or more past due. The total unpaid principal balance of pay option loans with accumulated negative amortization was $303 million, including $16 million of negative amortization.

The total PCI unpaid principal balance decreased $3.0 billion, or 18 percent, in 2016 primarily driven by payoffs, sales, paydowns and write-offs. During 2016, we sold PCI loans with a carrying value of $549 million compared to sales of $1.4 billion in 2015.

Of the unpaid principal balance of $14.0 billion at December 31, 2016, $12.3 billion, or 88 percent, was current based on the contractual terms, $949 million, or seven percent, was in early stage delinquency, and $523 million was 180 days or more past due, including $451 million of first-lien mortgages and $72 million of home equity loans.

During 2016, we recorded a provision benefit of $45 million for the PCI loan portfolio which included a benefit of $25 million for residential mortgage and $20 million for home equity. This compared to a total provision benefit of $40 million in 2015. The provision benefit in 2016 was primarily driven by continued home price improvement and lower default estimates on second-lien loans.

The PCI valuation allowance declined $385 million during 2016 due to write-offs in the PCI loan portfolio of $144 million in residential mortgage and $196 million in home equity, combined with a provision benefit of $45 million.

The PCI residential mortgage loan portfolio represented 74 percent of the total PCI loan portfolio at December 31, 2016. Those loans to borrowers with a refreshed FICO score below 620 represented 27 percent of the PCI residential mortgage loan portfolio at December 31, 2016. Loans with a refreshed LTV greater than 90 percent, after consideration of purchase accounting adjustments and the related valuation allowance, represented 23 percent of the PCI residential mortgage loan portfolio and 26 percent based on the unpaid principal balance at December 31, 2016.

The PCI home equity portfolio represented 26 percent of the total PCI loan portfolio at December 31, 2016. Those loans with a refreshed FICO score below 620 represented 15 percent of the PCI home equity portfolio at December 31, 2016. Loans with a refreshed CLTV greater than 90 percent, after consideration of purchase accounting adjustments and the related valuation allowance, represented 46 percent of the PCI home equity portfolio and 49 percent based on the unpaid principal balance at December 31, 2016.

U.S. Credit Card

At December 31, 2016, 96 percent of the U.S. credit card portfolio was managed in *Consumer Banking* with the remainder in *GWIM*. Outstandings in the U.S. credit card portfolio increased $2.7 billion in 2016 as retail volumes outpaced payments. Net charge-offs decreased $45 million to $2.3 billion in 2016 due to improvements in delinquencies and bankruptcies as a result of an improved economic environment and the impact of higher credit quality originations. U.S. credit card loans 30 days or more past due and still accruing interest increased $20 million from loan growth while loans 90 days or more past due and still accruing interest decreased $7 million in 2016.

Unused lines of credit for U.S. credit card totaled $321.6 billion and $312.5 billion at December 31, 2016 and 2015. The $9.1 billion increase was driven by account growth and lines of credit increases.

Table 28 presents certain state concentrations for the U.S. credit card portfolio.

Table 28 U.S. Credit Card State Concentrations

	December 31					
	Outstandings		Accruing Past Due 90 Days or More		Net Charge-offs	
(Dollars in millions)	**2016**	2015	**2016**	2015	**2016**	2015
California	**$ 14,251**	$ 13,658	**$ 115**	$ 115	**$ 360**	$ 358
Florida	**7,864**	7,420	**85**	81	**245**	244
Texas	**7,037**	6,620	**65**	58	**164**	157
New York	**5,683**	5,547	**60**	57	**161**	162
Washington	**4,128**	3,907	**18**	19	**56**	59
Other U.S.	**53,315**	52,450	**439**	459	**1,283**	1,334
Total U.S. credit card portfolio	**$ 92,278**	$ 89,602	**$ 782**	$ 789	**$ 2,269**	$ 2,314

Non-U.S. Credit Card

Outstandings in the non-U.S. credit card portfolio, which are recorded in *All Other*, decreased $761 million in 2016 primarily driven by weakening of the British Pound against the U.S. Dollar. Net charge-offs decreased $13 million to $175 million in 2016 due to the same driver.

Unused lines of credit for non-U.S. credit card totaled $24.4 billion and $27.9 billion at December 31, 2016 and 2015. The $3.5 billion decrease was driven by weakening of the British Pound against the U.S. Dollar, partially offset by account growth and increases in lines of credit.

On December 20, 2016, we entered into an agreement to sell our non-U.S. consumer credit card business to a third party. Subject to regulatory approval, this transaction is expected to close by mid-2017. For more information on the sale of our non-U.S. consumer credit card business, see Recent Events on page 20 and *Note 1 – Summary of Significant Accounting Principles* to the Consolidated Financial Statements.

Direct/Indirect Consumer

At December 31, 2016, approximately 53 percent of the direct/indirect portfolio was included in *Consumer Banking* (consumer auto and specialty lending – automotive, marine, aircraft, recreational vehicle loans and consumer personal loans), and 47 percent was included in *GWIM* (principally securities-based lending loans).

Outstandings in the direct/indirect portfolio increased $5.3 billion in 2016 primarily driven by the consumer auto loan portfolio.

Table 29 presents certain state concentrations for the direct/indirect consumer loan portfolio.

Table 29 Direct/Indirect State Concentrations

(Dollars in millions)	December 31 Outstandings 2016	December 31 Outstandings 2015	Accruing Past Due 90 Days or More 2016	Accruing Past Due 90 Days or More 2015	Net Charge-offs 2016	Net Charge-offs 2015
California	$ **11,300**	$ 10,735	$ **3**	$ 3	$ **13**	$ 8
Florida	**9,418**	8,835	**3**	3	**29**	20
Texas	**9,406**	8,514	**5**	4	**21**	17
New York	**5,253**	5,077	**1**	1	**3**	3
Georgia	**3,255**	2,869	**4**	4	**9**	7
Other U.S./Non-U.S.	**55,457**	52,765	**18**	24	**59**	57
Total direct/indirect loan portfolio	$ **94,089**	$ 88,795	$ **34**	$ 39	$ **134**	$ 112

Other Consumer

At December 31, 2016, approximately 75 percent of the $2.5 billion other consumer portfolio was consumer auto leases included in *Consumer Banking*. The remainder is primarily associated with certain consumer finance businesses that we previously exited.

Nonperforming Consumer Loans, Leases and Foreclosed Properties Activity

Table 30 presents nonperforming consumer loans, leases and foreclosed properties activity during 2016 and 2015. For more information on nonperforming loans, see *Note 1 – Summary of Significant Accounting Principles* and *Note 4 – Outstanding Loans and Leases* to the Consolidated Financial Statements. During 2016, nonperforming consumer loans declined $2.2 billion to $6.0 billion primarily driven by loan sales of $1.6 billion. Additionally, nonperforming loans declined as outflows outpaced new inflows.

The outstanding balance of a real estate-secured loan that is in excess of the estimated property value less costs to sell is charged off no later than the end of the month in which the loan becomes 180 days past due unless repayment of the loan is fully insured. At December 31, 2016, $2.5 billion, or 40 percent of nonperforming consumer real estate loans and foreclosed properties had been written down to their estimated property value less costs to sell, including $2.2 billion of nonperforming loans 180 days or more past due and $363 million of foreclosed properties. In addition, at December 31, 2016, $2.5 billion, or 39 percent of nonperforming consumer loans were modified and are now current after successful trial periods, or are current loans classified as nonperforming loans in accordance with applicable policies.

Foreclosed properties decreased $81 million in 2016 as liquidations outpaced additions. PCI loans are excluded from nonperforming loans as these loans were written down to fair value at the acquisition date; however, once we acquire the underlying real estate upon foreclosure of the delinquent PCI loan, it is included in foreclosed properties. PCI-related foreclosed properties decreased $65 million in 2016. Not included in foreclosed properties at December 31, 2016 was $1.2 billion of real estate that was acquired upon foreclosure of certain delinquent government-guaranteed loans (principally FHA-insured loans). We exclude these amounts from our nonperforming loans and foreclosed properties activity as we expect we will be reimbursed once the property is conveyed to the guarantor for principal and, up to certain limits, costs incurred during the foreclosure process and interest incurred during the holding period.

Nonperforming loans also include certain loans that have been modified in TDRs where economic concessions have been granted to borrowers experiencing financial difficulties. These concessions typically result from our loss mitigation activities and could include reductions in the interest rate, payment extensions, forgiveness of principal, forbearance or other actions. Certain TDRs are classified as nonperforming at the time of restructuring and may only be returned to performing status after considering the borrower's sustained repayment performance for a reasonable period, generally six months. Nonperforming TDRs, excluding those modified loans in the PCI loan portfolio, are included in Table 30.

Table 30 Nonperforming Consumer Loans, Leases and Foreclosed Properties Activity [1]

(Dollars in millions)	2016	2015
Nonperforming loans and leases, January 1	**$ 8,165**	$ 10,819
Additions to nonperforming loans and leases:		
New nonperforming loans and leases	**3,492**	4,949
Reductions to nonperforming loans and leases:		
Paydowns and payoffs	**(795)**	(1,018)
Sales	**(1,604)**	(1,674)
Returns to performing status [2]	**(1,628)**	(2,710)
Charge-offs	**(1,277)**	(1,769)
Transfers to foreclosed properties [3]	**(294)**	(432)
Transfers to loans held-for-sale	**(55)**	—
Total net reductions to nonperforming loans and leases	**(2,161)**	(2,654)
Total nonperforming loans and leases, December 31 [4]	**6,004**	8,165
Foreclosed properties, January 1	**444**	630
Additions to foreclosed properties:		
New foreclosed properties [3]	**431**	606
Reductions to foreclosed properties:		
Sales	**(443)**	(686)
Write-downs	**(69)**	(106)
Total net reductions to foreclosed properties	**(81)**	(186)
Total foreclosed properties, December 31 [5]	**363**	444
Nonperforming consumer loans, leases and foreclosed properties, December 31	**$ 6,367**	$ 8,609
Nonperforming consumer loans and leases as a percentage of outstanding consumer loans and leases [6]	**1.32%**	1.80%
Nonperforming consumer loans, leases and foreclosed properties as a percentage of outstanding consumer loans, leases and foreclosed properties [6]	**1.39**	1.89

(1) Balances do not include nonperforming LHFS of $69 million and $5 million and nonaccruing TDRs removed from the PCI loan portfolio prior to January 1, 2010 of $27 million and $38 million at December 31, 2016 and 2015 as well as loans accruing past due 90 days or more as presented in Table 20 and *Note 4 – Outstanding Loans and Leases* to the Consolidated Financial Statements.

(2) Consumer loans may be returned to performing status when all principal and interest is current and full repayment of the remaining contractual principal and interest is expected, or when the loan otherwise becomes well-secured and is in the process of collection.

(3) New foreclosed properties represents transfers of nonperforming loans to foreclosed properties net of charge-offs taken during the first 90 days after transfer of a loan to foreclosed properties. New foreclosed properties also includes properties obtained upon foreclosure of delinquent PCI loans, properties repurchased due to representations and warranties exposure and properties acquired with newly consolidated subsidiaries.

(4) At December 31, 2016, 36 percent of nonperforming loans were 180 days or more past due.

(5) Foreclosed property balances do not include properties insured by certain government-guaranteed loans, principally FHA-insured loans, of $1.2 billion and $1.4 billion at December 31, 2016 and 2015.

(6) Outstanding consumer loans and leases exclude loans accounted for under the fair value option.

Our policy is to record any losses in the value of foreclosed properties as a reduction in the allowance for loan and lease losses during the first 90 days after transfer of a loan to foreclosed properties. Thereafter, further losses in value as well as gains and losses on sale are recorded in noninterest expense. New foreclosed properties included in Table 30 are net of $73 million and $162 million of charge-offs and write-offs of PCI loans in 2016 and 2015, recorded during the first 90 days after transfer.

We classify junior-lien home equity loans as nonperforming when the first-lien loan becomes 90 days past due even if the junior-lien loan is performing. At December 31, 2016 and 2015, $428 million and $484 million of such junior-lien home equity loans were included in nonperforming loans and leases.

Table 31 presents TDRs for the consumer real estate portfolio. Performing TDR balances are excluded from nonperforming loans and leases in Table 30.

Table 31 Consumer Real Estate Troubled Debt Restructurings

	December 31					
	2016			2015		
(Dollars in millions)	Total	Nonperforming	Performing	Total	Nonperforming	Performing
Residential mortgage [1, 2]	$ 12,631	$ 1,992	$ 10,639	$ 18,372	$ 3,284	$ 15,088
Home equity [3]	2,777	1,566	1,211	2,686	1,649	1,037
Total consumer real estate troubled debt restructurings	**$ 15,408**	**$ 3,558**	**$ 11,850**	$ 21,058	$ 4,933	$ 16,125

(1) Residential mortgage TDRs deemed collateral dependent totaled $3.5 billion and $4.9 billion, and included $1.6 billion and $2.7 billion of loans classified as nonperforming and $1.9 billion and $2.2 billion of loans classified as performing at December 31, 2016 and 2015.
(2) Residential mortgage performing TDRs included $5.3 billion and $8.7 billion of loans that were fully-insured at December 31, 2016 and 2015.
(3) Home equity TDRs deemed collateral dependent totaled $1.6 billion and $1.6 billion, and included $1.3 billion and $1.3 billion of loans classified as nonperforming and $301 million and $290 million of loans classified as performing at December 31, 2016 and 2015.

In addition to modifying consumer real estate loans, we work with customers who are experiencing financial difficulty by modifying credit card and other consumer loans. Credit card and other consumer loan modifications generally involve a reduction in the customer's interest rate on the account and placing the customer on a fixed payment plan not exceeding 60 months, all of which are considered TDRs (the renegotiated TDR portfolio). In addition, the accounts of non-U.S. credit card customers who do not qualify for a fixed payment plan may have their interest rates reduced, as required by certain local jurisdictions. These modifications, which are also TDRs, tend to experience higher payment default rates given that the borrowers may lack the ability to repay even with the interest rate reduction. In all cases, the customer's available line of credit is canceled.

Modifications of credit card and other consumer loans are made through renegotiation programs utilizing direct customer contact, but may also utilize external renegotiation programs. The renegotiated TDR portfolio is excluded in large part from Table 30 as substantially all of the loans remain on accrual status until either charged off or paid in full. At December 31, 2016 and 2015, our renegotiated TDR portfolio was $610 million and $779 million, of which $493 million and $635 million were current or less than 30 days past due under the modified terms. The decline in the renegotiated TDR portfolio was primarily driven by paydowns and charge-offs as well as lower program enrollments. For more information on the renegotiated TDR portfolio, see *Note 4 – Outstanding Loans and Leases* to the Consolidated Financial Statements.

Commercial Portfolio Credit Risk Management

Credit risk management for the commercial portfolio begins with an assessment of the credit risk profile of the borrower or counterparty based on an analysis of its financial position. As part of the overall credit risk assessment, our commercial credit exposures are assigned a risk rating and are subject to approval based on defined credit approval standards. Subsequent to loan origination, risk ratings are monitored on an ongoing basis, and if necessary, adjusted to reflect changes in the financial condition, cash flow, risk profile or outlook of a borrower or counterparty. In making credit decisions, we consider risk rating, collateral, country, industry and single name concentration limits while also balancing these considerations with the total borrower or counterparty relationship. Our business and risk management personnel use a variety of tools to continuously monitor the ability of a borrower or counterparty to perform under its obligations. We use risk rating aggregations to measure and evaluate concentrations within portfolios. In addition, risk ratings are a factor in determining the level of allocated capital and the allowance for credit losses.

As part of our ongoing risk mitigation initiatives, we attempt to work with clients experiencing financial difficulty to modify their loans to terms that better align with their current ability to pay. In situations where an economic concession has been granted to a borrower experiencing financial difficulty, we identify these loans as TDRs. For more information on our accounting policies regarding delinquencies, nonperforming status and net charge-offs for the commercial portfolio, see *Note 1 – Summary of Significant Accounting Principles* to the Consolidated Financial Statements.

Management of Commercial Credit Risk Concentrations

Commercial credit risk is evaluated and managed with the goal that concentrations of credit exposure do not result in undesirable levels of risk. We review, measure and manage concentrations of credit exposure by industry, product, geography, customer relationship and loan size. We also review, measure and manage commercial real estate loans by geographic location and property type. In addition, within our non-U.S. portfolio, we evaluate exposures by region and by country. Tables 36, 39, 44 and 45 summarize our concentrations. We also utilize syndications of exposure to third parties, loan sales, hedging and other risk mitigation techniques to manage the size and risk profile of the commercial credit portfolio. For more information on our industry concentrations, including our utilized exposure to the energy sector which was three percent and four percent of total commercial utilized exposure at December 31, 2016 and 2015, see Commercial Portfolio Credit Risk Management – Industry Concentrations on page 70 and Table 39.

We account for certain large corporate loans and loan commitments, including issued but unfunded letters of credit which are considered utilized for credit risk management purposes, that exceed our single name credit risk concentration guidelines under the fair value option. Lending commitments, both funded and unfunded, are actively managed and monitored, and as appropriate, credit risk for these lending relationships may be mitigated through the use of credit derivatives, with our credit view and market perspectives determining the size and timing of the hedging activity. In addition, we purchase credit protection to cover the funded portion as well as the unfunded portion of certain other credit exposures. To lessen the cost of obtaining our desired credit protection levels, credit exposure may be added within an industry, borrower or counterparty group by selling protection. These credit derivatives do not meet the requirements for treatment as accounting hedges. They are carried at fair value with changes in fair value recorded in other income (loss).

In addition, we are a member of various securities and derivative exchanges and clearinghouses, both in the U.S. and other countries. As a member, we may be required to pay a pro-rata share of the losses incurred by some of these organizations as a result of another member default and under other loss scenarios. For additional information, see *Note 12 – Commitments and Contingencies* to the Consolidated Financial Statements.

Commercial Credit Portfolio

During 2016, other than in the higher risk energy sub-sectors, credit quality among large corporate borrowers was strong. While we experienced some deterioration in the energy sector in 2016, oil prices have stabilized, which contributed to a modest improvement in energy-related exposure by year end. Credit quality of commercial real estate borrowers continued to be strong with conservative LTV ratios, stable market rents in most sectors and vacancy rates remaining low.

Outstanding commercial loans and leases increased $17.7 billion during 2016 primarily in U.S. commercial. Nonperforming commercial loans and leases increased $562 million during 2016. Nonperforming commercial loans and leases as a percentage of outstanding loans and leases, excluding loans accounted for under the fair value option, increased during 2016 to 0.38 percent from 0.28 percent at December 31, 2015. Reservable criticized balances increased $424 million to $16.3 billion during 2016 as a result of net downgrades outpacing paydowns, primarily in the energy sector. The increase in nonperforming loans was primarily due to energy and metals mining exposure. The allowance for loan and lease losses for the commercial portfolio increased $409 million to $5.3 billion at December 31, 2016. For additional information, see Allowance for Credit Losses on page 74.

Table 32 presents our commercial loans and leases portfolio, and related credit quality information at December 31, 2016 and 2015.

Table 32 Commercial Loans and Leases

	December 31					
	Outstandings		Nonperforming		Accruing Past Due 90 Days or More	
(Dollars in millions)	**2016**	2015	**2016**	2015	**2016**	2015
U.S. commercial	**$ 270,372**	$ 252,771	**$ 1,256**	$ 867	**$ 106**	$ 113
Commercial real estate [(1)]	**57,355**	57,199	**72**	93	**7**	3
Commercial lease financing	**22,375**	21,352	**36**	12	**19**	15
Non-U.S. commercial	**89,397**	91,549	**279**	158	**5**	1
	439,499	422,871	**1,643**	1,130	**137**	132
U.S. small business commercial [(2)]	**12,993**	12,876	**60**	82	**71**	61
Commercial loans excluding loans accounted for under the fair value option	**452,492**	435,747	**1,703**	1,212	**208**	193
Loans accounted for under the fair value option [(3)]	**6,034**	5,067	**84**	13	**—**	—
Total commercial loans and leases	**$ 458,526**	$ 440,814	**$ 1,787**	$ 1,225	**$ 208**	$ 193

(1) Includes U.S. commercial real estate loans of $54.3 billion and $53.6 billion and non-U.S. commercial real estate loans of $3.1 billion and $3.5 billion at December 31, 2016 and 2015.
(2) Includes card-related products.
(3) Commercial loans accounted for under the fair value option include U.S. commercial loans of $2.9 billion and $2.3 billion and non-U.S. commercial loans of $3.1 billion and $2.8 billion at December 31, 2016 and 2015. For more information on the fair value option, see *Note 21 – Fair Value Option* to the Consolidated Financial Statements.

Table 33 presents net charge-offs and related ratios for our commercial loans and leases for 2016 and 2015. The increase in net charge-offs of $80 million in 2016 was primarily due to higher energy sector related losses.

Table 33 Commercial Net Charge-offs and Related Ratios

	Net Charge-offs		Net Charge-off Ratios [(1)]	
(Dollars in millions)	**2016**	2015	**2016**	2015
U.S. commercial	**$ 184**	$ 139	**0.07%**	0.06%
Commercial real estate	**(31)**	(5)	**(0.05)**	(0.01)
Commercial lease financing	**21**	9	**0.10**	0.04
Non-U.S. commercial	**120**	54	**0.13**	0.06
	294	197	**0.07**	0.05
U.S. small business commercial	**208**	225	**1.60**	1.71
Total commercial	**$ 502**	$ 422	**0.11**	0.10

(1) Net charge-off ratios are calculated as net charge-offs divided by average outstanding loans and leases excluding loans accounted for under the fair value option.

Table 34 presents commercial credit exposure by type for utilized, unfunded and total binding committed credit exposure. Commercial utilized credit exposure includes SBLCs and financial guarantees, bankers' acceptances and commercial letters of credit for which we are legally bound to advance funds under prescribed conditions during a specified time period and excludes exposure related to trading account assets. Although funds have not yet been advanced, these exposure types are considered utilized for credit risk management purposes.

Total commercial utilized credit exposure increased $15.3 billion in 2016 primarily driven by growth in loans and leases. The utilization rate for loans and leases, SBLCs and financial guarantees, commercial letters of credit and bankers acceptances, in the aggregate, was 58 percent and 56 percent at December 31, 2016 and 2015.

Table 34 Commercial Credit Exposure by Type

	December 31					
	Commercial Utilized (1)		Commercial Unfunded (2, 3, 4)		Total Commercial Committed	
(Dollars in millions)	**2016**	2015	**2016**	2015	**2016**	2015
Loans and leases (5)	**$ 464,260**	$ 446,832	**$ 366,106**	$ 376,478	**$ 830,366**	$ 823,310
Derivative assets (6)	**42,512**	49,990	**—**	—	**42,512**	49,990
Standby letters of credit and financial guarantees	**33,135**	33,236	**660**	690	**33,795**	33,926
Debt securities and other investments	**26,244**	21,709	**5,474**	4,173	**31,718**	25,882
Loans held-for-sale	**6,510**	5,456	**3,824**	1,203	**10,334**	6,659
Commercial letters of credit	**1,464**	1,725	**112**	390	**1,576**	2,115
Bankers' acceptances	**395**	298	**13**	—	**408**	298
Other	**372**	317	**—**	—	**372**	317
Total	**$ 574,892**	$ 559,563	**$ 376,189**	$ 382,934	**$ 951,081**	$ 942,497

(1) Total commercial utilized exposure includes loans of $6.0 billion and $5.1 billion and issued letters of credit with a notional amount of $284 million and $290 million accounted for under the fair value option at December 31, 2016 and 2015.
(2) Total commercial unfunded exposure includes loan commitments accounted for under the fair value option with a notional amount of $6.7 billion and $10.6 billion at December 31, 2016 and 2015.
(3) Excludes unused business card lines which are not legally binding.
(4) Includes the notional amount of unfunded legally binding lending commitments net of amounts distributed (e.g. syndicated or participated) to other financial institutions. The distributed amounts were $12.1 billion and $14.3 billion at December 31, 2016 and 2015.
(5) Includes credit risk exposure associated with assets under operating lease arrangements of $5.7 billion and $6.0 billion at December 31, 2016 and 2015.
(6) Derivative assets are carried at fair value, reflect the effects of legally enforceable master netting agreements and have been reduced by cash collateral of $43.3 billion and $41.9 billion at December 31, 2016 and 2015. Not reflected in utilized and committed exposure is additional non-cash derivative collateral held of $22.9 billion and $23.3 billion at December 31, 2016 and 2015, which consists primarily of other marketable securities.

Table 35 presents commercial utilized reservable criticized exposure by loan type. Criticized exposure corresponds to the Special Mention, Substandard and Doubtful asset categories as defined by regulatory authorities. Total commercial utilized reservable criticized exposure increased $424 million, or three percent, in 2016 driven by downgrades, primarily related to our energy exposure, outpacing paydowns and upgrades. Approximately 76 percent and 78 percent of commercial utilized reservable criticized exposure was secured at December 31, 2016 and 2015.

Table 35 Commercial Utilized Reservable Criticized Exposure

	December 31			
	2016		2015	
(Dollars in millions)	**Amount (1)**	**Percent (2)**	Amount (1)	Percent (2)
U.S. commercial	**$ 10,311**	**3.46%**	$ 9,965	3.56%
Commercial real estate	**399**	**0.68**	513	0.87
Commercial lease financing	**810**	**3.62**	708	3.31
Non-U.S. commercial	**3,974**	**4.17**	3,944	4.04
	15,494	**3.27**	15,130	3.30
U.S. small business commercial	**826**	**6.36**	766	5.95
Total commercial utilized reservable criticized exposure	**$ 16,320**	**3.35**	$ 15,896	3.38

(1) Total commercial utilized reservable criticized exposure includes loans and leases of $14.9 billion and $14.5 billion and commercial letters of credit of $1.4 billion at December 31, 2016 and 2015.
(2) Percentages are calculated as commercial utilized reservable criticized exposure divided by total commercial utilized reservable exposure for each exposure category.

U.S. Commercial

At December 31, 2016, 72 percent of the U.S. commercial loan portfolio, excluding small business, was managed in *Global Banking,* 16 percent in *Global Markets*, 10 percent in *GWIM* (generally business-purpose loans for high net worth clients) and the remainder primarily in *Consumer Banking*. U.S. commercial loans, excluding loans accounted for under the fair value option, increased $17.6 billion, or seven percent, during 2016 due to growth across all of the commercial businesses. Energy exposure largely drove increases in reservable criticized balances of $346 million, or three percent, and nonperforming loans and leases of $389 million, or 45 percent, during 2016, as well as increases in net charge-offs of $45 million in 2016 compared to 2015.

Commercial Real Estate

Commercial real estate primarily includes commercial loans and leases secured by non-owner-occupied real estate and is dependent on the sale or lease of the real estate as the primary source of repayment. The portfolio remains diversified across property types and geographic regions. California represented the largest state concentration at 23 percent and 21 percent of the commercial real estate loans and leases portfolio at December 31, 2016 and 2015. The commercial real estate portfolio is predominantly managed in *Global Banking* and consists of loans made primarily to public and private developers, and commercial real estate firms. Outstanding loans remained relatively unchanged with new originations slightly outpacing paydowns during 2016.

During 2016, we continued to see low default rates and solid credit quality in both the residential and non-residential portfolios. We use a number of proactive risk mitigation initiatives to reduce adversely rated exposure in the commercial real estate portfolio, including transfers of deteriorating exposures to management by independent special asset officers and the pursuit of loan restructurings or asset sales to achieve the best results for our customers and the Corporation.

Nonperforming commercial real estate loans and foreclosed properties decreased $22 million, or 20 percent, to $86 million and reservable criticized balances decreased $114 million, or 22 percent, to $399 million at December 31, 2016. The decrease in reservable criticized balances was primarily due to loan resolutions and strong commercial real estate fundamentals in most sectors. Net recoveries were $31 million and $5 million in 2016 and 2015.

Table 36 presents outstanding commercial real estate loans by geographic region, based on the geographic location of the collateral, and by property type.

Table 36 Outstanding Commercial Real Estate Loans

	December 31	
(Dollars in millions)	**2016**	2015
By Geographic Region		
California	**$ 13,450**	$ 12,063
Northeast	**10,329**	10,292
Southwest	**7,567**	7,789
Southeast	**5,630**	6,066
Midwest	**4,380**	3,780
Florida	**3,213**	3,330
Northwest	**2,430**	2,327
Illinois	**2,408**	2,536
Midsouth	**2,346**	2,435
Non-U.S.	**3,103**	3,549
Other [1]	**2,499**	3,032
Total outstanding commercial real estate loans	**$ 57,355**	$ 57,199
By Property Type		
Non-residential		
Office	**$ 16,643**	$ 15,246
Multi-family rental	**8,817**	8,956
Shopping centers/retail	**8,794**	8,594
Hotels / Motels	**5,550**	5,415
Industrial / Warehouse	**5,357**	5,501
Multi-Use	**2,822**	3,003
Unsecured	**1,730**	2,056
Land and land development	**357**	539
Other	**5,595**	5,791
Total non-residential	**55,665**	55,101
Residential	**1,690**	2,098
Total outstanding commercial real estate loans	**$ 57,355**	$ 57,199

(1) Includes unsecured loans to real estate investment trusts and national home builders whose portfolios of properties span multiple geographic regions and properties in the states of Colorado, Utah, Hawaii, Wyoming and Montana.

At December 31, 2016, total committed non-residential exposure was $76.9 billion compared to $81.0 billion at December 31, 2015, of which $55.7 billion and $55.1 billion were funded loans. Non-residential nonperforming loans and foreclosed properties decreased $13 million, or 14 percent, to $81 million at December 31, 2016 due to decreases across most property types. The non-residential nonperforming loans and foreclosed properties represented 0.14 percent and 0.17 percent of total non-residential loans and foreclosed properties at December 31, 2016 and 2015. Non-residential utilized reservable criticized exposure decreased $105 million, or 21 percent, to $397 million at December 31, 2016 compared to $502 million at December 31, 2015, which represented 0.70 percent and 0.89 percent of non-residential utilized reservable exposure. For the non-residential portfolio, net recoveries increased $24 million to $31 million in 2016 compared to 2015.

At December 31, 2016, total committed residential exposure was $3.7 billion compared to $4.1 billion at December 31, 2015, of which $1.7 billion and $2.1 billion were funded secured loans. The residential nonperforming loans and foreclosed properties decreased $8 million, or 57 percent, and residential utilized reservable criticized exposure decreased $8 million, or 73 percent, during 2016. The nonperforming loans, leases and foreclosed properties and the utilized reservable criticized ratios for the residential portfolio were 0.35 percent and 0.16 percent at

December 31, 2016 compared to 0.66 percent and 0.52 percent at December 31, 2015.

At December 31, 2016 and 2015, the commercial real estate loan portfolio included $6.8 billion and $7.6 billion of funded construction and land development loans that were originated to fund the construction and/or rehabilitation of commercial properties. Reservable criticized construction and land development loans totaled $107 million and $108 million, and nonperforming construction and land development loans and foreclosed properties totaled $44 million at both December 31, 2016 and 2015. During a property's construction phase, interest income is typically paid from interest reserves that are established at the inception of the loan. As construction is completed and the property is put into service, these interest reserves are depleted and interest payments from operating cash flows begin. We do not recognize interest income on nonperforming loans regardless of the existence of an interest reserve.

Non-U.S. Commercial

At December 31, 2016, 77 percent of the non-U.S. commercial loan portfolio was managed in *Global Banking* and 23 percent in *Global Markets*. Outstanding loans, excluding loans accounted for under the fair value option, decreased $2.2 billion in 2016 primarily due to payoffs. Net charge-offs increased $66 million to $120 million in 2016 primarily due to higher energy sector related losses in the first half of 2016. For more information on the non-U.S. commercial portfolio, see Non-U.S. Portfolio on page 73.

U.S. Small Business Commercial

The U.S. small business commercial loan portfolio is comprised of small business card loans and small business loans managed in *Consumer Banking*. Credit card-related products were 48 percent and 45 percent of the U.S. small business commercial portfolio at December 31, 2016 and 2015. Net charge-offs decreased $17 million to $208 million in 2016 primarily driven by portfolio improvement. Of the U.S. small business commercial net charge-offs, 86 percent and 81 percent were credit card-related products in 2016 and 2015.

Nonperforming Commercial Loans, Leases and Foreclosed Properties Activity

Table 37 presents the nonperforming commercial loans, leases and foreclosed properties activity during 2016 and 2015. Nonperforming loans do not include loans accounted for under the fair value option. During 2016, nonperforming commercial loans and leases increased $491 million to $1.7 billion primarily due to energy and metals and mining exposure. Approximately 77 percent of commercial nonperforming loans, leases and foreclosed properties were secured and approximately 66 percent were contractually current. Commercial nonperforming loans were carried at approximately 88 percent of their unpaid principal balance before consideration of the allowance for loan and lease losses as the carrying value of these loans has been reduced to the estimated property value less costs to sell.

Table 37 Nonperforming Commercial Loans, Leases and Foreclosed Properties Activity (1, 2)

(Dollars in millions)	2016	2015
Nonperforming loans and leases, January 1	**$ 1,212**	$ 1,113
Additions to nonperforming loans and leases:		
New nonperforming loans and leases	**2,330**	1,367
Advances	**17**	36
Reductions to nonperforming loans and leases:		
Paydowns	**(824)**	(491)
Sales	**(318)**	(108)
Returns to performing status (3)	**(267)**	(130)
Charge-offs	**(434)**	(362)
Transfers to foreclosed properties (4)	**(4)**	(213)
Transfers to loans held-for-sale	**(9)**	—
Total net additions to nonperforming loans and leases	**491**	99
Total nonperforming loans and leases, December 31	**1,703**	1,212
Foreclosed properties, January 1	**15**	67
Additions to foreclosed properties:		
New foreclosed properties (4)	**24**	207
Reductions to foreclosed properties:		
Sales	**(25)**	(256)
Write-downs	**—**	(3)
Total net reductions to foreclosed properties	**(1)**	(52)
Total foreclosed properties, December 31	**14**	15
Nonperforming commercial loans, leases and foreclosed properties, December 31	**$ 1,717**	$ 1,227
Nonperforming commercial loans and leases as a percentage of outstanding commercial loans and leases (5)	**0.38%**	0.28%
Nonperforming commercial loans, leases and foreclosed properties as a percentage of outstanding commercial loans, leases and foreclosed properties (5)	**0.38**	0.28

(1) Balances do not include nonperforming LHFS of $195 million and $220 million at December 31, 2016 and 2015.
(2) Includes U.S. small business commercial activity. Small business card loans are excluded as they are not classified as nonperforming.
(3) Commercial loans and leases may be returned to performing status when all principal and interest is current and full repayment of the remaining contractual principal and interest is expected, or when the loan otherwise becomes well-secured and is in the process of collection. TDRs are generally classified as performing after a sustained period of demonstrated payment performance.
(4) New foreclosed properties represents transfers of nonperforming loans to foreclosed properties net of charge-offs recorded during the first 90 days after transfer of a loan to foreclosed properties.
(5) Outstanding commercial loans exclude loans accounted for under the fair value option.

Table 38 presents our commercial TDRs by product type and performing status. U.S. small business commercial TDRs are comprised of renegotiated small business card loans and small business loans. The renegotiated small business card loans are not classified as nonperforming as they are charged off no later than the end of the month in which the loan becomes 180 days past due. For more information on TDRs, see *Note 4 – Outstanding Loans and Leases* to the Consolidated Financial Statements.

Table 38 Commercial Troubled Debt Restructurings

	December 31					
	2016			2015		
(Dollars in millions)	**Total**	**Nonperforming**	**Performing**	Total	Nonperforming	Performing
U.S. commercial	**$ 1,860**	**$ 720**	**$ 1,140**	$ 1,225	$ 394	$ 831
Commercial real estate	**140**	**45**	**95**	118	27	91
Commercial lease financing	**4**	**2**	**2**	—	—	—
Non-U.S. commercial	**308**	**25**	**283**	363	136	227
	2,312	**792**	**1,520**	1,706	557	1,149
U.S. small business commercial	**15**	**2**	**13**	29	10	19
Total commercial troubled debt restructurings	**$ 2,327**	**$ 794**	**$ 1,533**	$ 1,735	$ 567	$ 1,168

Industry Concentrations

Table 39 presents commercial committed and utilized credit exposure by industry and the total net credit default protection purchased to cover the funded and unfunded portions of certain credit exposures. Our commercial credit exposure is diversified across a broad range of industries. Total commercial committed credit exposure increased $8.6 billion, or one percent, in 2016 to $951.1 billion. Increases in commercial committed exposure were concentrated in healthcare equipment and services, telecommunication services, capital goods and consumer services, partially offset by lower exposure to technology hardware and equipment, banking, and food, beverage and tobacco.

Industry limits are used internally to manage industry concentrations and are based on committed exposures and capital usage that are allocated on an industry-by-industry basis. A risk management framework is in place to set and approve industry limits as well as to provide ongoing monitoring. The MRC overseas industry limit governance.

Diversified financials, our largest industry concentration with committed exposure of $124.5 billion, decreased $3.9 billion, or three percent, in 2016. The decrease was primarily due to a reduction in bridge financing exposure and other commitments.

Real estate, our second largest industry concentration with committed exposure of $83.7 billion, decreased $4.0 billion, or five percent, in 2016. For more information on the commercial real estate and related portfolios, see Commercial Portfolio Credit Risk Management – Commercial Real Estate on page 68.

Our energy-related committed exposure decreased $4.6 billion in 2016 to $39.2 billion. Within the higher risk sub-sectors of exploration and production and oil field services, total committed exposure declined $2.8 billion to $15.3 billion at December 31, 2016, or 39 percent of total committed energy exposure. Total utilized exposure to these sub-sectors declined approximately $1.7 billion to $6.7 billion in 2016. Of the total $5.7 billion of reservable utilized exposure to the higher risk sub-sectors, 56 percent was criticized at December 31, 2016. Energy sector net charge-offs increased $141 million to $241 million in 2016, and energy sector reservable criticized exposure increased $910 million in 2016 to $5.5 billion due to low oil prices which impacted the financial performance of energy clients. The energy allowance for credit losses increased $382 million in 2016 to $925 million primarily due to an increase in reserves for the higher risk sub-sectors.

Table 39 Commercial Credit Exposure by Industry [1]

	December 31			
	Commercial Utilized		Total Commercial Committed [2]	
(Dollars in millions)	**2016**	2015	**2016**	2015
Diversified financials	**$ 81,156**	$ 79,496	**$ 124,535**	$ 128,436
Real estate [3]	**61,203**	61,759	**83,658**	87,650
Retailing	**41,630**	37,675	**68,507**	63,975
Healthcare equipment and services	**37,656**	35,134	**64,663**	57,901
Capital goods	**34,278**	30,790	**64,202**	58,583
Government and public education	**45,694**	44,835	**54,626**	53,133
Banking	**39,877**	45,952	**47,799**	53,825
Materials	**22,578**	24,012	**44,357**	46,013
Consumer services	**27,413**	24,084	**42,523**	37,058
Energy	**19,686**	21,257	**39,231**	43,811
Food, beverage and tobacco	**19,669**	18,316	**37,145**	43,164
Commercial services and supplies	**21,241**	19,552	**35,360**	32,045
Transportation	**19,805**	19,369	**27,483**	27,371
Utilities	**11,349**	11,396	**27,140**	27,849
Media	**13,419**	12,833	**27,116**	24,194
Individuals and trusts	**16,364**	17,992	**21,764**	23,176
Software and services	**7,991**	6,617	**19,790**	18,362
Pharmaceuticals and biotechnology	**5,539**	6,302	**18,910**	16,472
Technology hardware and equipment	**7,793**	6,337	**18,429**	24,734
Telecommunication services	**6,317**	4,717	**16,925**	10,645
Insurance, including monolines	**7,406**	5,095	**13,936**	10,728
Automobiles and components	**5,459**	4,804	**12,969**	11,329
Consumer durables and apparel	**6,042**	6,053	**11,460**	11,165
Food and staples retailing	**4,795**	4,351	**8,869**	9,439
Religious and social organizations	**4,423**	4,526	**6,252**	5,929
Other	**6,109**	6,309	**13,432**	15,510
Total commercial credit exposure by industry	**$ 574,892**	$ 559,563	**$ 951,081**	$ 942,497
Net credit default protection purchased on total commitments [4]			**$ (3,477)**	$ (6,677)

(1) Includes U.S. small business commercial exposure.
(2) Includes the notional amount of unfunded legally binding lending commitments net of amounts distributed (e.g., syndicated or participated) to other financial institutions. The distributed amounts were $12.1 billion and $14.3 billion at December 31, 2016 and 2015.
(3) Industries are viewed from a variety of perspectives to best isolate the perceived risks. For purposes of this table, the real estate industry is defined based on the borrowers' or counterparties' primary business activity using operating cash flows and primary source of repayment as key factors.
(4) Represents net notional credit protection purchased. For additional information, see Commercial Portfolio Credit Risk Management – Risk Mitigation below.

Risk Mitigation

We purchase credit protection to cover the funded portion as well as the unfunded portion of certain credit exposures. To lower the cost of obtaining our desired credit protection levels, we may add credit exposure within an industry, borrower or counterparty group by selling protection.

At December 31, 2016 and 2015, net notional credit default protection purchased in our credit derivatives portfolio to hedge our funded and unfunded exposures for which we elected the fair value option, as well as certain other credit exposures, was $3.5 billion and $6.7 billion. We recorded net losses of $438 million in 2016 compared to net gains of $150 million in 2015 on these positions. The gains and losses on these instruments were offset by gains and losses on the related exposures. The Value-at-Risk (VaR) results for these exposures are included in the fair value option portfolio information in Table 48. For additional information, see Trading Risk Management on page 79.

Tables 40 and 41 present the maturity profiles and the credit exposure debt ratings of the net credit default protection portfolio at December 31, 2016 and 2015.

Table 40 Net Credit Default Protection by Maturity

	December 31	
	2016	2015
Less than or equal to one year	**56%**	39%
Greater than one year and less than or equal to five years	**41**	59
Greater than five years	**3**	2
Total net credit default protection	**100%**	100%

Table 41 Net Credit Default Protection by Credit Exposure Debt Rating

	December 31			
	2016		2015	
(Dollars in millions)	Net Notional [1]	Percent of Total	Net Notional [1]	Percent of Total
Ratings [2, 3]				
A	$ (135)	3.9%	$ (752)	11.3%
BBB	(1,884)	54.2	(3,030)	45.4
BB	(871)	25.1	(2,090)	31.3
B	(477)	13.7	(634)	9.5
CCC and below	(81)	2.3	(139)	2.1
NR [4]	(29)	0.8	(32)	0.4
Total net credit default protection	$ (3,477)	100.0%	$ (6,677)	100.0%

(1) Represents net credit default protection purchased.
(2) Ratings are refreshed on a quarterly basis.
(3) Ratings of BBB- or higher are considered to meet the definition of investment grade.
(4) NR is comprised of index positions held and any names that have not been rated.

In addition to our net notional credit default protection purchased to cover the funded and unfunded portion of certain credit exposures, credit derivatives are used for market-making activities for clients and establishing positions intended to profit from directional or relative value changes. We execute the majority of our credit derivative trades in the OTC market with large, multinational financial institutions, including broker-dealers and, to a lesser degree, with a variety of other investors. Because these transactions are executed in the OTC market, we are subject to settlement risk. We are also subject to credit risk in the event that these counterparties fail to perform under the terms of these contracts. In most cases, credit derivative transactions are executed on a daily margin basis. Therefore, events such as a credit downgrade, depending on the ultimate rating level, or a breach of credit covenants would typically require an increase in the amount of collateral required by the counterparty, where applicable, and/or allow us to take additional protective measures such as early termination of all trades.

Table 42 presents the total contract/notional amount of credit derivatives outstanding and includes both purchased and written credit derivatives. The credit risk amounts are measured as net asset exposure by counterparty, taking into consideration all contracts with the counterparty. For more information on our written credit derivatives, see *Note 2 – Derivatives* to the Consolidated Financial Statements.

The credit risk amounts discussed above and presented in Table 42 take into consideration the effects of legally enforceable master netting agreements while amounts disclosed in *Note 2 – Derivatives* to the Consolidated Financial Statements are shown on a gross basis. Credit risk reflects the potential benefit from offsetting exposure to non-credit derivative products with the same counterparties that may be netted upon the occurrence of certain events, thereby reducing our overall exposure.

Table 42 Credit Derivatives

	December 31			
	2016		2015	
(Dollars in millions)	Contract/ Notional	Credit Risk	Contract/ Notional	Credit Risk
Purchased credit derivatives:				
Credit default swaps	$ 603,979	$ 2,732	$ 928,300	$ 3,677
Total return swaps/other	21,165	433	26,427	1,596
Total purchased credit derivatives	$ 625,144	$ 3,165	$ 954,727	$ 5,273
Written credit derivatives:				
Credit default swaps	$ 614,355	n/a	$ 924,143	n/a
Total return swaps/other	25,354	n/a	39,658	n/a
Total written credit derivatives	$ 639,709	n/a	$ 963,801	n/a

n/a = not applicable

Counterparty Credit Risk Valuation Adjustments

We record counterparty credit risk valuation adjustments on certain derivative assets, including our credit default protection purchased, in order to properly reflect the credit risk of the counterparty, as presented in Table 43. We calculate CVA based on a modeled expected exposure that incorporates current market risk factors including changes in market spreads and non-credit related market factors that affect the value of a derivative. The exposure also takes into consideration credit mitigants such as legally enforceable master netting agreements and collateral. For additional information, see *Note 2 – Derivatives* to the Consolidated Financial Statements.

We enter into risk management activities to offset market driven exposures. We often hedge the counterparty spread risk in CVA with credit default swaps (CDS). We hedge other market risks in CVA primarily with currency and interest rate swaps. In certain instances, the net-of-hedge amounts in the table below move in the same direction as the gross amount or may move in the opposite direction. This movement is a consequence of the complex interaction of the risks being hedged resulting in limitations in the ability to perfectly hedge all of the market exposures at all times.

Table 43 Credit Valuation Gains and Losses

Gains (Losses)	2016			2015		
(Dollars in millions)	Gross	Hedge	Net	Gross	Hedge	Net
Credit valuation	$ 374	$ (160)	$ 214	$ 255	$ (28)	$ 227

Non-U.S. Portfolio

Our non-U.S. credit and trading portfolios are subject to country risk. We define country risk as the risk of loss from unfavorable economic and political conditions, currency fluctuations, social instability and changes in government policies. A risk management framework is in place to measure, monitor and manage non-U.S. risk and exposures. In addition to the direct risk of doing business in a country, we also are exposed to indirect country risks (e.g., related to the collateral received on secured financing transactions or related to client clearing activities). These indirect exposures are managed in the normal course of business through credit, market and operational risk governance, rather than through country risk governance.

Table 44 presents our 20 largest non-U.S. country exposures. These exposures accounted for 88 percent and 86 percent of our total non-U.S. exposure at December 31, 2016 and 2015. Net country exposure for these 20 countries increased $6.5 billion in 2016 primarily driven by increases in Germany, and to a lesser extent Canada, France and Switzerland. On a product basis, the increase was driven by an increase in funded loans and loan equivalents in Germany and Canada, higher unfunded commitments in Germany and Switzerland, and an increase in securities in France and Canada.

Non-U.S. exposure is presented on an internal risk management basis and includes sovereign and non-sovereign credit exposure, securities and other investments issued by or domiciled in countries other than the U.S. The risk assignments by country can be adjusted for external guarantees and certain collateral types. Exposures that are subject to external guarantees are reported under the country of the guarantor. Exposures with tangible collateral are reflected in the country where the collateral is held. For securities received, other than cross-border resale agreements, outstandings are assigned to the domicile of the issuer of the securities.

Funded loans and loan equivalents include loans, leases, and other extensions of credit and funds, including letters of credit and due from placements, which have not been reduced by collateral, hedges or credit default protection. Funded loans and loan equivalents are reported net of charge-offs but prior to any allowance for loan and lease losses. Unfunded commitments are the undrawn portion of legally binding commitments related to loans and loan equivalents.

Net counterparty exposure includes the fair value of derivatives, including the counterparty risk associated with CDS, and secured financing transactions. Derivatives exposures are presented net of collateral, which is predominantly cash, pledged under legally enforceable master netting agreements. Secured financing transaction exposures are presented net of eligible cash or securities pledged as collateral.

Securities and other investments are carried at fair value and long securities exposures are netted against short exposures with the same underlying issuer to, but not below, zero (i.e., negative issuer exposures are reported as zero). Other investments include our GPI portfolio and strategic investments.

Net country exposure represents country exposure less hedges and credit default protection purchased, net of credit default protection sold. We hedge certain of our country exposures with credit default protection primarily in the form of single-name, as well as indexed and tranched CDS. The exposures associated with these hedges represent the amount that would be realized upon the isolated default of an individual issuer in the relevant country assuming a zero recovery rate for that individual issuer, and are calculated based on the CDS notional amount adjusted for any fair value receivable or payable. Changes in the assumption of an isolated default can produce different results in a particular tranche.

Table 44 Top 20 Non-U.S. Countries Exposure

(Dollars in millions)	Funded Loans and Loan Equivalents	Unfunded Loan Commitments	Net Counterparty Exposure	Securities/ Other Investments	Country Exposure at December 31 2016	Hedges and Credit Default Protection	**Net Country Exposure at December 31 2016**	Increase (Decrease) from December 31 2015
United Kingdom	$ 29,329	$ 13,105	$ 6,145	$ 3,823	$ 52,402	$ (4,669)	**$ 47,733**	$ (5,513)
Germany	13,202	8,648	1,979	2,579	26,408	(4,030)	**22,378**	8,974
Canada	6,722	7,159	2,023	3,803	19,707	(933)	**18,774**	4,042
Japan	12,065	652	2,448	1,597	16,762	(1,751)	**15,011**	647
Brazil	9,118	389	780	3,646	13,933	(267)	**13,666**	(1,984)
China	9,230	722	714	949	11,615	(730)	**10,885**	411
France	3,112	4,823	1,899	5,325	15,159	(4,465)	**10,694**	2,008
Switzerland	4,050	5,999	499	507	11,055	(1,409)	**9,646**	3,383
India	6,671	288	353	2,086	9,398	(170)	**9,228**	(1,126)
Australia	4,792	2,685	559	1,249	9,285	(362)	**8,923**	(622)
Hong Kong	6,425	156	441	520	7,542	(63)	**7,479**	(110)
Netherlands	3,537	2,496	559	2,296	8,888	(1,490)	**7,398**	(236)
South Korea	4,175	838	864	829	6,706	(600)	**6,106**	(752)
Singapore	2,633	199	699	1,937	5,468	(50)	**5,418**	689
Mexico	2,817	1,391	187	430	4,825	(341)	**4,484**	(570)
Italy	2,329	1,036	577	1,246	5,188	(1,101)	**4,087**	(1,221)
United Arab Emirates	2,104	139	570	27	2,840	(97)	**2,743**	(283)
Turkey	2,695	50	69	58	2,872	(182)	**2,690**	(450)
Spain	1,818	614	173	894	3,499	(953)	**2,546**	(517)
Taiwan	1,417	33	341	317	2,108	(27)	**2,081**	(294)
Total top 20 non-U.S. countries exposure	$ 128,241	$ 51,422	$ 21,879	$ 34,118	$ 235,660	$ (23,690)	**$ 211,970**	$ 6,476

Strengthening of the U.S. Dollar, weak commodity prices, signs of slowing growth in China, a protracted recession in Brazil and recent political events in Turkey are driving risk aversion in emerging markets. At December 31, 2016, net exposure to China was $10.9 billion, concentrated in large state-owned companies, subsidiaries of multinational corporations and commercial banks. At December 31, 2016, net exposure to Brazil was $13.7 billion, concentrated in sovereign securities, oil and gas companies and commercial banks. At December 31, 2016, net exposure to Turkey was $2.7 billion, concentrated in commercial banks.

The outlook for policy direction and therefore economic performance in the EU is uncertain as a consequence of reduced political cohesion and the lack of clarity following the U.K. Referendum to leave the EU. At December 31, 2016, net exposure to the U.K. was $47.7 billion, concentrated in multinational corporations and sovereign clients. For additional information, see Executive Summary – 2016 Economic and Business Environment on page 20.

Table 45 presents countries where total cross-border exposure exceeded one percent of our total assets. At December 31, 2016, the U.K. and France were the only countries where total cross-border exposure exceeded one percent of our total assets. At December 31, 2016, Germany had total cross-border exposure of $18.4 billion representing 0.84 percent of our total assets. No other countries had total cross-border exposure that exceeded 0.75 percent of our total assets at December 31, 2016.

Cross-border exposure includes the components of Country Risk Exposure as detailed in Table 44 as well as the notional amount of cash loaned under secured financing agreements. Local exposure, defined as exposure booked in local offices of a respective country with clients in the same country, is excluded.

Table 45 Total Cross-border Exposure Exceeding One Percent of Total Assets

(Dollars in millions)	December 31	Public Sector	Banks	Private Sector	Cross-border Exposure	Exposure as a Percent of Total Assets
United Kingdom	**2016**	**$ 2,975**	**$ 4,557**	**$ 42,105**	**$ 49,637**	**2.27%**
	2015	3,264	5,104	38,576	46,944	2.19
	2014	11	2,056	34,595	36,662	1.74
France	**2016**	**4,956**	**1,205**	**23,193**	**29,354**	**1.34**
	2015	3,343	1,766	17,099	22,208	1.04
	2014	4,479	2,631	14,368	21,478	1.02

Provision for Credit Losses

The provision for credit losses increased $436 million to $3.6 billion in 2016 compared to 2015. The provision for credit losses was $224 million lower than net charge-offs for 2016, resulting in a reduction in the allowance for credit losses. This compared to a reduction of $1.2 billion in the allowance for credit losses in 2015.

The provision for credit losses for the consumer portfolio increased $360 million to $2.6 billion in 2016 compared to 2015 due to a slower pace of credit quality improvement. Included in the provision is a benefit of $45 million related to the PCI loan portfolio for 2016 compared to a benefit of $40 million in 2015. The provision for credit losses for the commercial portfolio, including unfunded lending commitments, increased $76 million to $1.0 billion in 2016 compared to 2015 driven by an increase in energy sector reserves in the first half of 2016 for the higher risk energy sub-sectors. While we experienced some deterioration in the energy sector in 2016, oil prices have stabilized which contributed to a modest improvement in energy-related exposure by year end.

Allowance for Credit Losses

Allowance for Loan and Lease Losses

The allowance for loan and lease losses is comprised of two components. The first component covers nonperforming commercial loans and TDRs. The second component covers loans and leases on which there are incurred losses that are not yet individually identifiable, as well as incurred losses that may not be represented in the loss forecast models. We evaluate the adequacy of the allowance for loan and lease losses based on the total of these two components, each of which is described in more detail below. The allowance for loan and lease losses excludes LHFS and loans accounted for under the fair value option as the fair value reflects a credit risk component.

The first component of the allowance for loan and lease losses covers both nonperforming commercial loans and all TDRs within the consumer and commercial portfolios. These loans are subject to impairment measurement based on the present value of projected future cash flows discounted at the loan's original effective interest rate, or in certain circumstances, impairment may also be based upon the collateral value or the loan's observable market price if available. Impairment measurement for the renegotiated consumer credit card, small business credit card and unsecured consumer TDR portfolios is based on the present value of projected cash flows discounted using the average portfolio contractual interest rate, excluding promotionally priced loans, in effect prior to restructuring. For purposes of computing this specific loss component of the allowance, larger impaired loans are evaluated individually and smaller impaired loans are evaluated as a pool using historical experience for the respective product types and risk ratings of the loans.

The second component of the allowance for loan and lease losses covers the remaining consumer and commercial loans and leases that have incurred losses that are not yet individually identifiable. The allowance for consumer and certain homogeneous commercial loan and lease products is based on aggregated portfolio evaluations, generally by product type. Loss forecast models are utilized that consider a variety of factors including, but not limited to, historical loss experience, estimated defaults or foreclosures based on portfolio trends, delinquencies, economic trends and credit scores. Our consumer real estate loss forecast model estimates the portion of loans that will default based on individual loan attributes, the most significant of which are refreshed LTV or CLTV, and borrower credit score as well as vintage and geography, all of which are further broken down into current delinquency status. Additionally, we incorporate the delinquency status of underlying first-lien loans on our junior-lien home equity portfolio in our allowance process. Incorporating refreshed LTV and CLTV into our probability of default allows us to factor the impact of changes in home prices into our allowance for loan and lease losses. These loss forecast models are updated on a quarterly basis to incorporate information reflecting the current economic environment. As of December 31, 2016, the loss forecast process resulted in reductions in the residential mortgage and home equity portfolios compared to December 31, 2015.

The allowance for commercial loan and lease losses is established by product type after analyzing historical loss experience, internal risk rating, current economic conditions, industry performance trends, geographic and obligor concentrations within each portfolio and any other pertinent information. The statistical models for commercial loans are generally updated annually and utilize our historical database of actual defaults and other data, including external default data. The loan risk ratings and composition of the commercial portfolios used to calculate the allowance are updated quarterly to incorporate the most recent data reflecting the current economic environment. For risk-rated commercial loans, we estimate the probability of default and the loss given default (LGD) based on our historical experience of defaults and credit losses. Factors considered when assessing the internal risk rating include the value of the underlying collateral, if applicable, the industry in which the obligor operates, the obligor's liquidity and other financial indicators, and other quantitative and qualitative factors relevant to the obligor's credit risk. As of December 31, 2016, the allowance increased for the U.S. commercial and non-U.S. commercial portfolios compared to December 31, 2015.

Also included within the second component of the allowance for loan and lease losses are reserves to cover losses that are incurred but, in our assessment, may not be adequately represented in the historical loss data used in the loss forecast models. For example, factors that we consider include, among others, changes in lending policies and procedures, changes in economic and business conditions, changes in the nature and size of the portfolio, changes in portfolio concentrations, changes in the volume and severity of past due loans and nonaccrual loans, the effect of external factors such as competition, and legal and regulatory requirements. We also consider factors that are applicable to unique portfolio segments. For example, we consider the risk of uncertainty in our loss forecasting models related to junior-lien home equity loans that are current, but have first-lien loans that we do not service that are 30 days or more past due. In addition, we consider the increased risk of default associated with our interest-only loans that have yet to enter the amortization period. Further, we consider the inherent uncertainty in mathematical models that are built upon historical data.

During 2016, the factors that impacted the allowance for loan and lease losses included improvements in the credit quality of the portfolios driven by continuing improvements in the U.S. economy and labor markets, proactive credit risk management initiatives and the impact of high credit quality originations. Evidencing the improvements in the U.S. economy and labor markets are growth in consumer spending, downward unemployment trends and increases in home prices. In addition to these improvements, in the consumer portfolio, loan sales, returns to performing status, paydowns and charge-offs continued to outpace new nonaccrual loans. During 2016, the allowance for loan and lease losses in the commercial portfolio reflected increased coverage for the energy sector due to low oil prices which impacted the financial performance of energy clients and contributed to an increase in reservable criticized balances. While we experienced some deterioration in the energy sector in 2016, oil prices have stabilized which contributed to a modest improvement in energy-related exposure by year end.

We monitor differences between estimated and actual incurred loan and lease losses. This monitoring process includes periodic assessments by senior management of loan and lease portfolios and the models used to estimate incurred losses in those portfolios.

Additions to, or reductions of, the allowance for loan and lease losses generally are recorded through charges or credits to the provision for credit losses. Credit exposures deemed to be uncollectible are charged against the allowance for loan and lease losses. Recoveries of previously charged off amounts are credited to the allowance for loan and lease losses.

The allowance for loan and lease losses for the consumer portfolio, as presented in Table 47, was $6.2 billion at December 31, 2016, a decrease of $1.2 billion from December 31, 2015. The decrease was primarily in the home equity and residential mortgage portfolios. Reductions in the residential mortgage and home equity portfolios were due to improved home prices, lower nonperforming loans and a decrease in consumer loan balances, as well as write-offs in our PCI loan portfolio.

The allowance related to the U.S. credit card and unsecured consumer lending portfolios at December 31, 2016 remained relatively unchanged and in line with the level of delinquencies compared to December 31, 2015. For example, in the U.S. credit card portfolio, accruing loans 30 days or more past due remained relatively unchanged at $1.6 billion at December 31, 2016 (to 1.73 percent from 1.76 percent of outstanding U.S. credit card loans at December 31, 2015), while accruing loans 90 days or more past due decreased to $782 million at December 31, 2016 from $789 million (to 0.85 percent from 0.88 percent of outstanding U.S. credit card loans) at December 31, 2015. See Tables 20 and 21 for additional details on key credit statistics for the credit card and other unsecured consumer lending portfolios.

The allowance for loan and lease losses for the commercial portfolio, as presented in Table 47, was $5.3 billion at December 31, 2016, an increase of $409 million from December 31, 2015 driven by increased allowance coverage for the higher risk energy sub-sectors as a result of low oil prices. Commercial utilized reservable criticized exposure increased to $16.3 billion at December 31, 2016 from $15.9 billion (to 3.35 percent from 3.38 percent of total commercial utilized reservable exposure) at December 31, 2015, largely due to downgrades outpacing paydowns and upgrades in the energy portfolio. Nonperforming commercial loans increased to $1.7 billion at December 31, 2016 from $1.2 billion (to 0.38 percent from 0.28 percent of outstanding commercial loans excluding loans accounted for under the fair value option) at December 31, 2015 with the increase primarily in the energy and metals and mining sectors. Commercial loans and leases outstanding increased to $458.5 billion at December 31, 2016 from $440.8 billion at December 31, 2015. See Tables 32, 33 and 35 for additional details on key commercial credit statistics.

The allowance for loan and lease losses as a percentage of total loans and leases outstanding was 1.26 percent at December 31, 2016 compared to 1.37 percent at December 31, 2015. The decrease in the ratio was primarily due to improved credit quality in the consumer portfolios driven by improved economic conditions and write-offs in the PCI loan portfolio. The December 31, 2016 and 2015 ratios above include the PCI loan portfolio. Excluding the PCI loan portfolio, the allowance for loan and lease losses as a percentage of total loans and leases outstanding was 1.24 percent and 1.31 percent at December 31, 2016 and 2015.

Table 46 presents a rollforward of the allowance for credit losses, which includes the allowance for loan and lease losses and the reserve for unfunded lending commitments, for 2016 and 2015.

Table 46 Allowance for Credit Losses

(Dollars in millions)	2016	2015
Allowance for loan and lease losses, January 1	$ 12,234	$ 14,419
Loans and leases charged off		
Residential mortgage	(403)	(866)
Home equity	(752)	(975)
U.S. credit card	(2,691)	(2,738)
Non-U.S. credit card	(238)	(275)
Direct/Indirect consumer	(392)	(383)
Other consumer	(232)	(224)
Total consumer charge-offs	(4,708)	(5,461)
U.S. commercial (1)	(567)	(536)
Commercial real estate	(10)	(30)
Commercial lease financing	(30)	(19)
Non-U.S. commercial	(133)	(59)
Total commercial charge-offs	(740)	(644)
Total loans and leases charged off	(5,448)	(6,105)
Recoveries of loans and leases previously charged off		
Residential mortgage	272	393
Home equity	347	339
U.S. credit card	422	424
Non-U.S. credit card	63	87
Direct/Indirect consumer	258	271
Other consumer	27	31
Total consumer recoveries	1,389	1,545
U.S. commercial (2)	175	172
Commercial real estate	41	35
Commercial lease financing	9	10
Non-U.S. commercial	13	5
Total commercial recoveries	238	222
Total recoveries of loans and leases previously charged off	1,627	1,767
Net charge-offs	(3,821)	(4,338)
Write-offs of PCI loans	(340)	(808)
Provision for loan and lease losses	3,581	3,043
Other (3)	(174)	(82)
Allowance for loan and lease losses, December 31	11,480	12,234
Less: Allowance included in assets of business held for sale (4)	(243)	—
Total allowance for loan and lease losses, December 31	11,237	12,234
Reserve for unfunded lending commitments, January 1	646	528
Provision for unfunded lending commitments	16	118
Other (3)	100	—
Reserve for unfunded lending commitments, December 31	762	646
Allowance for credit losses, December 31	$ 11,999	$ 12,880

(1) Includes U.S. small business commercial charge-offs of $253 million and $282 million in 2016 and 2015.
(2) Includes U.S. small business commercial recoveries of $45 million and $57 million in 2016 and 2015.
(3) Primarily represents the net impact of portfolio sales, consolidations and deconsolidations, foreign currency translation adjustments and certain other reclassifications.
(4) Represents allowance related to the non-U.S. credit card loan portfolio, which is included in assets of business held for sale on the Consolidated Balance Sheet at December 31, 2016.

Table 46 Allowance for Credit Losses (continued)

(Dollars in millions)	2016	2015
Loan and allowance ratios [5]**:**		
Loans and leases outstanding at December 31 [6]	$ 908,812	$ 890,045
Allowance for loan and lease losses as a percentage of total loans and leases outstanding at December 31 [6]	1.26%	1.37%
Consumer allowance for loan and lease losses as a percentage of total consumer loans and leases outstanding at December 31 [7]	1.36	1.63
Commercial allowance for loan and lease losses as a percentage of total commercial loans and leases outstanding at December 31 [8]	1.16	1.11
Average loans and leases outstanding [6]	$ 892,255	$ 869,065
Net charge-offs as a percentage of average loans and leases outstanding [6, 9]	0.43%	0.50%
Net charge-offs and PCI write-offs as a percentage of average loans and leases outstanding [6]	0.47	0.59
Allowance for loan and lease losses as a percentage of total nonperforming loans and leases at December 31 [6, 10]	149	130
Ratio of the allowance for loan and lease losses at December 31 to net charge-offs [9]	3.00	2.82
Ratio of the allowance for loan and lease losses at December 31 to net charge-offs and PCI write-offs	2.76	2.38
Amounts included in allowance for loan and lease losses for loans and leases that are excluded from nonperforming loans and leases at December 31 [11]	$ 3,951	$ 4,518
Allowance for loan and lease losses as a percentage of total nonperforming loans and leases, excluding the allowance for loan and lease losses for loans and leases that are excluded from nonperforming loans and leases at December 31 [6, 11]	98%	82%
Loan and allowance ratios excluding PCI loans and the related valuation allowance: [5, 12]		
Allowance for loan and lease losses as a percentage of total loans and leases outstanding at December 31 [6]	1.24%	1.31%
Consumer allowance for loan and lease losses as a percentage of total consumer loans and leases outstanding at December 31 [7]	1.31	1.50
Net charge-offs as a percentage of average loans and leases outstanding [6]	0.44	0.51
Allowance for loan and lease losses as a percentage of total nonperforming loans and leases at December 31 [6, 10]	144	122
Ratio of the allowance for loan and lease losses at December 31 to net charge-offs	2.89	2.64

(5) Loan and allowance ratios include $243 million of non-U.S. credit card allowance for loan and lease losses and $9.2 billion of ending non-U.S. credit card loans, which are included in assets of business held for sale on the Consolidated Balance Sheet at December 31, 2016.
(6) Outstanding loan and lease balances and ratios do not include loans accounted for under the fair value option of $7.1 billion and $6.9 billion at December 31, 2016 and 2015. Average loans accounted for under the fair value option were $8.2 billion and $7.7 billion in 2016 and 2015.
(7) Excludes consumer loans accounted for under the fair value option of $1.1 billion and $1.9 billion at December 31, 2016 and 2015.
(8) Excludes commercial loans accounted for under the fair value option of $6.0 billion and $5.1 billion at December 31, 2016 and 2015.
(9) Net charge-offs exclude $340 million and $808 million of write-offs in the PCI loan portfolio in 2016 and 2015. For more information on PCI write-offs, see Consumer Portfolio Credit Risk Management – Purchased Credit-impaired Loan Portfolio on page 61.
(10) For more information on our definition of nonperforming loans, see pages 63 and 69.
(11) Primarily includes amounts allocated to U.S. credit card and unsecured consumer lending portfolios in *Consumer Banking*, PCI loans and the non-U.S. credit card portfolio in *All Other*.
(12) For more information on the PCI loan portfolio and the valuation allowance for PCI loans, see *Note 4 – Outstanding Loans and Leases* and *Note 5 – Allowance for Credit Losses* to the Consolidated Financial Statements.

For reporting purposes, we allocate the allowance for credit losses across products as presented in Table 47.

Table 47 Allocation of the Allowance for Credit Losses by Product Type

	December 31, 2016			December 31, 2015		
(Dollars in millions)	Amount	Percent of Total	Percent of Loans and Leases Outstanding [1]	Amount	Percent of Total	Percent of Loans and Leases Outstanding [1]
Allowance for loan and lease losses						
Residential mortgage	$ 1,012	8.82%	0.53%	$ 1,500	12.26%	0.80%
Home equity	1,738	15.14	2.62	2,414	19.73	3.18
U.S. credit card	2,934	25.56	3.18	2,927	23.93	3.27
Non-U.S. credit card	243	2.12	2.64	274	2.24	2.75
Direct/Indirect consumer	244	2.13	0.26	223	1.82	0.25
Other consumer	51	0.44	2.01	47	0.38	2.27
Total consumer	6,222	54.21	1.36	7,385	60.36	1.63
U.S. commercial [2]	3,326	28.97	1.17	2,964	24.23	1.12
Commercial real estate	920	8.01	1.60	967	7.90	1.69
Commercial lease financing	138	1.20	0.62	164	1.34	0.77
Non-U.S. commercial	874	7.61	0.98	754	6.17	0.82
Total commercial [3]	5,258	45.79	1.16	4,849	39.64	1.11
Allowance for loan and lease losses [4]	11,480	100.00%	1.26	12,234	100.00%	1.37
Less: Allowance included in assets of business held for sale [5]	(243)			—		
Total allowance for loan and lease losses	11,237			12,234		
Reserve for unfunded lending commitments	762			646		
Allowance for credit losses	$ 11,999			$ 12,880		

(1) Ratios are calculated as allowance for loan and lease losses as a percentage of loans and leases outstanding excluding loans accounted for under the fair value option. Consumer loans accounted for under the fair value option included residential mortgage loans of $710 million and $1.6 billion and home equity loans of $341 million and $250 million at December 31, 2016 and 2015. Commercial loans accounted for under the fair value option included U.S. commercial loans of $2.9 billion and $2.3 billion and non-U.S. commercial loans of $3.1 billion and $2.8 billion at December 31, 2016 and 2015.
(2) Includes allowance for loan and lease losses for U.S. small business commercial loans of $416 million and $507 million at December 31, 2016 and 2015.
(3) Includes allowance for loan and lease losses for impaired commercial loans of $273 million and $217 million at December 31, 2016 and 2015.
(4) Includes $419 million and $804 million of valuation allowance presented with the allowance for loan and lease losses related to PCI loans at December 31, 2016 and 2015.
(5) Represents allowance for loan and lease losses related to the non-U.S. credit card loan portfolio, which is included in assets of business held for sale on the Consolidated Balance Sheet at December 31, 2016.

Reserve for Unfunded Lending Commitments

In addition to the allowance for loan and lease losses, we also estimate probable losses related to unfunded lending commitments such as letters of credit, financial guarantees, unfunded bankers' acceptances and binding loan commitments, excluding commitments accounted for under the fair value option. Unfunded lending commitments are subject to the same assessment as funded loans, including estimates of probability of default and LGD. Due to the nature of unfunded commitments, the estimate of probable losses must also consider utilization. To estimate the portion of these undrawn commitments that is likely to be drawn by a borrower at the time of estimated default, analyses of our historical experience are applied to the unfunded commitments to estimate the funded exposure at default (EAD). The expected loss for unfunded lending commitments is the product of the probability of default, the LGD and the EAD, adjusted for any qualitative factors including economic uncertainty and inherent imprecision in models.

The reserve for unfunded lending commitments was $762 million at December 31, 2016, an increase of $116 million from December 31, 2015. The increase was primarily attributable to increased coverage for the energy sector due to low oil prices which impacted the financial performance of energy clients.

Market Risk Management

Market risk is the risk that changes in market conditions may adversely impact the value of assets or liabilities, or otherwise negatively impact earnings. This risk is inherent in the financial instruments associated with our operations, primarily within our *Global Markets* segment. We are also exposed to these risks in other areas of the Corporation (e.g., our ALM activities). In the event of market stress, these risks could have a material impact on our results. For additional information, see Interest Rate Risk Management for the Banking Book on page 83.

Our traditional banking loan and deposit products are non-trading positions and are generally reported at amortized cost for assets or the amount owed for liabilities (historical cost). However, these positions are still subject to changes in economic value based on varying market conditions, with one of the primary risks being changes in the levels of interest rates. The risk of adverse changes in the economic value of our non-trading positions arising from changes in interest rates is managed through our ALM activities. We have elected to account for certain assets and liabilities under the fair value option.

Our trading positions are reported at fair value with changes reflected in income. Trading positions are subject to various changes in market-based risk factors. The majority of this risk is generated by our activities in the interest rate, foreign exchange, credit, equity and commodities markets. In addition, the values of assets and liabilities could change due to market liquidity, correlations across markets and expectations of market volatility. We seek to manage these risk exposures by using a variety of techniques that encompass a broad range of financial instruments. The key risk management techniques are discussed in more detail in the Trading Risk Management section.

Global Risk Management is responsible for providing senior management with a clear and comprehensive understanding of the trading risks to which we are exposed. These responsibilities include ownership of market risk policy, developing and maintaining quantitative risk models, calculating aggregated risk measures, establishing and monitoring position limits consistent with risk appetite, conducting daily reviews and analysis of trading inventory, approving material risk exposures and fulfilling regulatory requirements. Market risks that impact businesses outside of *Global Markets* are monitored and governed by their respective governance functions.

Quantitative risk models, such as VaR, are an essential component in evaluating the market risks within a portfolio. The Enterprise Model Risk Committee (EMRC), a subcommittee of the MRC, is responsible for providing management oversight and approval of model risk management and governance. The EMRC defines model risk standards, consistent with our risk framework and risk appetite, prevailing regulatory guidance and industry best practice. Models must meet certain validation criteria, including effective challenge of the model development process and a sufficient demonstration of developmental evidence incorporating a comparison of alternative theories and approaches. The EMRC oversees that model standards are consistent with model risk requirements and monitors the effective challenge in the model validation process across the Corporation. In addition, the relevant stakeholders must agree on any required actions or restrictions to the models and maintain a stringent monitoring process for continued compliance.

Interest Rate Risk

Interest rate risk represents exposures to instruments whose values vary with the level or volatility of interest rates. These instruments include, but are not limited to, loans, debt securities, certain trading-related assets and liabilities, deposits, borrowings and derivatives. Hedging instruments used to mitigate these risks include derivatives such as options, futures, forwards and swaps.

Foreign Exchange Risk

Foreign exchange risk represents exposures to changes in the values of current holdings and future cash flows denominated in currencies other than the U.S. Dollar. The types of instruments exposed to this risk include investments in non-U.S. subsidiaries, foreign currency-denominated loans and securities, future cash flows in foreign currencies arising from foreign exchange transactions, foreign currency-denominated debt and various foreign exchange derivatives whose values fluctuate with changes in the level or volatility of currency exchange rates or non-U.S. interest rates. Hedging instruments used to mitigate this risk include foreign exchange options, currency swaps, futures, forwards, and foreign currency-denominated debt and deposits.

Mortgage Risk

Mortgage risk represents exposures to changes in the values of mortgage-related instruments. The values of these instruments are sensitive to prepayment rates, mortgage rates, agency debt ratings, default, market liquidity, government participation and interest rate volatility. Our exposure to these instruments takes several forms. First, we trade and engage in market-making activities in a variety of mortgage securities including whole loans, pass-through certificates, commercial mortgages and collateralized mortgage obligations including collateralized debt obligations (CDO) using mortgages as underlying collateral. Second, we originate a variety of MBS which involves the accumulation of mortgage-related loans in anticipation of eventual securitization. Third, we may hold positions in mortgage securities and residential mortgage loans as part of the ALM portfolio. Fourth, we create MSRs as part of our mortgage origination activities. For more information on MSRs, see *Note 1 – Summary of Significant Accounting Principles* and *Note 23 – Mortgage Servicing Rights* to the Consolidated Financial Statements. Hedging instruments used to mitigate this risk include derivatives such as options, swaps, futures and forwards as well as securities including MBS and U.S. Treasury securities. For additional information, see Mortgage Banking Risk Management on page 85.

Equity Market Risk

Equity market risk represents exposures to securities that represent an ownership interest in a corporation in the form of domestic and foreign common stock or other equity-linked instruments. Instruments that would lead to this exposure include, but are not limited to, the following: common stock, exchange-traded funds, American Depositary Receipts, convertible bonds, listed equity options (puts and calls), OTC equity options, equity total return swaps, equity index futures and other equity derivative products. Hedging instruments used to mitigate this risk include options, futures, swaps, convertible bonds and cash positions.

Commodity Risk

Commodity risk represents exposures to instruments traded in the petroleum, natural gas, power and metals markets. These instruments consist primarily of futures, forwards, swaps and options. Hedging instruments used to mitigate this risk include options, futures and swaps in the same or similar commodity product, as well as cash positions.

Issuer Credit Risk

Issuer credit risk represents exposures to changes in the creditworthiness of individual issuers or groups of issuers. Our portfolio is exposed to issuer credit risk where the value of an asset may be adversely impacted by changes in the levels of credit spreads, by credit migration or by defaults. Hedging instruments used to mitigate this risk include bonds, CDS and other credit fixed-income instruments.

Market Liquidity Risk

Market liquidity risk represents the risk that the level of expected market activity changes dramatically and, in certain cases, may even cease. This exposes us to the risk that we will not be able to transact business and execute trades in an orderly manner which may impact our results. This impact could be further exacerbated if expected hedging or pricing correlations are compromised by disproportionate demand or lack of demand for certain instruments. We utilize various risk mitigating techniques as discussed in more detail in Trading Risk Management.

Trading Risk Management

To evaluate risk in our trading activities, we focus on the actual and potential volatility of revenues generated by individual positions as well as portfolios of positions. Various techniques and procedures are utilized to enable the most complete understanding of these risks. Quantitative measures of market risk are evaluated on a daily basis from a single position to the portfolio of the Corporation. These measures include sensitivities of positions to various market risk factors, such as the potential impact on revenue from a one basis point change in interest rates, and statistical measures utilizing both actual and hypothetical market moves, such as VaR and stress testing. Periods of extreme market stress influence the reliability of these techniques to varying degrees. Qualitative evaluations of market risk utilize the suite of quantitative risk measures while understanding each of their respective limitations. Additionally, risk managers independently evaluate the risk of the portfolios under the current market environment and potential future environments.

VaR is a common statistic used to measure market risk as it allows the aggregation of market risk factors, including the effects of portfolio diversification. A VaR model simulates the value of a portfolio under a range of scenarios in order to generate a distribution of potential gains and losses. VaR represents the loss a portfolio is not expected to exceed more than a certain number of times per period, based on a specified holding period, confidence level and window of historical data. We use one VaR model consistently across the trading portfolios and it uses a historical simulation approach based on a three-year window of historical data. Our primary VaR statistic is equivalent to a 99 percent confidence level. This means that for a VaR with a one-day holding period, there should not be losses in excess of VaR, on average, 99 out of 100 trading days.

Within any VaR model, there are significant and numerous assumptions that will differ from company to company. The accuracy of a VaR model depends on the availability and quality of historical data for each of the risk factors in the portfolio. A VaR model may require additional modeling assumptions for new products that do not have the necessary historical market data or for less liquid positions for which accurate daily prices are not consistently available. For positions with insufficient historical data for the VaR calculation, the process for establishing an appropriate proxy is based on fundamental and statistical analysis of the new product or less liquid position. This analysis identifies reasonable alternatives that replicate both the expected volatility and correlation to other market risk factors that the missing data would be expected to experience.

VaR may not be indicative of realized revenue volatility as changes in market conditions or in the composition of the portfolio can have a material impact on the results. In particular, the historical data used for the VaR calculation might indicate higher or lower levels of portfolio diversification than will be experienced. In order for the VaR model to reflect current market conditions, we update the historical data underlying our VaR model on a weekly basis, or more frequently during periods of market stress, and regularly review the assumptions underlying the model. A relatively minor portion of risks related to our trading positions is not included in VaR. These risks are reviewed as part of our ICAAP. For more information regarding ICAAP, see Capital Management on page 44.

Global Risk Management continually reviews, evaluates and enhances our VaR model so that it reflects the material risks in our trading portfolio. Changes to the VaR model are reviewed and approved prior to implementation and any material changes are reported to management through the appropriate management committees.

Trading limits on quantitative risk measures, including VaR, are independently set by Global Markets Risk Management and reviewed on a regular basis so they remain relevant and within our overall risk appetite for market risks. Trading limits are reviewed in the context of market liquidity, volatility and strategic business priorities. Trading limits are set at both a granular level to allow for extensive coverage of risks as well as at aggregated portfolios to account for correlations among risk factors. All trading limits are approved at least annually. Approved trading limits are stored and tracked in a centralized limits management system. Trading limit excesses are communicated to management for review. Certain quantitative market risk measures and corresponding limits have been identified as critical in the Corporation's Risk

Appetite Statement. These risk appetite limits are reported on a daily basis and are approved at least annually by the ERC and the Board.

In periods of market stress, *Global Markets* senior leadership communicates daily to discuss losses, key risk positions and any limit excesses. As a result of this process, the businesses may selectively reduce risk.

Table 48 presents the total market-based trading portfolio VaR which is the combination of the covered positions trading portfolio and the impact from less liquid trading exposures. Covered positions are defined by regulatory standards as trading assets and liabilities, both on- and off-balance sheet, that meet a defined set of specifications. These specifications identify the most liquid trading positions which are intended to be held for a short-term horizon and where we are able to hedge the material risk elements in a two-way market. Positions in less liquid markets, or where there are restrictions on the ability to trade the positions, typically do not qualify as covered positions. Foreign exchange and commodity positions are always considered covered positions, except for structural foreign currency positions that we choose to exclude with prior regulatory approval. In addition, Table 48 presents our fair value option portfolio, which includes substantially all of the funded and unfunded exposures for which we elect the fair value option, and their corresponding hedges. The fair value option portfolio combined with the total market-based trading portfolio VaR represents our total market-based portfolio VaR. Additionally, market risk VaR for trading activities as presented in Table 48 differs from VaR used for regulatory capital calculations due to the holding period being used. The holding period for VaR used for regulatory capital calculations is 10 days, while for the market risk VaR presented below it is one day. Both measures utilize the same process and methodology.

The total market-based portfolio VaR results in Table 48 include market risk to which we are exposed from all business segments, excluding CVA and DVA. The majority of this portfolio is within the *Global Markets* segment.

Table 48 presents year-end, average, high and low daily trading VaR for 2016 and 2015 using a 99 percent confidence level.

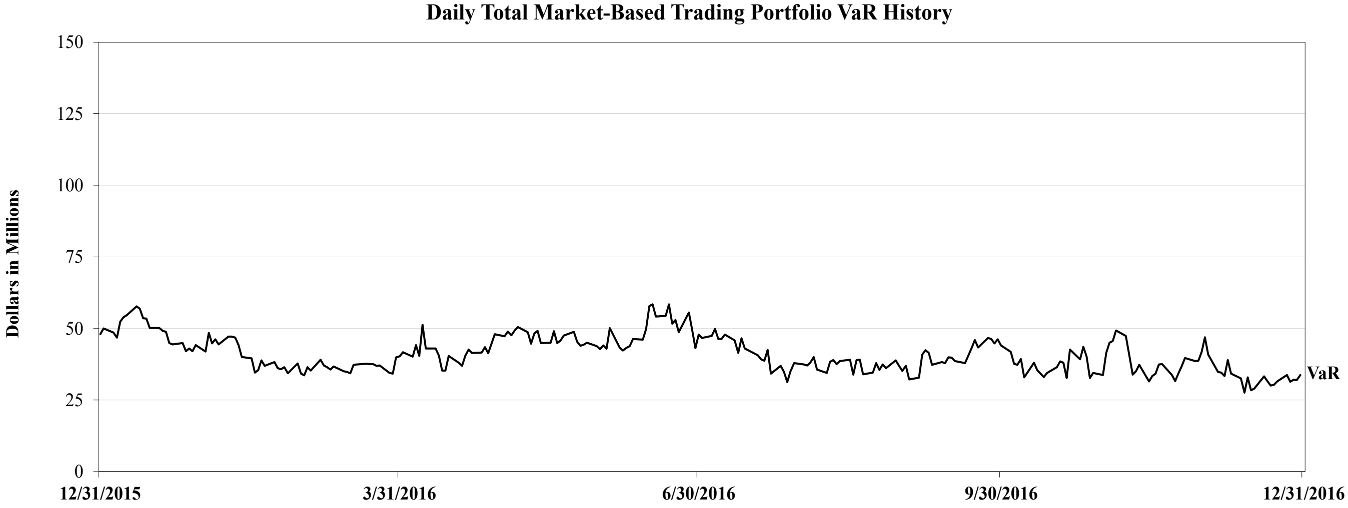
Table 48 Market Risk VaR for Trading Activities

	2016				2015			
(Dollars in millions)	**Year End**	**Average**	**High (1)**	**Low (1)**	Year End	Average	High (1)	Low (1)
Foreign exchange	**$ 8**	**$ 9**	**$ 16**	**$ 5**	$ 10	$ 10	$ 42	$ 5
Interest rate	**11**	**19**	**30**	**10**	17	25	42	14
Credit	**25**	**30**	**37**	**25**	32	35	46	27
Equity	**19**	**18**	**30**	**11**	18	16	33	9
Commodity	**4**	**6**	**12**	**3**	4	5	8	3
Portfolio diversification	**(39)**	**(46)**	**—**	**—**	(36)	(46)	—	—
Total covered positions trading portfolio	**28**	**36**	**50**	**24**	45	45	66	26
Impact from less liquid exposures	**6**	**5**	**—**	**—**	3	8	—	—
Total market-based trading portfolio	**34**	**41**	**58**	**28**	48	53	74	31
Fair value option loans	**14**	**23**	**40**	**12**	35	26	36	17
Fair value option hedges	**6**	**11**	**22**	**5**	17	14	22	8
Fair value option portfolio diversification	**(10)**	**(21)**	**—**	**—**	(35)	(26)	—	—
Total fair value option portfolio	**10**	**13**	**20**	**8**	17	14	19	10
Portfolio diversification	**(4)**	**(6)**	**—**	**—**	(4)	(6)	—	—
Total market-based portfolio	**$ 40**	**$ 48**	**$ 70**	**$ 32**	$ 61	$ 61	$ 85	$ 41

(1) The high and low for each portfolio may have occurred on different trading days than the high and low for the components. Therefore the impact from less liquid exposures and the amount of portfolio diversification, which is the difference between the total portfolio and the sum of the individual components, are not relevant.

The average total market-based trading portfolio VaR decreased during 2016 primarily due to reduced exposure to the interest rate and credit markets.

The graph below presents the daily total market-based trading portfolio VaR for 2016, corresponding to the data in Table 48.



Additional VaR statistics produced within our single VaR model are provided in Table 49 at the same level of detail as in Table 48. Evaluating VaR with additional statistics allows for an increased understanding of the risks in the portfolio as the historical market data used in the VaR calculation does not necessarily follow a predefined statistical distribution. Table 49 presents average trading VaR statistics at 99 percent and 95 percent confidence levels for 2016 and 2015.

Table 49 Average Market Risk VaR for Trading Activities – 99 percent and 95 percent VaR Statistics

	2016		2015	
(Dollars in millions)	**99 percent**	**95 percent**	99 percent	95 percent
Foreign exchange	**$ 9**	**$ 5**	$ 10	$ 6
Interest rate	**19**	**12**	25	15
Credit	**30**	**18**	35	20
Equity	**18**	**11**	16	9
Commodity	**6**	**3**	5	3
Portfolio diversification	**(46)**	**(30)**	(46)	(31)
Total covered positions trading portfolio	**36**	**19**	45	22
Impact from less liquid exposures	**5**	**3**	8	3
Total market-based trading portfolio	**41**	**22**	53	25
Fair value option loans	**23**	**13**	26	15
Fair value option hedges	**11**	**8**	14	9
Fair value option portfolio diversification	**(21)**	**(13)**	(26)	(16)
Total fair value option portfolio	**13**	**8**	14	8
Portfolio diversification	**(6)**	**(4)**	(6)	(5)
Total market-based portfolio	**$ 48**	**$ 26**	$ 61	$ 28

Backtesting

The accuracy of the VaR methodology is evaluated by backtesting, which compares the daily VaR results, utilizing a one-day holding period, against a comparable subset of trading revenue. A backtesting excess occurs when a trading loss exceeds the VaR for the corresponding day. These excesses are evaluated to understand the positions and market moves that produced the trading loss and to ensure that the VaR methodology accurately represents those losses. We expect the frequency of trading losses in excess of VaR to be in line with the confidence level of the VaR statistic being tested. For example, with a 99 percent confidence level, we expect one trading loss in excess of VaR every 100 days or between two to three trading losses in excess of VaR over the course of a year. The number of backtesting excesses observed can differ from the statistically expected number of excesses if the current level of market volatility is materially different than the level of market volatility that existed during the three years of historical data used in the VaR calculation.

The trading revenue used for backtesting is defined by regulatory agencies in order to most closely align with the VaR component of the regulatory capital calculation. This revenue differs from total trading-related revenue in that it excludes revenue from trading activities that either do not generate market risk or the market risk cannot be included in VaR. Some examples of the types of revenue excluded for backtesting are fees, commissions, reserves, net interest income and intraday trading revenues.

We conduct daily backtesting on our portfolios, ranging from the total market-based portfolio to individual trading areas. Additionally, we conduct daily backtesting on the VaR results used for regulatory capital calculations as well as the VaR results for key legal entities, regions and risk factors. These results are reported to senior market risk management. Senior management regularly reviews and evaluates the results of these tests.

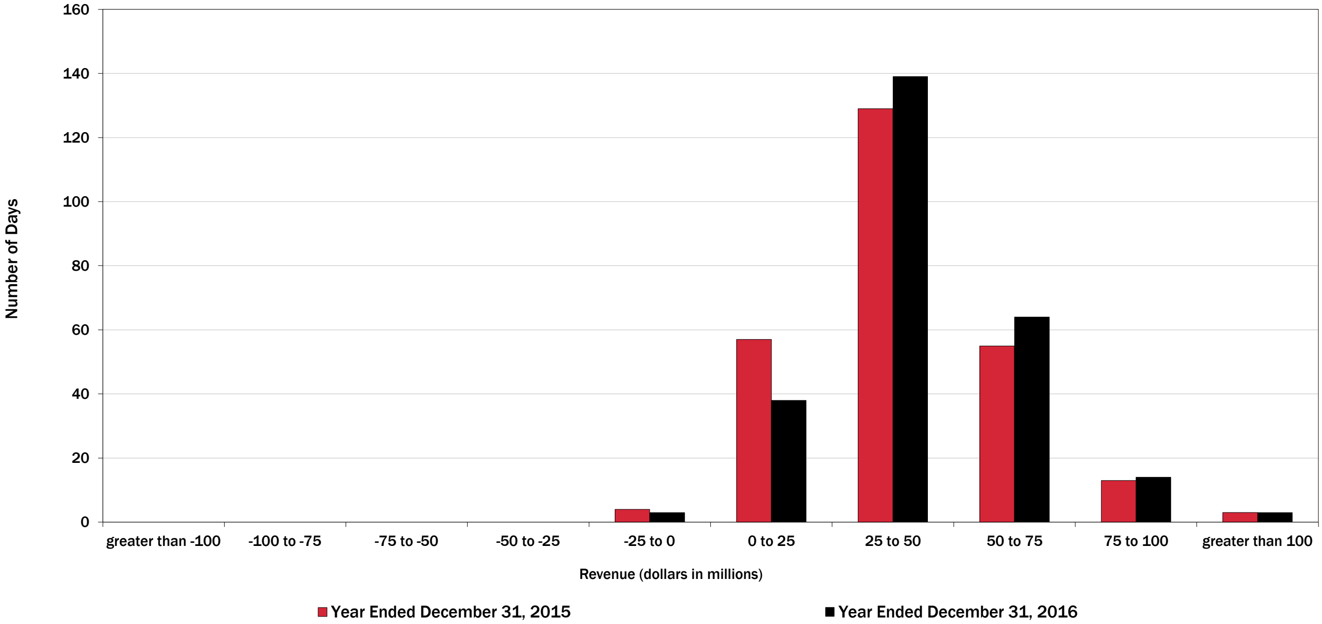
During 2016, there were no days in which there was a backtesting excess for our total market-based portfolio VaR, utilizing a one-day holding period.

Total Trading-related Revenue

Total trading-related revenue, excluding brokerage fees, and CVA, DVA and funding valuation adjustment (FVA) gains (losses), represents the total amount earned from trading positions, including market-based net interest income, which are taken in a diverse range of financial instruments and markets. Trading account assets and liabilities are reported at fair value. For more information on fair value, see *Note 20 – Fair Value Measurements* to the Consolidated Financial Statements. Trading-related revenue can be volatile and is largely driven by general market conditions and customer demand. Also, trading-related revenue is dependent on the volume and type of transactions, the level of risk assumed, and the volatility of price and rate movements at any given time within the ever-changing market environment. Significant daily revenue by business is monitored and the primary drivers of these are reviewed.

The histogram below is a graphic depiction of trading volatility and illustrates the daily level of trading-related revenue for 2016 and 2015. During 2016, positive trading-related revenue was recorded for 99 percent of the trading days, of which 84 percent were daily trading gains of over $25 million and the largest loss was $24 million. This compares to 2015 where positive trading-related revenue was recorded for 98 percent of the trading days, of which 77 percent were daily trading gains of over $25 million and the largest loss was $22 million.

Histogram of Daily Trading-related Revenue



Trading Portfolio Stress Testing

Because the very nature of a VaR model suggests results can exceed our estimates and it is dependent on a limited historical window, we also stress test our portfolio using scenario analysis. This analysis estimates the change in the value of our trading portfolio that may result from abnormal market movements.

A set of scenarios, categorized as either historical or hypothetical, are computed daily for the overall trading portfolio and individual businesses. These scenarios include shocks to underlying market risk factors that may be well beyond the shocks found in the historical data used to calculate VaR. Historical scenarios simulate the impact of the market moves that occurred during a period of extended historical market stress. Generally, a multi-week period representing the most severe point during a crisis is selected for each historical scenario. Hypothetical scenarios provide estimated portfolio impacts from potential future market stress events. Scenarios are reviewed and updated in response to changing positions and new economic or political information. In addition, new or ad hoc scenarios are developed to address specific potential market events or particular vulnerabilities in the portfolio. The stress tests are reviewed on a regular basis and the results are presented to senior management.

Stress testing for the trading portfolio is integrated with enterprise-wide stress testing and incorporated into the limits framework. The macroeconomic scenarios used for enterprise-wide stress testing purposes differ from the typical trading portfolio scenarios in that they have a longer time horizon and the results are forecasted over multiple periods for use in consolidated capital and liquidity planning. For additional information, see Managing Risk on page 40.

Interest Rate Risk Management for the Banking Book

The following discussion presents net interest income for banking book activities.

Interest rate risk represents the most significant market risk exposure to our banking book balance sheet. Interest rate risk is measured as the potential change in net interest income caused by movements in market interest rates. Client-facing activities, primarily lending and deposit-taking, create interest rate sensitive positions on our balance sheet.

We prepare forward-looking forecasts of net interest income. The baseline forecast takes into consideration expected future business growth, ALM positioning and the direction of interest rate movements as implied by the market-based forward curve. We then measure and evaluate the impact that alternative interest rate scenarios have on the baseline forecast in order to assess interest rate sensitivity under varied conditions. The net interest income forecast is frequently updated for changing assumptions and differing outlooks based on economic trends, market conditions and business strategies. Thus, we continually monitor our balance sheet position in order to maintain an acceptable level of exposure to interest rate changes.

The interest rate scenarios that we analyze incorporate balance sheet assumptions such as loan and deposit growth and pricing, changes in funding mix, product repricing and maturity characteristics. Our overall goal is to manage interest rate risk so that movements in interest rates do not significantly adversely affect earnings and capital.

Table 50 presents the spot and 12-month forward rates used in our baseline forecasts at December 31, 2016 and 2015.

Table 50 Forward Rates

	December 31, 2016		
	Federal Funds	Three-month LIBOR	10-Year Swap
Spot rates	**0.75%**	**1.00%**	**2.34%**
12-month forward rates	**1.25**	**1.51**	**2.49**
	December 31, 2015		
Spot rates	0.50%	0.61%	2.19%
12-month forward rates	1.00	1.22	2.39

Table 51 shows the pretax dollar impact to forecasted net interest income over the next 12 months from December 31, 2016 and 2015, resulting from instantaneous parallel and non-parallel shocks to the market-based forward curve. Periodically we evaluate the scenarios presented so that they are meaningful in the context of the current rate environment.

During 2016, the asset sensitivity of our balance sheet decreased primarily driven by higher long-end rates. We continue to be asset sensitive to a parallel move in interest rates with the majority of that benefit coming from the short end of the yield curve. Additionally, higher interest rates impact the fair value of debt securities and, accordingly, for debt securities classified as AFS, may adversely affect accumulated OCI and thus capital levels under the Basel 3 capital rules. Under instantaneous upward parallel shifts, the near-term adverse impact to Basel 3 capital is reduced over time by offsetting positive impacts to net interest income. For more information on the transition provisions of Basel 3, see Capital Management – Regulatory Capital on page 44.

Table 51 Estimated Banking Book Net Interest Income Sensitivity

(Dollars in millions) Curve Change	Short Rate (bps)	Long Rate (bps)	December 31 2016	2015
Parallel Shifts				
+100 bps instantaneous shift	+100	+100	**$ 3,370**	$ 3,606
-50 bps instantaneous shift	-50	-50	**(2,900)**	(3,458)
Flatteners				
Short-end instantaneous change	+100	—	**2,473**	2,418
Long-end instantaneous change	—	-50	**(961)**	(1,767)
Steepeners				
Short-end instantaneous change	-50	—	**(1,918)**	(1,672)
Long-end instantaneous change	—	+100	**928**	1,217

The sensitivity analysis in Table 51 assumes that we take no action in response to these rate shocks and does not assume any change in other macroeconomic variables normally correlated with changes in interest rates. As part of our ALM activities, we use securities, certain residential mortgages, and interest rate and foreign exchange derivatives in managing interest rate sensitivity.

The behavior of our deposit portfolio in the baseline forecast and in alternate interest rate scenarios is a key assumption in our projected estimates of net interest income. The sensitivity analysis in Table 51 assumes no change in deposit portfolio size or mix from the baseline forecast in alternate rate environments. In higher rate scenarios, any customer activity resulting in the replacement of low-cost or noninterest-bearing deposits with higher-yielding deposits or market-based funding would reduce our benefit in those scenarios.

Interest Rate and Foreign Exchange Derivative Contracts

Interest rate and foreign exchange derivative contracts are utilized in our ALM activities and serve as an efficient tool to manage our interest rate and foreign exchange risk. We use derivatives to hedge the variability in cash flows or changes in fair value on our balance sheet due to interest rate and foreign exchange components. For more information on our hedging activities, see *Note 2 – Derivatives* to the Consolidated Financial Statements.

Our interest rate contracts are generally non-leveraged generic interest rate and foreign exchange basis swaps, options, futures and forwards. In addition, we use foreign exchange contracts, including cross-currency interest rate swaps, foreign currency futures contracts, foreign currency forward contracts and options to mitigate the foreign exchange risk associated with foreign currency-denominated assets and liabilities.

Changes to the composition of our derivatives portfolio during 2016 reflect actions taken for interest rate and foreign exchange rate risk management. The decisions to reposition our derivatives portfolio are based on the current assessment of economic and financial conditions including the interest rate and foreign currency environments, balance sheet composition and trends, and the relative mix of our cash and derivative positions.

Table 52 presents derivatives utilized in our ALM activities including those designated as accounting and economic hedging instruments and shows the notional amount, fair value, weighted-average receive-fixed and pay-fixed rates, expected maturity and average estimated durations of our open ALM derivatives at December 31, 2016 and 2015. These amounts do not include derivative hedges on our MSRs.

Table 52 Asset and Liability Management Interest Rate and Foreign Exchange Contracts

	December 31, 2016								
		Expected Maturity							
(Dollars in millions, average estimated duration in years)	Fair Value	Total	2017	2018	2019	2020	2021	Thereafter	Average Estimated Duration
Receive-fixed interest rate swaps (1)	$ 4,055								4.81
Notional amount		$ 118,603	$ 21,453	$ 25,788	$ 10,283	$ 7,515	$ 5,307	$ 48,257	
Weighted-average fixed-rate		2.83%	3.64%	2.81%	2.31%	2.07%	3.18%	2.67%	
Pay-fixed interest rate swaps (1)	159								2.77
Notional amount		$ 22,400	$ 1,527	$ 9,168	$ 2,072	$ 7,975	$ 213	$ 1,445	
Weighted-average fixed-rate		1.37%	1.84%	1.47%	0.97%	1.08%	1.00%	2.45%	
Same-currency basis swaps (2)	(26)								
Notional amount		$ 59,274	$ 20,775	$ 11,027	$ 6,784	$ 1,180	$ 2,799	$ 16,709	
Foreign exchange basis swaps (1, 3, 4)	(4,233)								
Notional amount		125,522	26,509	22,724	12,178	12,150	8,365	43,596	
Option products (5)	5								
Notional amount (6)		1,687	1,673	—	—	—	—	14	
Foreign exchange contracts (1, 4, 7)	3,180								
Notional amount (6)		(20,285)	(30,199)	197	1,961	(8)	881	6,883	
Futures and forward rate contracts	19								
Notional amount (6)		37,896	37,896	—	—	—	—	—	
Net ALM contracts	$ 3,159								

	December 31, 2015								
		Expected Maturity							
(Dollars in millions, average estimated duration in years)	Fair Value	Total	2016	2017	2018	2019	2020	Thereafter	Average Estimated Duration
Receive-fixed interest rate swaps (1)	$ 6,291								4.98
Notional amount		$ 114,354	$ 15,339	$ 21,453	$ 21,850	$ 9,783	$ 7,015	$ 38,914	
Weighted-average fixed-rate		3.12%	3.12%	3.64%	3.20%	2.37%	2.13%	3.16%	
Pay-fixed interest rate swaps (1)	(81)								3.98
Notional amount		$ 12,131	$ 1,025	$ 1,527	$ 5,668	$ 600	$ 51	$ 3,260	
Weighted-average fixed-rate		1.70%	1.65%	1.84%	1.41%	1.59%	3.64%	2.15%	
Same-currency basis swaps (2)	(70)								
Notional amount		$ 75,224	$ 15,692	$ 20,833	$ 11,026	$ 6,786	$ 1,180	$ 19,707	
Foreign exchange basis swaps (1, 3, 4)	(3,968)								
Notional amount		144,446	25,762	27,441	19,319	12,226	10,572	49,126	
Option products (5)	57								
Notional amount (6)		752	737	—	—	—	—	15	
Foreign exchange contracts (1, 4, 7)	2,345								
Notional amount (6)		(25,405)	(36,504)	5,380	(2,228)	2,123	52	5,772	
Futures and forward rate contracts	(5)								
Notional amount (6)		200	200	—	—	—	—	—	
Net ALM contracts	$ 4,569								

(1) Does not include basis adjustments on either fixed-rate debt issued by the Corporation or AFS debt securities, which are hedged using derivatives designated as fair value hedging instruments, that substantially offset the fair values of these derivatives.
(2) At December 31, 2016 and 2015, the notional amount of same-currency basis swaps included $59.3 billion and $75.2 billion in both foreign currency and U.S. Dollar-denominated basis swaps in which both sides of the swap are in the same currency.
(3) Foreign exchange basis swaps consisted of cross-currency variable interest rate swaps used separately or in conjunction with receive-fixed interest rate swaps.
(4) Does not include foreign currency translation adjustments on certain non-U.S. debt issued by the Corporation that substantially offset the fair values of these derivatives.
(5) The notional amount of option products of $1.7 billion at December 31, 2016 was comprised of $1.7 billion in foreign exchange options and $14 million in purchased caps/floors. Option products of $752 million at December 31, 2015 were comprised of $737 million in foreign exchange options and $15 million in purchased caps/floors.
(6) Reflects the net of long and short positions. Amounts shown as negative reflect a net short position.
(7) The notional amount of foreign exchange contracts of $(20.3) billion at December 31, 2016 was comprised of $21.5 billion in foreign currency-denominated and cross-currency receive-fixed swaps, $(38.5) billion in net foreign currency forward rate contracts, $(4.6) billion in foreign currency-denominated pay-fixed swaps and $1.3 billion in net foreign currency futures contracts. Foreign exchange contracts of $(25.4) billion at December 31, 2015 were comprised of $21.3 billion in foreign currency-denominated and cross-currency receive-fixed swaps, $(40.3) billion in net foreign currency forward rate contracts, $(7.6) billion in foreign currency-denominated pay-fixed swaps and $1.2 billion in foreign currency futures contracts.

We use interest rate derivative instruments to hedge the variability in the cash flows of our assets and liabilities and other forecasted transactions (collectively referred to as cash flow hedges). The net losses on both open and terminated cash flow hedge derivative instruments recorded in accumulated OCI were $1.4 billion and $1.7 billion, on a pretax basis, at December 31, 2016 and 2015. These net losses are expected to be reclassified into earnings in the same period as the hedged cash flows affect earnings and will decrease income or increase expense on the respective hedged cash flows. Assuming no change in open cash flow derivative hedge positions and no changes in prices or interest rates beyond what is implied in forward yield curves at December 31, 2016, the pretax net losses are expected to be reclassified into earnings as follows: $205 million, or 14 percent within the next year, 47 percent in years two through five, and 28 percent in years six through ten, with the remaining 11 percent thereafter. For more information on derivatives designated as cash flow hedges, see *Note 2 – Derivatives* to the Consolidated Financial Statements.

We hedge our net investment in non-U.S. operations determined to have functional currencies other than the U.S. Dollar using forward foreign exchange contracts that typically settle in less than 180 days, cross-currency basis swaps and foreign exchange options. We recorded net after-tax losses on derivatives in accumulated OCI associated with net investment hedges which were offset by gains on our net investments in consolidated non-U.S. entities at December 31, 2016.

Mortgage Banking Risk Management

We originate, fund and service mortgage loans, which subject us to credit, liquidity and interest rate risks, among others. We determine whether loans will be held-for-investment or held-for-sale at the time of commitment and manage credit and liquidity risks by selling or securitizing a portion of the loans we originate.

Interest rate risk and market risk can be substantial in the mortgage business. Fluctuations in interest rates drive consumer demand for new mortgages and the level of refinancing activity which, in turn, affects total origination and servicing income. Hedging the various sources of interest rate risk in mortgage banking is a complex process that requires complex modeling and ongoing monitoring. Typically, an increase in mortgage interest rates will lead to a decrease in mortgage originations and related fees. IRLCs and the related residential first mortgage LHFS are subject to interest rate risk between the date of the IRLC and the date the loans are sold to the secondary market, as an increase in mortgage interest rates typically leads to a decrease in the value of these instruments.

MSRs are nonfinancial assets created when the underlying mortgage loan is sold to investors and we retain the right to service the loan. Typically, an increase in mortgage rates will lead to an increase in the value of the MSRs driven by lower prepayment expectations. This increase in value from increases in mortgage rates is opposite of, and therefore offsets, the risk described for IRLCs and LHFS. Because the interest rate risks of these two hedged items offset, we combine them into one overall hedged item with one combined economic hedge portfolio.

To hedge these combined assets, we use certain derivatives such as interest rate options, interest rate swaps, forward sale commitments, eurodollar and U.S. Treasury futures, and mortgage TBAs, as well as other securities including agency MBS, principal-only and interest-only MBS and U.S. Treasury securities. During 2016 and 2015, we recorded gains in mortgage banking income of $366 million and $360 million related to the change in fair value of the derivative contracts and other securities used to hedge the market risks of the MSRs, IRLCs and LHFS, net of gains and losses due to changes in fair value of these hedged items. For more information on MSRs, see *Note 23 – Mortgage Servicing Rights* to the Consolidated Financial Statements and for more information on mortgage banking income, see *Consumer Banking* on page 29.

Compliance Risk Management

Compliance risk is the risk of legal or regulatory sanctions, material financial loss or damage to the reputation of the Corporation arising from the failure of the Corporation to comply with the requirements of applicable laws, rules, regulations and related self-regulatory organizations' standards and codes of conduct (collectively, applicable laws, rules and regulations). Global Compliance independently assesses compliance risk, and evaluates FLUs and control functions for adherence to applicable laws, rules and regulations, including identifying compliance issues and risks, performing monitoring and independent testing, and reporting on the state of compliance activities across the Corporation. Additionally, Global Compliance works with FLUs and control functions so that day-to-day activities operate in a compliant manner.

The Corporation's approach to the management of compliance risk is described in the Global Compliance – Enterprise Policy, which outlines the requirements of the Corporation's global compliance program, and defines roles and responsibilities of FLUs, IRM and Corporate Audit, the three lines of defense in managing compliance risk. The requirements work together to drive a comprehensive risk-based approach for the proactive identification, management and escalation of compliance risks throughout the Corporation. For more information on FLUs and control functions, see Managing Risk on page 40.

The Global Compliance – Enterprise Policy also sets the requirements for reporting compliance risk information to executive management as well as the Board or appropriate Board-level committees in support of Global Compliance's responsibility for conducting independent oversight of the Corporation's compliance risk management activities. The Board provides oversight of compliance risk through its Audit Committee and the ERC.

Operational Risk Management

The Corporation defines operational risk as the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events. Operational risk may occur anywhere in the Corporation, including third-party business processes, and is not limited to operations functions. Effects may extend beyond financial losses and may result in reputational risk impacts. Operational risk includes legal risk. Successful operational risk management is particularly important to diversified financial services companies because of the nature, volume and complexity of the financial services business. Operational risk is a significant component in the calculation of total risk-weighted assets used in the Basel 3 capital calculation under the Advanced approaches. For more information on Basel 3 Advanced approaches, see Capital Management on page 44.

We approach operational risk management from two perspectives within the structure of the Corporation: (1) at the enterprise level to provide independent, integrated management of operational risk across the organization, and (2) at the business and control function levels to address operational risk in revenue producing and non-revenue producing units. The Operational Risk Management Program addresses the overarching processes for identifying, measuring, monitoring and controlling operational risk, and reporting operational risk information to management and the Board. Our internal governance structure enhances the effectiveness of the Corporation's Operational Risk Management Program and is administered at the enterprise level through formal oversight by the Board, the ERC, the CRO and a variety of management committees and risk oversight groups aligned to the Corporation's overall risk governance framework and practices. Of these, the MRC oversees the Corporation's policies and processes for operational risk management. The MRC also serves as an escalation point for critical operational risk matters within the Corporation. The MRC reports operational risk activities to the ERC. The independent operational risk management teams oversee the businesses and control functions to monitor adherence to the Operational Risk Management Program and advise and challenge operational risk exposures.

Within the Global Risk Management organization, the Corporate Operational Risk team develops and guides the strategies, enterprise-wide policies, practices, controls and monitoring tools for assessing and managing operational risks across the organization. The Corporate Operational Risk team reports results to businesses, control functions, senior management, management committees, the ERC and the Board.

The FLUs and control functions are responsible for assessing, monitoring and managing all the risks within their units, including operational risks. In addition to enterprise risk management tools such as loss reporting, scenario analysis and Risk and Control Self Assessments (RCSAs), operational risk executives, working in conjunction with senior business executives, have developed key tools to help identify, measure, monitor and control risk in each business and control function. Examples of these include personnel management practices; data management, data quality controls and related processes; fraud management units; cybersecurity controls, processes and systems; transaction processing, monitoring and analysis; business recovery planning; and new product introduction processes. The FLUs and control functions are also responsible for consistently implementing and monitoring adherence to corporate practices.

Among the key tools in the risk management process are the RCSAs. The RCSA process, consistent with identification, measurement, monitoring and control, is one of our primary methods for capturing the identification and assessment of operational risk exposures, including inherent and residual operational risk ratings, and control effectiveness ratings. The end-to-end RCSA process incorporates risk identification and assessment of the control environment; monitoring, reporting and escalating risk; quality assurance and data validation; and integration with the risk appetite. Key operational risk indicators have been developed and are used to assist in identifying trends and issues on an enterprise, business and control function level. This results in a comprehensive risk management view that enables understanding of and action on operational risks and controls for our processes, products, activities and systems.

Independent review and challenge to the Corporation's overall operational risk management framework is performed by the Enterprise Independent Testing Team and reported through the operational risk governance committees and management routines.

Insurance maintained by the Corporation may mitigate the impact of operational losses. Certain insurance is purchased to be in compliance with laws, regulations or legal requirements, and in conjunction with specific hedging strategies to reduce adverse financial impacts arising from operational losses.

Reputational Risk Management

Reputational risk is the risk that negative perceptions of the Corporation's conduct or business practices may adversely impact its profitability or operations through an inability to establish new or maintain existing customer/client relationships or otherwise impact relationships with key stakeholders, such as investors, regulators, employees and the community. Reputational risk may result from many of the Corporation's activities, including those related to the management of our strategic, operational, compliance and credit risks.

The Corporation manages reputational risk through established policies and controls in its businesses and risk management processes to mitigate reputational risks in a timely manner and through proactive monitoring and identification of potential reputational risk events. The Corporation has processes and procedures in place to respond to events that give rise to reputational risk, including educating individuals and organizations that influence public opinion, implementing external communication strategies to mitigate the risk, and informing key stakeholders of potential reputational risks.

The Corporation's organization and governance structure provides oversight of reputational risks, and key risk indicators are reported regularly and directly to management and the ERC, which provides primary oversight of reputational risk. In addition, each FLU has a committee, which includes representatives from Compliance, Legal and Risk, that is responsible for the oversight of reputational risk. Such committees' oversight includes providing approval for business activities that present elevated levels of reputational risks.

Complex Accounting Estimates

Our significant accounting principles, as described in *Note 1 – Summary of Significant Accounting Principles* to the Consolidated Financial Statements, are essential in understanding the MD&A. Many of our significant accounting principles require complex judgments to estimate the values of assets and liabilities. We have procedures and processes in place to facilitate making these judgments.

The more judgmental estimates are summarized in the following discussion. We have identified and described the development of the variables most important in the estimation processes that involve mathematical models to derive the estimates. In many cases, there are numerous alternative judgments that could be used in the process of determining the inputs to the models. Where alternatives exist, we have used the factors that we believe represent the most reasonable value in developing the inputs. Actual performance that differs from our estimates of the key variables could impact our results of operations. Separate from the possible future impact to our results of operations from input and model variables, the value of our lending portfolio and market-sensitive assets and liabilities may change subsequent to the balance sheet date, often significantly, due to the nature and magnitude of future credit and market conditions. Such credit and market conditions may change quickly and in unforeseen ways and the resulting volatility could have a significant, negative effect on future operating results. These fluctuations would not be indicative of deficiencies in our models or inputs.

Allowance for Credit Losses

The allowance for credit losses, which includes the allowance for loan and lease losses and the reserve for unfunded lending commitments, represents management's estimate of probable losses inherent in the Corporation's loan portfolio excluding those loans accounted for under the fair value option. Our process for determining the allowance for credit losses is discussed in *Note 1 – Summary of Significant Accounting Principles* to the Consolidated Financial Statements. We evaluate our allowance at the portfolio segment level and our portfolio segments are Consumer Real Estate, Credit Card and Other Consumer, and Commercial. Due to the variability in the drivers of the assumptions used in this process, estimates of the portfolio's inherent risks and overall collectability change with changes in the economy, individual industries, countries, and borrowers' ability and willingness to repay their obligations. The degree to which any particular assumption affects the allowance for credit losses depends on the severity of the change and its relationship to the other assumptions.

Key judgments used in determining the allowance for credit losses include risk ratings for pools of commercial loans and leases, market and collateral values and discount rates for individually evaluated loans, product type classifications for consumer and commercial loans and leases, loss rates used for consumer and commercial loans and leases, adjustments made to address current events and conditions, considerations regarding domestic and global economic uncertainty, and overall credit conditions.

Our estimate for the allowance for loan and lease losses is sensitive to the loss rates and expected cash flows from our Consumer Real Estate and Credit Card and Other Consumer portfolio segments, as well as our U.S. small business commercial card portfolio within the Commercial portfolio segment. For each one-percent increase in the loss rates on loans collectively evaluated for impairment in our Consumer Real Estate portfolio segment, excluding PCI loans, coupled with a one-percent decrease in the discounted cash flows on those loans individually evaluated for impairment within this portfolio segment, the allowance for loan and lease losses at December 31, 2016 would have increased by $51 million. PCI loans within our Consumer Real Estate portfolio segment are initially recorded at fair value. Applicable accounting guidance prohibits carry-over or creation of valuation allowances in the initial accounting. However, subsequent decreases in the expected cash flows from the date of acquisition result in a charge to the provision for credit losses and a corresponding increase to the allowance for loan and lease losses. We subject our PCI portfolio to stress scenarios to evaluate the potential impact given certain events. A one-percent decrease in the expected cash flows could result in a $127 million impairment of the portfolio. For each one-percent increase in the loss rates on loans collectively evaluated for impairment within our Credit Card and Other Consumer portfolio segment and U.S. small business commercial card portfolio, coupled with a one-percent decrease in the expected cash flows on those loans individually evaluated for impairment within the Credit Card and Other Consumer portfolio segment and the U.S. small business commercial card portfolio, the allowance for loan and lease losses at December 31, 2016 would have increased by $38 million.

Our allowance for loan and lease losses is sensitive to the risk ratings assigned to loans and leases within the Commercial portfolio segment (excluding the U.S. small business commercial card portfolio). Assuming a downgrade of one level in the internal risk ratings for commercial loans and leases, except loans and leases already risk-rated Doubtful as defined by regulatory authorities, the allowance for loan and lease losses would have increased by $2.8 billion at December 31, 2016.

The allowance for loan and lease losses as a percentage of total loans and leases at December 31, 2016 was 1.26 percent and these hypothetical increases in the allowance would raise the ratio to 1.60 percent.

These sensitivity analyses do not represent management's expectations of the deterioration in risk ratings or the increases in loss rates but are provided as hypothetical scenarios to assess the sensitivity of the allowance for loan and lease losses to changes in key inputs. We believe the risk ratings and loss severities currently in use are appropriate and that the probability of the alternative scenarios outlined above occurring within a short period of time is remote.

The process of determining the level of the allowance for credit losses requires a high degree of judgment. It is possible that others, given the same information, may at any point in time reach different reasonable conclusions.

For more information on the Financial Accounting Standards Board's (FASB) proposed standard on accounting for credit losses, see *Note 1 – Summary of Significant Accounting Principles* to the Consolidated Financial Statements.

Fair Value of Financial Instruments

We are, under applicable accounting guidance, required to maximize the use of observable inputs and minimize the use of unobservable inputs in measuring fair value. We classify fair value measurements of financial instruments based on the three-level fair value hierarchy in the guidance. We carry trading account assets and liabilities, derivative assets and liabilities, AFS debt and equity securities, other debt securities, consumer MSRs and certain other assets at fair value. Also, we account for certain loans and loan commitments, LHFS, short-term borrowings, securities financing agreements, asset-backed secured financings, long-term deposits and long-term debt under the fair value option.

The fair values of assets and liabilities may include adjustments, such as market liquidity and credit quality, where appropriate. Valuations of products using models or other techniques are sensitive to assumptions used for the significant inputs. Where market data is available, the inputs used for valuation reflect that information as of our valuation date. Inputs to valuation models are considered unobservable if they are supported by little or no market activity. In periods of extreme volatility, lessened liquidity or in illiquid markets, there may be more variability in market pricing or a lack of market data to use in the valuation process. In keeping with the prudent application of estimates and management judgment in determining the fair value of assets and liabilities, we have in place various processes and controls that include: a model validation policy that requires review and approval of quantitative models used for deal pricing, financial statement fair value determination and risk quantification; a trading product valuation policy that requires verification of all traded product valuations; and a periodic review and substantiation of daily profit and loss reporting for all traded products. Primarily through validation controls, we utilize both broker and pricing service inputs which can and do include both market-observable and internally-modeled values and/or valuation inputs. Our reliance on this information is affected by our understanding of how the broker and/or pricing service develops its data with a higher degree of reliance applied to those that are more directly observable and lesser reliance applied to those developed through their own internal modeling. Similarly, broker quotes that are executable are given a higher level of reliance than indicative broker quotes, which are not executable. These processes and controls are performed independently of the business. For additional information, see *Note 20 – Fair Value Measurements* and *Note 21 – Fair Value Option* to the Consolidated Financial Statements.

Level 3 Assets and Liabilities

Financial assets and liabilities, and MSRs where values are based on valuation techniques that require inputs that are both unobservable and are significant to the overall fair value measurement are classified as Level 3 under the fair value hierarchy established in applicable accounting guidance. Level 3 financial assets and liabilities include certain loans, MBS, ABS, CDOs, CLOs, structured liabilities and highly structured, complex or long-dated derivative contracts and MSRs. The fair value of these Level 3 financial assets and liabilities and MSRs is determined using pricing models, discounted cash flow methodologies or similar techniques for which the determination of fair value requires significant management judgment or estimation. Total recurring Level 3 assets were $14.5 billion, or 0.66 percent of total assets, and total recurring Level 3 liabilities were $7.2 billion, or 0.37 percent of total liabilities, at December 31, 2016 compared to $18.1 billion or 0.84 percent and $7.5 billion or 0.40 percent at December 31, 2015.

Level 3 financial instruments may be hedged with derivatives classified as Level 1 or 2; therefore, gains or losses associated with Level 3 financial instruments may be offset by gains or losses associated with financial instruments classified in other levels of the fair value hierarchy. The Level 3 gains and losses recorded in earnings did not have a significant impact on our liquidity or capital. We conduct a review of our fair value hierarchy classifications on a quarterly basis. Transfers into or out of Level 3 are made if the significant inputs used in the financial models measuring the fair values of the assets and liabilities became unobservable or observable, respectively, in the current marketplace. These transfers are considered to be effective as of the beginning of the quarter in which they occur. For more information on the significant transfers into and out of Level 3 during 2016 and 2015, see *Note 20 – Fair Value Measurements* to the Consolidated Financial Statements.

Accrued Income Taxes and Deferred Tax Assets

Accrued income taxes, reported as a component of either other assets or accrued expenses and other liabilities on the Consolidated Balance Sheet, represent the net amount of current income taxes we expect to pay to or receive from various taxing jurisdictions attributable to our operations to date. We currently file income tax returns in more than 100 jurisdictions and consider many factors, including statutory, judicial and regulatory guidance, in estimating the appropriate accrued income taxes for each jurisdiction.

Net deferred tax assets, reported as a component of other assets on the Consolidated Balance Sheet, represent the net decrease in taxes expected to be paid in the future because of net operating loss (NOL) and tax credit carryforwards and because of future reversals of temporary differences in the bases of assets and liabilities as measured by tax laws and their bases as reported in the financial statements. NOL and tax credit carryforwards result in reductions to future tax liabilities, and many of these attributes can expire if not utilized within certain periods. We consider the need for valuation allowances to reduce net deferred tax assets to the amounts that we estimate are more-likely-than-not to be realized.

Consistent with the applicable accounting guidance, we monitor relevant tax authorities and change our estimates of accrued income taxes and/or net deferred tax assets due to changes in income tax laws and their interpretation by the courts and regulatory authorities. These revisions of our estimates, which also may result from our income tax planning and from the resolution of income tax audit matters, may be material to our operating results for any given period.

See *Note 19 – Income Taxes* to the Consolidated Financial Statements for a table of significant tax attributes and additional information. For more information, see page 12 under Item 1A. Risk Factors of our 2016 Annual Report on Form 10-K.

Goodwill and Intangible Assets

Background

The nature of and accounting for goodwill and intangible assets are discussed in *Note 1 – Summary of Significant Accounting Principles* and *Note 8 – Goodwill and Intangible Assets* to the Consolidated Financial Statements. Goodwill is reviewed for potential impairment at the reporting unit level on an annual basis, which for the Corporation is as of June 30, and in interim periods if events or circumstances indicate a potential impairment. A reporting unit is an operating segment or one level below.

2016 Annual Goodwill Impairment Testing

Estimating the fair value of reporting units is a subjective process that involves the use of estimates and judgments, particularly related to cash flows, the appropriate discount rates and an applicable control premium. We determined the fair values of the reporting units using a combination of valuation techniques consistent with the market approach and the income approach and also utilized independent valuation specialists.

The market approach we used estimates the fair value of the individual reporting units by incorporating any combination of the book capital, tangible capital and earnings multiples from comparable publicly-traded companies in industries similar to the reporting unit. The relative weight assigned to these multiples varies among the reporting units based on qualitative and quantitative characteristics, primarily the size and relative profitability of the reporting unit as compared to the comparable publicly-traded companies. Since the fair values determined under the market approach are representative of a noncontrolling interest, we added a control premium to arrive at the reporting units' estimated fair values on a controlling basis.

For purposes of the income approach, we calculated discounted cash flows by taking the net present value of estimated future cash flows and an appropriate terminal value. Our discounted cash flow analysis employs a capital asset pricing model in estimating the discount rate (i.e., cost of equity financing) for each reporting unit. The inputs to this model include the risk-free rate of return, beta, which is a measure of the level of non-diversifiable risk associated with comparable companies for each specific reporting unit, market equity risk premium and in certain cases an unsystematic (company-specific) risk factor. We use our internal forecasts to estimate future cash flows and actual results may differ from forecasted results.

We completed our annual goodwill impairment test as of June 30, 2016 for all of our reporting units that had goodwill. We also evaluated the non-U.S. consumer card business within *All Other*, as this business comprises substantially all of the goodwill included in *All Other*. To determine fair value, we utilized a combination of the market approach and the income approach. Under the market approach, we compared earnings and equity multiples of the individual reporting units to multiples of public companies comparable to the individual reporting units. The control premium used in the June 30, 2016 annual goodwill impairment test was 30 percent, based upon observed comparable premiums paid for change in control transactions for financial institutions, for all reporting units. Under the income approach, we updated our assumptions to reflect the current market environment. The discount rates used in the June 30, 2016 annual goodwill impairment test ranged from 8.9 percent to 12.7 percent depending on the relative risk of a reporting unit. Cumulative average growth rates developed by management for revenues and expenses in each reporting unit ranged from negative 3.2 percent to positive 5.9 percent.

Our market capitalization remained below our recorded book value during 2016. We do not believe that our current market capitalization reflects the aggregate fair value of our individual reporting units with assigned goodwill, as our market capitalization does not include consideration of individual reporting unit control premiums. Additionally, while the impact of recent regulatory changes has been considered in the reporting units' forecasts and valuations, overall regulatory and market uncertainties persist that we believe further impact our stock price.

Based on the results of step one of the annual goodwill impairment test, we determined that step two was not required for any of the reporting units as their fair value exceeded their carrying value indicating there was no impairment.

In 2015, we completed our annual goodwill impairment test as of June 30, 2015 for all of our reporting units that had goodwill. Based on the results of step one of the annual goodwill impairment test, we determined that step two was not required for any of the reporting units as their fair value exceeded their carrying value indicating there was no impairment.

Representations and Warranties Liability

The methodology used to estimate the liability for obligations under representations and warranties related to transfers of residential mortgage loans is a function of the type of representations and warranties provided in the sales contract and considers a variety of factors. Depending upon the counterparty, these factors include actual defaults, estimated future defaults, historical loss experience, estimated home prices, other economic conditions, estimated probability that we will receive a repurchase request, number of payments made by the borrower prior to default and estimated probability that we will be required to repurchase a loan. It also considers other relevant facts and circumstances, such as bulk settlements and identity of the counterparty or type of counterparty, as appropriate. The estimate of the liability for obligations under representations and warranties is based upon currently available information, significant judgment, and a number of factors, including those set forth above, that are subject to change. Changes to any one of these factors could significantly impact the estimate of our liability.

The representations and warranties provision may vary significantly each period as the methodology used to estimate the expense continues to be refined based on the level and type of repurchase requests presented, defects identified, the latest experience gained on repurchase requests and other relevant facts and circumstances. The estimate of the liability for representations and warranties is sensitive to future defaults, loss severity and the net repurchase rate. An assumed simultaneous increase or decrease of 10 percent in estimated future defaults, loss severity and the net repurchase rate would result in an increase or decrease of approximately $250 million in the representations and warranties liability as of December 31, 2016. These sensitivities are hypothetical and are intended to provide an indication of the impact of a significant change in these key assumptions on the representations and warranties liability. In reality, changes in one assumption may result in changes in other assumptions, which may or may not counteract the sensitivity.

For more information on representations and warranties exposure and the corresponding estimated range of possible loss, see Off-Balance Sheet Arrangements and Contractual Obligations – Representations and Warranties on page 39, as well as *Note 7 – Representations and Warranties Obligations and Corporate Guarantees* and *Note 12 – Commitments and Contingencies* to the Consolidated Financial Statements.

2015 Compared to 2014

The following discussion and analysis provide a comparison of our results of operations for 2015 and 2014. This discussion should be read in conjunction with the Consolidated Financial Statements and related Notes. Table 7 and *Note 24 – Business Segment Information* to the Consolidated Financial Statements contain financial data to supplement this discussion.

Overview

Net Income

Net income was $15.8 billion, or $1.31 per diluted share in 2015 compared to $5.5 billion, or $0.42 per diluted share in 2014. The increase in net income for 2015 compared to 2014 was primarily driven by a decrease of $15.2 billion in litigation expense.

Net Interest Income

Net interest income decreased $1.8 billion to $39.0 billion in 2015 compared to 2014. The net interest yield decreased 11 bps to 2.14 percent in 2015. These declines were primarily driven by lower loan yields and consumer loan balances, as well as a charge of $612 million in 2015 related to the redemption of certain trust preferred securities, partially offset by lower funding costs, higher trading-related net interest income, lower rates paid on deposits and commercial loan growth.

Noninterest Income

Noninterest income was $44.0 billion in 2015, a decrease of $1.1 billion compared to 2014, which was driven by the following factors:

- Investment banking income decreased $493 million driven by lower debt and equity issuance fees, partially offset by higher advisory fees.

- Trading account profits increased $164 million. Excluding DVA, trading account profits decreased $330 million driven by declines in credit-related products reflecting lower client activity, partially offset by strong performance in equity derivatives, increased client activity in equities in the Asia-Pacific region, improvement in currencies on higher client flows and increased volatility.
- Mortgage banking income increased $801 million primarily due to a benefit for representations and warranties in 2015 compared to a provision in 2014, and to a lesser extent, improved MSR net-of-hedge performance and an increase in core production revenue, partially offset by a decline in servicing fees.
- Other income decreased $1.2 billion primarily due to DVA gains of $407 million in 2014 compared to DVA losses of $633 million in 2015 and an $869 million decrease in equity investment income as 2014 included a gain on the sale of a portion of an equity investment and gains from an initial public offering (IPO) of an equity investment in *Global Markets*. These declines were partially offset by higher gains on asset sales and lower PPI costs in 2015.

Provision for Credit Losses

The provision for credit losses was $3.2 billion in 2015, an increase of $886 million compared to 2014. The provision for credit losses was $1.2 billion lower than net charge-offs for 2015, resulting in a reduction in the allowance for credit losses. The provision for credit losses in 2014 included $400 million of additional costs associated with the consumer relief portion of the settlement with the DoJ. Excluding these additional costs, the provision for credit losses in the consumer portfolio increased $1.1 billion compared to 2014 due to a slower pace of portfolio improvement, and also due to a lower level of recoveries on nonperforming loan sales and other recoveries in 2015. The provision for credit losses for the commercial portfolio increased $160 million in 2015 compared to 2014 driven by energy sector exposure.

Net charge-offs totaled $4.3 billion, or 0.50 percent of average loans and leases in 2015 compared to $4.4 billion, or 0.49 percent in 2014. The decrease in net charge-offs was primarily due to credit quality improvement in the consumer portfolio, partially offset by higher net charge-offs in the commercial portfolio primarily due to lower net recoveries in commercial real estate and higher energy-related net charge-offs.

Noninterest Expense

Noninterest expense was $57.7 billion in 2015, a decrease of $17.9 billion compared to 2014, primarily driven by a decrease of $15.2 billion in litigation expense as well as the following factors:

- Personnel expense decreased $919 million as we continue to streamline processes, reduce headcount and achieve cost savings.
- Occupancy decreased $167 million primarily due to our focus on reducing our rental footprint.
- Professional fees decreased $208 million due to lower default-related servicing expenses and legal fees.
- Telecommunications expense decreased $436 million due to efficiencies gained as we have simplified our operating model, including in-sourcing certain functions.
- Other general operating expense decreased $16.0 billion primarily due to a decrease of $15.2 billion in litigation expense which was primarily related to previously disclosed legacy mortgage-related matters and other litigation charges in 2014.

Income Tax Expense

The income tax expense was $6.2 billion on pretax income of $22.1 billion in 2015 compared to income tax expense of $2.4 billion on pretax income of $8.0 billion in 2014. The effective tax rate for 2015 was 28.2 percent and was driven by our recurring tax preferences and tax benefits related to certain non-U.S. restructurings, partially offset by a $290 million charge for the impact of the U.K. tax law changes.

The effective tax rate for 2014 was 30.7 percent and was driven by our recurring tax preference benefits, the resolution of several tax examinations and tax benefits from non-U.S. restructurings, partially offset by the non-deductible treatment of certain litigation charges.

Business Segment Operations

Consumer Banking

Consumer Banking recorded net income of $6.6 billion in 2015 compared to $6.3 billion in 2014 with the increase primarily driven by lower noninterest expense, lower provision for credit losses and higher noninterest income, partially offset by lower net interest income. Net interest income decreased $362 million to $20.4 billion in 2015 as the beneficial impact of an increase in investable assets as a result of higher deposit balances was more than offset by the impact of the allocation of ALM activities, higher funding costs, lower card yields and lower average card loan balances. Noninterest income increased $59 million to $11.1 billion in 2015 primarily driven by higher card income and the impact on revenue of certain divestitures, partially offset by lower mortgage banking income and service charges. The provision for credit losses decreased $124 million to $2.3 billion in 2015 driven by continued improvement in credit quality primarily related to our small business and credit card portfolios. Noninterest expense decreased $674 million to $18.7 billion in 2015 primarily driven by lower operating and personnel expenses, partially offset by higher fraud costs in advance of EMV chip implementation.

Global Wealth & Investment Management

GWIM recorded net income of $2.6 billion in 2015 compared to $2.9 billion in 2014 with the decrease driven by a decrease in revenue and increases in noninterest expense and the provision for credit losses. Net interest income decreased $303 million to $5.5 billion in 2015 due to the impact of the allocation of ALM activities, partially offset by the impact of loan and deposit growth. Noninterest income, primarily investment and brokerage services, decreased $66 million to $12.5 billion in 2015 driven by lower transactional revenue, partially offset by increased asset management fees due to the impact of long-term AUM flows and higher average market levels. Noninterest expense increased $107 million to $13.9 billion in 2015 primarily due to higher amortization of previously issued stock awards and investments in client-facing professionals, partially offset by lower revenue-related expenses.

Global Banking

Global Banking recorded net income of $5.3 billion in 2015 compared to $5.8 billion in 2014 with the decrease primarily driven by lower revenue and higher provision for credit losses, partially offset by lower noninterest expense. Revenue decreased $645 million to $17.6 billion in 2015 primarily due to lower net interest income. The decline in net interest income reflects the impact of the allocation of the ALM activities, including liquidity costs as well as loan spread compression, partially offset by loan growth. The provision for credit losses increased $361 million to $686 million in 2015 driven by energy exposure and loan growth. Noninterest expense decreased $325 million to $8.5 billion in 2015 primarily due to lower litigation expense and technology initiative costs.

Global Markets

Global Markets recorded net income of $2.4 billion in 2015 compared to $2.6 billion in 2014. Excluding net DVA, net income increased $170 million to $2.9 billion in 2015 primarily driven by lower noninterest expense and lower tax expense, partially offset by lower revenue. Revenue, excluding net DVA, decreased due to lower trading account profits from declines in credit-related businesses, lower investment banking fees and lower equity investment gains as 2014 included gains related to the IPO of an equity investment, partially offset by an increase in net interest income. Net DVA losses were $786 million in 2015 compared to losses of $240 million in 2014. Noninterest expense decreased $615 million to $11.4 billion in 2015 largely due to lower litigation expense and, to a lesser extent, lower revenue-related incentive compensation and support costs.

All Other

All Other recorded a net loss of $1.1 billion in 2015 compared to a net loss of $12.0 billion in 2014 with the improvement primarily driven by a $15.2 billion decrease in litigation expense, which is included in noninterest expense, as well as an $862 million increase in mortgage banking income, primarily due to lower representations and warranties provision. These were partially offset by a $950 million decrease in net interest income primarily driven by a $612 million charge in 2015 related to the discount on certain trust preferred securities.

Statistical Tables
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Table I Average Balances and Interest Rates – FTE Basis

(Dollars in millions)	2016 Average Balance	2016 Interest Income/ Expense	2016 Yield/ Rate	2015 Average Balance	2015 Interest Income/ Expense	2015 Yield/ Rate	2014 Average Balance	2014 Interest Income/ Expense	2014 Yield/ Rate
Earning assets									
Interest-bearing deposits with the Federal Reserve, non-U.S. central banks and other banks	$ 133,374	$ 605	0.45%	$ 136,391	$ 369	0.27%	$ 113,999	$ 308	0.27%
Time deposits placed and other short-term investments	9,026	140	1.55	9,556	146	1.53	11,032	170	1.54
Federal funds sold and securities borrowed or purchased under agreements to resell	216,161	1,118	0.52	211,471	988	0.47	222,483	1,039	0.47
Trading account assets	129,766	4,563	3.52	137,837	4,547	3.30	145,686	4,716	3.24
Debt securities (1)	418,289	9,263	2.23	390,849	9,233	2.38	351,437	9,051	2.57
Loans and leases (2):									
Residential mortgage	188,250	6,488	3.45	201,366	6,967	3.46	237,270	8,462	3.57
Home equity	71,760	2,713	3.78	81,070	2,984	3.68	89,705	3,340	3.72
U.S. credit card	87,905	8,170	9.29	88,244	8,085	9.16	88,962	8,313	9.34
Non-U.S. credit card	9,527	926	9.72	10,104	1,051	10.40	11,511	1,200	10.42
Direct/Indirect consumer (3)	91,853	2,296	2.50	84,585	2,040	2.41	82,409	2,099	2.55
Other consumer (4)	2,295	75	3.26	1,938	56	2.86	2,029	139	6.86
Total consumer	451,590	20,668	4.58	467,307	21,183	4.53	511,886	23,553	4.60
U.S. commercial	276,887	8,101	2.93	248,354	6,883	2.77	230,172	6,630	2.88
Commercial real estate (5)	57,547	1,773	3.08	52,136	1,521	2.92	47,525	1,432	3.01
Commercial lease financing	21,146	627	2.97	19,802	628	3.17	19,226	658	3.42
Non-U.S. commercial	93,263	2,337	2.51	89,188	2,008	2.25	89,894	2,196	2.44
Total commercial	448,843	12,838	2.86	409,480	11,040	2.70	386,817	10,916	2.82
Total loans and leases (1)	900,433	33,506	3.72	876,787	32,223	3.68	898,703	34,469	3.84
Other earning assets	59,775	2,762	4.62	62,040	2,890	4.66	66,128	2,812	4.25
Total earning assets (6)	1,866,824	51,957	2.78	1,824,931	50,396	2.76	1,809,468	52,565	2.90
Cash and due from banks (1)	27,893			28,921			27,079		
Other assets, less allowance for loan and lease losses (1)	295,254			306,345			308,846		
Total assets	$ 2,189,971			$ 2,160,197			$ 2,145,393		
Interest-bearing liabilities									
U.S. interest-bearing deposits:									
Savings	$ 49,495	$ 5	0.01%	$ 46,498	$ 7	0.01%	$ 46,270	$ 3	0.01%
NOW and money market deposit accounts	589,737	294	0.05	543,133	273	0.05	518,893	316	0.06
Consumer CDs and IRAs	48,594	133	0.27	54,679	162	0.30	66,797	264	0.40
Negotiable CDs, public funds and other deposits	32,889	160	0.49	29,976	95	0.32	31,507	108	0.34
Total U.S. interest-bearing deposits	720,715	592	0.08	674,286	537	0.08	663,467	691	0.10
Non-U.S. interest-bearing deposits:									
Banks located in non-U.S. countries	3,891	32	0.82	4,473	31	0.70	8,744	61	0.69
Governments and official institutions	1,437	9	0.64	1,492	5	0.33	1,740	2	0.14
Time, savings and other	59,183	382	0.65	54,767	288	0.53	60,729	326	0.54
Total non-U.S. interest-bearing deposits	64,511	423	0.66	60,732	324	0.53	71,213	389	0.55
Total interest-bearing deposits	785,226	1,015	0.13	735,018	861	0.12	734,680	1,080	0.15
Federal funds purchased, securities loaned or sold under agreements to repurchase and short-term borrowings	213,258	2,350	1.10	246,295	2,387	0.97	257,678	2,579	1.00
Trading account liabilities	72,779	1,018	1.40	76,772	1,343	1.75	87,152	1,576	1.81
Long-term debt (7)	228,617	5,578	2.44	240,059	5,958	2.48	253,607	5,700	2.25
Total interest-bearing liabilities (6)	1,299,880	9,961	0.77	1,298,144	10,549	0.81	1,333,117	10,935	0.82
Noninterest-bearing sources:									
Noninterest-bearing deposits	437,335			420,842			389,527		
Other liabilities	186,479			189,230			184,432		
Shareholders' equity	266,277			251,981			238,317		
Total liabilities and shareholders' equity	$ 2,189,971			$ 2,160,197			$ 2,145,393		
Net interest spread			2.01%			1.95%			2.08%
Impact of noninterest-bearing sources			0.24			0.24			0.22
Net interest income/yield on earning assets		$ 41,996	2.25%		$ 39,847	2.19%		$ 41,630	2.30%

(1) Includes assets of the Corporation's non-U.S. consumer credit card business, which are included in assets of business held for sale on the Consolidated Balance Sheet at December 31, 2016.
(2) Nonperforming loans are included in the respective average loan balances. Income on these nonperforming loans is generally recognized on a cost recovery basis. PCI loans were recorded at fair value upon acquisition and accrete interest income over the estimated life of the loan.
(3) Includes non-U.S. consumer loans of $3.4 billion, $4.0 billion and $4.4 billion in 2016, 2015 and 2014, respectively.
(4) Includes consumer finance loans of $514 million, $619 million and $1.1 billion; consumer leases of $1.6 billion, $1.2 billion and $819 million, and consumer overdrafts of $173 million, $156 million and $149 million in 2016, 2015 and 2014, respectively.
(5) Includes U.S. commercial real estate loans of $54.2 billion, $49.0 billion and $46.0 billion, and non-U.S. commercial real estate loans of $3.4 billion, $3.1 billion and $1.6 billion in 2016, 2015 and 2014, respectively.
(6) Interest income includes the impact of interest rate risk management contracts, which decreased interest income on the underlying assets by $176 million, $59 million and $58 million in 2016, 2015 and 2014, respectively. Interest expense includes the impact of interest rate risk management contracts, which decreased interest expense on the underlying liabilities by $2.1 billion, $2.4 billion and $2.5 billion in 2016, 2015 and 2014, respectively. For additional information, see Interest Rate Risk Management for the Banking Book on page 83.
(7) The yield on long-term debt excluding the $612 million adjustment related to the redemption of certain trust preferred securities was 2.23 percent for 2015. For more information, see *Note 11 – Long-term Debt* to the Consolidated Financial Statements. The yield on long-term debt excluding the adjustment is a non-GAAP financial measure.

Table II Analysis of Changes in Net Interest Income – FTE Basis

	From 2015 to 2016			From 2014 to 2015		
	Due to Change in [1]			Due to Change in [1]		
(Dollars in millions)	Volume	Rate	Net Change	Volume	Rate	Net Change
Increase (decrease) in interest income						
Interest-bearing deposits with the Federal Reserve, non-U.S. central banks and other banks	$ (9)	$ 245	$ 236	$ 60	$ 1	$ 61
Time deposits placed and other short-term investments	(8)	2	(6)	(23)	(1)	(24)
Federal funds sold and securities borrowed or purchased under agreements to resell	28	102	130	(45)	(6)	(51)
Trading account assets	(265)	281	16	(250)	81	(169)
Debt securities	722	(692)	30	994	(812)	182
Loans and leases:						
Residential mortgage	(454)	(25)	(479)	(1,273)	(222)	(1,495)
Home equity	(343)	72	(271)	(324)	(32)	(356)
U.S. credit card	(33)	118	85	(71)	(157)	(228)
Non-U.S. credit card	(60)	(65)	(125)	(147)	(2)	(149)
Direct/Indirect consumer	174	82	256	58	(117)	(59)
Other consumer	10	9	19	(6)	(77)	(83)
Total consumer			(515)			(2,370)
U.S. commercial	787	431	1,218	523	(270)	253
Commercial real estate	159	93	252	137	(48)	89
Commercial lease financing	42	(43)	(1)	19	(49)	(30)
Non-U.S. commercial	90	239	329	(20)	(168)	(188)
Total commercial			1,798			124
Total loans and leases			1,283			(2,246)
Other earning assets	(104)	(24)	(128)	(175)	253	78
Total interest income			$ 1,561			$ (2,169)
Increase (decrease) in interest expense						
U.S. interest-bearing deposits:						
Savings	$ (2)	$ —	$ (2)	$ 2	$ 2	$ 4
NOW and money market deposit accounts	22	(1)	21	10	(53)	(43)
Consumer CDs and IRAs	(16)	(13)	(29)	(45)	(57)	(102)
Negotiable CDs, public funds and other deposits	10	55	65	(6)	(7)	(13)
Total U.S. interest-bearing deposits			55			(154)
Non-U.S. interest-bearing deposits:						
Banks located in non-U.S. countries	(4)	5	1	(30)	—	(30)
Governments and official institutions	—	4	4	—	3	3
Time, savings and other	26	68	94	(30)	(8)	(38)
Total non-U.S. interest-bearing deposits			99			(65)
Total interest-bearing deposits			154			(219)
Federal funds purchased, securities loaned or sold under agreements to repurchase and short-term borrowings	(318)	281	(37)	(116)	(76)	(192)
Trading account liabilities	(69)	(256)	(325)	(186)	(47)	(233)
Long-term debt	(288)	(92)	(380)	(299)	557	258
Total interest expense			(588)			(386)
Net increase (decrease) in net interest income			$ 2,149			$ (1,783)

[1] The changes for each category of interest income and expense are divided between the portion of change attributable to the variance in volume and the portion of change attributable to the variance in rate for that category. The unallocated change in rate or volume variance is allocated between the rate and volume variances.

Table III Preferred Stock Cash Dividend Summary (1)

Preferred Stock	December 31, 2016 Outstanding Notional Amount (in millions)	Declaration Date	Record Date	Payment Date	Per Annum Dividend Rate	Dividend Per Share
Series B (2)	$ 1	January 26, 2017	April 11, 2017	April 25, 2017	7.00%	$ 1.75
		October 27, 2016	January 11, 2017	January 25, 2017	7.00	1.75
		July 27, 2016	October 11, 2016	October 25, 2016	7.00	1.75
		April 27, 2016	July 11, 2016	July 25, 2016	7.00	1.75
		January 21, 2016	April 11, 2016	April 25, 2016	7.00	1.75
Series D (3)	$ 654	January 9, 2017	February 28, 2017	March 14, 2017	6.204%	$ 0.38775
		October 10, 2016	November 30, 2016	December 14, 2016	6.204	0.38775
		July 7, 2016	August 31, 2016	September 14, 2016	6.204	0.38775
		April 15, 2016	May 31, 2016	June 14, 2016	6.204	0.38775
		January 11, 2016	February 29, 2016	March 14, 2016	6.204	0.38775
Series E (3)	$ 317	January 9, 2017	January 31, 2017	February 15, 2017	Floating	$ 0.25556
		October 10, 2016	October 31, 2016	November 15, 2016	Floating	0.25556
		July 7, 2016	July 29, 2016	August 15, 2016	Floating	0.25556
		April 15, 2016	April 29, 2016	May 16, 2016	Floating	0.25000
		January 11, 2016	January 29, 2016	February 16, 2016	Floating	0.25556
Series F	$ 141	January 9, 2017	February 28, 2017	March 15, 2017	Floating	$ 1,000.00
		October 10, 2016	November 30, 2016	December 15, 2016	Floating	1,011.11111
		July 7, 2016	August 31, 2016	September 15, 2016	Floating	1,022.22222
		April 15, 2016	May 31, 2016	June 15, 2016	Floating	1,022.22222
		January 11, 2016	February 29, 2016	March 15, 2016	Floating	1,011.11111
Series G	$ 493	January 9, 2017	February 28, 2017	March 15, 2017	Adjustable	$ 1,000.00
		October 10, 2016	November 30, 2016	December 15, 2016	Adjustable	1,011.11111
		July 7, 2016	August 31, 2016	September 15, 2016	Adjustable	1,022.22222
		April 15, 2016	May 31, 2016	June 15, 2016	Adjustable	1,022.22222
		January 11, 2016	February 29, 2016	March 15, 2016	Adjustable	1,011.11111
Series I (3)	$ 365	January 9, 2017	March 15, 2017	April 3, 2017	6.625%	$ 0.4140625
		October 10, 2016	December 15, 2016	January 3, 2017	6.625	0.4140625
		July 7, 2016	September 15, 2016	October 3, 2016	6.625	0.4140625
		April 15, 2016	June 15, 2016	July 1, 2016	6.625	0.4140625
		January 11, 2016	March 15, 2016	April 1, 2016	6.625	0.4140625
Series K (4, 5)	$ 1,544	January 9, 2017	January 15, 2017	January 30, 2017	Fixed-to-floating	$ 40.00
		July 7, 2016	July 15, 2016	August 1, 2016	Fixed-to-floating	40.00
		January 11, 2016	January 15, 2016	February 1, 2016	Fixed-to-floating	40.00
Series L	$ 3,080	December 16, 2016	January 1, 2017	January 30, 2017	7.25%	$ 18.125
		September 16, 2016	October 1, 2016	October 31, 2016	7.25	18.125
		June 17, 2016	July 1, 2016	August 1, 2016	7.25	18.125
		March 18, 2016	April 1, 2016	May 2, 2016	7.25	18.125
Series M (4, 5)	$ 1,310	October 10, 2016	October 31, 2016	November 15, 2016	Fixed-to-floating	$ 40.625
		April 15, 2016	April 30, 2016	May 16, 2016	Fixed-to-floating	40.625
Series T	$ 5,000	January 26, 2017	March 26, 2017	April 10, 2017	6.00%	$ 1,500.00
		October 27, 2016	December 26, 2016	January 10, 2017	6.00	1,500.00
		July 27, 2016	September 25, 2016	October 11, 2016	6.00	1,500.00
		April 27, 2016	June 25, 2016	July 11, 2016	6.00	1,500.00
		January 21, 2016	March 26, 2016	April 11, 2016	6.00	1,500.00
Series U (4, 5)	$ 1,000	October 10, 2016	November 15, 2016	December 1, 2016	Fixed-to-floating	$ 26.00
		April 15, 2016	May 15, 2016	June 1, 2016	Fixed-to-floating	26.00
Series V (4, 5)	$ 1,500	October 10, 2016	December 1, 2016	December 19, 2016	Fixed-to-floating	$ 25.625
		April 15, 2016	June 1, 2016	June 17, 2016	Fixed-to-floating	25.625
Series W (3)	$ 1,100	January 9, 2017	February 15, 2017	March 9, 2017	6.625%	$ 0.4140625
		October 10, 2016	November 15, 2016	December 9, 2016	6.625	0.4140625
		July 7, 2016	August 15, 2016	September 9, 2016	6.625	0.4140625
		April 15, 2016	May 15, 2016	June 9, 2016	6.625	0.4140625
		January 11, 2016	February 15, 2016	March 9, 2016	6.625	0.4140625
Series X (4, 5)	$ 2,000	January 9, 2017	February 15, 2017	March 6, 2017	Fixed-to-floating	$ 31.25
		July 7, 2016	August 15, 2016	September 6, 2016	Fixed-to-floating	31.25
		January 11, 2016	February 15, 2016	March 7, 2016	Fixed-to-floating	31.25
Series Y (3)	$ 1,100	December 16, 2016	January 1, 2017	January 27, 2017	6.50%	$ 0.40625
		September 16, 2016	October 1, 2016	October 27, 2016	6.50	0.40625
		June 17, 2016	July 1, 2016	July 27, 2016	6.50	0.40625
		March 18, 2016	April 1, 2016	April 27, 2016	6.50	0.40625
Series Z (4, 5)	$ 1,400	September 16, 2016	October 1, 2016	October 24, 2016	Fixed-to-floating	$ 32.50
		March 18, 2016	April 1, 2016	April 25, 2016	Fixed-to-floating	32.50

For footnotes see next page.

Table III Preferred Stock Cash Dividend Summary [1] (continued)

Preferred Stock	December 31, 2016 Outstanding Notional Amount (in millions)	Declaration Date	Record Date	Payment Date	Per Annum Dividend Rate	Dividend Per Share
Series AA [4, 5]	$ 1,900	January 9, 2017	March 1, 2017	March 17, 2017	Fixed-to-floating	$ 30.50
		July 7, 2016	September 1, 2016	September 19, 2016	Fixed-to-floating	30.50
		January 11, 2016	March 1, 2016	March 17, 2016	Fixed-to-floating	30.50
Series CC [3]	$ 1,100	December 16, 2016	January 1, 2017	January 30, 2017	6.20%	$ 0.3875
		September 16, 2016	October 1, 2016	October 31, 2016	6.20	0.3875
		June 17, 2016	July 1, 2016	July 29, 2016	6.20	0.3875
		March 18, 2016	April 1, 2016	April 29, 2016	6.20	0.3875
Series DD [4,5]	$ 1,000	January 9, 2017	February 15, 2017	March 10, 2017	Fixed-to-floating	$ 31.50
		July 7, 2016	August 15, 2016	September 12, 2016	Fixed-to-floating	31.50
Series EE [3]	$ 900	December 16, 2016	January 1, 2017	January 25, 2017	6.00%	$ 0.375
		September 16, 2016	October 1, 2016	October 25, 2016	6.00	0.375
		June 17, 2016	July 1, 2016	July 25, 2016	6.00	0.375
Series 1 [6]	$ 98	January 9, 2017	February 15, 2017	February 28, 2017	Floating	$ 0.18750
		October 10, 2016	November 15, 2016	November 28, 2016	Floating	0.18750
		July 7, 2016	August 15, 2016	August 30, 2016	Floating	0.18750
		April 15, 2016	May 15, 2016	May 31, 2016	Floating	0.18750
		January 11, 2016	February 15, 2016	February 29, 2016	Floating	0.18750
Series 2 [6]	$ 299	January 9, 2017	February 15, 2017	February 28, 2017	Floating	$ 0.19167
		October 10, 2016	November 15, 2016	November 28, 2016	Floating	0.19167
		July 7, 2016	August 15, 2016	August 30, 2016	Floating	0.19167
		April 15, 2016	May 15, 2016	May 31, 2016	Floating	0.18750
		January 11, 2016	February 15, 2016	February 29, 2016	Floating	0.19167
Series 3 [6]	$ 653	January 9, 2017	February 15, 2017	February 28, 2017	6.375%	$ 0.3984375
		October 10, 2016	November 15, 2016	November 28, 2016	6.375	0.3984375
		July 7, 2016	August 15, 2016	August 29, 2016	6.375	0.3984375
		April 15, 2016	May 15, 2016	May 31, 2016	6.375	0.3984375
		January 11, 2016	February 15, 2016	February 29, 2016	6.375	0.3984375
Series 4 [6]	$ 210	January 9, 2017	February 15, 2017	February 28, 2017	Floating	$ 0.25556
		October 10, 2016	November 15, 2016	November 28, 2016	Floating	0.25556
		July 7, 2016	August 15, 2016	August 30, 2016	Floating	0.25556
		April 15, 2016	May 15, 2016	May 31, 2016	Floating	0.25000
		January 11, 2016	February 15, 2016	February 29, 2016	Floating	0.25556
Series 5 [6]	$ 422	January 9, 2017	February 1, 2017	February 21, 2017	Floating	$ 0.25556
		October 10, 2016	November 1, 2016	November 21, 2016	Floating	0.25556
		July 7, 2016	August 1, 2016	August 22, 2016	Floating	0.25556
		April 15, 2016	May 1, 2016	May 23, 2016	Floating	0.25000
		January 11, 2016	February 1, 2016	February 22, 2016	Floating	0.25556

(1) Preferred stock cash dividend summary is as of February 23, 2017.
(2) Dividends are cumulative.
(3) Dividends per depositary share, each representing a 1/1,000th interest in a share of preferred stock.
(4) Initially pays dividends semi-annually.
(5) Dividends per depositary share, each representing a 1/25th interest in a share of preferred stock.
(6) Dividends per depositary share, each representing a 1/1,200th interest in a share of preferred stock.

Table IV Outstanding Loans and Leases

(Dollars in millions)	December 31 2016	2015	2014	2013	2012
Consumer					
Residential mortgage [1]	**$ 191,797**	$ 187,911	$ 216,197	$ 248,066	$ 252,929
Home equity	**66,443**	75,948	85,725	93,672	108,140
U.S. credit card	**92,278**	89,602	91,879	92,338	94,835
Non-U.S. credit card	**9,214**	9,975	10,465	11,541	11,697
Direct/Indirect consumer [2]	**94,089**	88,795	80,381	82,192	83,205
Other consumer [3]	**2,499**	2,067	1,846	1,977	1,628
Total consumer loans excluding loans accounted for under the fair value option	**456,320**	454,298	486,493	529,786	552,434
Consumer loans accounted for under the fair value option [4]	**1,051**	1,871	2,077	2,164	1,005
Total consumer	**457,371**	456,169	488,570	531,950	553,439
Commercial					
U.S. commercial [5]	**283,365**	265,647	233,586	225,851	209,719
Commercial real estate [6]	**57,355**	57,199	47,682	47,893	38,637
Commercial lease financing	**22,375**	21,352	19,579	25,199	23,843
Non-U.S. commercial	**89,397**	91,549	80,083	89,462	74,184
Total commercial loans excluding loans accounted for under the fair value option	**452,492**	435,747	380,930	388,405	346,383
Commercial loans accounted for under the fair value option [4]	**6,034**	5,067	6,604	7,878	7,997
Total commercial	**458,526**	440,814	387,534	396,283	354,380
Less: Loans of business held for sale [7]	**(9,214)**	—	—	—	—
Total loans and leases	**$ 906,683**	$ 896,983	$ 876,104	$ 928,233	$ 907,819

(1) Includes pay option loans of $1.8 billion, $2.3 billion, $3.2 billion, $4.4 billion and $6.7 billion, and non-U.S. residential mortgage loans of $2 million, $2 million, $2 million, $0 and $93 million at December 31, 2016, 2015, 2014, 2013 and 2012, respectively. The Corporation no longer originates pay option loans.

(2) Includes auto and specialty lending loans of $48.9 billion, $42.6 billion, $37.7 billion, $38.5 billion and $35.9 billion, unsecured consumer lending loans of $585 million, $886 million, $1.5 billion, $2.7 billion and $4.7 billion, U.S. securities-based lending loans of $40.1 billion, $39.8 billion, $35.8 billion, $31.2 billion and $28.3 billion, non-U.S. consumer loans of $3.0 billion, $3.9 billion, $4.0 billion, $4.7 billion and $8.3 billion, student loans of $497 million, $564 million, $632 million, $4.1 billion and $4.8 billion, and other consumer loans of $1.1 billion, $1.0 billion, $761 million, $1.0 billion and $1.2 billion at December 31, 2016, 2015, 2014, 2013 and 2012, respectively.

(3) Includes consumer finance loans of $465 million, $564 million, $676 million, $1.2 billion and $1.4 billion, consumer leases of $1.9 billion, $1.4 billion, $1.0 billion, $606 million and $34 million, and consumer overdrafts of $157 million, $146 million, $162 million, $176 million and $177 million at December 31, 2016, 2015, 2014, 2013 and 2012, respectively.

(4) Consumer loans accounted for under the fair value option were residential mortgage loans of $710 million, $1.6 billion, $1.9 billion, $2.0 billion and $1.0 billion, and home equity loans of $341 million, $250 million, $196 million, $147 million and $0 at December 31, 2016, 2015, 2014, 2013 and 2012, respectively. Commercial loans accounted for under the fair value option were U.S. commercial loans of $2.9 billion, $2.3 billion, $1.9 billion, $1.5 billion and $2.3 billion, and non-U.S. commercial loans of $3.1 billion, $2.8 billion, $4.7 billion, $6.4 billion and $5.7 billion at December 31, 2016, 2015, 2014, 2013 and 2012, respectively.

(5) Includes U.S. small business commercial loans, including card-related products, of $13.0 billion, $12.9 billion, $13.3 billion, $13.3 billion and $12.6 billion at December 31, 2016, 2015, 2014, 2013 and 2012, respectively.

(6) Includes U.S. commercial real estate loans of $54.3 billion, $53.6 billion, $45.2 billion, $46.3 billion and $37.2 billion, and non-U.S. commercial real estate loans of $3.1 billion, $3.5 billion, $2.5 billion, $1.6 billion and $1.5 billion at December 31, 2016, 2015, 2014, 2013 and 2012, respectively.

(7) Represents non-U.S. credit card loans, which are included in assets of business held for sale on the Consolidated Balance Sheet.

Table V Nonperforming Loans, Leases and Foreclosed Properties [1]

(Dollars in millions)	December 31 2016	2015	2014	2013	2012
Consumer					
Residential mortgage	**$ 3,056**	$ 4,803	$ 6,889	$ 11,712	$ 15,055
Home equity	**2,918**	3,337	3,901	4,075	4,282
Direct/Indirect consumer	**28**	24	28	35	92
Other consumer	**2**	1	1	18	2
Total consumer [2]	**6,004**	8,165	10,819	15,840	19,431
Commercial					
U.S. commercial	**1,256**	867	701	819	1,484
Commercial real estate	**72**	93	321	322	1,513
Commercial lease financing	**36**	12	3	16	44
Non-U.S. commercial	**279**	158	1	64	68
	1,643	1,130	1,026	1,221	3,109
U.S. small business commercial	**60**	82	87	88	115
Total commercial [3]	**1,703**	1,212	1,113	1,309	3,224
Total nonperforming loans and leases	**7,707**	9,377	11,932	17,149	22,655
Foreclosed properties	**377**	459	697	623	900
Total nonperforming loans, leases and foreclosed properties	**$ 8,084**	$ 9,836	$ 12,629	$ 17,772	$ 23,555

(1) Balances do not include PCI loans even though the customer may be contractually past due. PCI loans were recorded at fair value upon acquisition and accrete interest income over the remaining life of the loan. In addition, balances do not include foreclosed properties insured by certain government-guaranteed loans, principally FHA-insured loans, that entered foreclosure of $1.2 billion, $1.4 billion, $1.1 billion, $1.4 billion and $2.5 billion at December 31, 2016, 2015, 2014, 2013 and 2012, respectively.
(2) In 2016, $1.0 billion in interest income was estimated to be contractually due on $6.0 billion of consumer loans and leases classified as nonperforming at December 31, 2016, as presented in the table above, plus $12.5 billion of TDRs classified as performing at December 31, 2016. Approximately $653 million of the estimated $1.0 billion in contractual interest was received and included in interest income for 2016.
(3) In 2016, $185 million in interest income was estimated to be contractually due on $1.7 billion of commercial loans and leases classified as nonperforming at December 31, 2016, as presented in the table above, plus $1.5 billion of TDRs classified as performing at December 31, 2016. Approximately $105 million of the estimated $185 million in contractual interest was received and included in interest income for 2016.

Table VI Accruing Loans and Leases Past Due 90 Days or More [1]

(Dollars in millions)	December 31 2016	2015	2014	2013	2012
Consumer					
Residential mortgage [2]	**$ 4,793**	$ 7,150	$ 11,407	$ 16,961	$ 22,157
U.S. credit card	**782**	789	866	1,053	1,437
Non-U.S. credit card	**66**	76	95	131	212
Direct/Indirect consumer	**34**	39	64	408	545
Other consumer	**4**	3	1	2	2
Total consumer	**5,679**	8,057	12,433	18,555	24,353
Commercial					
U.S. commercial	**106**	113	110	47	65
Commercial real estate	**7**	3	3	21	29
Commercial lease financing	**19**	15	40	41	15
Non-U.S. commercial	**5**	1	—	17	—
	137	132	153	126	109
U.S. small business commercial	**71**	61	67	78	120
Total commercial	**208**	193	220	204	229
Total accruing loans and leases past due 90 days or more [3]	**$ 5,887**	$ 8,250	$ 12,653	$ 18,759	$ 24,582

(1) Our policy is to classify consumer real estate-secured loans as nonperforming at 90 days past due, except the PCI loan portfolio, the fully-insured loan portfolio and loans accounted for under the fair value option as referenced in footnote 3.
(2) Balances are fully-insured loans.
(3) Balances exclude loans accounted for under the fair value option. At December 31, 2016, 2015, 2014, and 2013 $1 million, $1 million, $5 million and $8 million of loans accounted for under the fair value option were past due 90 days or more and still accruing interest. At December 31, 2012, there were no loans accounted for under the fair value option that were past due 90 days or more and still accruing interest.

Table VII Allowance for Credit Losses

(Dollars in millions)	2016	2015	2014	2013	2012
Allowance for loan and lease losses, January 1	**$ 12,234**	$ 14,419	$ 17,428	$ 24,179	$ 33,783
Loans and leases charged off					
Residential mortgage	**(403)**	(866)	(855)	(1,508)	(3,276)
Home equity	**(752)**	(975)	(1,364)	(2,258)	(4,573)
U.S. credit card	**(2,691)**	(2,738)	(3,068)	(4,004)	(5,360)
Non-U.S. credit card	**(238)**	(275)	(357)	(508)	(835)
Direct/Indirect consumer	**(392)**	(383)	(456)	(710)	(1,258)
Other consumer	**(232)**	(224)	(268)	(273)	(274)
Total consumer charge-offs	**(4,708)**	(5,461)	(6,368)	(9,261)	(15,576)
U.S. commercial (1)	**(567)**	(536)	(584)	(774)	(1,309)
Commercial real estate	**(10)**	(30)	(29)	(251)	(719)
Commercial lease financing	**(30)**	(19)	(10)	(4)	(32)
Non-U.S. commercial	**(133)**	(59)	(35)	(79)	(36)
Total commercial charge-offs	**(740)**	(644)	(658)	(1,108)	(2,096)
Total loans and leases charged off	**(5,448)**	(6,105)	(7,026)	(10,369)	(17,672)
Recoveries of loans and leases previously charged off					
Residential mortgage	**272**	393	969	424	165
Home equity	**347**	339	457	455	331
U.S. credit card	**422**	424	430	628	728
Non-U.S. credit card	**63**	87	115	109	254
Direct/Indirect consumer	**258**	271	287	365	495
Other consumer	**27**	31	39	39	42
Total consumer recoveries	**1,389**	1,545	2,297	2,020	2,015
U.S. commercial (2)	**175**	172	214	287	368
Commercial real estate	**41**	35	112	102	335
Commercial lease financing	**9**	10	19	29	38
Non-U.S. commercial	**13**	5	1	34	8
Total commercial recoveries	**238**	222	346	452	749
Total recoveries of loans and leases previously charged off	**1,627**	1,767	2,643	2,472	2,764
Net charge-offs	**(3,821)**	(4,338)	(4,383)	(7,897)	(14,908)
Write-offs of PCI loans	**(340)**	(808)	(810)	(2,336)	(2,820)
Provision for loan and lease losses	**3,581**	3,043	2,231	3,574	8,310
Other (3)	**(174)**	(82)	(47)	(92)	(186)
Allowance for loan and lease losses, December 31	**11,480**	12,234	14,419	17,428	24,179
Less: Allowance included in assets of business held for sale (4)	**(243)**	—	—	—	—
Total allowance for loan and lease losses, December 31	**11,237**	12,234	14,419	17,428	24,179
Reserve for unfunded lending commitments, January 1	**646**	528	484	513	714
Provision for unfunded lending commitments	**16**	118	44	(18)	(141)
Other (3)	**100**	—	—	(11)	(60)
Reserve for unfunded lending commitments, December 31	**762**	646	528	484	513
Allowance for credit losses, December 31	**$ 11,999**	$ 12,880	$ 14,947	$ 17,912	$ 24,692

(1) Includes U.S. small business commercial charge-offs of $253 million, $282 million, $345 million, $457 million and $799 million in 2016, 2015, 2014, 2013 and 2012, respectively.
(2) Includes U.S. small business commercial recoveries of $45 million, $57 million, $63 million, $98 million and $100 million in 2016, 2015, 2014, 2013 and 2012, respectively.
(3) Primarily represents the net impact of portfolio sales, consolidations and deconsolidations, foreign currency translation adjustments and certain other reclassifications.
(4) Represents allowance for loan and lease losses related to the non-U.S. credit card loan portfolio, which is included in assets of business held for sale on the Consolidated Balance Sheet at December 31, 2016.

Table VII Allowance for Credit Losses (continued)

(Dollars in millions)	2016	2015	2014	2013	2012
Loan and allowance ratios (5):					
Loans and leases outstanding at December 31 (6)	**$ 908,812**	$ 890,045	$ 867,422	$ 918,191	$ 898,817
Allowance for loan and lease losses as a percentage of total loans and leases outstanding at December 31 (6)	**1.26%**	1.37%	1.66%	1.90%	2.69%
Consumer allowance for loan and lease losses as a percentage of total consumer loans and leases outstanding at December 31 (7)	**1.36**	1.63	2.05	2.53	3.81
Commercial allowance for loan and lease losses as a percentage of total commercial loans and leases outstanding at December 31 (8)	**1.16**	1.11	1.16	1.03	0.90
Average loans and leases outstanding (6)	**$ 892,255**	$ 869,065	$ 888,804	$ 909,127	$ 890,337
Net charge-offs as a percentage of average loans and leases outstanding (6, 9)	**0.43%**	0.50%	0.49%	0.87%	1.67%
Net charge-offs and PCI write-offs as a percentage of average loans and leases outstanding (6)	**0.47**	0.59	0.58	1.13	1.99
Allowance for loan and lease losses as a percentage of total nonperforming loans and leases at December 31 (6, 10)	**149**	130	121	102	107
Ratio of the allowance for loan and lease losses at December 31 to net charge-offs (9)	**3.00**	2.82	3.29	2.21	1.62
Ratio of the allowance for loan and lease losses at December 31 to net charge-offs and PCI write-offs	**2.76**	2.38	2.78	1.70	1.36
Amounts included in allowance for loan and lease losses for loans and leases that are excluded from nonperforming loans and leases at December 31 (11)	**$ 3,951**	$ 4,518	$ 5,944	$ 7,680	$ 12,021
Allowance for loan and lease losses as a percentage of total nonperforming loans and leases, excluding the allowance for loan and lease losses for loans and leases that are excluded from nonperforming loans and leases at December 31 (6, 11)	**98%**	82%	71%	57%	54%
Loan and allowance ratios excluding PCI loans and the related valuation allowance: (5, 12)					
Allowance for loan and lease losses as a percentage of total loans and leases outstanding at December 31 (6)	**1.24%**	1.31%	1.51%	1.67%	2.14%
Consumer allowance for loan and lease losses as a percentage of total consumer loans and leases outstanding at December 31 (7)	**1.31**	1.50	1.79	2.17	2.95
Net charge-offs as a percentage of average loans and leases outstanding (6)	**0.44**	0.51	0.50	0.90	1.73
Allowance for loan and lease losses as a percentage of total nonperforming loans and leases at December 31 (6, 10)	**144**	122	107	87	82
Ratio of the allowance for loan and lease losses at December 31 to net charge-offs	**2.89**	2.64	2.91	1.89	1.25

(5) Loan and allowance ratios include $243 million of non-U.S. credit card allowance for loan and lease losses and $9.2 billion of ending non-U.S. credit card loans, which are included in assets of business held for sale on the Consolidated Balance Sheet at December 31, 2016.

(6) Outstanding loan and lease balances and ratios do not include loans accounted for under the fair value option of $7.1 billion, $6.9 billion, $8.7 billion, $10.0 billion and $9.0 billion at December 31, 2016, 2015, 2014, 2013 and 2012, respectively. Average loans accounted for under the fair value option were $8.2 billion, $7.7 billion, $9.9 billion, $9.5 billion and $8.4 billion in 2016, 2015, 2014, 2013 and 2012, respectively.

(7) Excludes consumer loans accounted for under the fair value option of $1.1 billion, $1.9 billion, $2.1 billion, $2.2 billion and $1.0 billion at December 31, 2016, 2015, 2014, 2013 and 2012, respectively.

(8) Excludes commercial loans accounted for under the fair value option of $6.0 billion, $5.1 billion, $6.6 billion, $7.9 billion and $8.0 billion at December 31, 2016, 2015, 2014, 2013 and 2012, respectively.

(9) Net charge-offs exclude $340 million, $808 million, $810 million, $2.3 billion and $2.8 billion of write-offs in the PCI loan portfolio in 2016, 2015, 2014, 2013 and 2012 respectively. For more information on PCI write-offs, see Consumer Portfolio Credit Risk Management – Purchased Credit-impaired Loan Portfolio on page 61.

(10) For more information on our definition of nonperforming loans, see pages 63 and 69.

(11) Primarily includes amounts allocated to U.S. credit card and unsecured consumer lending portfolios in *Consumer Banking*, PCI loans and the non-U.S. credit portfolio in *All Other*.

(12) For more information on the PCI loan portfolio and the valuation allowance for PCI loans, see *Note 4 – Outstanding Loans and Leases* and *Note 5 – Allowance for Credit Losses* to the Consolidated Financial Statements.

Table VIII Allocation of the Allowance for Credit Losses by Product Type

	December 31									
	2016		2015		2014		2013		2012	
(Dollars in millions)	**Amount**	**Percent of Total**	Amount	Percent of Total	Amount	Percent of Total	Amount	Percent of Total	Amount	Percent of Total
Allowance for loan and lease losses										
Residential mortgage	**$ 1,012**	**8.82%**	$ 1,500	12.26%	$ 2,900	20.11%	$ 4,084	23.43%	$ 7,088	29.31%
Home equity	**1,738**	**15.14**	2,414	19.73	3,035	21.05	4,434	25.44	7,845	32.45
U.S. credit card	**2,934**	**25.56**	2,927	23.93	3,320	23.03	3,930	22.55	4,718	19.51
Non-U.S. credit card	**243**	**2.12**	274	2.24	369	2.56	459	2.63	600	2.48
Direct/Indirect consumer	**244**	**2.13**	223	1.82	299	2.07	417	2.39	718	2.97
Other consumer	**51**	**0.44**	47	0.38	59	0.41	99	0.58	104	0.43
Total consumer	**6,222**	**54.21**	7,385	60.36	9,982	69.23	13,423	77.02	21,073	87.15
U.S. commercial (1)	**3,326**	**28.97**	2,964	24.23	2,619	18.16	2,394	13.74	1,885	7.80
Commercial real estate	**920**	**8.01**	967	7.90	1,016	7.05	917	5.26	846	3.50
Commercial lease financing	**138**	**1.20**	164	1.34	153	1.06	118	0.68	78	0.32
Non-U.S. commercial	**874**	**7.61**	754	6.17	649	4.50	576	3.30	297	1.23
Total commercial (2)	**5,258**	**45.79**	4,849	39.64	4,437	30.77	4,005	22.98	3,106	12.85
Allowance for loan and lease losses (3)	**11,480**	**100.00%**	12,234	100.00%	14,419	100.00%	17,428	100.00%	24,179	100.00%
Less: Allowance included in assets of business held for sale (4)	**(243)**		—		—		—		—	
Total allowance for loan and lease losses	**11,237**		12,234		14,419		17,428		24,179	
Reserve for unfunded lending commitments	**762**		646		528		484		513	
Allowance for credit losses	**$ 11,999**		$ 12,880		$ 14,947		$ 17,912		$ 24,692	

(1) Includes allowance for loan and lease losses for U.S. small business commercial loans of $416 million, $507 million, $536 million, $462 million and $642 million at December 31, 2016, 2015, 2014, 2013 and 2012, respectively.

(2) Includes allowance for loan and lease losses for impaired commercial loans of $273 million, $217 million, $159 million, $277 million and $475 million at December 31, 2016, 2015, 2014, 2013 and 2012, respectively.

(3) Includes $419 million, $804 million, $1.7 billion, $2.5 billion and $5.5 billion of valuation allowance presented with the allowance for loan and lease losses related to PCI loans at December 31, 2016, 2015, 2014, 2013 and 2012, respectively.

(4) Represents allowance for loan and lease losses related to the non-U.S. credit card loan portfolio, which is included in assets of business held for sale on the Consolidated Balance Sheet at December 31, 2016.

Table IX Selected Loan Maturity Data [1, 2]

(Dollars in millions)	December 31, 2016 Due in One Year or Less	Due After One Year Through Five Years	Due After Five Years	Total
U.S. commercial	$ 74,191	$ 167,670	$ 44,424	**$ 286,285**
U.S. commercial real estate	11,555	38,826	3,871	**54,252**
Non-U.S. and other [3]	33,971	53,270	8,373	**95,614**
Total selected loans	**$ 119,717**	**$ 259,766**	**$ 56,668**	**$ 436,151**
Percent of total	27%	60%	13%	**100%**
Sensitivity of selected loans to changes in interest rates for loans due after one year:				
Fixed interest rates		$ 17,396	$ 25,636	
Floating or adjustable interest rates		242,370	31,032	
Total		**$ 259,766**	**$ 56,668**	

(1) Loan maturities are based on the remaining maturities under contractual terms.
(2) Includes loans accounted for under the fair value option.
(3) Loan maturities include non-U.S. commercial and commercial real estate loans.

Table X Non-exchange Traded Commodity Related Contracts

(Dollars in millions)	2016 Asset Positions	Liability Positions
Net fair value of contracts outstanding, January 1, 2016	$ 8,299	$ 7,313
Effect of legally enforceable master netting agreements	3,244	3,244
Gross fair value of contracts outstanding, January 1, 2016	11,543	10,557
Contracts realized or otherwise settled	(5,420)	(5,853)
Fair value of new contracts	2,421	2,210
Other changes in fair value	(1,323)	(482)
Gross fair value of contracts outstanding, December 31, 2016	7,221	6,432
Less: Legally enforceable master netting agreements	(1,480)	(1,480)
Net fair value of contracts outstanding, December 31, 2016	**$ 5,741**	**$ 4,952**

Table XI Non-exchange Traded Commodity Related Contract Maturities

(Dollars in millions)	2016 Asset Positions	Liability Positions
Less than one year	$ 2,727	$ 2,931
Greater than or equal to one year and less than three years	1,418	1,219
Greater than or equal to three years and less than five years	625	554
Greater than or equal to five years	2,451	1,728
Gross fair value of contracts outstanding	7,221	6,432
Less: Legally enforceable master netting agreements	(1,480)	(1,480)
Net fair value of contracts outstanding	**$ 5,741**	**$ 4,952**

Table XII Selected Quarterly Financial Data

(In millions, except per share information)	2016 Quarters Fourth	Third	Second	First	2015 Quarters Fourth	Third	Second	First
Income statement								
Net interest income	**$ 10,292**	$ 10,201	$ 10,118	$ 10,485	$ 9,686	$ 9,900	$ 9,517	$ 9,855
Noninterest income	**9,698**	11,434	11,168	10,305	9,896	11,092	11,523	11,496
Total revenue, net of interest expense	**19,990**	21,635	21,286	20,790	19,582	20,992	21,040	21,351
Provision for credit losses	**774**	850	976	997	810	806	780	765
Noninterest expense	**13,161**	13,481	13,493	14,816	14,010	13,939	13,959	15,826
Income before income taxes	**6,055**	7,304	6,817	4,977	4,762	6,247	6,301	4,760
Income tax expense	**1,359**	2,349	2,034	1,505	1,478	1,628	1,736	1,392
Net income	**4,696**	4,955	4,783	3,472	3,284	4,619	4,565	3,368
Net income applicable to common shareholders	**4,335**	4,452	4,422	3,015	2,954	4,178	4,235	2,986
Average common shares issued and outstanding	**10,170**	10,250	10,328	10,370	10,399	10,444	10,488	10,519
Average diluted common shares issued and outstanding	**10,959**	11,000	11,059	11,100	11,153	11,197	11,238	11,267
Performance ratios								
Return on average assets	**0.85%**	0.90%	0.88%	0.64%	0.60%	0.84%	0.85%	0.64%
Four quarter trailing return on average assets [(1)]	**0.82**	0.76	0.74	0.73	0.73	0.74	0.52	0.42
Return on average common shareholders' equity	**7.04**	7.27	7.40	5.11	4.99	7.16	7.43	5.37
Return on average tangible common shareholders' equity [(2)]	**9.92**	10.28	10.54	7.33	7.19	10.40	10.85	7.91
Return on average shareholders' equity	**6.91**	7.33	7.25	5.36	5.07	7.22	7.29	5.55
Return on average tangible shareholders' equity [(2)]	**9.38**	9.98	9.93	7.40	7.04	10.08	10.24	7.87
Total ending equity to total ending assets	**12.20**	12.30	12.23	12.03	11.95	11.88	11.70	11.68
Total average equity to total average assets	**12.24**	12.28	12.13	11.98	11.79	11.70	11.67	11.50
Dividend payout	**17.68**	17.32	11.73	17.13	17.57	12.48	12.36	17.62
Per common share data								
Earnings	**$ 0.43**	$ 0.43	$ 0.43	$ 0.29	$ 0.28	$ 0.40	$ 0.40	$ 0.28
Diluted earnings	**0.40**	0.41	0.41	0.28	0.27	0.38	0.38	0.27
Dividends paid	**0.075**	0.075	0.05	0.05	0.05	0.05	0.05	0.05
Book value	**24.04**	24.19	23.71	23.14	22.53	22.40	21.89	21.67
Tangible book value [(2)]	**16.95**	17.14	16.71	16.19	15.62	15.50	15.00	14.80
Market price per share of common stock								
Closing	**$ 22.10**	$ 15.65	$ 13.27	$ 13.52	$ 16.83	$ 15.58	$ 17.02	$ 15.39
High closing	**23.16**	16.19	15.11	16.43	17.95	18.45	17.67	17.90
Low closing	**15.63**	12.74	12.18	11.16	15.38	15.26	15.41	15.15
Market capitalization	**$ 222,163**	$ 158,438	$ 135,577	$ 139,427	$ 174,700	$ 162,457	$ 178,231	$ 161,909

(1) Calculated as total net income for four consecutive quarters divided by annualized average assets for four consecutive quarters.
(2) Tangible equity ratios and tangible book value per share of common stock are non-GAAP financial measures. For more information on these ratios, see Supplemental Financial Data on page 26, and for corresponding reconciliations to GAAP financial measures, see Statistical Table XVI.
(3) For more information on the impact of the PCI loan portfolio on asset quality, see Consumer Portfolio Credit Risk Management on page 55.
(4) Includes the allowance for loan and lease losses and the reserve for unfunded lending commitments.
(5) Balances and ratios do not include loans accounted for under the fair value option. For additional exclusions from nonperforming loans, leases and foreclosed properties, see Consumer Portfolio Credit Risk Management – Nonperforming Consumer Loans, Leases and Foreclosed Properties Activity on page 63 and corresponding Table 30, and Commercial Portfolio Credit Risk Management – Nonperforming Commercial Loans, Leases and Foreclosed Properties Activity on page 69 and corresponding Table 37.
(6) Asset quality metrics as of December 31, 2016 include $243 million of non-U.S. credit card allowance for loan and lease losses and $9.2 billion of non-U.S. credit card loans, which are included in assets of business held for sale on the Consolidated Balance Sheet at December 31, 2016.
(7) Primarily includes amounts allocated to the U.S. credit card and unsecured consumer lending portfolios in *Consumer Banking*, PCI loans and the non-U.S. credit card portfolio in *All Other*.
(8) Net charge-offs exclude $70 million, $83 million, $82 million and $105 million of write-offs in the PCI loan portfolio in the fourth, third, second and first quarters of 2016, respectively, and $82 million, $148 million, $290 million and $288 million in the fourth, third, second and first quarters of 2015, respectively. For more information on PCI write-offs, see Consumer Portfolio Credit Risk Management – Purchased Credit-impaired Loan Portfolio on page 61.
(9) Risk-based capital ratios are reported under Basel 3 Advanced - Transition beginning in the fourth quarter of 2015. Prior to fourth quarter of 2015, we were required to report risk-based capital ratios under Basel 3 Standardized - Transition only. For additional information, see Capital Management on page 44.

Table XII Selected Quarterly Financial Data (continued)

(Dollars in millions)	2016 Quarters Fourth	Third	Second	First	2015 Quarters Fourth	Third	Second	First
Average balance sheet								
Total loans and leases	**$ 908,396**	$ 900,594	$ 899,670	$ 892,984	$ 886,156	$ 877,429	$ 876,178	$ 876,169
Total assets	**2,208,039**	2,189,490	2,188,241	2,173,922	2,180,507	2,168,930	2,151,966	2,138,832
Total deposits	**1,250,948**	1,227,186	1,213,291	1,198,455	1,186,051	1,159,231	1,146,789	1,130,725
Long-term debt	**220,587**	227,269	233,061	233,654	237,384	240,520	242,230	240,127
Common shareholders' equity	**245,139**	243,679	240,376	237,229	234,800	231,524	228,774	225,477
Total shareholders' equity	**270,360**	268,899	265,354	260,423	257,074	253,798	251,048	245,863
Asset quality (3)								
Allowance for credit losses (4)	**$ 11,999**	$ 12,459	$ 12,587	$ 12,696	$ 12,880	$ 13,318	$ 13,656	$ 14,213
Nonperforming loans, leases and foreclosed properties (5)	**8,084**	8,737	8,799	9,281	9,836	10,336	11,565	12,101
Allowance for loan and lease losses as a percentage of total loans and leases outstanding (5, 6)	**1.26%**	1.30%	1.32%	1.35%	1.37%	1.45%	1.50%	1.58%
Allowance for loan and lease losses as a percentage of total nonperforming loans and leases (5, 6)	**149**	140	142	136	130	129	122	122
Allowance for loan and lease losses as a percentage of total nonperforming loans and leases, excluding the PCI loan portfolio (5, 6)	**144**	135	135	129	122	120	111	110
Amounts included in allowance for loan and lease losses for loans and leases that are excluded from nonperforming loans and leases (7)	**$ 3,951**	$ 4,068	$ 4,087	$ 4,138	$ 4,518	$ 4,682	$ 5,050	$ 5,492
Allowance for loan and lease losses as a percentage of total nonperforming loans and leases, excluding the allowance for loan and lease losses for loans and leases that are excluded from nonperforming loans and leases (5, 7)	**98%**	91%	93%	90%	82%	81%	75%	73%
Net charge-offs (8)	**$ 880**	$ 888	$ 985	$ 1,068	$ 1,144	$ 932	$ 1,068	$ 1,194
Annualized net charge-offs as a percentage of average loans and leases outstanding (5, 8)	**0.39%**	0.40%	0.44%	0.48%	0.52%	0.43%	0.49%	0.56%
Annualized net charge-offs as a percentage of average loans and leases outstanding, excluding the PCI loan portfolio (5)	**0.39**	0.40	0.45	0.49	0.53	0.43	0.50	0.58
Annualized net charge-offs and PCI write-offs as a percentage of average loans and leases outstanding (5)	**0.42**	0.43	0.48	0.53	0.55	0.49	0.63	0.70
Nonperforming loans and leases as a percentage of total loans and leases outstanding (5, 6)	**0.85**	0.93	0.94	0.99	1.05	1.12	1.23	1.30
Nonperforming loans, leases and foreclosed properties as a percentage of total loans, leases and foreclosed properties (5, 6)	**0.89**	0.97	0.98	1.04	1.10	1.18	1.32	1.40
Ratio of the allowance for loan and lease losses at period end to annualized net charge-offs (6, 8)	**3.28**	3.31	2.99	2.81	2.70	3.42	3.05	2.82
Ratio of the allowance for loan and lease losses at period end to annualized net charge-offs, excluding the PCI loan portfolio (6)	**3.16**	3.18	2.85	2.67	2.52	3.18	2.79	2.55
Ratio of the allowance for loan and lease losses at period end to annualized net charge-offs and PCI write-offs (6)	**3.04**	3.03	2.76	2.56	2.52	2.95	2.40	2.28
Capital ratios at period end (9)								
Risk-based capital:								
Common equity tier 1 capital	**11.0%**	11.0%	10.6%	10.3%	10.2%	11.6%	11.2%	11.1%
Tier 1 capital	**12.4**	12.4	12.0	11.5	11.3	12.9	12.5	12.3
Total capital	**14.3**	14.2	13.9	13.4	13.2	15.8	15.5	15.3
Tier 1 leverage	**8.9**	9.1	8.9	8.7	8.6	8.5	8.5	8.4
Tangible equity (2)	**9.2**	9.4	9.3	9.1	8.9	8.8	8.6	8.6
Tangible common equity (2)	**8.1**	8.2	8.1	7.9	7.8	7.8	7.6	7.5

For footnotes see page 104.

Table XIII Quarterly Average Balances and Interest Rates – FTE Basis

(Dollars in millions)	Fourth Quarter 2016 Average Balance	Fourth Quarter 2016 Interest Income/ Expense	Fourth Quarter 2016 Yield/ Rate	Fourth Quarter 2015 Average Balance	Fourth Quarter 2015 Interest Income/ Expense	Fourth Quarter 2015 Yield/ Rate
Earning assets						
Interest-bearing deposits with the Federal Reserve, non-U.S. central banks and other banks	**$ 125,820**	**$ 145**	**0.46%**	$ 148,102	$ 108	0.29%
Time deposits placed and other short-term investments	**9,745**	**39**	**1.57**	10,120	41	1.61
Federal funds sold and securities borrowed or purchased under agreements to resell	**218,200**	**315**	**0.57**	207,585	214	0.41
Trading account assets	**126,731**	**1,131**	**3.55**	134,797	1,141	3.37
Debt securities (1)	**430,719**	**2,273**	**2.11**	399,338	2,470	2.48
Loans and leases (2):						
Residential mortgage	**191,003**	**1,621**	**3.39**	189,650	1,644	3.47
Home equity	**68,021**	**618**	**3.63**	77,109	715	3.69
U.S. credit card	**89,521**	**2,105**	**9.35**	88,623	2,045	9.15
Non-U.S. credit card	**9,051**	**192**	**8.43**	10,155	258	10.07
Direct/Indirect consumer (3)	**93,527**	**598**	**2.54**	87,858	530	2.40
Other consumer (4)	**2,462**	**25**	**3.99**	2,039	11	2.09
Total consumer	**453,585**	**5,159**	**4.53**	455,434	5,203	4.55
U.S. commercial	**283,491**	**2,119**	**2.97**	261,727	1,790	2.72
Commercial real estate (5)	**57,540**	**453**	**3.13**	56,126	408	2.89
Commercial lease financing	**21,436**	**145**	**2.71**	20,422	155	3.03
Non-U.S. commercial	**92,344**	**589**	**2.54**	92,447	530	2.27
Total commercial	**454,811**	**3,306**	**2.89**	430,722	2,883	2.66
Total loans and leases (1)	**908,396**	**8,465**	**3.71**	886,156	8,086	3.63
Other earning assets	**64,501**	**731**	**4.52**	61,073	748	4.87
Total earning assets (6)	**1,884,112**	**13,099**	**2.77**	1,847,171	12,808	2.76
Cash and due from banks (1)	**27,452**			29,503		
Other assets, less allowance for loan and lease losses (1)	**296,475**			303,833		
Total assets	**$ 2,208,039**			$ 2,180,507		
Interest-bearing liabilities						
U.S. interest-bearing deposits:						
Savings	**$ 50,132**	**$ 1**	**0.01%**	$ 46,094	$ 1	0.01%
NOW and money market deposit accounts	**604,155**	**78**	**0.05**	558,441	68	0.05
Consumer CDs and IRAs	**47,625**	**32**	**0.27**	51,107	37	0.29
Negotiable CDs, public funds and other deposits	**34,904**	**53**	**0.60**	30,546	25	0.32
Total U.S. interest-bearing deposits	**736,816**	**164**	**0.09**	686,188	131	0.08
Non-U.S. interest-bearing deposits:						
Banks located in non-U.S. countries	**2,918**	**4**	**0.48**	3,997	7	0.69
Governments and official institutions	**1,346**	**2**	**0.74**	1,687	2	0.37
Time, savings and other	**60,123**	**109**	**0.73**	55,965	71	0.51
Total non-U.S. interest-bearing deposits	**64,387**	**115**	**0.71**	61,649	80	0.52
Total interest-bearing deposits	**801,203**	**279**	**0.14**	747,837	211	0.11
Federal funds purchased, securities loaned or sold under agreements to repurchase and short-term borrowings	**207,679**	**542**	**1.04**	231,650	519	0.89
Trading account liabilities	**71,598**	**240**	**1.33**	73,139	272	1.48
Long-term debt (7)	**220,587**	**1,512**	**2.74**	237,384	1,895	3.18
Total interest-bearing liabilities (6)	**1,301,067**	**2,573**	**0.79**	1,290,010	2,897	0.89
Noninterest-bearing sources:						
Noninterest-bearing deposits	**449,745**			438,214		
Other liabilities	**186,867**			195,209		
Shareholders' equity	**270,360**			257,074		
Total liabilities and shareholders' equity	**$ 2,208,039**			$ 2,180,507		
Net interest spread			**1.98%**			1.87%
Impact of noninterest-bearing sources			**0.25**			0.27
Net interest income/yield on earning assets		**$ 10,526**	**2.23%**		$ 9,911	2.14%

(1) Includes assets of the Corporation's non-U.S. consumer credit card business, which are included in assets of business held for sale on the Consolidated Balance Sheet at December 31, 2016.
(2) Nonperforming loans are included in the respective average loan balances. Income on these nonperforming loans is generally recognized on a cost recovery basis. PCI loans were recorded at fair value upon acquisition and accrete interest income over the estimated life of the loan.
(3) Includes non-U.S. consumer loans of $3.1 billion and $4.0 billion in the fourth quarter of 2016 and 2015.
(4) Includes consumer finance loans of $478 million and $578 million; consumer leases of $1.8 billion and $1.3 billion, and consumer overdrafts of $177 million and $174 million in the fourth quarter of 2016 and 2015, respectively.
(5) Includes U.S. commercial real estate loans of $54.3 billion and $52.8 billion, and non-U.S. commercial real estate loans of $3.2 billion and $3.3 billion in the fourth quarter of 2016 and 2015, respectively.
(6) Interest income includes the impact of interest rate risk management contracts, which decreased interest income on the underlying assets by $21 million and $32 million in the fourth quarter of 2016 and 2015. Interest expense includes the impact of interest rate risk management contracts, which decreased interest expense on the underlying liabilities by $332 million and $681 million in the fourth quarter of 2016 and 2015. For additional information, see Interest Rate Risk Management for the Banking Book on page 83.
(7) The yield on long-term debt excluding the $612 million adjustment related to the redemption of certain trust preferred securities was 2.15 percent for the fourth quarter of 2015. The yield on long-term debt excluding the adjustment is a non-GAAP financial measure.

Table XIV Quarterly Supplemental Financial Data

(Dollars in millions, except per share information)	2016 Quarters				2015 Quarters			
	Fourth	Third	Second	First	Fourth	Third	Second	First
Fully taxable-equivalent basis data [1]								
Net interest income	**$ 10,526**	$ 10,429	$ 10,341	$ 10,700	$ 9,911	$ 10,127	$ 9,739	$ 10,070
Total revenue, net of interest expense	**20,224**	21,863	21,509	21,005	19,807	21,219	21,262	21,566
Net interest yield	**2.23%**	2.23%	2.23%	2.33%	2.14%	2.19%	2.16%	2.26%
Efficiency ratio	**65.08**	61.66	62.73	70.54	70.73	65.70	65.65	73.39

(1) FTE basis is a non-GAAP financial measure. FTE basis is a performance measure used by management in operating the business that management believes provides investors with a more accurate picture of the interest margin for comparative purposes. The Corporation believes that this presentation allows for comparison of amounts from both taxable and tax-exempt sources and is consistent with industry practices. For more information on these performance measures and ratios, see Supplemental Financial Data on page 26 and for corresponding reconciliations to GAAP financial measures, see Statistical Table XVI.

Table XV Five-year Reconciliations to GAAP Financial Measures [1]

(Dollars in millions, shares in thousands)	**2016**	2015	2014	2013	2012
Reconciliation of net interest income to net interest income on a fully taxable-equivalent basis					
Net interest income	**$ 41,096**	$ 38,958	$ 40,779	$ 40,719	$ 40,135
Fully taxable-equivalent adjustment	**900**	889	851	859	901
Net interest income on a fully taxable-equivalent basis	**$ 41,996**	$ 39,847	$ 41,630	$ 41,578	$ 41,036
Reconciliation of total revenue, net of interest expense to total revenue, net of interest expense on a fully taxable-equivalent basis					
Total revenue, net of interest expense	**$ 83,701**	$ 82,965	$ 85,894	$ 87,502	$ 82,798
Fully taxable-equivalent adjustment	**900**	889	851	859	901
Total revenue, net of interest expense on a fully taxable-equivalent basis	**$ 84,601**	$ 83,854	$ 86,745	$ 88,361	$ 83,699
Reconciliation of income tax expense (benefit) to income tax expense (benefit) on a fully taxable-equivalent basis					
Income tax expense (benefit)	**$ 7,247**	$ 6,234	$ 2,443	$ 4,194	$ (1,320)
Fully taxable-equivalent adjustment	**900**	889	851	859	901
Income tax expense (benefit) on a fully taxable-equivalent basis	**$ 8,147**	$ 7,123	$ 3,294	$ 5,053	$ (419)
Reconciliation of average common shareholders' equity to average tangible common shareholders' equity					
Common shareholders' equity	**$ 241,621**	$ 230,173	$ 222,907	$ 218,340	$ 216,999
Goodwill	**(69,750)**	(69,772)	(69,809)	(69,910)	(69,974)
Intangible assets (excluding MSRs)	**(3,382)**	(4,201)	(5,109)	(6,132)	(7,366)
Related deferred tax liabilities	**1,644**	1,852	2,090	2,328	2,593
Tangible common shareholders' equity	**$ 170,133**	$ 158,052	$ 150,079	$ 144,626	$ 142,252
Reconciliation of average shareholders' equity to average tangible shareholders' equity					
Shareholders' equity	**$ 266,277**	$ 251,981	$ 238,317	$ 233,819	$ 235,681
Goodwill	**(69,750)**	(69,772)	(69,809)	(69,910)	(69,974)
Intangible assets (excluding MSRs)	**(3,382)**	(4,201)	(5,109)	(6,132)	(7,366)
Related deferred tax liabilities	**1,644**	1,852	2,090	2,328	2,593
Tangible shareholders' equity	**$ 194,789**	$ 179,860	$ 165,489	$ 160,105	$ 160,934
Reconciliation of year-end common shareholders' equity to year-end tangible common shareholders' equity					
Common shareholders' equity	**$ 241,620**	$ 233,903	$ 224,167	$ 219,124	$ 218,194
Goodwill	**(69,744)**	(69,761)	(69,777)	(69,844)	(69,976)
Intangible assets (excluding MSRs)	**(2,989)**	(3,768)	(4,612)	(5,574)	(6,684)
Related deferred tax liabilities	**1,545**	1,716	1,960	2,166	2,428
Tangible common shareholders' equity	**$ 170,432**	$ 162,090	$ 151,738	$ 145,872	$ 143,962
Reconciliation of year-end shareholders' equity to year-end tangible shareholders' equity					
Shareholders' equity	**$ 266,840**	$ 256,176	$ 243,476	$ 232,475	$ 236,962
Goodwill	**(69,744)**	(69,761)	(69,777)	(69,844)	(69,976)
Intangible assets (excluding MSRs)	**(2,989)**	(3,768)	(4,612)	(5,574)	(6,684)
Related deferred tax liabilities	**1,545**	1,716	1,960	2,166	2,428
Tangible shareholders' equity	**$ 195,652**	$ 184,363	$ 171,047	$ 159,223	$ 162,730
Reconciliation of year-end assets to year-end tangible assets					
Assets	**$ 2,187,702**	$ 2,144,287	$ 2,104,539	$ 2,102,064	$ 2,209,981
Goodwill	**(69,744)**	(69,761)	(69,777)	(69,844)	(69,976)
Intangible assets (excluding MSRs)	**(2,989)**	(3,768)	(4,612)	(5,574)	(6,684)
Related deferred tax liabilities	**1,545**	1,716	1,960	2,166	2,428
Tangible assets	**$ 2,116,514**	$ 2,072,474	$ 2,032,110	$ 2,028,812	$ 2,135,749

(1) Presents reconciliations of non-GAAP financial measures to GAAP financial measures. We believe the use of these non-GAAP financial measures provides additional clarity in assessing the results of the Corporation. Other companies may define or calculate these measures differently. For more information on non-GAAP financial measures and ratios we use in assessing the results of the Corporation, see Supplemental Financial Data on page 26.

Table XVI Quarterly Reconciliations to GAAP Financial Measures [1]

	2016 Quarters				2015 Quarters			
(Dollars in millions)	**Fourth**	Third	Second	First	Fourth	Third	Second	First
Reconciliation of net interest income to net interest income on a fully taxable-equivalent basis								
Net interest income	**$ 10,292**	$ 10,201	$ 10,118	$ 10,485	$ 9,686	$ 9,900	$ 9,517	$ 9,855
Fully taxable-equivalent adjustment	**234**	228	223	215	225	227	222	215
Net interest income on a fully taxable-equivalent basis	**$ 10,526**	$ 10,429	$ 10,341	$ 10,700	$ 9,911	$ 10,127	$ 9,739	$ 10,070
Reconciliation of total revenue, net of interest expense to total revenue, net of interest expense on a fully taxable-equivalent basis								
Total revenue, net of interest expense	**$ 19,990**	$ 21,635	$ 21,286	$ 20,790	$ 19,582	$ 20,992	$ 21,040	$ 21,351
Fully taxable-equivalent adjustment	**234**	228	223	215	225	227	222	215
Total revenue, net of interest expense on a fully taxable-equivalent basis	**$ 20,224**	$ 21,863	$ 21,509	$ 21,005	$ 19,807	$ 21,219	$ 21,262	$ 21,566
Reconciliation of income tax expense to income tax expense on a fully taxable-equivalent basis								
Income tax expense	**$ 1,359**	$ 2,349	$ 2,034	$ 1,505	$ 1,478	$ 1,628	$ 1,736	$ 1,392
Fully taxable-equivalent adjustment	**234**	228	223	215	225	227	222	215
Income tax expense on a fully taxable-equivalent basis	**$ 1,593**	$ 2,577	$ 2,257	$ 1,720	$ 1,703	$ 1,855	$ 1,958	$ 1,607
Reconciliation of average common shareholders' equity to average tangible common shareholders' equity								
Common shareholders' equity	**$ 245,139**	$ 243,679	$ 240,376	$ 237,229	$ 234,800	$ 231,524	$ 228,774	$ 225,477
Goodwill	**(69,745)**	(69,744)	(69,751)	(69,761)	(69,761)	(69,774)	(69,775)	(69,776)
Intangible assets (excluding MSRs)	**(3,091)**	(3,276)	(3,480)	(3,687)	(3,888)	(4,099)	(4,307)	(4,518)
Related deferred tax liabilities	**1,580**	1,628	1,662	1,707	1,753	1,811	1,885	1,959
Tangible common shareholders' equity	**$ 173,883**	$ 172,287	$ 168,807	$ 165,488	$ 162,904	$ 159,462	$ 156,577	$ 153,142
Reconciliation of average shareholders' equity to average tangible shareholders' equity								
Shareholders' equity	**$ 270,360**	$ 268,899	$ 265,354	$ 260,423	$ 257,074	$ 253,798	$ 251,048	$ 245,863
Goodwill	**(69,745)**	(69,744)	(69,751)	(69,761)	(69,761)	(69,774)	(69,775)	(69,776)
Intangible assets (excluding MSRs)	**(3,091)**	(3,276)	(3,480)	(3,687)	(3,888)	(4,099)	(4,307)	(4,518)
Related deferred tax liabilities	**1,580**	1,628	1,662	1,707	1,753	1,811	1,885	1,959
Tangible shareholders' equity	**$ 199,104**	$ 197,507	$ 193,785	$ 188,682	$ 185,178	$ 181,736	$ 178,851	$ 173,528
Reconciliation of period-end common shareholders' equity to period-end tangible common shareholders' equity								
Common shareholders' equity	**$ 241,620**	$ 244,863	$ 242,206	$ 238,662	$ 233,903	$ 233,588	$ 229,251	$ 228,011
Goodwill	**(69,744)**	(69,744)	(69,744)	(69,761)	(69,761)	(69,761)	(69,775)	(69,776)
Intangible assets (excluding MSRs)	**(2,989)**	(3,168)	(3,352)	(3,578)	(3,768)	(3,973)	(4,188)	(4,391)
Related deferred tax liabilities	**1,545**	1,588	1,637	1,667	1,716	1,762	1,813	1,900
Tangible common shareholders' equity	**$ 170,432**	$ 173,539	$ 170,747	$ 166,990	$ 162,090	$ 161,616	$ 157,101	$ 155,744
Reconciliation of period-end shareholders' equity to period-end tangible shareholders' equity								
Shareholders' equity	**$ 266,840**	$ 270,083	$ 267,426	$ 263,004	$ 256,176	$ 255,861	$ 251,524	$ 250,284
Goodwill	**(69,744)**	(69,744)	(69,744)	(69,761)	(69,761)	(69,761)	(69,775)	(69,776)
Intangible assets (excluding MSRs)	**(2,989)**	(3,168)	(3,352)	(3,578)	(3,768)	(3,973)	(4,188)	(4,391)
Related deferred tax liabilities	**1,545**	1,588	1,637	1,667	1,716	1,762	1,813	1,900
Tangible shareholders' equity	**$ 195,652**	$ 198,759	$ 195,967	$ 191,332	$ 184,363	$ 183,889	$ 179,374	$ 178,017
Reconciliation of period-end assets to period-end tangible assets								
Assets	**$ 2,187,702**	$2,195,314	$2,186,966	$2,185,726	$2,144,287	$2,152,962	$2,148,899	$2,143,644
Goodwill	**(69,744)**	(69,744)	(69,744)	(69,761)	(69,761)	(69,761)	(69,775)	(69,776)
Intangible assets (excluding MSRs)	**(2,989)**	(3,168)	(3,352)	(3,578)	(3,768)	(3,973)	(4,188)	(4,391)
Related deferred tax liabilities	**1,545**	1,588	1,637	1,667	1,716	1,762	1,813	1,900
Tangible assets	**$ 2,116,514**	$2,123,990	$2,115,507	$2,114,054	$2,072,474	$2,080,990	$2,076,749	$2,071,377

[1] Presents reconciliations of non-GAAP financial measures to GAAP financial measures. We believe the use of these non-GAAP financial measures provides additional clarity in assessing the results of the Corporation. Other companies may define or calculate these measures differently. For more information on non-GAAP financial measures and ratios we use in assessing the results of the Corporation, see Supplemental Financial Data on page 26.

Glossary

Alt-A Mortgage – A type of U.S. mortgage that is considered riskier than A-paper, or "prime," and less risky than "subprime," the riskiest category. Alt-A interest rates therefore tend to be between those of prime and subprime consumer real estate loans. Typically, Alt-A mortgages are characterized by borrowers with less than full documentation, lower credit scores and higher LTVs.

Assets in Custody – Consist largely of custodial and non-discretionary trust assets excluding brokerage assets administered for clients. Trust assets encompass a broad range of asset types including real estate, private company ownership interest, personal property and investments.

Assets Under Management (AUM) – The total market value of assets under the investment advisory and/or discretion of *GWIM* which generate asset management fees based on a percentage of the assets' market values. AUM reflects assets that are generally managed for institutional, high net worth and retail clients, and are distributed through various investment products including mutual funds, other commingled vehicles and separate accounts.

Banking Book – All on- and off-balance sheet financial instruments of the Corporation except for those positions that are held for trading purposes.

Carrying Value (with respect to loans) – The amount at which a loan is recorded on the balance sheet. For loans recorded at amortized cost, carrying value is the unpaid principal balance net of unamortized deferred loan origination fees and costs and unamortized purchase premiums or discounts, less net charge-offs and interest payments applied as a reduction of principal under the cost recovery method for loans that have been on nonaccrual status. For PCI loans, the carrying value equals fair value upon acquisition adjusted for subsequent cash collections and yield accreted to date. For credit card loans, the carrying value also includes interest that has been billed to the customer. For loans classified as held-for-sale, carrying value is the lower of carrying value as described in the sentences above, or fair value. For loans for which we have elected the fair value option, the carrying value is fair value.

Client Brokerage Assets – Client assets which are held in brokerage accounts, including non-discretionary brokerage and fee-based assets that generate brokerage income and asset management fee revenue.

Committed Credit Exposure – Includes any funded portion of a facility plus the unfunded portion of a facility on which the lender is legally bound to advance funds during a specified period under prescribed conditions.

Credit Derivatives – Contractual agreements that provide protection against a credit event on one or more referenced obligations. The nature of a credit event is established by the protection purchaser and the protection seller at the inception of the transaction, and such events generally include bankruptcy or insolvency of the referenced credit entity, failure to meet payment obligations when due, as well as acceleration of indebtedness and payment repudiation or moratorium. The purchaser of the credit derivative pays a periodic fee in return for a payment by the protection seller upon the occurrence, if any, of such a credit event. A CDS is a type of a credit derivative.

Credit Valuation Adjustment (CVA) – A portfolio adjustment required to properly reflect the counterparty credit risk exposure as part of the fair value of derivative instruments.

Debit Valuation Adjustment (DVA) – A portfolio adjustment required to properly reflect the Corporation's own credit risk exposure as part of the fair value of derivative instruments and/or structured liabilities.

Funding Valuation Adjustment (FVA) – A portfolio adjustment required to include funding costs on uncollateralized derivatives and derivatives where the Corporation is not permitted to use the collateral it receives.

Interest Rate Lock Commitment (IRLC) – Commitment with a loan applicant in which the loan terms, including interest rate and price, are guaranteed for a designated period of time subject to credit approval.

Letter of Credit – A document issued on behalf of a customer to a third party promising to pay the third party upon presentation of specified documents. A letter of credit effectively substitutes the issuer's credit for that of the customer.

Loan-to-value (LTV) – A commonly used credit quality metric. LTV is calculated as the outstanding carrying value of the loan divided by the estimated value of the property securing the loan. Estimated property values are generally determined through the use of automated valuation models (AVMs) or the CoreLogic Case-Shiller Index. An AVM is a tool that estimates the value of a property by reference to large volumes of market data including sales of comparable properties and price trends specific to the MSA in which the property being valued is located. CoreLogic Case-Shiller is a widely used index based on data from repeat sales of single family homes. CoreLogic Case-Shiller indexed-based values are reported on a three-month or one-quarter lag.

Margin Receivable – An extension of credit secured by eligible securities in certain brokerage accounts.

Matched Book – Repurchase and resale agreements or securities borrowed and loaned transactions where the overall asset and liability position is similar in size and/or maturity. Generally, these are entered into to accommodate customers where the Corporation earns the interest rate spread.

Mortgage Servicing Rights (MSR) – The right to service a mortgage loan when the underlying loan is sold or securitized. Servicing includes collections for principal, interest and escrow payments from borrowers and accounting for and remitting principal and interest payments to investors.

Net Interest Yield – Net interest income divided by average total interest-earning assets.

Nonperforming Loans and Leases – Includes loans and leases that have been placed on nonaccrual status, including nonaccruing loans whose contractual terms have been restructured in a manner that grants a concession to a borrower experiencing financial difficulties. Loans accounted for under the fair value option, PCI loans and LHFS are not reported as nonperforming loans and leases. Credit card receivables, residential mortgage loans that are insured by the FHA or through long-term credit protection agreements with FNMA and FHLMC (fully-insured loan portfolio) and certain other consumer loans are not placed on nonaccrual status and are, therefore, not reported as nonperforming loans and leases.

Pay Option Loans – Pay option adjustable-rate mortgages have interest rates that adjust monthly and minimum required payments that adjust annually. During an initial five- or ten-year period, minimum required payments may increase by no more than 7.5 percent. If payments are insufficient to pay all of the monthly interest charges, unpaid interest is added to the loan balance (i.e., negative amortization) until the loan balance increases to a specified limit, at which time a new monthly payment amount adequate to repay the loan over its remaining contractual life is established.

Prompt Corrective Action (PCA) – A framework established by the U.S. banking regulators requiring banks to maintain certain levels of regulatory capital ratios, comprised of five categories of capitalization: "well capitalized," "adequately capitalized," "undercapitalized," "significantly undercapitalized" and "critically undercapitalized." Insured depository institutions that fail to meet certain of these capital levels are subject to increasingly strict limits on their activities, including their ability to make capital distributions, pay management compensation, grow assets and take other actions.

Purchased Credit-impaired (PCI) Loan – A loan purchased as an individual loan, in a portfolio of loans or in a business combination with evidence of deterioration in credit quality since origination for which it is probable, upon acquisition, that the investor will be unable to collect all contractually required payments. These loans are recorded at fair value upon acquisition.

Subprime Loans – Although a standard industry definition for subprime loans (including subprime mortgage loans) does not exist, the Corporation defines subprime loans as specific product offerings for higher risk borrowers, including individuals with one or a combination of high credit risk factors, such as low FICO scores, high debt to income ratios and inferior payment history.

Troubled Debt Restructurings (TDRs) – Loans whose contractual terms have been restructured in a manner that grants a concession to a borrower experiencing financial difficulties. Certain consumer loans for which a binding offer to restructure has been extended are also classified as TDRs. Concessions could include a reduction in the interest rate to a rate that is below market on the loan, payment extensions, forgiveness of principal, forbearance, loans discharged in bankruptcy or other actions intended to maximize collection. Secured consumer loans that have been discharged in Chapter 7 bankruptcy and have not been reaffirmed by the borrower are classified as TDRs at the time of discharge from bankruptcy.

Value-at-Risk (VaR) – VaR is a model that simulates the value of a portfolio under a range of hypothetical scenarios in order to generate a distribution of potential gains and losses. VaR represents the loss the portfolio is expected to experience with a given confidence level based on historical data. A VaR model is an effective tool in estimating ranges of potential gains and losses on our trading portfolios.

Acronyms

ABS	Asset-backed securities
AFS	Available-for-sale
ALM	Asset and liability management
AUM	Assets under management
BANA	Bank of America, National Association
BHC	Bank holding company
bps	basis points
CCAR	Comprehensive Capital Analysis and Review
CDO	Collateralized debt obligation
CDS	Credit default swap
CGA	Corporate General Auditor
CLO	Collateralized loan obligation
CLTV	Combined loan-to-value
CVA	Credit valuation adjustment
DIF	Deposit Insurance Fund
DoJ	U.S. Department of Justice
DVA	Debit valuation adjustment
EAD	Exposure at default
EMV	Europay, Mastercard and Visa
EPS	Earnings per common share
ERC	Enterprise Risk Committee
FASB	Financial Accounting Standards Board
FCA	Financial Conduct Authority
FDIC	Federal Deposit Insurance Corporation
FHA	Federal Housing Administration
FHLB	Federal Home Loan Bank
FHLMC	Freddie Mac
FICC	Fixed-income, currencies and commodities
FICO	Fair Isaac Corporation (credit score)
FLUs	Front line units
FNMA	Fannie Mae
FTE	Fully taxable-equivalent
FVA	Funding valuation adjustment
GAAP	Accounting principles generally accepted in the United States of America
GLS	Global Liquidity Sources
GM&CA	Global Marketing and Corporate Affairs
GNMA	Government National Mortgage Association
GPI	Global Principal Investments
GSE	Government-sponsored enterprise
G-SIB	Global systemically important bank
GWIM	Global Wealth & Investment Management
HELOC	Home equity line of credit
HQLA	High Quality Liquid Assets
HTM	Held-to-maturity
ICAAP	Internal Capital Adequacy Assessment Process
IMM	Internal models methodology
IRLC	Interest rate lock commitment
IRM	Independent risk management
ISDA	International Swaps and Derivatives Association, Inc.
LCR	Liquidity Coverage Ratio
LGD	Loss given default
LHFS	Loans held-for-sale
LIBOR	London InterBank Offered Rate
LTV	Loan-to-value
MBS	Mortgage-backed securities
MD&A	Management's Discussion and Analysis of Financial Condition and Results of Operations
MI	Mortgage insurance
MLGWM	Merrill Lynch Global Wealth Management
MLI	Merrill Lynch International
MLPCC	Merrill Lynch Professional Clearing Corp
MLPF&S	Merrill Lynch, Pierce, Fenner & Smith Incorporated
MRC	Management Risk Committee
MSA	Metropolitan Statistical Area
MSR	Mortgage servicing right
NPR	Notice of proposed rulemaking
NSFR	Net Stable Funding Ratio
OAS	Option-adjusted spread
OCC	Office of the Comptroller of the Currency
OCI	Other comprehensive income
OTC	Over-the-counter
OTTI	Other-than-temporary impairment
PCA	Prompt Corrective Action
PCI	Purchased credit-impaired
PPI	Payment protection insurance
RCSAs	Risk and Control Self Assessments
RMBS	Residential mortgage-backed securities
RSU	Restricted stock unit
SBLC	Standby letter of credit
SCCL	Single-Counterparty Credit Limits
SEC	Securities and Exchange Commission
SLR	Supplementary leverage ratio
TDR	Troubled debt restructurings
TLAC	Total Loss-Absorbing Capacity
VA	U.S. Department of Veterans Affairs
VaR	Value-at-Risk
VIE	Variable interest entity

Financial Statements and Notes
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Report of Management on Internal Control Over Financial Reporting

Bank of America Corporation and Subsidiaries

The management of Bank of America Corporation is responsible for establishing and maintaining adequate internal control over financial reporting.

The Corporation'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 accounting principles generally accepted in the United States of America. The Corporation'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 Corporation; (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 Corporation are being made only in accordance with authorizations of management and directors of the Corporation; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the Corporation's assets that could have a material effect on the financial statements.

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

Management assessed the effectiveness of the Corporation's internal control over financial reporting as of December 31, 2016 based on the framework set forth by the Committee of Sponsoring Organizations of the Treadway Commission in *Internal Control – Integrated Framework (2013)*. Based on that assessment, management concluded that, as of December 31, 2016, the Corporation's internal control over financial reporting is effective.

The Corporation's internal control over financial reporting as of December 31, 2016 has been audited by PricewaterhouseCoopers, LLP, an independent registered public accounting firm, as stated in their accompanying report which expresses an unqualified opinion on the effectiveness of the Corporation's internal control over financial reporting as of December 31, 2016.

Brian T. Moynihan
Chairman, Chief Executive Officer and President

Paul M. Donofrio
Chief Financial Officer

Report of Independent Registered Public Accounting Firm

Bank of America Corporation and Subsidiaries

To the Board of Directors and Shareholders of Bank of America Corporation:

In our opinion, the accompanying consolidated balance sheets and the related consolidated statements of income, comprehensive income, changes in shareholders' equity and cash flows present fairly, in all material respects, the financial position of Bank of America Corporation and its subsidiaries at December 31, 2016 and 2015, and the results of their operations and their cash flows for each of the three years in the period ended December 31, 2016 in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the Corporation maintained, in all material respects, effective internal control over financial reporting as of December 31, 2016, based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). The Corporation's management is responsible for these 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 Report of Management on Internal Control Over Financial Reporting. Our responsibility is to express opinions on these financial statements and on the Corporation's internal control over financial reporting based on our integrated audits. We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the financial statements are free of material misstatement and whether effective internal control over financial reporting was maintained in all material respects. Our audits of the financial statements included examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. 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.

As discussed in Note 1 to the consolidated financial statements, the Corporation changed the manner in which it accounts for the amortization of premiums and the accretion of discounts related to certain debt securities in 2016.

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

Charlotte, North Carolina
February 23, 2017

Consolidated Statement of Income

(Dollars in millions, except per share information)	2016	2015	2014
Interest income			
Loans and leases	$ 33,228	$ 31,918	$ 34,145
Debt securities	9,167	9,178	9,010
Federal funds sold and securities borrowed or purchased under agreements to resell	1,118	988	1,039
Trading account assets	4,423	4,397	4,561
Other interest income	3,121	3,026	2,959
Total interest income	51,057	49,507	51,714
Interest expense			
Deposits	1,015	861	1,080
Short-term borrowings	2,350	2,387	2,579
Trading account liabilities	1,018	1,343	1,576
Long-term debt	5,578	5,958	5,700
Total interest expense	9,961	10,549	10,935
Net interest income	41,096	38,958	40,779
Noninterest income			
Card income	5,851	5,959	5,944
Service charges	7,638	7,381	7,443
Investment and brokerage services	12,745	13,337	13,284
Investment banking income	5,241	5,572	6,065
Trading account profits	6,902	6,473	6,309
Mortgage banking income	1,853	2,364	1,563
Gains on sales of debt securities	490	1,138	1,481
Other income	1,885	1,783	3,026
Total noninterest income	42,605	44,007	45,115
Total revenue, net of interest expense	83,701	82,965	85,894
Provision for credit losses	3,597	3,161	2,275
Noninterest expense			
Personnel	31,616	32,868	33,787
Occupancy	4,038	4,093	4,260
Equipment	1,804	2,039	2,125
Marketing	1,703	1,811	1,829
Professional fees	1,971	2,264	2,472
Amortization of intangibles	730	834	936
Data processing	3,007	3,115	3,144
Telecommunications	746	823	1,259
Other general operating	9,336	9,887	25,844
Total noninterest expense	54,951	57,734	75,656
Income before income taxes	25,153	22,070	7,963
Income tax expense	7,247	6,234	2,443
Net income	$ 17,906	$ 15,836	$ 5,520
Preferred stock dividends	1,682	1,483	1,044
Net income applicable to common shareholders	$ 16,224	$ 14,353	$ 4,476
Per common share information			
Earnings	$ 1.58	$ 1.37	$ 0.43
Diluted earnings	1.50	1.31	0.42
Dividends paid	0.25	0.20	0.12
Average common shares issued and outstanding (in thousands)	10,284,147	10,462,282	10,527,818
Average diluted common shares issued and outstanding (in thousands)	11,035,657	11,213,992	10,584,535

See accompanying Notes to Consolidated Financial Statements.

Consolidated Statement of Comprehensive Income

(Dollars in millions)	2016	2015	2014
Net income	$ 17,906	$ 15,836	$ 5,520
Other comprehensive income (loss), net-of-tax:			
Net change in debt and marketable equity securities	(1,345)	(1,580)	4,149
Net change in debit valuation adjustments	(156)	615	—
Net change in derivatives	182	584	616
Employee benefit plan adjustments	(524)	394	(943)
Net change in foreign currency translation adjustments	(87)	(123)	(157)
Other comprehensive income (loss)	(1,930)	(110)	3,665
Comprehensive income	$ 15,976	$ 15,726	$ 9,185

See accompanying Notes to Consolidated Financial Statements.

Consolidated Balance Sheet

(Dollars in millions)	December 31 2016	December 31 2015
Assets		
Cash and due from banks	$ 30,719	$ 31,265
Interest-bearing deposits with the Federal Reserve, non-U.S. central banks and other banks	117,019	128,088
Cash and cash equivalents	147,738	159,353
Time deposits placed and other short-term investments	9,861	7,744
Federal funds sold and securities borrowed or purchased under agreements to resell (includes **$49,750** and $55,143 measured at fair value)	198,224	192,482
Trading account assets (includes **$106,057** and $107,776 pledged as collateral)	180,209	176,527
Derivative assets	42,512	49,990
Debt securities:		
Carried at fair value (includes **$29,804** and $29,810 pledged as collateral)	313,660	322,380
Held-to-maturity, at cost (fair value – **$115,285** and $84,046; **$8,233** and $9,074 pledged as collateral)	117,071	84,508
Total debt securities	430,731	406,888
Loans and leases (includes **$7,085** and $6,938 measured at fair value and **$31,805** and $37,767 pledged as collateral)	906,683	896,983
Allowance for loan and lease losses	(11,237)	(12,234)
Loans and leases, net of allowance	895,446	884,749
Premises and equipment, net	9,139	9,485
Mortgage servicing rights	2,747	3,087
Goodwill	68,969	69,761
Intangible assets	2,922	3,768
Loans held-for-sale (includes **$4,026** and $4,818 measured at fair value)	9,066	7,453
Customer and other receivables	58,759	58,312
Assets of business held for sale	10,670	n/a
Other assets (includes **$13,802** and $14,320 measured at fair value)	120,709	114,688
Total assets	$ 2,187,702	$ 2,144,287

Assets of consolidated variable interest entities included in total assets above (isolated to settle the liabilities of the variable interest entities)	2016	2015
Trading account assets	$ 5,773	$ 6,344
Loans and leases	56,001	72,946
Allowance for loan and lease losses	(1,032)	(1,320)
Loans and leases, net of allowance	54,969	71,626
Loans held-for-sale	188	284
All other assets	1,596	1,530
Total assets of consolidated variable interest entities	$ 62,526	$ 79,784

n/a = not applicable

See accompanying Notes to Consolidated Financial Statements.

Consolidated Balance Sheet (continued)

(Dollars in millions)	December 31 2016	December 31 2015
Liabilities		
Deposits in U.S. offices:		
Noninterest-bearing	**$ 438,125**	$ 422,237
Interest-bearing (includes **$731** and $1,116 measured at fair value)	**750,891**	703,761
Deposits in non-U.S. offices:		
Noninterest-bearing	**12,039**	9,916
Interest-bearing	**59,879**	61,345
Total deposits	**1,260,934**	1,197,259
Federal funds purchased and securities loaned or sold under agreements to repurchase (includes **$35,766** and $24,574 measured at fair value)	**170,291**	174,291
Trading account liabilities	**63,031**	66,963
Derivative liabilities	**39,480**	38,450
Short-term borrowings (includes **$2,024** and $1,325 measured at fair value)	**23,944**	28,098
Accrued expenses and other liabilities (includes **$14,630** and $13,899 measured at fair value and **$762** and $646 of reserve for unfunded lending commitments)	**146,359**	146,286
Long-term debt (includes **$30,037** and $30,097 measured at fair value)	**216,823**	236,764
Total liabilities	**1,920,862**	1,888,111
Commitments and contingencies *(Note 6 – Securitizations and Other Variable Interest Entities, Note 7 – Representations and Warranties Obligations and Corporate Guarantees* and *Note 12 – Commitments and Contingencies)*		
Shareholders' equity		
Preferred stock, $0.01 par value; authorized – **100,000,000** shares; issued and outstanding – **3,887,329** and 3,767,790 shares	**25,220**	22,273
Common stock and additional paid-in capital, $0.01 par value; authorized – **12,800,000,000** shares; issued and outstanding – **10,052,625,604** and 10,380,265,063 shares	**147,038**	151,042
Retained earnings	**101,870**	88,219
Accumulated other comprehensive income (loss)	**(7,288)**	(5,358)
Total shareholders' equity	**266,840**	256,176
Total liabilities and shareholders' equity	**$ 2,187,702**	$ 2,144,287

Liabilities of consolidated variable interest entities included in total liabilities above		
Short-term borrowings	**$ 348**	$ 681
Long-term debt (includes **$10,417** and $11,304 of non-recourse debt)	**10,646**	14,073
All other liabilities (includes **$38** and $20 of non-recourse liabilities)	**41**	21
Total liabilities of consolidated variable interest entities	**$ 11,035**	$ 14,775

See accompanying Notes to Consolidated Financial Statements.

Consolidated Statement of Changes in Shareholders' Equity

(Dollars in millions, shares in thousands)	Preferred Stock	Common Stock and Additional Paid-in Capital Shares	Common Stock and Additional Paid-in Capital Amount	Retained Earnings	Accumulated Other Comprehensive Income (Loss)	Total Shareholders' Equity
Balance, December 31, 2013	$ 13,352	10,591,808	$ 155,293	$ 71,517	$ (7,687)	$ 232,475
Net income				5,520		5,520
Net change in debt and marketable equity securities					4,149	4,149
Net change in derivatives					616	616
Employee benefit plan adjustments					(943)	(943)
Net change in foreign currency translation adjustments					(157)	(157)
Dividends declared:						
Common				(1,262)		(1,262)
Preferred				(1,044)		(1,044)
Issuance of preferred stock	5,957					5,957
Common stock issued under employee plans and related tax effects		25,866	(160)			(160)
Common stock repurchased		(101,132)	(1,675)			(1,675)
Balance, December 31, 2014	19,309	10,516,542	153,458	74,731	(4,022)	243,476
Cumulative adjustment for accounting change related to debit valuation adjustments				1,226	(1,226)	—
Net income				15,836		15,836
Net change in debt and marketable equity securities					(1,580)	(1,580)
Net change in debit valuation adjustments					615	615
Net change in derivatives					584	584
Employee benefit plan adjustments					394	394
Net change in foreign currency translation adjustments					(123)	(123)
Dividends declared:						
Common				(2,091)		(2,091)
Preferred				(1,483)		(1,483)
Issuance of preferred stock	2,964					2,964
Common stock issued under employee plans and related tax effects		4,054	(42)			(42)
Common stock repurchased		(140,331)	(2,374)			(2,374)
Balance, December 31, 2015	22,273	10,380,265	151,042	88,219	(5,358)	256,176
Net income				**17,906**		**17,906**
Net change in debt and marketable equity securities					**(1,345)**	**(1,345)**
Net change in debit valuation adjustments					**(156)**	**(156)**
Net change in derivatives					**182**	**182**
Employee benefit plan adjustments					**(524)**	**(524)**
Net change in foreign currency translation adjustments					**(87)**	**(87)**
Dividends declared:						
Common				**(2,573)**		**(2,573)**
Preferred				**(1,682)**		**(1,682)**
Issuance of preferred stock	**2,947**					**2,947**
Common stock issued under employee plans and related tax effects		**5,111**	**1,108**			**1,108**
Common stock repurchased		**(332,750)**	**(5,112)**			**(5,112)**
Balance, December 31, 2016	**$ 25,220**	**10,052,626**	**$ 147,038**	**$ 101,870**	**$ (7,288)**	**$ 266,840**

See accompanying Notes to Consolidated Financial Statements.

Consolidated Statement of Cash Flows

(Dollars in millions)	2016	2015	2014
Operating activities			
Net income	**$ 17,906**	$ 15,836	$ 5,520
Adjustments to reconcile net income to net cash provided by operating activities:			
Provision for credit losses	**3,597**	3,161	2,275
Gains on sales of debt securities	**(490)**	(1,138)	(1,481)
Realized debit valuation adjustments on structured liabilities	**17**	556	—
Depreciation and premises improvements amortization	**1,511**	1,555	1,586
Amortization of intangibles	**730**	834	936
Net amortization of premium/discount on debt securities	**3,134**	2,613	1,699
Deferred income taxes	**5,841**	2,924	1,147
Stock-based compensation	**1,235**	28	78
Loans held-for-sale:			
Originations and purchases	**(33,107)**	(37,933)	(39,358)
Proceeds from sales and paydowns of loans originally classified as held-for-sale	**31,376**	36,204	38,528
Net change in:			
Trading and derivative instruments	**(866)**	2,550	5,866
Other assets	**(13,802)**	2,645	5,894
Accrued expenses and other liabilities	**(35)**	730	9,702
Other operating activities, net	**1,259**	(2,218)	(1,597)
Net cash provided by operating activities	**18,306**	28,347	30,795
Investing activities			
Net change in:			
Time deposits placed and other short-term investments	**(2,117)**	50	4,030
Federal funds sold and securities borrowed or purchased under agreements to resell	**(5,742)**	(659)	(1,495)
Debt securities carried at fair value:			
Proceeds from sales	**79,371**	145,079	126,399
Proceeds from paydowns and maturities	**100,768**	84,988	79,704
Purchases	**(189,061)**	(219,412)	(247,902)
Held-to-maturity debt securities:			
Proceeds from paydowns and maturities	**18,677**	12,872	7,889
Purchases	**(39,899)**	(36,575)	(13,274)
Loans and leases:			
Proceeds from sales	**18,230**	22,316	28,765
Purchases	**(12,283)**	(12,629)	(10,609)
Other changes in loans and leases, net	**(31,194)**	(51,895)	19,160
Proceeds from sales of equity investments	**299**	333	1,577
Other investing activities, net	**(192)**	(39)	(2,504)
Net cash used in investing activities	**(63,143)**	(55,571)	(8,260)
Financing activities			
Net change in:			
Deposits	**63,675**	78,347	(335)
Federal funds purchased and securities loaned or sold under agreements to repurchase	**(4,000)**	(26,986)	3,171
Short-term borrowings	**(4,014)**	(3,074)	(14,827)
Long-term debt:			
Proceeds from issuance	**35,537**	43,670	51,573
Retirement of long-term debt	**(51,849)**	(40,365)	(53,749)
Preferred stock: Proceeds from issuance	**2,947**	2,964	5,957
Common stock repurchased	**(5,112)**	(2,374)	(1,675)
Cash dividends paid	**(4,194)**	(3,574)	(2,306)
Excess tax benefits on share-based payments	**14**	16	34
Other financing activities, net	**(22)**	(39)	(44)
Net cash provided by (used in) financing activities	**32,982**	48,585	(12,201)
Effect of exchange rate changes on cash and cash equivalents	**240**	(597)	(3,067)
Net increase (decrease) in cash and cash equivalents	**(11,615)**	20,764	7,267
Cash and cash equivalents at January 1	**159,353**	138,589	131,322
Cash and cash equivalents at December 31	**$ 147,738**	$ 159,353	$ 138,589
Supplemental cash flow disclosures			
Interest paid	**$ 10,510**	$ 10,623	$ 11,082
Income taxes paid	**1,633**	2,326	2,558
Income taxes refunded	**(590)**	(151)	(144)

See accompanying Notes to Consolidated Financial Statements.

NOTE 1 Summary of Significant Accounting Principles

Bank of America Corporation, a bank holding company (BHC) and a financial holding company, provides a diverse range of financial services and products throughout the U.S. and in certain international markets. The term "the Corporation" as used herein may refer to Bank of America Corporation individually, Bank of America Corporation and its subsidiaries, or certain of Bank of America Corporation's subsidiaries or affiliates.

Principles of Consolidation and Basis of Presentation

The Consolidated Financial Statements include the accounts of the Corporation and its majority-owned subsidiaries, and those variable interest entities (VIEs) where the Corporation is the primary beneficiary. Intercompany accounts and transactions have been eliminated. Results of operations of acquired companies are included from the dates of acquisition and for VIEs, from the dates that the Corporation became the primary beneficiary. Assets held in an agency or fiduciary capacity are not included in the Consolidated Financial Statements. The Corporation accounts for investments in companies for which it owns a voting interest and for which it has the ability to exercise significant influence over operating and financing decisions using the equity method of accounting. These investments are included in other assets. Equity method investments are subject to impairment testing and the Corporation's proportionate share of income or loss is included in other income.

The preparation of the Consolidated Financial Statements in conformity with accounting principles generally accepted in the United States of America (GAAP) requires management to make estimates and assumptions that affect reported amounts and disclosures. Realized results could differ from those estimates and assumptions. Certain prior-year amounts have been reclassified to conform to current-year presentation.

On December 20, 2016, the Corporation entered into an agreement to sell its non-U.S. consumer credit card business to a third party. Subject to regulatory approval, this transaction is expected to close by mid-2017. After closing, the Corporation will retain substantially all payment protection insurance (PPI) exposure above existing reserves. The Corporation has considered this exposure in its estimate of a small after-tax gain on the sale. This transaction will reduce risk-weighted assets and goodwill upon closing, benefiting regulatory capital. At December 31, 2016, the assets of this business, which are presented in the assets of business held for sale line on the Consolidated Balance Sheet, included consumer credit card receivables of $9.2 billion, an allowance for loan losses of $243 million, goodwill of $775 million, available-for-sale (AFS) debt securities of $619 million and all other assets of $305 million. Liabilities are primarily comprised of intercompany borrowings. This business is included in *All Other* for reporting purposes.

Change in Accounting Method

Effective July 1, 2016, the Corporation changed its accounting method under the Financial Accounting Standards Board (FASB) Accounting Standards Codification (ASC) 310-20, *Nonrefundable fees and other costs*, from the prepayment method (also referred to as the retrospective method) to the contractual method.

The Corporation believes that the contractual method is the preferable method of accounting because it is consistent with the accounting method used by peer institutions in terms of net interest income. Additionally, the contractual method better aligns with the Corporation's asset and liability management (ALM) strategy.

The following is the impact of the change in accounting method on the annual periods presented in the consolidated financial statements herein. The impact is expressed as an increase/(decrease) as compared to amounts originally reported. For 2015 and 2014: net interest income — $(141) million and $989 million, gains on sales of debt securities — $47 million and $127 million, and net income — $(52) million, or $0.00 per diluted share and $687 million, or $0.06 per diluted share, respectively. The change in accounting method decreased retained earnings $980 million at January 1, 2014. Since the change in accounting method was effective July 1, 2016 and the financial results under the prepayment method as compared to the contractual method would not affect future management decisions, the Corporation did not undertake the operational effort and cost to maintain separate systems of record for the prepayment method to enable a calculation of the impact of the change subsequent to the effective date. As a result, the impact of the change in accounting method for 2016 is not disclosed.

New Accounting Pronouncements

In August 2016 and November 2016, the FASB issued new accounting guidance that addresses classification of certain cash receipts and cash payments, including changes in restricted cash, in the statement of cash flows. This new accounting guidance will result in some changes in classification in the Consolidated Statement of Cash Flows, which the Corporation does not expect will be significant, and will not have any impact on its consolidated financial position or results of operations. The new guidance is effective on January 1, 2018, on a retrospective basis, with early adoption permitted.

In June 2016, the FASB issued new accounting guidance that will require the earlier recognition of credit losses on loans and other financial instruments based on an expected loss model, replacing the incurred loss model that is currently in use. Under the new guidance, an entity will measure all expected credit losses for financial instruments held at the reporting date based on historical experience, current conditions and reasonable and supportable forecasts. The expected loss model will apply to loans and leases, unfunded lending commitments, held-to-maturity (HTM) debt securities and other debt instruments measured at amortized cost. The impairment model for AFS debt securities will require the recognition of credit losses through a valuation allowance when fair value is less than amortized cost, regardless of whether the impairment is considered to be other-than-temporary. The new guidance is effective on January 1, 2020, with early adoption permitted on January 1, 2019. The Corporation is in the process of identifying and implementing required changes to loan loss estimation models and processes and evaluating the impact of this new accounting guidance, which at the date of adoption is expected to increase the allowance for credit losses with a resulting negative adjustment to retained earnings.

In March 2016, the FASB issued new accounting guidance that simplifies certain aspects of the accounting for share-based payment transactions, including income tax consequences, classification of awards as either equity or liabilities, and classification on the statement of cash flows. The new guidance is effective on January 1, 2017. The Corporation does not expect the provisions of this new accounting guidance to have a material impact on its consolidated financial position or results of operations.

In February 2016, the FASB issued new accounting guidance that requires substantially all leases to be recorded as assets and liabilities on the balance sheet. Upon adoption, for leases where the Corporation is lessee, the Corporation will record a right of use asset and a lease payment obligation associated with arrangements previously accounted for as operating leases. Lessor accounting is largely unchanged from existing GAAP. This new accounting guidance is effective on January 1, 2019, using a modified retrospective transition that will be applied to all prior periods presented. The Corporation is in the process of reviewing its existing lease portfolios, as well as other service contracts for embedded leases, to evaluate the impact of the new accounting guidance on the financial statements, as well as the impact to regulatory capital and risk-weighted assets. The effect of the adoption will depend on its lease portfolio at the time of transition; however, the Corporation does not expect the new accounting guidance to have a material impact on its consolidated results of operations. Upon completion of the inventory review and consideration of system requirements, the Corporation will evaluate the impacts of adopting the new accounting guidance on its disclosures.

In January 2016, the FASB issued new accounting guidance on recognition and measurement of financial instruments. The new guidance makes targeted changes to existing GAAP including, among other provisions, requiring certain equity investments to be measured at fair value with changes in fair value reported in earnings and requiring changes in instrument-specific credit risk (i.e., debit valuation adjustments (DVA)) for financial liabilities recorded at fair value under the fair value option to be reported in other comprehensive income (OCI). The accounting for DVA related to other financial liabilities, for example, derivatives, does not change. The new guidance is effective on January 1, 2018, with early adoption permitted for the provisions related to DVA. In 2015, the Corporation early adopted, retrospective to January 1, 2015, the provisions of this new accounting guidance related to DVA on financial liabilities accounted for under the fair value option. The Corporation does not expect the remaining provisions of this new accounting guidance to have a material impact on its consolidated financial position or results of operations.

In May 2014, the FASB issued new accounting guidance for recognizing revenue from contracts with customers, which is effective on January 1, 2018. While the new guidance does not apply to revenue associated with loans or securities, the Corporation has been working to identify the customer contracts within the scope of the new guidance and assess the related revenues to determine if any accounting or internal control changes will be required for the new provisions. While the assessment is not complete, the timing of the Corporation's revenue recognition is not expected to materially change. The classification of certain contract costs continues to be evaluated and the final interpretation may impact the presentation of certain contract costs. Overall, the Corporation does not expect the new guidance to have a material impact on its consolidated financial position or results of operations. The next phase of the Corporation's implementation work will be to evaluate any changes that may be required to the Corporation's applicable disclosures.

Significant Accounting Principles

Cash and Cash Equivalents

Cash and cash equivalents include cash on hand, cash items in the process of collection, cash segregated under federal and other brokerage regulations, and amounts due from correspondent banks, the Federal Reserve Bank and certain non-U.S. central banks.

Securities Financing Agreements

Securities borrowed or purchased under agreements to resell and securities loaned or sold under agreements to repurchase (securities financing agreements) are treated as collateralized financing transactions except in instances where the transaction is required to be accounted for as individual sale and purchase transactions. Generally, these agreements are recorded at acquisition or sale price plus accrued interest, except for certain securities financing agreements that the Corporation accounts for under the fair value option. Changes in the fair value of securities financing agreements that are accounted for under the fair value option are recorded in trading account profits in the Consolidated Statement of Income.

The Corporation's policy is to monitor the market value of the principal amount loaned under resale agreements and obtain collateral from or return collateral pledged to counterparties when appropriate. Securities financing agreements do not create material credit risk due to these collateral provisions; therefore, an allowance for loan losses is unnecessary.

In transactions where the Corporation acts as the lender in a securities lending agreement and receives securities that can be pledged or sold as collateral, it recognizes an asset on the Consolidated Balance Sheet at fair value, representing the securities received, and a liability, representing the obligation to return those securities.

Collateral

The Corporation accepts securities as collateral that it is permitted by contract or custom to sell or repledge. At December 31, 2016 and 2015, the fair value of this collateral was $452.1 billion and $458.9 billion, of which $372.0 billion and $383.5 billion was sold or repledged. The primary source of this collateral is securities borrowed or purchased under agreements to resell.

The Corporation also pledges company-owned securities and loans as collateral in transactions that include repurchase agreements, securities loaned, public and trust deposits, U.S. Treasury tax and loan notes, and short-term borrowings. This collateral, which in some cases can be sold or repledged by the counterparties to the transactions, is parenthetically disclosed on the Consolidated Balance Sheet.

In certain cases, the Corporation has transferred assets to consolidated VIEs where those restricted assets serve as collateral for the interests issued by the VIEs. These assets are included on the Consolidated Balance Sheet in Assets of Consolidated VIEs.

In addition, the Corporation obtains collateral in connection with its derivative contracts. Required collateral levels vary depending on the credit risk rating and the type of counterparty. Generally, the Corporation accepts collateral in the form of cash, U.S. Treasury securities and other marketable securities. Based on provisions contained in master netting agreements, the Corporation nets cash collateral received against derivative assets. The Corporation also pledges collateral on its own derivative positions which can be applied against derivative liabilities.

Trading Instruments

Financial instruments utilized in trading activities are carried at fair value. Fair value is generally based on quoted market prices or quoted market prices for similar assets and liabilities. If these market prices are not available, fair values are estimated based on dealer quotes, pricing models, discounted cash flow methodologies, or similar techniques where the determination of fair value may require significant management judgment or estimation. Realized gains and losses are recorded on a trade-date basis. Realized and unrealized gains and losses are recognized in trading account profits.

Derivatives and Hedging Activities

Derivatives are entered into on behalf of customers, for trading or to support risk management activities. Derivatives used in risk management activities include derivatives that are both designated in qualifying accounting hedge relationships and derivatives used to hedge market risks in relationships that are not designated in qualifying accounting hedge relationships (referred to as other risk management activities). Derivatives utilized by the Corporation include swaps, futures and forward settlement contracts, and option contracts.

All derivatives are recorded on the Consolidated Balance Sheet at fair value, taking into consideration the effects of legally enforceable master netting agreements that allow the Corporation to settle positive and negative positions and offset cash collateral held with the same counterparty on a net basis. For exchange-traded contracts, fair value is based on quoted market prices in active or inactive markets or is derived from observable market-based pricing parameters, similar to those applied to over-the-counter (OTC) derivatives. For non-exchange traded contracts, fair value is based on dealer quotes, pricing models, discounted cash flow methodologies or similar techniques for which the determination of fair value may require significant management judgment or estimation.

Valuations of derivative assets and liabilities reflect the value of the instrument including counterparty credit risk. These values also take into account the Corporation's own credit standing.

Trading Derivatives and Other Risk Management Activities

Derivatives held for trading purposes are included in derivative assets or derivative liabilities on the Consolidated Balance Sheet with changes in fair value included in trading account profits.

Derivatives used for other risk management activities are included in derivative assets or derivative liabilities. Derivatives used in other risk management activities have not been designated in a qualifying accounting hedge relationship because they did not qualify or the risk that is being mitigated pertains to an item that is reported at fair value through earnings so that the effect of measuring the derivative instrument and the asset or liability to which the risk exposure pertains will offset in the Consolidated Statement of Income to the extent effective. The changes in the fair value of derivatives that serve to mitigate certain risks associated with mortgage servicing rights (MSRs), interest rate lock commitments (IRLCs) and first mortgage loans held-for-sale (LHFS) that are originated by the Corporation are recorded in mortgage banking income. Changes in the fair value of derivatives that serve to mitigate interest rate risk and foreign currency risk are included in other income (loss). Credit derivatives are also used by the Corporation to mitigate the risk associated with various credit exposures. The changes in the fair value of these derivatives are included in other income (loss).

Derivatives Used For Hedge Accounting Purposes (Accounting Hedges)

For accounting hedges, the Corporation formally documents at inception all relationships between hedging instruments and hedged items, as well as the risk management objectives and strategies for undertaking various accounting hedges. Additionally, the Corporation primarily uses regression analysis at the inception of a hedge and for each reporting period thereafter to assess whether the derivative used in an accounting hedge transaction is expected to be and has been highly effective in offsetting changes in the fair value or cash flows of a hedged item or forecasted transaction. The Corporation discontinues hedge accounting when it is determined that a derivative is not expected to be or has ceased to be highly effective as a hedge, and then reflects changes in fair value of the derivative in earnings after termination of the hedge relationship.

The Corporation uses its accounting hedges as either fair value hedges, cash flow hedges or hedges of net investments in foreign operations. The Corporation manages interest rate and foreign currency exchange rate sensitivity predominantly through the use of derivatives.

Fair value hedges are used to protect against changes in the fair value of the Corporation's assets and liabilities that are attributable to interest rate or foreign exchange volatility. Changes in the fair value of derivatives designated as fair value hedges are recorded in earnings, together and in the same income statement line item with changes in the fair value of the related hedged item. If a derivative instrument in a fair value hedge is terminated or the hedge designation removed, the previous adjustments to the carrying value of the hedged asset or liability are subsequently accounted for in the same manner as other components of the carrying value of that asset or liability. For interest-earning assets and interest-bearing liabilities, such adjustments are amortized to earnings over the remaining life of the respective asset or liability.

Cash flow hedges are used primarily to minimize the variability in cash flows of assets or liabilities, or forecasted transactions caused by interest rate or foreign exchange fluctuations. Changes in the fair value of derivatives designated as cash flow hedges are recorded in accumulated OCI and are reclassified into the line item in the income statement in which the hedged item is recorded in the same period the hedged item affects earnings. Hedge ineffectiveness and gains and losses on the component of a derivative excluded in assessing hedge effectiveness are recorded in the same income statement line item. The Corporation records changes in the fair value of derivatives used as hedges of the net investment in foreign operations, to the extent effective, as a component of accumulated OCI. If a derivative instrument in a cash flow hedge is terminated or the hedge designation is removed, related amounts in accumulated OCI are reclassified into earnings in the same period or periods during which the hedged forecasted transaction affects earnings. If it becomes probable that a forecasted transaction will not occur, any related amounts in accumulated OCI are reclassified into earnings in that period.

Securities

Debt securities are recorded on the Consolidated Balance Sheet as of their trade date. Debt securities bought principally with the intent to buy and sell in the short term as part of the Corporation's trading activities are reported at fair value in trading account assets with unrealized gains and losses included in trading account profits. Debt securities purchased for longer term investment purposes, as part of ALM and other strategic activities, are generally reported at fair value as AFS securities with net unrealized gains and losses net-of-tax included in accumulated OCI. Certain other debt securities purchased for ALM and other strategic purposes are reported at fair value with unrealized gains and losses reported in other income (loss). These are referred to as other debt securities carried at fair value. AFS securities and other debt securities carried at fair value are reported in debt securities on the Consolidated Balance Sheet. The Corporation may hedge these other debt securities with risk management derivatives with the unrealized gains and losses also reported in other income (loss). The debt securities are carried at fair value with unrealized gains and losses reported in other income (loss) to mitigate accounting asymmetry with the risk management derivatives and to achieve operational simplifications. Debt securities that management has the intent and ability to hold to maturity are reported at amortized cost. Certain debt securities purchased for use in other risk management activities, such as hedging certain market risks related to MSRs, are reported in other assets at fair value with unrealized gains and losses reported in the same line item as the item being hedged.

The Corporation regularly evaluates each AFS and HTM debt security where the value has declined below amortized cost to assess whether the decline in fair value is other than temporary. In determining whether an impairment is other than temporary, the Corporation considers the severity and duration of the decline in fair value, the length of time expected for recovery, the financial condition of the issuer, and other qualitative factors, as well as whether the Corporation either plans to sell the security or it is more-likely-than-not that it will be required to sell the security before recovery of the amortized cost. For AFS debt securities the Corporation intends to hold, an analysis is performed to determine how much of the decline in fair value is related to the issuer's credit and how much is related to market factors (e.g., interest rates). If any of the decline in fair value is due to credit, an other-than-temporary impairment (OTTI) loss is recognized in the Consolidated Statement of Income for that amount. If any of the decline in fair value is related to market factors, that amount is recognized in accumulated OCI. In certain instances, the credit loss may exceed the total decline in fair value, in which case, the difference is due to market factors and is recognized as an unrealized gain in accumulated OCI. If the Corporation intends to sell or believes it is more-likely-than-not that it will be required to sell the debt security, it is written down to fair value as an OTTI loss.

Interest on debt securities, including amortization of premiums and accretion of discounts, is included in interest income. Premiums and discounts are amortized or accreted to interest income at a constant effective yield over the contractual lives of the securities. Realized gains and losses from the sales of debt securities are determined using the specific identification method.

Marketable equity securities are classified based on management's intention on the date of purchase and recorded on the Consolidated Balance Sheet as of the trade date. Marketable equity securities that are bought and held principally for the purpose of resale in the near term are classified as trading and are carried at fair value with unrealized gains and losses included in trading account profits. Other marketable equity securities are accounted for as AFS and classified in other assets. All AFS marketable equity securities are carried at fair value with net unrealized gains and losses included in accumulated OCI, net-of-tax. If there is an other-than-temporary decline in the fair value of any individual AFS marketable equity security, the cost basis is reduced and the Corporation reclassifies the associated net unrealized loss out of accumulated OCI with a corresponding charge to equity investment income. Dividend income on AFS marketable equity securities is included in equity investment income. Realized gains and losses on the sale of all AFS marketable equity securities, which are recorded in equity investment income, are determined using the specific identification method.

Certain equity investments held by Global Principal Investments (GPI), the Corporation's diversified equity investor in private equity, real estate and other alternative investments, are subject to investment company accounting under applicable accounting guidance and, accordingly, are carried at fair value with changes in fair value reported in equity investment income. These investments are included in other assets.

Loans and Leases

Loans, with the exception of loans accounted for under the fair value option, are measured at historical cost and reported at their outstanding principal balances net of any unearned income, charge-offs, unamortized deferred fees and costs on originated loans, and for purchased loans, net of any unamortized premiums or discounts. Loan origination fees and certain direct origination costs are deferred and recognized as adjustments to interest income over the lives of the related loans. Unearned income, discounts and premiums are amortized to interest income using a level yield methodology. The Corporation elects to account for certain consumer and commercial loans under the fair value option with changes in fair value reported in other income (loss).

Under applicable accounting guidance, for reporting purposes, the loan and lease portfolio is categorized by portfolio segment and, within each portfolio segment, by class of financing receivables. A portfolio segment is defined as the level at which an entity develops and documents a systematic methodology to determine the allowance for credit losses, and a class of financing receivables is defined as the level of disaggregation of portfolio segments based on the initial measurement attribute, risk characteristics and methods for assessing risk. The Corporation's three portfolio segments are Consumer Real Estate, Credit Card and Other Consumer, and Commercial. The classes within the Consumer Real Estate portfolio segment are residential mortgage and home equity. The classes within the Credit Card and Other Consumer portfolio segment are U.S. credit card, non-U.S. credit card, direct/indirect consumer and other consumer. The classes within the Commercial portfolio segment are U.S. commercial, commercial real estate, commercial lease financing, non-U.S. commercial and U.S. small business commercial.

Purchased Credit-impaired Loans

Purchased loans with evidence of credit quality deterioration as of the purchase date for which it is probable that the Corporation will not receive all contractually required payments receivable are accounted for as purchased credit-impaired (PCI) loans. Evidence of credit quality deterioration since origination may include past due status, refreshed credit scores and refreshed loan-to-value (LTV) ratios. At acquisition, PCI loans are recorded at fair value with no allowance for credit losses, and accounted for individually or aggregated in pools based on similar risk characteristics such as credit risk, collateral type and interest rate risk. The Corporation estimates the amount and timing of expected cash flows for each loan or pool of loans. The expected cash flows in excess of the amount paid for the loans is referred to as the accretable yield and is recorded as interest income over the remaining estimated life of the loan or pool of loans. The excess of the PCI loans' contractual principal and interest over the expected cash flows is referred to as the nonaccretable difference. Over the life of the PCI loans, the expected cash flows continue to be estimated using models that incorporate management's estimate of current assumptions such as default rates, loss severity and prepayment speeds. If, upon subsequent valuation, the Corporation determines it is probable that the present value of the expected cash flows has decreased, a charge to the provision for credit losses is recorded with a corresponding increase in the allowance for credit losses. If it is probable that there is a significant increase in the present value of expected cash flows, the allowance for credit losses is reduced or, if there is no remaining allowance for credit losses related to these PCI loans, the accretable yield is increased through a reclassification from nonaccretable difference, resulting in a prospective increase in interest income. Reclassifications to or from nonaccretable difference can also occur for changes in the PCI loans' estimated lives. If a loan within a PCI pool is sold, foreclosed, forgiven or the expectation of any future proceeds is remote, the loan is removed from the pool at its proportional carrying value. If the loan's recovery value is less than the loan's carrying value, the difference is first applied against the PCI pool's nonaccretable difference and then against the allowance for credit losses.

Leases

The Corporation provides equipment financing to its customers through a variety of lease arrangements. Direct financing leases are carried at the aggregate of lease payments receivable plus estimated residual value of the leased property less unearned income. Leveraged leases, which are a form of financing leases, are reported net of non-recourse debt. Unearned income on leveraged and direct financing leases is accreted to interest income over the lease terms using methods that approximate the interest method.

Allowance for Credit Losses

The allowance for credit losses, which includes the allowance for loan and lease losses and the reserve for unfunded lending commitments, represents management's estimate of probable losses inherent in the Corporation's lending activities excluding loans and unfunded lending commitments accounted for under the fair value option. The allowance for loan and lease losses represents the estimated probable credit losses on funded consumer and commercial loans and leases while the reserve for unfunded lending commitments, including standby letters of credit (SBLCs) and binding unfunded loan commitments, represents estimated probable credit losses on these unfunded credit instruments based on utilization assumptions. Lending-related credit exposures deemed to be uncollectible, excluding loans carried at fair value, are charged off against these accounts. Write-offs on PCI loans on which there is a valuation allowance are recorded against the valuation allowance. For additional information, see Purchased Credit-impaired Loans in this Note.

The Corporation performs periodic and systematic detailed reviews of its lending portfolios to identify credit risks and to assess the overall collectability of those portfolios. The allowance on certain homogeneous consumer loan portfolios, which generally consist of consumer real estate loans within the Consumer Real Estate portfolio segment and credit card loans within the Credit Card and Other Consumer portfolio segment, is based on aggregated portfolio segment evaluations generally by product type. Loss forecast models are utilized for these portfolios which consider a variety of factors including, but not limited to, historical loss experience, estimated defaults or foreclosures based on portfolio trends, delinquencies, bankruptcies, economic conditions and credit scores and the amount of loss in the event of default.

For consumer loans secured by residential real estate, using statistical modeling methodologies, the Corporation estimates the number of loans that will default based on the individual loan attributes aggregated into pools of homogeneous loans with similar attributes. The attributes that are most significant to the probability of default and are used to estimate defaults include refreshed LTV or, in the case of a subordinated lien, refreshed combined LTV (CLTV), borrower credit score, months since origination (referred to as vintage) and geography, all of which are further broken down by present collection status (whether the loan is current, delinquent, in default or in bankruptcy). The severity or loss given default is estimated based on the refreshed LTV for first mortgages or CLTV for subordinated liens. The estimates are based on the Corporation's historical experience with the loan portfolio, adjusted to reflect an assessment of environmental factors not yet reflected in the historical data underlying the loss estimates, such as changes in real estate values, local and national economies, underwriting standards and the regulatory environment. The probability of default models also incorporate recent experience with modification programs including redefaults subsequent to modification, a loan's default history prior to modification and the change in borrower payments post-modification. On home equity loans where the Corporation holds only a second-lien position and foreclosure is not the best alternative, the loss severity is estimated at 100 percent.

The allowance on certain commercial loans (except business card and certain small business loans) is calculated using loss rates delineated by risk rating and product type. Factors considered when assessing loss rates include the value of the underlying collateral, if applicable, the industry of the obligor, and the obligor's liquidity and other financial indicators along with certain qualitative factors. These statistical models are updated regularly for changes in economic and business conditions. Included in the analysis of consumer and commercial loan portfolios are reserves which are maintained to cover uncertainties that affect the Corporation's estimate of probable losses including domestic and global economic uncertainty and large single-name defaults.

For impaired loans, which include nonperforming commercial loans as well as consumer and commercial loans and leases modified in a troubled debt restructuring (TDR), management measures impairment primarily based on the present value of payments expected to be received, discounted at the loans' original effective contractual interest rates. Credit card loans are discounted at the portfolio average contractual annual percentage rate, excluding promotionally priced loans, in effect prior to restructuring. Impaired loans and TDRs may also be measured based on observable market prices, or for loans that are solely dependent on the collateral for repayment, the estimated fair value of the collateral less costs to sell. If the recorded investment in impaired loans exceeds this amount, a specific allowance is established as a component of the allowance for loan and lease losses unless these are secured consumer loans that are solely dependent on the collateral for repayment, in which case the amount that exceeds the fair value of the collateral is charged off.

Generally, the Corporation initially estimates the fair value of the collateral securing these consumer real estate-secured loans using an automated valuation model (AVM). An AVM is a tool that estimates the value of a property by reference to market data including sales of comparable properties and price trends specific to the Metropolitan Statistical Area in which the property being valued is located. In the event that an AVM value is not available, the Corporation utilizes publicized indices or if these methods provide less reliable valuations, the Corporation uses appraisals or broker price opinions to estimate the fair value of the collateral. While there is inherent imprecision in these valuations, the Corporation believes that they are representative of the portfolio in the aggregate.

In addition to the allowance for loan and lease losses, the Corporation also estimates probable losses related to unfunded lending commitments, such as letters of credit and financial guarantees, and binding unfunded loan commitments. Unfunded lending commitments are subject to individual reviews and are analyzed and segregated by risk according to the Corporation's internal risk rating scale. These risk classifications, in conjunction with an analysis of historical loss experience, utilization assumptions, current economic conditions, performance trends within the portfolio and any other pertinent information, result in the estimation of the reserve for unfunded lending commitments.

The allowance for credit losses related to the loan and lease portfolio is reported separately on the Consolidated Balance Sheet whereas the reserve for unfunded lending commitments is reported on the Consolidated Balance Sheet in accrued expenses and other liabilities. The provision for credit losses related to the loan and lease portfolio and unfunded lending commitments is reported in the Consolidated Statement of Income.

Nonperforming Loans and Leases, Charge-offs and Delinquencies

Nonperforming loans and leases generally include loans and leases that have been placed on nonaccrual status. Loans accounted for under the fair value option, PCI loans and LHFS are not reported as nonperforming.

In accordance with the Corporation's policies, consumer real estate-secured loans, including residential mortgages and home equity loans, are generally placed on nonaccrual status and classified as nonperforming at 90 days past due unless repayment of the loan is insured by the Federal Housing Administration (FHA) or through individually insured long-term standby agreements with Fannie Mae (FNMA) or Freddie Mac (FHLMC) (the fully-insured portfolio). Residential mortgage loans in the fully-insured portfolio are not placed on nonaccrual status and, therefore, are not reported as nonperforming. Junior-lien home equity loans are placed on nonaccrual status and classified as nonperforming when the underlying first-lien mortgage loan becomes 90 days past due even if the junior-lien loan is current. The outstanding balance of real estate-secured loans that is in excess of the estimated property value less costs to sell is charged off no later than the end of the month in which the loan becomes 180 days past due unless the loan is fully insured.

Consumer loans secured by personal property, credit card loans and other unsecured consumer loans are not placed on nonaccrual status prior to charge-off and, therefore, are not reported as nonperforming loans, except for certain secured consumer loans, including those that have been modified in a TDR. Personal property-secured loans are charged off to collateral value no later than the end of the month in which the account becomes 120 days past due or, for loans in bankruptcy, 60 days past due. Credit card and other unsecured consumer loans are charged off no later than the end of the month in which the account becomes 180 days past due or within 60 days after receipt of notification of death or bankruptcy.

Commercial loans and leases, excluding business card loans, that are past due 90 days or more as to principal or interest, or where reasonable doubt exists as to timely collection, including loans that are individually identified as being impaired, are generally placed on nonaccrual status and classified as nonperforming unless well-secured and in the process of collection.

Business card loans are charged off no later than the end of the month in which the account becomes 180 days past due or 60 days after receipt of notification of death or bankruptcy. These loans are not placed on nonaccrual status prior to charge-off and, therefore, are not reported as nonperforming loans. Other commercial loans and leases are generally charged off when all or a portion of the principal amount is determined to be uncollectible.

The entire balance of a consumer loan or commercial loan or lease is contractually delinquent if the minimum payment is not received by the specified due date on the customer's billing statement. Interest and fees continue to accrue on past due loans and leases until the date the loan is placed on nonaccrual status, if applicable. Accrued interest receivable is reversed when loans and leases are placed on nonaccrual status. Interest collections on nonaccruing loans and leases for which the ultimate collectability of principal is uncertain are applied as principal reductions; otherwise, such collections are credited to income when received. Loans and leases may be restored to accrual status when all principal and interest is current and full repayment of the remaining contractual principal and interest is expected.

PCI loans are recorded at fair value at the acquisition date. Although the PCI loans may be contractually delinquent, the Corporation does not classify these loans as nonperforming as the loans were written down to fair value at the acquisition date and the accretable yield is recognized in interest income over the remaining life of the loan. In addition, reported net charge-offs exclude write-offs on PCI loans as the fair value already considers the estimated credit losses.

Troubled Debt Restructurings

Consumer and commercial loans and leases whose contractual terms have been restructured in a manner that grants a concession to a borrower experiencing financial difficulties are classified as TDRs. Concessions could include a reduction in the interest rate to a rate that is below market on the loan, payment extensions, forgiveness of principal, forbearance or other actions designed to maximize collections. Loans that are carried at fair value, LHFS and PCI loans are not classified as TDRs.

Loans and leases whose contractual terms have been modified in a TDR and are current at the time of restructuring may remain on accrual status if there is demonstrated performance prior to the restructuring and payment in full under the restructured terms is expected. Otherwise, the loans are placed on nonaccrual status and reported as nonperforming, except for fully-insured consumer real estate loans, until there is sustained repayment performance for a reasonable period, generally six months. If accruing TDRs cease to perform in accordance with their modified contractual terms, they are placed on nonaccrual status and reported as nonperforming TDRs.

Secured consumer loans that have been discharged in Chapter 7 bankruptcy and have not been reaffirmed by the borrower are classified as TDRs at the time of discharge. Such loans are placed on nonaccrual status and written down to the estimated collateral value less costs to sell no later than at the time of discharge. If these loans are contractually current, interest collections are generally recorded in interest income on a cash basis. Consumer real estate-secured loans for which a binding offer to restructure has been extended are also classified as TDRs. Credit card and other unsecured consumer loans that have been renegotiated in a TDR generally remain on accrual status until the loan is either paid in full or charged off, which occurs no later than the end of the month in which the loan becomes 180 days past due or, for loans that have been placed on a fixed payment plan, 120 days past due.

A loan that had previously been modified in a TDR and is subsequently refinanced under current underwriting standards at a market rate with no concessionary terms is accounted for as a new loan and is no longer reported as a TDR.

Loans Held-for-sale

Loans that are intended to be sold in the foreseeable future, including residential mortgages, loan syndications, and to a lesser degree, commercial real estate, consumer finance and other loans, are reported as LHFS and are carried at the lower of aggregate cost or fair value. The Corporation accounts for certain LHFS, including residential mortgage LHFS, under the fair value option. Loan origination costs related to LHFS that the Corporation accounts for under the fair value option are recognized in noninterest expense when incurred. Loan origination costs for LHFS carried at the lower of cost or fair value are capitalized as part of the carrying value of the loans and recognized as a reduction of noninterest income upon the sale of such loans. LHFS that are on nonaccrual status and are reported as nonperforming, as defined in the policy herein, are reported separately from nonperforming loans and leases.

Premises and Equipment

Premises and equipment are carried at cost less accumulated depreciation and amortization. Depreciation and amortization are recognized using the straight-line method over the estimated useful lives of the assets. Estimated lives range up to 40 years for buildings, up to 12 years for furniture and equipment, and the shorter of lease term or estimated useful life for leasehold improvements.

Goodwill and Intangible Assets

Goodwill is the purchase premium after adjusting for the fair value of net assets acquired. Goodwill is not amortized but is reviewed for potential impairment on an annual basis, or when events or circumstances indicate a potential impairment, at the reporting unit level. A reporting unit is a business segment or one level below a business segment. The goodwill impairment analysis is a two-step test. The first step of the goodwill impairment test involves comparing the fair value of each reporting unit with its carrying value, including goodwill, as measured by allocated equity. For purposes of goodwill impairment testing, the Corporation utilizes allocated equity as a proxy for the carrying value of its reporting units. Allocated equity in the reporting units is comprised of allocated capital plus capital for the portion of goodwill and intangibles specifically assigned to the reporting unit. If the fair value of the reporting unit exceeds its carrying value, goodwill of the reporting unit is considered not impaired; however, if the carrying value of the reporting unit exceeds its fair value, the second step must be performed to measure potential impairment.

The second step involves calculating an implied fair value of goodwill which is the excess of the fair value of the reporting unit, as determined in the first step, over the aggregate fair values of the assets, liabilities and identifiable intangibles as if the reporting unit was being acquired in a business combination. If the implied fair value of goodwill exceeds the goodwill assigned to the reporting unit, there is no impairment. If the goodwill assigned to a reporting unit exceeds the implied fair value of goodwill, an impairment charge is recorded for the excess. An impairment loss recognized cannot exceed the amount of goodwill assigned to a reporting unit. An impairment loss establishes a new basis in the goodwill and subsequent reversals of goodwill impairment losses are not permitted under applicable accounting guidance.

For intangible assets subject to amortization, an impairment loss is recognized if the carrying value of the intangible asset is not recoverable and exceeds fair value. The carrying value of the intangible asset is considered not recoverable if it exceeds the sum of the undiscounted cash flows expected to result from the use of the asset. Intangible assets deemed to have indefinite useful lives are not subject to amortization. An impairment loss is recognized if the carrying value of the intangible asset with an indefinite life exceeds its fair value.

Variable Interest Entities

A VIE is an entity that lacks equity investors or whose equity investors do not have a controlling financial interest in the entity through their equity investments. The Corporation consolidates a VIE if it has both the power to direct the activities of the VIE that most significantly impact the VIE's economic performance and an obligation to absorb losses or the right to receive benefits that could potentially be significant to the VIE. On a quarterly basis, the Corporation reassesses its involvement with the VIE and evaluates the impact of changes in governing documents and its financial interests in the VIE. The consolidation status of the VIEs with which the Corporation is involved may change as a result of such reassessments.

The Corporation primarily uses VIEs for its securitization activities, in which the Corporation transfers whole loans or debt securities into a trust or other vehicle such that the assets are legally isolated from the creditors of the Corporation. Assets held in a trust can only be used to settle obligations of the trust. The creditors of these trusts typically have no recourse to the Corporation except in accordance with the Corporation's obligations under standard representations and warranties.

When the Corporation is the servicer of whole loans held in a securitization trust, including non-agency residential mortgages, home equity loans, credit cards, and other loans, the Corporation has the power to direct the most significant activities of the trust. The Corporation generally does not have the power to direct the most significant activities of a residential mortgage agency trust except in certain circumstances in which the Corporation holds substantially all of the issued securities and has the unilateral right to liquidate the trust. The power to direct the most significant activities of a commercial mortgage securitization trust is typically held by the special servicer or by the party holding specific subordinate securities which embody certain controlling rights. The Corporation consolidates a whole-loan securitization trust if it has the power to direct the most significant activities and also holds securities issued by the trust or has other contractual arrangements, other than standard representations and warranties, that could potentially be significant to the trust.

The Corporation may also transfer trading account securities and AFS securities into municipal bond or resecuritization trusts. The Corporation consolidates a municipal bond or resecuritization trust if it has control over the ongoing activities of the trust such as the remarketing of the trust's liabilities or, if there are no ongoing activities, sole discretion over the design of the trust, including the identification of securities to be transferred in and the structure of securities to be issued, and also retains securities or has liquidity or other commitments that could potentially be significant to the trust. The Corporation does not consolidate a municipal bond or resecuritization trust if one or a limited number of third-party investors share responsibility for the design of the trust or have control over the significant activities of the trust through liquidation or other substantive rights.

Other VIEs used by the Corporation include collateralized debt obligations (CDOs), investment vehicles created on behalf of customers and other investment vehicles. The Corporation does not routinely serve as collateral manager for CDOs and, therefore, does not typically have the power to direct the activities that most significantly impact the economic performance of a CDO. However, following an event of default, if the Corporation is a majority holder of senior securities issued by a CDO and acquires the power to manage its assets, the Corporation consolidates the CDO.

The Corporation consolidates a customer or other investment vehicle if it has control over the initial design of the vehicle or manages the assets in the vehicle and also absorbs potentially significant gains or losses through an investment in the vehicle, derivative contracts or other arrangements. The Corporation does not consolidate an investment vehicle if a single investor controlled the initial design of the vehicle or manages the assets in the vehicles or if the Corporation does not have a variable interest that could potentially be significant to the vehicle.

Retained interests in securitized assets are initially recorded at fair value. In addition, the Corporation may invest in debt securities issued by unconsolidated VIEs. Fair values of these debt securities, which are classified as trading account assets, debt securities carried at fair value or HTM securities, are based primarily on quoted market prices in active or inactive markets. Generally, quoted market prices for retained residual interests are not available; therefore, the Corporation estimates fair values based on the present value of the associated expected future cash flows.

Fair Value

The Corporation measures the fair values of its assets and liabilities, where applicable, in accordance with accounting guidance that requires an entity to base fair value on exit price. Under this guidance, an entity is required to maximize the use of observable inputs and minimize the use of unobservable inputs in measuring fair value. A hierarchy is established which categorizes fair value measurements into three levels based on the inputs to the valuation technique with the highest priority given to unadjusted quoted prices in active markets and the lowest priority given to unobservable inputs. The Corporation categorizes its fair value measurements of financial instruments based on this three-level hierarchy.

Level 1 Unadjusted quoted prices in active markets for identical assets or liabilities. Level 1 assets and liabilities include debt and equity securities and derivative contracts that are traded in an active exchange market, as well as certain U.S. Treasury securities that are highly liquid and are actively traded in OTC markets.

Level 2 Observable inputs other than Level 1 prices, such as quoted prices for similar assets or liabilities, quoted prices in markets that are not active, or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities. Level 2 assets and liabilities include debt securities with quoted prices that are traded less frequently than exchange-traded instruments and derivative contracts where fair value is determined using a pricing model with inputs that are observable in the market or can be derived principally from or corroborated by observable market data. This category generally includes U.S. government and agency mortgage-backed (MBS) and asset-backed securities (ABS), corporate debt securities, derivative contracts, certain loans and LHFS.

Level 3 Unobservable inputs that are supported by little or no market activity and that are significant to the overall fair value of the assets or liabilities. Level 3 assets and liabilities include financial instruments for which the determination of fair value requires significant management judgment or estimation. The fair value for such assets and liabilities is generally determined using pricing models, discounted cash flow methodologies or similar techniques that incorporate the assumptions a market participant would use in pricing the asset or liability. This category generally includes retained residual interests in securitizations, consumer MSRs, certain ABS, highly structured, complex or long-dated derivative contracts, certain loans and LHFS, IRLCs and certain CDOs where independent pricing information cannot be obtained for a significant portion of the underlying assets.

Income Taxes

There are two components of income tax expense: current and deferred. Current income tax expense reflects taxes to be paid or refunded for the current period. Deferred income tax expense results from changes in deferred tax assets and liabilities between periods. These gross deferred tax assets and liabilities represent decreases or increases in taxes expected to be paid in the future because of future reversals of temporary differences in the bases of assets and liabilities as measured by tax laws and their bases as reported in the financial statements. Deferred tax assets are also recognized for tax attributes such as net operating loss carryforwards and tax credit carryforwards. Valuation allowances are recorded to reduce deferred tax assets to the amounts management concludes are more-likely-than-not to be realized.

Income tax benefits are recognized and measured based upon a two-step model: first, a tax position must be more-likely-than-not to be sustained based solely on its technical merits in order to be recognized, and second, the benefit is measured as the largest dollar amount of that position that is more-likely-than-not to be sustained upon settlement. The difference between the benefit recognized and the tax benefit claimed on a tax return is referred to as an unrecognized tax benefit. The Corporation records income tax-related interest and penalties, if applicable, within income tax expense.

Revenue Recognition

Revenue is recorded when earned, which is generally over the period services are provided and no contingencies exist. The following summarizes the Corporation's revenue recognition policies as they relate to certain noninterest income line items in the Consolidated Statement of Income.

Card income includes fees such as interchange, cash advance, annual, late, over-limit and other miscellaneous fees. Uncollected fees are included in customer card receivables balances with an amount recorded in the allowance for loan and lease losses for estimated uncollectible card receivables. Uncollected fees are written off when a card receivable reaches 180 days past due.

Service charges include fees for insufficient funds, overdrafts and other banking services. Uncollected fees are included in outstanding loan balances with an amount recorded for estimated uncollectible service fees receivable. Uncollected fees are written off when a fee receivable reaches 60 days past due.

Investment and brokerage services revenue consists primarily of asset management fees and brokerage income. Asset management fees consist primarily of fees for investment management and trust services and are generally based on the dollar amount of the assets being managed. Brokerage income generally includes commissions and fees earned on the sale of various financial products.

Investment banking income consists primarily of advisory and underwriting fees which are generally recognized net of any direct expenses. Non-reimbursed expenses are recorded as noninterest expense.

Earnings Per Common Share

Earnings per common share (EPS) is computed by dividing net income (loss) allocated to common shareholders by the weighted-average common shares outstanding, excluding unvested common shares subject to repurchase or cancellation. Net income (loss) allocated to common shareholders is net income (loss) adjusted for preferred stock dividends including dividends declared, accretion of discounts on preferred stock including accelerated accretion when preferred stock is repaid early, and cumulative dividends related to the current dividend period that have not been declared as of period end, less income allocated to participating securities (see below for more information). Diluted EPS is computed by dividing income (loss) allocated to common shareholders plus dividends on dilutive convertible preferred stock and preferred stock that can be tendered to exercise warrants, by the weighted-average common shares outstanding plus amounts representing the dilutive effect of stock options outstanding, restricted stock, restricted stock units (RSUs), outstanding warrants and the dilution resulting from the conversion of convertible preferred stock, if applicable.

In an exchange of non-convertible preferred stock, income allocated to common shareholders is adjusted for the difference between the carrying value of the preferred stock and the fair value of the consideration exchanged. In an induced conversion of convertible preferred stock, income allocated to common shareholders is reduced by the excess of the fair value of the consideration exchanged over the fair value of the common stock that would have been issued under the original conversion terms.

Foreign Currency Translation

Assets, liabilities and operations of foreign branches and subsidiaries are recorded based on the functional currency of each entity. When the functional currency of a foreign operation is the local currency, the assets, liabilities and operations are translated, for consolidation purposes, from the local currency to the U.S. Dollar reporting currency at period-end rates for assets and liabilities and generally at average rates for results of operations. The resulting unrealized gains and losses and related hedge gains and losses are reported as a component of accumulated OCI, net-of-tax. When the foreign entity's functional currency is the U.S. Dollar, the resulting remeasurement gains or losses on foreign currency-denominated assets or liabilities are included in earnings.

Credit Card and Deposit Arrangements

Endorsing Organization Agreements

The Corporation contracts with other organizations to obtain their endorsement of the Corporation's loan and deposit products. This endorsement may provide to the Corporation exclusive rights to market to the organization's members or to customers on behalf of the Corporation. These organizations endorse the Corporation's loan and deposit products and provide the Corporation with their mailing lists and marketing activities. These agreements generally have terms that range five or more years. The Corporation typically pays royalties in exchange for the endorsement. Compensation costs related to the credit card agreements are recorded as contra-revenue in card income.

Cardholder Reward Agreements

The Corporation offers reward programs that allow its cardholders to earn points that can be redeemed for a broad range of rewards including cash, travel and gift cards. The Corporation establishes a rewards liability based upon the points earned that are expected to be redeemed and the average cost per point redeemed. The points to be redeemed are estimated based on past redemption behavior, card product type, account transaction activity and other historical card performance. The liability is reduced as the points are redeemed. The estimated cost of the rewards programs is recorded as contra-revenue in card income.

NOTE 2 Derivatives

Derivative Balances

Derivatives are entered into on behalf of customers, for trading, or to support risk management activities. Derivatives used in risk management activities include derivatives that may or may not be designated in qualifying hedge accounting relationships. Derivatives that are not designated in qualifying hedge accounting relationships are referred to as other risk management derivatives. For more information on the Corporation's derivatives and hedging activities, see *Note 1 – Summary of Significant Accounting Principles*. The following tables present derivative instruments included on the Consolidated Balance Sheet in derivative assets and liabilities at December 31, 2016 and 2015. Balances are presented on a gross basis, prior to the application of counterparty and cash collateral netting. Total derivative assets and liabilities are adjusted on an aggregate basis to take into consideration the effects of legally enforceable master netting agreements and have been reduced by the cash collateral received or paid.

		December 31, 2016					
		Gross Derivative Assets			Gross Derivative Liabilities		
(Dollars in billions)	Contract/ Notional (1)	Trading and Other Risk Management Derivatives	Qualifying Accounting Hedges	Total	Trading and Other Risk Management Derivatives	Qualifying Accounting Hedges	Total
Interest rate contracts							
Swaps	$ 16,977.7	$ 385.0	$ 5.9	$ 390.9	$ 386.9	$ 2.0	$ 388.9
Futures and forwards	5,609.5	2.2	—	2.2	2.1	—	2.1
Written options	1,146.2	—	—	—	52.2	—	52.2
Purchased options	1,178.7	53.3	—	53.3	—	—	—
Foreign exchange contracts							
Swaps	1,828.6	54.6	4.2	58.8	58.8	6.2	65.0
Spot, futures and forwards	3,410.7	58.8	1.7	60.5	56.6	0.8	57.4
Written options	356.6	—	—	—	9.4	—	9.4
Purchased options	342.4	8.9	—	8.9	—	—	—
Equity contracts							
Swaps	189.7	3.4	—	3.4	4.0	—	4.0
Futures and forwards	68.7	0.9	—	0.9	0.9	—	0.9
Written options	431.5	—	—	—	21.4	—	21.4
Purchased options	385.5	23.9	—	23.9	—	—	—
Commodity contracts							
Swaps	48.2	2.5	—	2.5	5.1	—	5.1
Futures and forwards	49.1	3.6	—	3.6	0.5	—	0.5
Written options	29.3	—	—	—	1.9	—	1.9
Purchased options	28.9	2.0	—	2.0	—	—	—
Credit derivatives							
Purchased credit derivatives:							
Credit default swaps	604.0	8.1	—	8.1	10.3	—	10.3
Total return swaps/other	21.2	0.4	—	0.4	1.5	—	1.5
Written credit derivatives:							
Credit default swaps	614.4	10.7	—	10.7	7.5	—	7.5
Total return swaps/other	25.4	1.0	—	1.0	0.2	—	0.2
Gross derivative assets/liabilities		$ 619.3	$ 11.8	$ 631.1	$ 619.3	$ 9.0	$ 628.3
Less: Legally enforceable master netting agreements				(545.3)			(545.3)
Less: Cash collateral received/paid				(43.3)			(43.5)
Total derivative assets/liabilities				$ 42.5			$ 39.5

(1) Represents the total contract/notional amount of derivative assets and liabilities outstanding.

		December 31, 2015					
		Gross Derivative Assets			Gross Derivative Liabilities		
(Dollars in billions)	Contract/ Notional [1]	Trading and Other Risk Management Derivatives	Qualifying Accounting Hedges	Total	Trading and Other Risk Management Derivatives	Qualifying Accounting Hedges	Total
Interest rate contracts							
Swaps	$ 21,706.8	$ 439.6	$ 7.4	$ 447.0	$ 440.8	$ 1.2	$ 442.0
Futures and forwards	6,237.6	1.1	—	1.1	1.3	—	1.3
Written options	1,313.8	—	—	—	57.6	—	57.6
Purchased options	1,393.3	58.9	—	58.9	—	—	—
Foreign exchange contracts							
Swaps	2,149.9	49.2	0.9	50.1	52.2	2.8	55.0
Spot, futures and forwards	4,104.3	46.0	1.2	47.2	45.8	0.3	46.1
Written options	467.2	—	—	—	10.6	—	10.6
Purchased options	439.9	10.2	—	10.2	—	—	—
Equity contracts							
Swaps	201.2	3.3	—	3.3	3.8	—	3.8
Futures and forwards	72.8	2.1	—	2.1	1.2	—	1.2
Written options	347.6	—	—	—	21.1	—	21.1
Purchased options	320.3	23.8	—	23.8	—	—	—
Commodity contracts							
Swaps	47.0	4.7	—	4.7	7.1	—	7.1
Futures and forwards	45.6	3.8	—	3.8	0.7	—	0.7
Written options	36.6	—	—	—	4.4	—	4.4
Purchased options	37.4	4.2	—	4.2	—	—	—
Credit derivatives							
Purchased credit derivatives:							
Credit default swaps	928.3	14.4	—	14.4	14.8	—	14.8
Total return swaps/other	26.4	0.2	—	0.2	1.9	—	1.9
Written credit derivatives:							
Credit default swaps	924.1	15.3	—	15.3	13.1	—	13.1
Total return swaps/other	39.7	2.3	—	2.3	0.4	—	0.4
Gross derivative assets/liabilities		$ 679.1	$ 9.5	$ 688.6	$ 676.8	$ 4.3	$ 681.1
Less: Legally enforceable master netting agreements				(596.7)			(596.7)
Less: Cash collateral received/paid				(41.9)			(45.9)
Total derivative assets/liabilities				$ 50.0			$ 38.5

[1] Represents the total contract/notional amount of derivative assets and liabilities outstanding.

Offsetting of Derivatives

The Corporation enters into International Swaps and Derivatives Association, Inc. (ISDA) master netting agreements or similar agreements with substantially all of the Corporation's derivative counterparties. Where legally enforceable, these master netting agreements give the Corporation, in the event of default by the counterparty, the right to liquidate securities held as collateral and to offset receivables and payables with the same counterparty. For purposes of the Consolidated Balance Sheet, the Corporation offsets derivative assets and liabilities and cash collateral held with the same counterparty where it has such a legally enforceable master netting agreement.

The Offsetting of Derivatives table presents derivative instruments included in derivative assets and liabilities on the Consolidated Balance Sheet at December 31, 2016 and 2015 by primary risk (e.g., interest rate risk) and the platform, where applicable, on which these derivatives are transacted. Exchange-traded derivatives include listed options transacted on an exchange. OTC derivatives include bilateral transactions between the Corporation and a particular counterparty. OTC-cleared derivatives include bilateral transactions between the Corporation and a counterparty where the transaction is cleared through a clearinghouse. Balances are presented on a gross basis, prior to the application of counterparty and cash collateral netting. Total gross derivative assets and liabilities are adjusted on an aggregate basis to take into consideration the effects of legally enforceable master netting agreements which includes reducing the balance for counterparty netting and cash collateral received or paid.

Other gross derivative assets and liabilities in the table represent derivatives entered into under master netting agreements where uncertainty exists as to the enforceability of these agreements under bankruptcy laws in some countries or industries and, accordingly, receivables and payables with counterparties in these countries or industries are reported on a gross basis.

Also included in the table is financial instruments collateral related to legally enforceable master netting agreements that represents securities collateral received or pledged and cash and securities collateral held and posted at third-party custodians. These amounts are not offset on the Consolidated Balance Sheet but are shown as a reduction to total derivative assets and liabilities in the table to derive net derivative assets and liabilities.

For more information on offsetting of securities financing agreements, see *Note 10 – Federal Funds Sold or Purchased, Securities Financing Agreements and Short-term Borrowings*.

Offsetting of Derivatives

(Dollars in billions)	December 31, 2016 Derivative Assets	December 31, 2016 Derivative Liabilities	December 31, 2015 Derivative Assets	December 31, 2015 Derivative Liabilities
Interest rate contracts				
Over-the-counter	$ 267.3	$ 258.2	$ 309.3	$ 297.2
Over-the-counter cleared	177.2	182.8	197.0	201.7
Foreign exchange contracts				
Over-the-counter	124.3	126.7	103.2	107.5
Over-the-counter cleared	0.3	0.3	0.1	0.1
Equity contracts				
Over-the-counter	15.6	13.7	16.6	14.0
Exchange-traded	11.4	10.8	10.0	9.2
Commodity contracts				
Over-the-counter	3.7	4.9	7.3	8.9
Exchange-traded	1.1	1.0	1.8	1.8
Over-the-counter cleared	—	—	0.1	0.1
Credit derivatives				
Over-the-counter	15.3	14.7	24.6	22.9
Over-the-counter cleared	4.3	4.3	6.5	6.4
Total gross derivative assets/liabilities, before netting				
Over-the-counter	426.2	418.2	461.0	450.5
Exchange-traded	12.5	11.8	11.8	11.0
Over-the-counter cleared	181.8	187.4	203.7	208.3
Less: Legally enforceable master netting agreements and cash collateral received/paid				
Over-the-counter	(398.2)	(392.6)	(426.6)	(425.7)
Exchange-traded	(8.9)	(8.9)	(8.7)	(8.7)
Over-the-counter cleared	(181.5)	(187.3)	(203.3)	(208.2)
Derivative assets/liabilities, after netting	31.9	28.6	37.9	27.2
Other gross derivative assets/liabilities (1)	10.6	10.9	12.1	11.3
Total derivative assets/liabilities	42.5	39.5	50.0	38.5
Less: Financial instruments collateral (2)	(13.5)	(10.5)	(13.9)	(6.5)
Total net derivative assets/liabilities	$ 29.0	$ 29.0	$ 36.1	$ 32.0

(1) Consists of derivatives entered into under master netting agreements where the enforceability of these agreements is uncertain.
(2) These amounts are limited to the derivative asset/liability balance and, accordingly, do not include excess collateral received/pledged.

ALM and Risk Management Derivatives

The Corporation's ALM and risk management activities include the use of derivatives to mitigate risk to the Corporation including derivatives designated in qualifying hedge accounting relationships and derivatives used in other risk management activities. Interest rate, foreign exchange, equity, commodity and credit contracts are utilized in the Corporation's ALM and risk management activities.

The Corporation maintains an overall interest rate risk management strategy that incorporates the use of interest rate contracts, which are generally non-leveraged generic interest rate and basis swaps, options, futures and forwards, to minimize significant fluctuations in earnings caused by interest rate volatility. The Corporation's goal is to manage interest rate sensitivity and volatility so that movements in interest rates do not significantly adversely affect earnings or capital. As a result of interest rate fluctuations, hedged fixed-rate assets and liabilities appreciate or depreciate in fair value. Gains or losses on the derivative instruments that are linked to the hedged fixed-rate assets and liabilities are expected to substantially offset this unrealized appreciation or depreciation.

Market risk, including interest rate risk, can be substantial in the mortgage business. Market risk in the mortgage business is the risk that values of mortgage assets or revenues will be adversely affected by changes in market conditions such as interest rate movements. To mitigate the interest rate risk in mortgage banking production income, the Corporation utilizes forward loan sale commitments and other derivative instruments, including purchased options, and certain debt securities. The Corporation also utilizes derivatives such as interest rate options, interest rate swaps, forward settlement contracts and eurodollar futures to hedge certain market risks of MSRs. For more information on MSRs, see *Note 23 – Mortgage Servicing Rights*.

The Corporation uses foreign exchange contracts to manage the foreign exchange risk associated with certain foreign currency-denominated assets and liabilities, as well as the Corporation's investments in non-U.S. subsidiaries. Foreign exchange contracts, which include spot and forward contracts, represent agreements to exchange the currency of one country for the currency of another country at an agreed-upon price on an agreed-upon settlement date. Exposure to loss on these contracts will increase or decrease over their respective lives as currency exchange and interest rates fluctuate.

The Corporation enters into derivative commodity contracts such as futures, swaps, options and forwards as well as non-derivative commodity contracts to provide price risk management services to customers or to manage price risk associated with its physical and financial commodity positions. The non-derivative commodity contracts and physical inventories of commodities expose the Corporation to earnings volatility. Fair value accounting hedges provide a method to mitigate a portion of this earnings volatility.

The Corporation purchases credit derivatives to manage credit risk related to certain funded and unfunded credit exposures. Credit derivatives include credit default swaps (CDS), total return swaps and swaptions. These derivatives are recorded on the Consolidated Balance Sheet at fair value with changes in fair value recorded in other income.

Derivatives Designated as Accounting Hedges

The Corporation uses various types of interest rate, commodity and foreign exchange derivative contracts to protect against changes in the fair value of its assets and liabilities due to fluctuations in interest rates, commodity prices and exchange rates (fair value hedges). The Corporation also uses these types of contracts and equity derivatives to protect against changes in the cash flows of its assets and liabilities, and other forecasted transactions (cash flow hedges). The Corporation hedges its net investment in consolidated non-U.S. operations determined to have functional currencies other than the U.S. Dollar using forward exchange contracts and cross-currency basis swaps, and by issuing foreign currency-denominated debt (net investment hedges).

Fair Value Hedges

The table below summarizes information related to fair value hedges for 2016, 2015 and 2014, including hedges of interest rate risk on long-term debt that were acquired as part of a business combination and redesignated at that time. At redesignation, the fair value of the derivatives was positive. As the derivatives mature, the fair value will approach zero. As a result, ineffectiveness will occur and the fair value changes in the derivatives and the long-term debt being hedged may be directionally the same in certain scenarios. Based on a regression analysis, the derivatives continue to be highly effective at offsetting changes in the fair value of the long-term debt attributable to interest rate risk.

Derivatives Designated as Fair Value Hedges

Gains (Losses)		**2016**	
(Dollars in millions)	**Derivative**	**Hedged Item**	**Hedge Ineffectiveness**
Interest rate risk on long-term debt [1]	**$ (1,488)**	**$ 646**	**$ (842)**
Interest rate and foreign currency risk on long-term debt [1]	**(941)**	**944**	**3**
Interest rate risk on available-for-sale securities [2]	**227**	**(286)**	**(59)**
Price risk on commodity inventory [3]	**(17)**	**17**	**—**
Total	**$ (2,219)**	**$ 1,321**	**$ (898)**
		2015	
Interest rate risk on long-term debt [1]	$ (718)	$ (77)	$ (795)
Interest rate and foreign currency risk on long-term debt [1]	(1,898)	1,812	(86)
Interest rate risk on available-for-sale securities [2]	105	(127)	(22)
Price risk on commodity inventory [3]	15	(11)	4
Total	$ (2,496)	$ 1,597	$ (899)
		2014	
Interest rate risk on long-term debt [1]	$ 2,144	$ (2,935)	$ (791)
Interest rate and foreign currency risk on long-term debt [1]	(2,212)	2,120	(92)
Interest rate risk on available-for-sale securities [2]	(35)	3	(32)
Price risk on commodity inventory [3]	21	(15)	6
Total	$ (82)	$ (827)	$ (909)

(1) Amounts are recorded in interest expense on long-term debt and in other income.
(2) Amounts are recorded in interest income on debt securities.
(3) Amounts relating to commodity inventory are recorded in trading account profits.

Cash Flow and Net Investment Hedges

The table below summarizes certain information related to cash flow hedges and net investment hedges for 2016, 2015 and 2014. Of the $895 million after-tax net loss ($1.4 billion on a pretax basis) on derivatives in accumulated OCI for 2016, $128 million after-tax ($206 million on a pretax basis) is expected to be reclassified into earnings in the next 12 months. These net losses reclassified into earnings are expected to primarily reduce net interest income related to the respective hedged items. Amounts related to price risk on restricted stock awards reclassified from accumulated OCI are recorded in personnel expense. For terminated cash flow hedges, the time period over which substantially all of the forecasted transactions are hedged is approximately seven years, with a maximum length of time for certain forecasted transactions of 20 years.

Derivatives Designated as Cash Flow and Net Investment Hedges

(Dollars in millions, amounts pretax)	Gains (Losses) Recognized in Accumulated OCI on Derivatives	Gains (Losses) in Income Reclassified from Accumulated OCI	Hedge Ineffectiveness and Amounts Excluded from Effectiveness Testing [1]
	2016		
Cash flow hedges			
Interest rate risk on variable-rate portfolios	**$ (340)**	**$ (553)**	**$ 1**
Price risk on restricted stock awards [2]	**41**	**(32)**	**—**
Total	**$ (299)**	**$ (585)**	**$ 1**
Net investment hedges			
Foreign exchange risk	**$ 1,636**	**$ 3**	**$ (325)**
	2015		
Cash flow hedges			
Interest rate risk on variable-rate portfolios	$ 95	$ (974)	$ (2)
Price risk on restricted stock awards [2]	(40)	91	—
Total	$ 55	$ (883)	$ (2)
Net investment hedges			
Foreign exchange risk	$ 3,010	$ 153	$ (298)
	2014		
Cash flow hedges			
Interest rate risk on variable-rate portfolios	$ 68	$ (1,119)	$ (4)
Price risk on restricted stock awards [2]	127	359	—
Total	$ 195	$ (760)	$ (4)
Net investment hedges			
Foreign exchange risk	$ 3,021	$ 21	$ (503)

(1) Amounts related to cash flow hedges represent hedge ineffectiveness and amounts related to net investment hedges represent amounts excluded from effectiveness testing.
(2) The hedge gain (loss) recognized in accumulated OCI is primarily related to the change in the Corporation's stock price for the period.

Other Risk Management Derivatives

Other risk management derivatives are used by the Corporation to reduce certain risk exposures. These derivatives are not qualifying accounting hedges because either they did not qualify for or were not designated as accounting hedges. The table below presents gains (losses) on these derivatives for 2016, 2015 and 2014. These gains (losses) are largely offset by the income or expense that is recorded on the hedged item.

Other Risk Management Derivatives

Gains (Losses)

(Dollars in millions)	**2016**	2015	2014
Interest rate risk on mortgage banking income [1]	**$ 461**	$ 254	$ 1,017
Credit risk on loans [2]	**(107)**	(22)	16
Interest rate and foreign currency risk on ALM activities [3]	**(754)**	(222)	(3,683)
Price risk on restricted stock awards [4]	**9**	(267)	600
Other	**5**	11	(9)

(1) Net gains (losses) on these derivatives are recorded in mortgage banking income as they are used to mitigate the interest rate risk related to MSRs, IRLCs and mortgage loans held-for-sale, all of which are measured at fair value with changes in fair value recorded in mortgage banking income. The net gains on IRLCs related to the origination of mortgage loans that are held-for-sale, which are not included in the table but are considered derivative instruments, were $533 million, $714 million and $776 million for 2016, 2015 and 2014, respectively.
(2) Primarily related to derivatives that are economic hedges of credit risk on loans. Net gains (losses) on these derivatives are recorded in other income.
(3) Primarily related to hedges of debt securities carried at fair value and hedges of foreign currency-denominated debt. Gains (losses) on these derivatives and the related hedged items are recorded in other income.
(4) Gains (losses) on these derivatives are recorded in personnel expense.

Transfers of Financial Assets with Risk Retained through Derivatives

The Corporation enters into certain transactions involving the transfer of financial assets that are accounted for as sales where substantially all of the economic exposure to the transferred financial assets is retained through derivatives (e.g., interest rate and/or credit), but the Corporation does not retain control over the assets transferred. Through December 31, 2016 and 2015, the Corporation transferred $6.6 billion and $7.9 billion of primarily non-U.S. government-guaranteed MBS to a third-party trust and received gross cash proceeds of $6.6 billion and $7.9 billion at the transfer dates. At December 31, 2016 and 2015, the fair value of these securities was $6.3 billion and $7.2 billion. Derivative assets of $43 million and $24 million and liabilities of $10 million and $29 million were recorded at December 31, 2016 and 2015, and are included in credit derivatives in the derivative instruments table on page 130.

Sales and Trading Revenue

The Corporation enters into trading derivatives to facilitate client transactions and to manage risk exposures arising from trading account assets and liabilities. It is the Corporation's policy to include these derivative instruments in its trading activities which include derivatives and non-derivative cash instruments. The resulting risk from these derivatives is managed on a portfolio basis as part of the Corporation's *Global Markets* business segment. The related sales and trading revenue generated within *Global Markets* is recorded in various income statement line items including trading account profits and net interest income as well as other revenue categories.

Sales and trading revenue includes changes in the fair value and realized gains and losses on the sales of trading and other assets, net interest income, and fees primarily from commissions on equity securities. Revenue is generated by the difference in the client price for an instrument and the price at which the trading desk can execute the trade in the dealer market. For equity securities, commissions related to purchases and sales are recorded in the "Other" column in the Sales and Trading Revenue table. Changes in the fair value of these securities are included in trading account profits. For debt securities, revenue, with the exception of interest associated with the debt securities, is typically included in trading account profits. Unlike commissions for equity securities, the initial revenue related to broker-dealer services for debt securities is typically included in the pricing of the instrument rather than being charged through separate fee arrangements. Therefore, this revenue is recorded in trading account profits as part of the initial mark to fair value. For derivatives, the majority of revenue is included in trading account profits. In transactions where the Corporation acts as agent, which include exchange-traded futures and options, fees are recorded in other income.

The following table, which includes both derivatives and non-derivative cash instruments, identifies the amounts in the respective income statement line items attributable to the Corporation's sales and trading revenue in *Global Markets*, categorized by primary risk, for 2016, 2015 and 2014. The difference between total trading account profits in the following table and in the Consolidated Statement of Income represents trading activities in business segments other than *Global Markets*. This table includes debit valuation and funding valuation adjustment (DVA/FVA) gains (losses). *Global Markets* results in *Note 24 – Business Segment Information* are presented on a fully taxable-equivalent (FTE) basis. The following table is not presented on an FTE basis.

The results for 2016 and 2015 were impacted by the adoption of new accounting guidance in 2015 on recognition and measurement of financial instruments. As such, amounts in the "Other" column for 2016 and 2015 exclude unrealized DVA resulting from changes in the Corporation's own credit spreads on liabilities accounted for under the fair value option. Amounts for 2014 include such amounts. For more information on the implementation of new accounting guidance, see *Note 1 – Summary of Significant Accounting Principles*.

Sales and Trading Revenue

(Dollars in millions)	Trading Account Profits	Net Interest Income	Other (1)	Total
		2016		
Interest rate risk	**$ 1,608**	**$ 1,397**	**$ 304**	**$ 3,309**
Foreign exchange risk	**1,360**	**(10)**	**(154)**	**1,196**
Equity risk	**1,915**	**15**	**2,072**	**4,002**
Credit risk	**1,258**	**2,587**	**425**	**4,270**
Other risk	**409**	**(20)**	**40**	**429**
Total sales and trading revenue	**$ 6,550**	**$ 3,969**	**$ 2,687**	**$ 13,206**
		2015		
Interest rate risk	$ 1,300	$ 1,307	$ (263)	$ 2,344
Foreign exchange risk	1,322	(10)	(117)	1,195
Equity risk	2,115	56	2,146	4,317
Credit risk	910	2,361	452	3,723
Other risk	462	(81)	62	443
Total sales and trading revenue	$ 6,109	$ 3,633	$ 2,280	$ 12,022
		2014		
Interest rate risk	$ 983	$ 946	$ 466	$ 2,395
Foreign exchange risk	1,177	7	(128)	1,056
Equity risk	1,954	(79)	2,307	4,182
Credit risk	1,404	2,563	617	4,584
Other risk	508	(123)	108	493
Total sales and trading revenue	$ 6,026	$ 3,314	$ 3,370	$ 12,710

(1) Represents amounts in investment and brokerage services and other income that are recorded in *Global Markets* and included in the definition of sales and trading revenue. Includes investment and brokerage services revenue of $2.1 billion, $2.2 billion and $2.2 billion for 2016, 2015 and 2014, respectively.

Credit Derivatives

The Corporation enters into credit derivatives primarily to facilitate client transactions and to manage credit risk exposures. Credit derivatives derive value based on an underlying third-party referenced obligation or a portfolio of referenced obligations and generally require the Corporation, as the seller of credit protection, to make payments to a buyer upon the occurrence of a pre-defined credit event. Such credit events generally include bankruptcy of the referenced credit entity and failure to pay under the obligation, as well as acceleration of indebtedness and payment repudiation or moratorium. For credit derivatives based on a portfolio of referenced credits or credit indices, the Corporation may not be required to make payment until a specified amount of loss has occurred and/or may only be required to make payment up to a specified amount.

Credit derivative instruments where the Corporation is the seller of credit protection and their expiration at December 31, 2016 and 2015 are summarized in the following table. These instruments are classified as investment and non-investment grade based on the credit quality of the underlying referenced obligation. The Corporation considers ratings of BBB- or higher as investment grade. Non-investment grade includes non-rated credit derivative instruments. The Corporation discloses internal categorizations of investment grade and non-investment grade consistent with how risk is managed for these instruments.

Credit Derivative Instruments

	December 31, 2016				
	Carrying Value				
(Dollars in millions)	Less than One Year	One to Three Years	Three to Five Years	Over Five Years	Total
Credit default swaps:					
Investment grade	$ 10	$ 64	$ 535	$ 783	$ 1,392
Non-investment grade	771	1,053	908	3,339	6,071
Total	781	1,117	1,443	4,122	7,463
Total return swaps/other:					
Investment grade	16	—	—	—	16
Non-investment grade	127	10	2	1	140
Total	143	10	2	1	156
Total credit derivatives	$ 924	$ 1,127	$ 1,445	$ 4,123	$ 7,619
Credit-related notes:					
Investment grade	$ —	$ 12	$ 542	$ 1,423	$ 1,977
Non-investment grade	70	22	60	1,318	1,470
Total credit-related notes	$ 70	$ 34	$ 602	$ 2,741	$ 3,447
	Maximum Payout/Notional				
Credit default swaps:					
Investment grade	$ 121,083	$ 143,200	$ 116,540	$ 21,905	$ 402,728
Non-investment grade	84,755	67,160	41,001	18,711	211,627
Total	205,838	210,360	157,541	40,616	614,355
Total return swaps/other:					
Investment grade	12,792	—	—	—	12,792
Non-investment grade	6,638	5,127	589	208	12,562
Total	19,430	5,127	589	208	25,354
Total credit derivatives	$ 225,268	$ 215,487	$ 158,130	$ 40,824	$ 639,709

	December 31, 2015				
	Carrying Value				
Credit default swaps:					
Investment grade	$ 84	$ 481	$ 2,203	$ 680	$ 3,448
Non-investment grade	672	3,035	2,386	3,583	9,676
Total	756	3,516	4,589	4,263	13,124
Total return swaps/other:					
Investment grade	5	—	—	—	5
Non-investment grade	171	236	8	2	417
Total	176	236	8	2	422
Total credit derivatives	$ 932	$ 3,752	$ 4,597	$ 4,265	$ 13,546
Credit-related notes:					
Investment grade	$ 267	$ 57	$ 444	$ 2,203	$ 2,971
Non-investment grade	61	118	117	1,264	1,560
Total credit-related notes	$ 328	$ 175	$ 561	$ 3,467	$ 4,531
	Maximum Payout/Notional				
Credit default swaps:					
Investment grade	$ 149,177	$ 280,658	$ 178,990	$ 26,352	$ 635,177
Non-investment grade	81,596	135,850	53,299	18,221	288,966
Total	230,773	416,508	232,289	44,573	924,143
Total return swaps/other:					
Investment grade	9,758	—	—	—	9,758
Non-investment grade	20,917	6,989	1,371	623	29,900
Total	30,675	6,989	1,371	623	39,658
Total credit derivatives	$ 261,448	$ 423,497	$ 233,660	$ 45,196	$ 963,801

The notional amount represents the maximum amount payable by the Corporation for most credit derivatives. However, the Corporation does not monitor its exposure to credit derivatives based solely on the notional amount because this measure does not take into consideration the probability of occurrence. As such, the notional amount is not a reliable indicator of the Corporation's exposure to these contracts. Instead, a risk framework is used to define risk tolerances and establish limits to help ensure that certain credit risk-related losses occur within acceptable, predefined limits.

The Corporation manages its market risk exposure to credit derivatives by entering into a variety of offsetting derivative contracts and security positions. For example, in certain instances, the Corporation may purchase credit protection with identical underlying referenced names to offset its exposure. The carrying value and notional amount of written credit derivatives for which the Corporation held purchased credit derivatives with identical underlying referenced names and terms were $4.7 billion and $490.7 billion at December 31, 2016, and $8.2 billion and $706.0 billion at December 31, 2015.

Credit-related notes in the table on page 137 include investments in securities issued by CDO, collateralized loan obligation (CLO) and credit-linked note vehicles. These instruments are primarily classified as trading securities. The carrying value of these instruments equals the Corporation's maximum exposure to loss. The Corporation is not obligated to make any payments to the entities under the terms of the securities owned.

Credit-related Contingent Features and Collateral

The Corporation executes the majority of its derivative contracts in the OTC market with large, international financial institutions, including broker-dealers and, to a lesser degree, with a variety of non-financial companies. A significant majority of the derivative transactions are executed on a daily margin basis. Therefore, events such as a credit rating downgrade (depending on the ultimate rating level) or a breach of credit covenants would typically require an increase in the amount of collateral required of the counterparty, where applicable, and/or allow the Corporation to take additional protective measures such as early termination of all trades. Further, as previously discussed on page 130, the Corporation enters into legally enforceable master netting agreements which reduce risk by permitting the closeout and netting of transactions with the same counterparty upon the occurrence of certain events.

A majority of the Corporation's derivative contracts contain credit risk-related contingent features, primarily in the form of ISDA master netting agreements and credit support documentation that enhance the creditworthiness of these instruments compared to other obligations of the respective counterparty with whom the Corporation has transacted. These contingent features may be for the benefit of the Corporation as well as its counterparties with respect to changes in the Corporation's creditworthiness and the mark-to-market exposure under the derivative transactions. At December 31, 2016 and 2015, the Corporation held cash and securities collateral of $85.5 billion and $78.9 billion, and posted cash and securities collateral of $71.1 billion and $62.7 billion in the normal course of business under derivative agreements. This excludes cross-product margining agreements where clients are permitted to margin on a net basis for both derivative and secured financing arrangements.

In connection with certain OTC derivative contracts and other trading agreements, the Corporation can be required to provide additional collateral or to terminate transactions with certain counterparties in the event of a downgrade of the senior debt ratings of the Corporation or certain subsidiaries. The amount of additional collateral required depends on the contract and is usually a fixed incremental amount and/or the market value of the exposure.

At December 31, 2016, the amount of collateral, calculated based on the terms of the contracts, that the Corporation and certain subsidiaries could be required to post to counterparties but had not yet posted to counterparties was approximately $1.8 billion, including $1.0 billion for Bank of America, N.A. (BANA).

Some counterparties are currently able to unilaterally terminate certain contracts, or the Corporation or certain subsidiaries may be required to take other action such as find a suitable replacement or obtain a guarantee. At December 31, 2016 and 2015, the liability recorded for these derivative contracts was $46 million and $69 million.

The table below presents the amount of additional collateral that would have been contractually required by derivative contracts and other trading agreements at December 31, 2016 if the rating agencies had downgraded their long-term senior debt ratings for the Corporation or certain subsidiaries by one incremental notch and by an additional second incremental notch.

Additional Collateral Required to be Posted Upon Downgrade

	December 31, 2016	
(Dollars in millions)	One incremental notch	Second incremental notch
Bank of America Corporation	$ 498	$ 866
Bank of America, N.A. and subsidiaries (1)	310	492

(1) Included in Bank of America Corporation collateral requirements in this table.

The table below presents the derivative liabilities that would be subject to unilateral termination by counterparties and the amounts of collateral that would have been contractually required at December 31, 2016 if the long-term senior debt ratings for the Corporation or certain subsidiaries had been lower by one incremental notch and by an additional second incremental notch.

Derivative Liabilities Subject to Unilateral Termination Upon Downgrade

	December 31, 2016	
(Dollars in millions)	One incremental notch	Second incremental notch
Derivative liabilities	$ 691	$ 1,324
Collateral posted	459	1,026

Valuation Adjustments on Derivatives

The Corporation records credit risk valuation adjustments on derivatives in order to properly reflect the credit quality of the counterparties and its own credit quality. The Corporation calculates valuation adjustments on derivatives based on a modeled expected exposure that incorporates current market risk factors. The exposure also takes into consideration credit mitigants such as enforceable master netting agreements and collateral. CDS spread data is used to estimate the default probabilities and severities that are applied to the exposures. Where no observable credit default data is available for counterparties, the Corporation uses proxies and other market data to estimate default probabilities and severity.

Valuation adjustments on derivatives are affected by changes in market spreads, non-credit related market factors such as interest rate and currency changes that affect the expected exposure, and other factors like changes in collateral arrangements and partial payments. Credit spreads and non-credit factors can move independently. For example, for an interest rate swap, changes in interest rates may increase the expected exposure, which would increase the counterparty credit valuation adjustment (CVA). Independently, counterparty credit spreads may tighten, which would result in an offsetting decrease to CVA.

The Corporation early adopted, retrospective to January 1, 2015, the provision of new accounting guidance issued in January 2016 that requires the Corporation to record unrealized DVA resulting from changes in the Corporation's own credit spreads on liabilities accounted for under the fair value option in accumulated OCI. This new accounting guidance had no impact on the accounting for DVA on derivatives. For additional information, see New Accounting Pronouncements in *Note 1 – Summary of Significant Accounting Principles*.

The Corporation enters into risk management activities to offset market driven exposures. The Corporation often hedges the counterparty spread risk in CVA with CDS. The Corporation hedges other market risks in both CVA and DVA primarily with currency and interest rate swaps. In certain instances, the net-of-hedge amounts in the table below move in the same direction as the gross amount or may move in the opposite direction. This movement is a consequence of the complex interaction of the risks being hedged resulting in limitations in the ability to perfectly hedge all of the market exposures at all times.

The table below presents CVA, DVA and FVA gains (losses) on derivatives, which are recorded in trading account profits, on a gross and net of hedge basis for 2016, 2015 and 2014. CVA gains reduce the cumulative CVA thereby increasing the derivative assets balance. DVA gains increase the cumulative DVA thereby decreasing the derivative liabilities balance. CVA and DVA losses have the opposite impact. FVA gains related to derivative assets reduce the cumulative FVA thereby increasing the derivative assets balance. FVA gains related to derivative liabilities increase the cumulative FVA thereby decreasing the derivative liabilities balance.

Valuation Adjustments on Derivatives

Gains (Losses)

	2016		2015		2014	
(Dollars in millions)	**Gross**	**Net**	Gross	Net	Gross	Net
Derivative assets (CVA) [(1)]	**$ 374**	**$ 214**	$ 255	$ 227	$ (22)	$ 191
Derivative assets/liabilities (FVA) [(1)]	**186**	**102**	16	16	(497)	(497)
Derivative liabilities (DVA) [(1)]	**24**	**(141)**	(18)	(153)	(28)	(150)

(1) At December 31, 2016, 2015 and 2014, cumulative CVA reduced the derivative assets balance by $1.0 billion, $1.4 billion and $1.6 billion, cumulative FVA reduced the net derivatives balance by $296 million, $481 million and $497 million, and cumulative DVA reduced the derivative liabilities balance by $774 million, $750 million and $769 million, respectively.

NOTE 3 Securities

The table below presents the amortized cost, gross unrealized gains and losses, and fair value of AFS debt securities, other debt securities carried at fair value, HTM debt securities and AFS marketable equity securities at December 31, 2016 and 2015.

Debt Securities and Available-for-Sale Marketable Equity Securities

	December 31, 2016			
(Dollars in millions)	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
Available-for-sale debt securities				
Mortgage-backed securities:				
Agency	$ 190,809	$ 640	$ (1,963)	$ 189,486
Agency-collateralized mortgage obligations	8,296	85	(51)	8,330
Commercial	12,594	21	(293)	12,322
Non-agency residential (1)	1,863	181	(31)	2,013
Total mortgage-backed securities	213,562	927	(2,338)	212,151
U.S. Treasury and agency securities	48,800	204	(752)	48,252
Non-U.S. securities	6,372	13	(3)	6,382
Other taxable securities, substantially all asset-backed securities	10,573	64	(23)	10,614
Total taxable securities	279,307	1,208	(3,116)	277,399
Tax-exempt securities	17,272	72	(184)	17,160
Total available-for-sale debt securities	296,579	1,280	(3,300)	294,559
Less: Available-for-sale securities of business held for sale (2)	(619)	—	—	(619)
Other debt securities carried at fair value	19,748	121	(149)	19,720
Total debt securities carried at fair value	315,708	1,401	(3,449)	313,660
Held-to-maturity debt securities, substantially all U.S. agency mortgage-backed securities	117,071	248	(2,034)	115,285
Total debt securities (3)	$ 432,779	$ 1,649	$ (5,483)	$ 428,945
Available-for-sale marketable equity securities (4)	$ 325	$ 51	$ (1)	$ 375
	December 31, 2015			
Available-for-sale debt securities				
Mortgage-backed securities:				
Agency	$ 229,356	$ 1,061	$ (1,470)	$ 228,947
Agency-collateralized mortgage obligations	10,892	148	(55)	10,985
Commercial	7,200	30	(65)	7,165
Non-agency residential (1)	3,031	219	(71)	3,179
Total mortgage-backed securities	250,479	1,458	(1,661)	250,276
U.S. Treasury and agency securities	25,075	211	(9)	25,277
Non-U.S. securities	5,743	27	(3)	5,767
Other taxable securities, substantially all asset-backed securities	10,475	54	(84)	10,445
Total taxable securities	291,772	1,750	(1,757)	291,765
Tax-exempt securities	13,978	63	(33)	14,008
Total available-for-sale debt securities	305,750	1,813	(1,790)	305,773
Other debt securities carried at fair value	16,678	103	(174)	16,607
Total debt securities carried at fair value	322,428	1,916	(1,964)	322,380
Held-to-maturity debt securities, substantially all U.S. agency mortgage-backed securities	84,508	330	(792)	84,046
Total debt securities (3)	$ 406,936	$ 2,246	$ (2,756)	$ 406,426
Available-for-sale marketable equity securities (4)	$ 326	$ 99	$ —	$ 425

(1) At December 31, 2016 and 2015, the underlying collateral type included approximately 60 percent and 71 percent prime, 19 percent and 15 percent Alt-A, and 21 percent and 14 percent subprime.
(2) Represents AFS debt securities of business held for sale of which there were no unrealized gains or losses at December 31, 2016.
(3) The Corporation had debt securities from FNMA and FHLMC that each exceeded 10 percent of shareholders' equity, with an amortized cost of $156.4 billion and $48.7 billion, and a fair value of $154.4 billion and $48.3 billion at December 31, 2016. Debt securities from FNMA and FHLMC that exceeded 10 percent of shareholders' equity had an amortized cost of $145.8 billion and $53.3 billion, and a fair value of $145.5 billion and $53.2 billion at December 31, 2015.
(4) Classified in other assets on the Consolidated Balance Sheet.

At December 31, 2016, the accumulated net unrealized loss on AFS debt securities included in accumulated OCI was $1.3 billion, net of the related income tax benefit of $721 million. At December 31, 2016 and 2015, the Corporation had nonperforming AFS debt securities of $121 million and $188 million.

The following table presents the components of other debt securities carried at fair value where the changes in fair value are reported in other income. In 2016, the Corporation recorded unrealized mark-to-market net gains of $51 million and realized net losses of $128 million, compared to unrealized mark-to-market net gains of $62 million and realized net losses of $324 million in 2015. These amounts exclude hedge results.

Other Debt Securities Carried at Fair Value

(Dollars in millions)	December 31 2016	2015
Mortgage-backed securities:		
Agency-collateralized mortgage obligations	$ 5	$ 7
Non-agency residential	3,139	3,490
Total mortgage-backed securities	3,144	3,497
Non-U.S. securities [1]	16,336	12,843
Other taxable securities, substantially all asset-backed securities	240	267
Total	$ 19,720	$ 16,607

(1) These securities are primarily used to satisfy certain international regulatory liquidity requirements.

The gross realized gains and losses on sales of AFS debt securities for 2016, 2015 and 2014 are presented in the following table.

Gains and Losses on Sales of AFS Debt Securities

(Dollars in millions)	2016	2015	2014
Gross gains	$ 520	$ 1,174	$ 1,504
Gross losses	(30)	(36)	(23)
Net gains on sales of AFS debt securities	$ 490	$ 1,138	$ 1,481
Income tax expense attributable to realized net gains on sales of AFS debt securities	$ 186	$ 432	$ 563

The table below presents the fair value and the associated gross unrealized losses on AFS debt securities and whether these securities have had gross unrealized losses for less than 12 months or for 12 months or longer at December 31, 2016 and 2015.

Temporarily Impaired and Other-than-temporarily Impaired AFS Debt Securities

	December 31, 2016					
	Less than Twelve Months		Twelve Months or Longer		Total	
(Dollars in millions)	Fair Value	Gross Unrealized Losses	Fair Value	Gross Unrealized Losses	Fair Value	Gross Unrealized Losses
Temporarily impaired AFS debt securities						
Mortgage-backed securities:						
Agency	$ 135,210	$ (1,846)	$ 3,770	$ (117)	$ 138,980	$ (1,963)
Agency-collateralized mortgage obligations	3,229	(25)	1,028	(26)	4,257	(51)
Commercial	9,018	(293)	—	—	9,018	(293)
Non-agency residential	212	(1)	204	(13)	416	(14)
Total mortgage-backed securities	147,669	(2,165)	5,002	(156)	152,671	(2,321)
U.S. Treasury and agency securities	28,462	(752)	—	—	28,462	(752)
Non-U.S. securities	52	(1)	142	(2)	194	(3)
Other taxable securities, substantially all asset-backed securities	762	(5)	1,438	(18)	2,200	(23)
Total taxable securities	176,945	(2,923)	6,582	(176)	183,527	(3,099)
Tax-exempt securities	4,782	(148)	1,873	(36)	6,655	(184)
Total temporarily impaired AFS debt securities	181,727	(3,071)	8,455	(212)	190,182	(3,283)
Other-than-temporarily impaired AFS debt securities [1]						
Non-agency residential mortgage-backed securities	94	(1)	401	(16)	495	(17)
Total temporarily impaired and other-than-temporarily impaired AFS debt securities	$ 181,821	$ (3,072)	$ 8,856	$ (228)	$ 190,677	$ (3,300)
	December 31, 2015					
Temporarily impaired AFS debt securities						
Mortgage-backed securities:						
Agency	$ 115,502	$ (1,082)	$ 13,083	$ (388)	$ 128,585	$ (1,470)
Agency-collateralized mortgage obligations	2,536	(19)	1,212	(36)	3,748	(55)
Commercial	4,587	(65)	—	—	4,587	(65)
Non-agency residential	553	(5)	723	(33)	1,276	(38)
Total mortgage-backed securities	123,178	(1,171)	15,018	(457)	138,196	(1,628)
U.S. Treasury and agency securities	1,172	(5)	190	(4)	1,362	(9)
Non-U.S. securities	—	—	134	(3)	134	(3)
Other taxable securities, substantially all asset-backed securities	4,936	(67)	869	(17)	5,805	(84)
Total taxable securities	129,286	(1,243)	16,211	(481)	145,497	(1,724)
Tax-exempt securities	4,400	(12)	1,877	(21)	6,277	(33)
Total temporarily impaired AFS debt securities	133,686	(1,255)	18,088	(502)	151,774	(1,757)
Other-than-temporarily impaired AFS debt securities [1]						
Non-agency residential mortgage-backed securities	481	(19)	98	(14)	579	(33)
Total temporarily impaired and other-than-temporarily impaired AFS debt securities	$ 134,167	$ (1,274)	$ 18,186	$ (516)	$ 152,353	$ (1,790)

(1) Includes OTTI AFS debt securities on which an OTTI loss, primarily related to changes in interest rates, remains in accumulated OCI.

The Corporation recorded OTTI losses on AFS debt securities in 2016, 2015 and 2014 as presented in the following table. Substantially all OTTI losses in 2016, 2015 and 2014 consisted of credit losses on non-agency residential mortgage-backed securities (RMBS) and were recorded in other income in the Consolidated Statement of Income.

Net Credit-related Impairment Losses Recognized in Earnings

(Dollars in millions)	2016	2015	2014
Total OTTI losses	$ (31)	$ (111)	$ (30)
Less: non-credit portion of total OTTI losses recognized in OCI	12	30	14
Net credit-related impairment losses recognized in earnings	**$ (19)**	$ (81)	$ (16)

The table below presents a rollforward of the credit losses recognized in earnings in 2016, 2015 and 2014 on AFS debt securities that the Corporation does not have the intent to sell or will not more-likely-than-not be required to sell.

Rollforward of OTTI Credit Losses Recognized

(Dollars in millions)	2016	2015	2014
Balance, January 1	**$ 266**	$ 200	$ 184
Additions for credit losses recognized on AFS debt securities that had no previous impairment losses	**2**	52	14
Additions for credit losses recognized on AFS debt securities that had previously incurred impairment losses	**17**	29	2
Reductions for AFS debt securities matured, sold or intended to be sold	**(32)**	(15)	—
Balance, December 31	**$ 253**	$ 266	$ 200

The Corporation estimates the portion of a loss on a security that is attributable to credit using a discounted cash flow model and estimates the expected cash flows of the underlying collateral using internal credit, interest rate and prepayment risk models that incorporate management's best estimate of current key assumptions such as default rates, loss severity and prepayment rates. Assumptions used for the underlying loans that support the MBS can vary widely from loan to loan and are influenced by such factors as loan interest rate, geographic location of the borrower, borrower characteristics and collateral type. Based on these assumptions, the Corporation then determines how the underlying collateral cash flows will be distributed to each MBS issued from the applicable special purpose entity. Expected principal and interest cash flows on an impaired AFS debt security are discounted using the effective yield of each individual impaired AFS debt security.

Significant assumptions used in estimating the expected cash flows for measuring credit losses on non-agency RMBS were as follows at December 31, 2016.

Significant Assumptions

		Range (1)	
	Weighted-average	10th Percentile (2)	90th Percentile (2)
Prepayment speed	13.8%	4.6%	27.0%
Loss severity	20.1	8.8	36.5
Life default rate	20.4	0.7	77.4

(1) Represents the range of inputs/assumptions based upon the underlying collateral.
(2) The value of a variable below which the indicated percentile of observations will fall.

Annual constant prepayment speed and loss severity rates are projected considering collateral characteristics such as loan-to-value (LTV), creditworthiness of borrowers as measured using Fair Isaac Corporation (FICO) scores, and geographic concentrations. The weighted-average severity by collateral type was 17.0 percent for prime, 18.8 percent for Alt-A and 30.4 percent for subprime at December 31, 2016. Additionally, default rates are projected by considering collateral characteristics including, but not limited to, LTV, FICO score and geographic concentration. Weighted-average life default rates by collateral type were 13.9 percent for prime, 21.7 percent for Alt-A and 20.9 percent for subprime at December 31, 2016.

The remaining contractual maturity distribution and yields of the Corporation's debt securities carried at fair value and HTM debt securities at December 31, 2016 are summarized in the table below. Actual duration and yields may differ as prepayments on the loans underlying the mortgages or other ABS are passed through to the Corporation.

Maturities of Debt Securities Carried at Fair Value and Held-to-maturity Debt Securities

	December 31, 2016									
	Due in One Year or Less		Due after One Year through Five Years		Due after Five Years through Ten Years		Due after Ten Years		Total	
(Dollars in millions)	Amount	Yield [1]	Amount	Yield [1]	Amount	Yield [1]	Amount	Yield [1]	Amount	Yield [1]
Amortized cost of debt securities carried at fair value										
Mortgage-backed securities:										
Agency	$ 2	4.50%	$ 47	4.45%	$ 381	2.56%	$190,379	3.23%	$190,809	3.23%
Agency-collateralized mortgage obligations	—	—	—	—	—	—	8,300	3.18	8,300	3.18
Commercial	48	8.60	558	1.96	11,632	2.47	356	2.58	12,594	2.47
Non-agency residential	—	—	—	—	12	0.01	5,016	8.50	5,028	8.48
Total mortgage-backed securities	50	8.32	605	2.15	12,025	2.46	204,051	3.36	216,731	3.31
U.S. Treasury and agency securities	517	0.47	34,898	1.57	13,234	1.58	151	5.42	48,800	1.57
Non-U.S. securities [2]	21,164	0.25	1,097	1.92	206	1.30	240	6.60	22,707	0.41
Other taxable securities, substantially all asset-backed securities	2,040	1.77	5,102	1.63	2,279	2.71	1,396	3.18	10,817	2.08
Total taxable securities	23,771	0.40	41,702	1.59	27,744	2.05	205,838	3.36	299,055	2.76
Tax-exempt securities	646	1.13	6,563	1.49	7,846	1.57	2,217	1.53	17,272	1.52
Total amortized cost of debt securities carried at fair value [2]	**$ 24,417**	**0.42**	**$ 48,265**	**1.58**	**$ 35,590**	**1.95**	**$ 208,055**	**3.34**	**$ 316,327**	**2.69**
Amortized cost of HTM debt securities [3]	**$ —**	**—**	**$ 26**	**4.01**	**$ 971**	**2.32**	**$ 116,074**	**3.01**	**$ 117,071**	**3.01**
Debt securities carried at fair value										
Mortgage-backed securities:										
Agency	$ 2		$ 48		$ 382		$189,054		$189,486	
Agency-collateralized mortgage obligations	—		—		—		8,335		8,335	
Commercial	48		559		11,378		337		12,322	
Non-agency residential	—		—		19		5,133		5,152	
Total mortgage-backed securities	50		607		11,779		202,859		215,295	
U.S. Treasury and agency securities	517		34,784		12,788		163		48,252	
Non-U.S. securities [2]	21,165		1,100		208		245		22,718	
Other taxable securities, substantially all asset-backed securities	2,036		5,078		2,303		1,437		10,854	
Total taxable securities	23,768		41,569		27,078		204,704		297,119	
Tax-exempt securities	646		6,561		7,754		2,199		17,160	
Total debt securities carried at fair value [2]	**$ 24,414**		**$ 48,130**		**$ 34,832**		**$ 206,903**		**$ 314,279**	
Fair value of HTM debt securities [3]	**$ —**		**$ 26**		**$ 959**		**$ 114,300**		**$ 115,285**	

(1) The average yield is computed based on a constant effective interest rate over the contractual life of each security. The average yield considers the contractual coupon and the amortization of premiums and accretion of discounts, excluding the effect of related hedging derivatives.
(2) Includes $619 million of amortized cost and fair value for AFS debt securities of business held for sale. These AFS debt securities mature in one year or less and have an average yield of 0.21 percent.
(3) Substantially all U.S. agency MBS.

NOTE 4 Outstanding Loans and Leases

The following tables present total outstanding loans and leases and an aging analysis for the Consumer Real Estate, Credit Card and Other Consumer, and Commercial portfolio segments, by class of financing receivables, at December 31, 2016 and 2015.

	December 31, 2016							
(Dollars in millions)	30-59 Days Past Due [1]	60-89 Days Past Due [1]	90 Days or More Past Due [2]	Total Past Due 30 Days or More	Total Current or Less Than 30 Days Past Due [3]	Purchased Credit-impaired [4]	Loans Accounted for Under the Fair Value Option	Total Outstandings
Consumer real estate								
Core portfolio								
Residential mortgage	$ 1,340	$ 425	$ 1,213	$ 2,978	$ 153,519			$ 156,497
Home equity	239	105	451	795	48,578			49,373
Non-core portfolio								
Residential mortgage [5]	1,338	674	5,343	7,355	17,818	$ 10,127		35,300
Home equity	260	136	832	1,228	12,231	3,611		17,070
Credit card and other consumer								
U.S. credit card	472	341	782	1,595	90,683			92,278
Non-U.S. credit card	37	27	66	130	9,084			9,214
Direct/Indirect consumer [6]	272	79	34	385	93,704			94,089
Other consumer [7]	26	8	6	40	2,459			2,499
Total consumer	3,984	1,795	8,727	14,506	428,076	13,738		456,320
Consumer loans accounted for under the fair value option [8]							$ 1,051	1,051
Total consumer loans and leases	3,984	1,795	8,727	14,506	428,076	13,738	1,051	457,371
Commercial								
U.S. commercial	952	263	400	1,615	268,757			270,372
Commercial real estate [9]	20	10	56	86	57,269			57,355
Commercial lease financing	167	21	27	215	22,160			22,375
Non-U.S. commercial	348	4	5	357	89,040			89,397
U.S. small business commercial	96	49	84	229	12,764			12,993
Total commercial	1,583	347	572	2,502	449,990			452,492
Commercial loans accounted for under the fair value option [8]							6,034	6,034
Total commercial loans and leases	1,583	347	572	2,502	449,990		6,034	458,526
Total consumer and commercial loans and leases [10]	$ 5,567	$ 2,142	$ 9,299	$ 17,008	$ 878,066	$ 13,738	$ 7,085	$ 915,897
Less: Loans of business held for sale [10]								(9,214)
Total loans and leases [11]								$ 906,683
Percentage of outstandings [10]	0.61%	0.23%	1.02%	1.86%	95.87%	1.50%	0.77%	100.00%

(1) Consumer real estate loans 30-59 days past due includes fully-insured loans of $1.1 billion and nonperforming loans of $266 million. Consumer real estate loans 60-89 days past due includes fully-insured loans of $547 million and nonperforming loans of $216 million.
(2) Consumer real estate includes fully-insured loans of $4.8 billion.
(3) Consumer real estate includes $2.5 billion and direct/indirect consumer includes $27 million of nonperforming loans.
(4) PCI loan amounts are shown gross of the valuation allowance.
(5) Total outstandings includes pay option loans of $1.8 billion. The Corporation no longer originates this product.
(6) Total outstandings includes auto and specialty lending loans of $48.9 billion, unsecured consumer lending loans of $585 million, U.S. securities-based lending loans of $40.1 billion, non-U.S. consumer loans of $3.0 billion, student loans of $497 million and other consumer loans of $1.1 billion.
(7) Total outstandings includes consumer finance loans of $465 million, consumer leases of $1.9 billion and consumer overdrafts of $157 million.
(8) Consumer loans accounted for under the fair value option were residential mortgage loans of $710 million and home equity loans of $341 million. Commercial loans accounted for under the fair value option were U.S. commercial loans of $2.9 billion and non-U.S. commercial loans of $3.1 billion. For additional information, see *Note 20 – Fair Value Measurements* and *Note 21 – Fair Value Option*.
(9) Total outstandings includes U.S. commercial real estate loans of $54.3 billion and non-U.S. commercial real estate loans of $3.1 billion.
(10) Includes non-U.S. credit card loans, which are included in assets of business held for sale on the Consolidated Balance Sheet.
(11) The Corporation pledged $143.1 billion of loans to secure potential borrowing capacity with the Federal Reserve Bank and Federal Home Loan Bank (FHLB). This amount is not included in the parenthetical disclosure of loans and leases pledged as collateral on the Consolidated Balance Sheet as there were no related outstanding borrowings.

(Dollars in millions)	30-59 Days Past Due (1)	60-89 Days Past Due (1)	90 Days or More Past Due (2)	Total Past Due 30 Days or More	Total Current or Less Than 30 Days Past Due (3)	Purchased Credit-impaired (4)	Loans Accounted for Under the Fair Value Option	Total Outstandings
	December 31, 2015							
Consumer real estate								
Core portfolio								
Residential mortgage	$ 1,214	$ 368	$ 1,414	$ 2,996	$ 138,799			$ 141,795
Home equity	200	93	579	872	54,045			54,917
Non-core portfolio								
Residential mortgage (5)	2,045	1,167	8,439	11,651	22,399	$ 12,066		46,116
Home equity	335	174	1,170	1,679	14,733	4,619		21,031
Credit card and other consumer								
U.S. credit card	454	332	789	1,575	88,027			89,602
Non-U.S. credit card	39	31	76	146	9,829			9,975
Direct/Indirect consumer (6)	227	62	42	331	88,464			88,795
Other consumer (7)	18	3	4	25	2,042			2,067
Total consumer	4,532	2,230	12,513	19,275	418,338	16,685		454,298
Consumer loans accounted for under the fair value option (8)							$ 1,871	1,871
Total consumer loans and leases	4,532	2,230	12,513	19,275	418,338	16,685	1,871	456,169
Commercial								
U.S. commercial	444	148	332	924	251,847			252,771
Commercial real estate (9)	36	11	82	129	57,070			57,199
Commercial lease financing	150	29	20	199	21,153			21,352
Non-U.S. commercial	6	1	1	8	91,541			91,549
U.S. small business commercial	83	41	72	196	12,680			12,876
Total commercial	719	230	507	1,456	434,291			435,747
Commercial loans accounted for under the fair value option (8)							5,067	5,067
Total commercial loans and leases	719	230	507	1,456	434,291		5,067	440,814
Total loans and leases (10)	$ 5,251	$ 2,460	$ 13,020	$ 20,731	$ 852,629	$ 16,685	$ 6,938	$ 896,983
Percentage of outstandings	0.59%	0.27%	1.45%	2.31%	95.06%	1.86%	0.77%	100.00%

(1) Consumer real estate loans 30-59 days past due includes fully-insured loans of $1.7 billion and nonperforming loans of $379 million. Consumer real estate loans 60-89 days past due includes fully-insured loans of $1.0 billion and nonperforming loans of $297 million.
(2) Consumer real estate includes fully-insured loans of $7.2 billion.
(3) Consumer real estate includes $3.0 billion and direct/indirect consumer includes $21 million of nonperforming loans.
(4) PCI loan amounts are shown gross of the valuation allowance.
(5) Total outstandings includes pay option loans of $2.3 billion. The Corporation no longer originates this product.
(6) Total outstandings includes auto and specialty lending loans of $42.6 billion, unsecured consumer lending loans of $886 million, U.S. securities-based lending loans of $39.8 billion, non-U.S. consumer loans of $3.9 billion, student loans of $564 million and other consumer loans of $1.0 billion.
(7) Total outstandings includes consumer finance loans of $564 million, consumer leases of $1.4 billion and consumer overdrafts of $146 million.
(8) Consumer loans accounted for under the fair value option were residential mortgage loans of $1.6 billion and home equity loans of $250 million. Commercial loans accounted for under the fair value option were U.S. commercial loans of $2.3 billion and non-U.S. commercial loans of $2.8 billion. For additional information, see *Note 20 – Fair Value Measurements* and *Note 21 – Fair Value Option*.
(9) Total outstandings includes U.S. commercial real estate loans of $53.6 billion and non-U.S. commercial real estate loans of $3.5 billion.
(10) The Corporation pledged $149.4 billion of loans to secure potential borrowing capacity with the Federal Reserve Bank and FHLB. This amount is not included in the parenthetical disclosure of loans and leases pledged as collateral on the Consolidated Balance Sheet as there were no related outstanding borrowings.

In connection with an agreement to sell the Corporation's non-U.S. consumer credit card business, this business, which includes $9.2 billion of non-U.S. credit card loans and related allowance for loan and lease losses of $243 million, was reclassified to assets of business held for sale on the Consolidated Balance Sheet as of December 31, 2016. In this Note, all applicable amounts include these balances, unless otherwise noted. For more information, see *Note 1 – Summary of Significant Accounting Principles.*

The Corporation categorizes consumer real estate loans as core and non-core based on loan and customer characteristics such as origination date, product type, LTV, FICO score and delinquency status consistent with its current consumer and mortgage servicing strategy. Generally, loans that were originated after January 1, 2010, qualified under government-sponsored enterprise underwriting guidelines, or otherwise met the Corporation's underwriting guidelines in place in 2015 are characterized as core loans. Loans held in legacy private-label securitizations, government-insured loans originated prior to 2010, loan products no longer originated, and loans originated prior to 2010 and classified as nonperforming or modified in a TDR prior to 2016 are generally characterized as non-core loans, and are principally run-off portfolios.

The Corporation has entered into long-term credit protection agreements with FNMA and FHLMC on loans totaling $6.4 billion and $3.7 billion at December 31, 2016 and 2015, providing full credit protection on residential mortgage loans that become severely delinquent. All of these loans are individually insured and therefore the Corporation does not record an allowance for credit losses related to these loans.

Nonperforming Loans and Leases

The Corporation classifies junior-lien home equity loans as nonperforming when the first-lien loan becomes 90 days past due even if the junior-lien loan is performing. At December 31, 2016 and 2015, $428 million and $484 million of such junior-lien home equity loans were included in nonperforming loans.

The Corporation classifies consumer real estate loans that have been discharged in Chapter 7 bankruptcy and not reaffirmed by the borrower as TDRs, irrespective of payment history or delinquency status, even if the repayment terms for the loan have not been otherwise modified. The Corporation continues to have a lien on the underlying collateral. At December 31, 2016, nonperforming loans discharged in Chapter 7 bankruptcy with no change in repayment terms were $543 million of which $332 million were current on their contractual payments, while $181 million were 90 days or more past due. Of the contractually current nonperforming loans, approximately 81 percent were discharged in Chapter 7 bankruptcy over 12 months ago, and approximately 70 percent were discharged 24 months or more ago.

During 2016, the Corporation sold nonperforming and other delinquent consumer real estate loans with a carrying value of $2.2 billion, including $549 million of PCI loans, compared to $3.2 billion, including $1.4 billion of PCI loans, in 2015. The Corporation recorded net charge-offs related to these sales of $30 million during 2016 and net recoveries of $133 million during 2015. Gains related to these sales of $75 million and $173 million were recorded in other income in the Consolidated Statement of Income during 2016 and 2015.

The table below presents the Corporation's nonperforming loans and leases including nonperforming TDRs, and loans accruing past due 90 days or more at December 31, 2016 and 2015. Nonperforming LHFS are excluded from nonperforming loans and leases as they are recorded at either fair value or the lower of cost or fair value. For more information on the criteria for classification as nonperforming, see *Note 1 – Summary of Significant Accounting Principles*.

Credit Quality

	December 31			
	Nonperforming Loans and Leases		Accruing Past Due 90 Days or More	
(Dollars in millions)	**2016**	2015	**2016**	2015
Consumer real estate				
Core portfolio				
Residential mortgage [1]	**$ 1,274**	$ 1,825	**$ 486**	$ 382
Home equity	**969**	974	**—**	—
Non-core portfolio				
Residential mortgage [1]	**1,782**	2,978	**4,307**	6,768
Home equity	**1,949**	2,363	**—**	—
Credit card and other consumer				
U.S. credit card	**n/a**	n/a	**782**	789
Non-U.S. credit card	**n/a**	n/a	**66**	76
Direct/Indirect consumer	**28**	24	**34**	39
Other consumer	**2**	1	**4**	3
Total consumer	**6,004**	8,165	**5,679**	8,057
Commercial				
U.S. commercial	**1,256**	867	**106**	113
Commercial real estate	**72**	93	**7**	3
Commercial lease financing	**36**	12	**19**	15
Non-U.S. commercial	**279**	158	**5**	1
U.S. small business commercial	**60**	82	**71**	61
Total commercial	**1,703**	1,212	**208**	193
Total loans and leases	**$ 7,707**	$ 9,377	**$ 5,887**	$ 8,250

(1) Residential mortgage loans in the core and non-core portfolios accruing past due 90 days or more are fully-insured loans. At December 31, 2016 and 2015, residential mortgage includes $3.0 billion and $4.3 billion of loans on which interest has been curtailed by the FHA, and therefore are no longer accruing interest, although principal is still insured, and $1.8 billion and $2.9 billion of loans on which interest is still accruing.

n/a = not applicable

Credit Quality Indicators

The Corporation monitors credit quality within its Consumer Real Estate, Credit Card and Other Consumer, and Commercial portfolio segments based on primary credit quality indicators. For more information on the portfolio segments, see *Note 1 – Summary of Significant Accounting Principles*. Within the Consumer Real Estate portfolio segment, the primary credit quality indicators are refreshed LTV and refreshed FICO score. Refreshed LTV measures the carrying value of the loan as a percentage of the value of the property securing the loan, refreshed quarterly. Home equity loans are evaluated using CLTV which measures the carrying value of the Corporation's loan and available line of credit combined with any outstanding senior liens against the property as a percentage of the value of the property securing the loan, refreshed quarterly. FICO score measures the creditworthiness of the borrower based on the financial obligations of the borrower and the borrower's credit history. FICO scores are typically refreshed quarterly or more frequently. Certain borrowers (e.g., borrowers that have had debts discharged in a bankruptcy proceeding) may not have their FICO scores updated. FICO scores are also a primary credit quality indicator for the Credit Card and Other Consumer portfolio segment and the business card portfolio within U.S. small business commercial. Within the Commercial portfolio segment, loans are evaluated using the internal classifications of pass rated or reservable criticized as the primary credit quality indicators. The term reservable criticized refers to those commercial loans that are internally classified or listed by the Corporation as Special Mention, Substandard or Doubtful, which are asset quality categories defined by regulatory authorities. These assets have an elevated level of risk and may have a high probability of default or total loss. Pass rated refers to all loans not considered reservable criticized. In addition to these primary credit quality indicators, the Corporation uses other credit quality indicators for certain types of loans.

The following tables present certain credit quality indicators for the Corporation's Consumer Real Estate, Credit Card and Other Consumer, and Commercial portfolio segments, by class of financing receivables, at December 31, 2016 and 2015.

Consumer Real Estate – Credit Quality Indicators (1)

	December 31, 2016					
(Dollars in millions)	Core Portfolio Residential Mortgage (2)	Non-core Residential Mortgage (2)	Residential Mortgage PCI (3)	Core Portfolio Home Equity (2)	Non-core Home Equity (2)	Home Equity PCI
Refreshed LTV (4)						
Less than or equal to 90 percent	$ 129,737	$ 14,280	$ 7,811	$ 47,171	$ 8,480	$ 1,942
Greater than 90 percent but less than or equal to 100 percent	3,634	1,446	1,021	1,006	1,668	630
Greater than 100 percent	1,872	1,972	1,295	1,196	3,311	1,039
Fully-insured loans (5)	21,254	7,475	—	—	—	—
Total consumer real estate	**$ 156,497**	**$ 25,173**	**$ 10,127**	**$ 49,373**	**$ 13,459**	**$ 3,611**
Refreshed FICO score						
Less than 620	$ 2,479	$ 3,198	$ 2,741	$ 1,254	$ 2,692	$ 559
Greater than or equal to 620 and less than 680	5,094	2,807	2,241	2,853	3,094	636
Greater than or equal to 680 and less than 740	22,629	4,512	2,916	10,069	3,176	1,069
Greater than or equal to 740	105,041	7,181	2,229	35,197	4,497	1,347
Fully-insured loans (5)	21,254	7,475	—	—	—	—
Total consumer real estate	**$ 156,497**	**$ 25,173**	**$ 10,127**	**$ 49,373**	**$ 13,459**	**$ 3,611**

(1) Excludes $1.1 billion of loans accounted for under the fair value option.
(2) Excludes PCI loans.
(3) Includes $1.6 billion of pay option loans. The Corporation no longer originates this product.
(4) Refreshed LTV percentages for PCI loans are calculated using the carrying value net of the related valuation allowance.
(5) Credit quality indicators are not reported for fully-insured loans as principal repayment is insured.

Credit Card and Other Consumer – Credit Quality Indicators

	December 31, 2016			
(Dollars in millions)	U.S. Credit Card	Non-U.S. Credit Card	Direct/Indirect Consumer	Other Consumer (1)
Refreshed FICO score				
Less than 620	$ 4,431	$ —	$ 1,478	$ 187
Greater than or equal to 620 and less than 680	12,364	—	2,070	222
Greater than or equal to 680 and less than 740	34,828	—	12,491	404
Greater than or equal to 740	40,655	—	33,420	1,525
Other internal credit metrics (2, 3, 4)	—	9,214	44,630	161
Total credit card and other consumer	**$ 92,278**	**$ 9,214**	**$ 94,089**	**$ 2,499**

(1) At December 31, 2016, 19 percent of the other consumer portfolio is associated with portfolios from certain consumer finance businesses that the Corporation previously exited.
(2) Other internal credit metrics may include delinquency status, geography or other factors.
(3) Direct/indirect consumer includes $43.1 billion of securities-based lending which is overcollateralized and therefore has minimal credit risk and $499 million of loans the Corporation no longer originates, primarily student loans.
(4) Non-U.S. credit card represents the U.K. credit card portfolio which is evaluated using internal credit metrics, including delinquency status. At December 31, 2016, 98 percent of this portfolio was current or less than 30 days past due, one percent was 30-89 days past due and one percent was 90 days or more past due.

Commercial – Credit Quality Indicators (1)

	December 31, 2016				
(Dollars in millions)	U.S. Commercial	Commercial Real Estate	Commercial Lease Financing	Non-U.S. Commercial	U.S. Small Business Commercial (2)
Risk ratings					
Pass rated	$ 261,214	$ 56,957	$ 21,565	$ 85,689	$ 453
Reservable criticized	9,158	398	810	3,708	71
Refreshed FICO score (3)					
Less than 620					200
Greater than or equal to 620 and less than 680					591
Greater than or equal to 680 and less than 740					1,741
Greater than or equal to 740					3,264
Other internal credit metrics (3, 4)					6,673
Total commercial	**$ 270,372**	**$ 57,355**	**$ 22,375**	**$ 89,397**	**$ 12,993**

(1) Excludes $6.0 billion of loans accounted for under the fair value option.
(2) U.S. small business commercial includes $755 million of criticized business card and small business loans which are evaluated using refreshed FICO scores or internal credit metrics, including delinquency status, rather than risk ratings. At December 31, 2016, 98 percent of the balances where internal credit metrics are used was current or less than 30 days past due.
(3) Refreshed FICO score and other internal credit metrics are applicable only to the U.S. small business commercial portfolio.
(4) Other internal credit metrics may include delinquency status, application scores, geography or other factors.

Consumer Real Estate – Credit Quality Indicators [(1)]

(Dollars in millions)	Core Portfolio Residential Mortgage [(2)]	Non-core Residential Mortgage [(2)]	Residential Mortgage PCI [(3)]	Core Portfolio Home Equity [(2)]	Non-core Home Equity [(2)]	Home Equity PCI
	December 31, 2015					
Refreshed LTV [(4)]						
Less than or equal to 90 percent	$ 110,023	$ 16,481	$ 8,655	$ 51,262	$ 8,347	$ 2,003
Greater than 90 percent but less than or equal to 100 percent	4,038	2,224	1,403	1,858	2,190	852
Greater than 100 percent	2,638	3,364	2,008	1,797	5,875	1,764
Fully-insured loans [(5)]	25,096	11,981	—	—	—	—
Total consumer real estate	$ 141,795	$ 34,050	$ 12,066	$ 54,917	$ 16,412	$ 4,619
Refreshed FICO score						
Less than 620	$ 3,129	$ 4,749	$ 3,798	$ 1,322	$ 3,490	$ 729
Greater than or equal to 620 and less than 680	5,472	3,762	2,586	3,295	3,862	825
Greater than or equal to 680 and less than 740	22,486	5,138	3,187	12,180	3,451	1,356
Greater than or equal to 740	85,612	8,420	2,495	38,120	5,609	1,709
Fully-insured loans [(5)]	25,096	11,981	—	—	—	—
Total consumer real estate	$ 141,795	$ 34,050	$ 12,066	$ 54,917	$ 16,412	$ 4,619

(1) Excludes $1.9 billion of loans accounted for under the fair value option.
(2) Excludes PCI loans.
(3) Includes $2.0 billion of pay option loans. The Corporation no longer originates this product.
(4) Refreshed LTV percentages for PCI loans are calculated using the carrying value net of the related valuation allowance.
(5) Credit quality indicators are not reported for fully-insured loans as principal repayment is insured.

Credit Card and Other Consumer – Credit Quality Indicators

(Dollars in millions)	U.S. Credit Card	Non-U.S. Credit Card	Direct/Indirect Consumer	Other Consumer [(1)]
	December 31, 2015			
Refreshed FICO score				
Less than 620	$ 4,196	$ —	$ 1,244	$ 217
Greater than or equal to 620 and less than 680	11,857	—	1,698	214
Greater than or equal to 680 and less than 740	34,270	—	10,955	337
Greater than or equal to 740	39,279	—	29,581	1,149
Other internal credit metrics [(2, 3, 4)]	—	9,975	45,317	150
Total credit card and other consumer	$ 89,602	$ 9,975	$ 88,795	$ 2,067

(1) At December 31, 2015, 27 percent of the other consumer portfolio is associated with portfolios from certain consumer finance businesses that the Corporation previously exited.
(2) Other internal credit metrics may include delinquency status, geography or other factors.
(3) Direct/indirect consumer includes $43.7 billion of securities-based lending which is overcollateralized and therefore has minimal credit risk and $567 million of loans the Corporation no longer originates, primarily student loans.
(4) Non-U.S. credit card represents the U.K. credit card portfolio which is evaluated using internal credit metrics, including delinquency status. At December 31, 2015, 98 percent of this portfolio was current or less than 30 days past due, one percent was 30-89 days past due and one percent was 90 days or more past due.

Commercial – Credit Quality Indicators [(1)]

(Dollars in millions)	U.S. Commercial	Commercial Real Estate	Commercial Lease Financing	Non-U.S. Commercial	U.S. Small Business Commercial [(2)]
	December 31, 2015				
Risk ratings					
Pass rated	$ 243,922	$ 56,688	$ 20,644	$ 87,905	$ 571
Reservable criticized	8,849	511	708	3,644	96
Refreshed FICO score [(3)]					
Less than 620					184
Greater than or equal to 620 and less than 680					543
Greater than or equal to 680 and less than 740					1,627
Greater than or equal to 740					3,027
Other internal credit metrics [(3, 4)]					6,828
Total commercial	$ 252,771	$ 57,199	$ 21,352	$ 91,549	$ 12,876

(1) Excludes $5.1 billion of loans accounted for under the fair value option.
(2) U.S. small business commercial includes $670 million of criticized business card and small business loans which are evaluated using refreshed FICO scores or internal credit metrics, including delinquency status, rather than risk ratings. At December 31, 2015, 98 percent of the balances where internal credit metrics are used was current or less than 30 days past due.
(3) Refreshed FICO score and other internal credit metrics are applicable only to the U.S. small business commercial portfolio.
(4) Other internal credit metrics may include delinquency status, application scores, geography or other factors.

Impaired Loans and Troubled Debt Restructurings

A loan is considered impaired when, based on current information, it is probable that the Corporation will be unable to collect all amounts due from the borrower in accordance with the contractual terms of the loan. Impaired loans include nonperforming commercial loans and all consumer and commercial TDRs. Impaired loans exclude nonperforming consumer loans and nonperforming commercial leases unless they are classified as TDRs. Loans accounted for under the fair value option are also excluded. PCI loans are excluded and reported separately on page 155. For additional information, see *Note 1 – Summary of Significant Accounting Principles.*

Consumer Real Estate

Impaired consumer real estate loans within the Consumer Real Estate portfolio segment consist entirely of TDRs. Excluding PCI loans, most modifications of consumer real estate loans meet the definition of TDRs when a binding offer is extended to a borrower. Modifications of consumer real estate loans are done in accordance with the government's Making Home Affordable Program (modifications under government programs) or the Corporation's proprietary programs (modifications under proprietary programs). These modifications are considered to be TDRs if concessions have been granted to borrowers experiencing financial difficulties. Concessions may include reductions in interest rates, capitalization of past due amounts, principal and/or interest forbearance, payment extensions, principal and/or interest forgiveness, or combinations thereof.

Prior to permanently modifying a loan, the Corporation may enter into trial modifications with certain borrowers under both government and proprietary programs. Trial modifications generally represent a three- to four-month period during which the borrower makes monthly payments under the anticipated modified payment terms. Upon successful completion of the trial period, the Corporation and the borrower enter into a permanent modification. Binding trial modifications are classified as TDRs when the trial offer is made and continue to be classified as TDRs regardless of whether the borrower enters into a permanent modification.

Consumer real estate loans that have been discharged in Chapter 7 bankruptcy with no change in repayment terms and not reaffirmed by the borrower of $1.4 billion were included in TDRs at December 31, 2016, of which $543 million were classified as nonperforming and $555 million were loans fully-insured by the FHA. For more information on loans discharged in Chapter 7 bankruptcy, see Nonperforming Loans and Leases in this Note.

Consumer real estate TDRs are measured primarily based on the net present value of the estimated cash flows discounted at the loan's original effective interest rate. If the carrying value of a TDR exceeds this amount, a specific allowance is recorded as a component of the allowance for loan and lease losses. Alternatively, consumer real estate TDRs that are considered to be dependent solely on the collateral for repayment (e.g., due to the lack of income verification) are measured based on the estimated fair value of the collateral and a charge-off is recorded if the carrying value exceeds the fair value of the collateral. Consumer real estate loans that reached 180 days past due prior to modification had been charged off to their net realizable value, less costs to sell, before they were modified as TDRs in accordance with established policy. Therefore, modifications of consumer real estate loans that are 180 or more days past due as TDRs do not have an impact on the allowance for loan and lease losses nor are additional charge-offs required at the time of modification. Subsequent declines in the fair value of the collateral after a loan has reached 180 days past due are recorded as charge-offs. Fully-insured loans are protected against principal loss, and therefore, the Corporation does not record an allowance for loan and lease losses on the outstanding principal balance, even after they have been modified in a TDR.

At December 31, 2016 and 2015, remaining commitments to lend additional funds to debtors whose terms have been modified in a consumer real estate TDR were immaterial. Consumer real estate foreclosed properties totaled $363 million and $444 million at December 31, 2016 and 2015. The carrying value of consumer real estate loans, including fully-insured and PCI loans, for which formal foreclosure proceedings were in process as of December 31, 2016 was $4.8 billion. During 2016 and 2015, the Corporation reclassified $1.4 billion and $2.1 billion of consumer real estate loans to foreclosed properties or, for properties acquired upon foreclosure of certain government-guaranteed loans (principally FHA-insured loans), to other assets. The reclassifications represent non-cash investing activities and, accordingly, are not reflected on the Consolidated Statement of Cash Flows.

The table below provides the unpaid principal balance, carrying value and related allowance at December 31, 2016 and 2015, and the average carrying value and interest income recognized for 2016, 2015 and 2014 for impaired loans in the Corporation's Consumer Real Estate portfolio segment. Certain impaired consumer real estate loans do not have a related allowance as the current valuation of these impaired loans exceeded the carrying value, which is net of previously recorded charge-offs.

Impaired Loans – Consumer Real Estate

	December 31, 2016			December 31, 2015		
(Dollars in millions)	Unpaid Principal Balance	Carrying Value	Related Allowance	Unpaid Principal Balance	Carrying Value	Related Allowance
With no recorded allowance						
Residential mortgage	$ 11,151	$ 8,695	$ —	$ 14,888	$ 11,901	$ —
Home equity	3,704	1,953	—	3,545	1,775	—
With an allowance recorded						
Residential mortgage	$ 4,041	$ 3,936	$ 219	$ 6,624	$ 6,471	$ 399
Home equity	910	824	137	1,047	911	235
Total						
Residential mortgage	$ 15,192	$ 12,631	$ 219	$ 21,512	$ 18,372	$ 399
Home equity	4,614	2,777	137	4,592	2,686	235

	2016		2015		2014	
	Average Carrying Value	Interest Income Recognized (1)	Average Carrying Value	Interest Income Recognized (1)	Average Carrying Value	Interest Income Recognized (1)
With no recorded allowance						
Residential mortgage	$ 10,178	$ 360	$ 13,867	$ 403	$ 15,065	$ 490
Home equity	1,906	90	1,777	89	1,486	87
With an allowance recorded						
Residential mortgage	$ 5,067	$ 167	$ 7,290	$ 236	$ 10,826	$ 411
Home equity	852	24	785	24	743	25
Total						
Residential mortgage	$ 15,245	$ 527	$ 21,157	$ 639	$ 25,891	$ 901
Home equity	2,758	114	2,562	113	2,229	112

(1) Interest income recognized includes interest accrued and collected on the outstanding balances of accruing impaired loans as well as interest cash collections on nonaccruing impaired loans for which the principal is considered collectible.

The table below presents the December 31, 2016, 2015 and 2014 unpaid principal balance, carrying value, and average pre- and post-modification interest rates on consumer real estate loans that were modified in TDRs during 2016, 2015 and 2014, and net charge-offs recorded during the period in which the modification occurred. The following Consumer Real Estate portfolio segment tables include loans that were initially classified as TDRs during the period and also loans that had previously been classified as TDRs and were modified again during the period.

Consumer Real Estate – TDRs Entered into During 2016, 2015 and 2014 (1)

	December 31, 2016				2016
(Dollars in millions)	Unpaid Principal Balance	Carrying Value	Pre-Modification Interest Rate	Post-Modification Interest Rate (2)	Net Charge-offs (3)
Residential mortgage	$ 1,130	$ 1,017	4.73%	4.16%	$ 11
Home equity	849	649	3.95	2.72	61
Total	$ 1,979	$ 1,666	4.40	3.54	$ 72
	December 31, 2015				2015
Residential mortgage	$ 2,986	$ 2,655	4.98%	4.43%	$ 97
Home equity	1,019	775	3.54	3.17	84
Total	$ 4,005	$ 3,430	4.61	4.11	$ 181
	December 31, 2014				2014
Residential mortgage	$ 5,940	$ 5,120	5.28%	4.93%	$ 72
Home equity	863	592	4.00	3.33	99
Total	$ 6,803	$ 5,712	5.12	4.73	$ 171

(1) During 2016, 2015 and 2014, the Corporation forgave principal of $13 million, $396 million and $53 million, respectively, related to residential mortgage loans in connection with TDRs.
(2) The post-modification interest rate reflects the interest rate applicable only to permanently completed modifications, which exclude loans that are in a trial modification period.
(3) Net charge-offs include amounts recorded on loans modified during the period that are no longer held by the Corporation at December 31, 2016, 2015 and 2014 due to sales and other dispositions.

The table below presents the December 31, 2016, 2015 and 2014 carrying value for consumer real estate loans that were modified in a TDR during 2016, 2015 and 2014, by type of modification.

Consumer Real Estate – Modification Programs

	TDRs Entered into During 2016		TDRs Entered into During 2015		TDRs Entered into During 2014	
(Dollars in millions)	Residential Mortgage	Home Equity	Residential Mortgage	Home Equity	Residential Mortgage	Home Equity
Modifications under government programs						
Contractual interest rate reduction	$ 116	$ 35	$ 408	$ 23	$ 643	$ 56
Principal and/or interest forbearance	2	11	4	7	16	18
Other modifications (1)	22	1	46	—	98	1
Total modifications under government programs	140	47	458	30	757	75
Modifications under proprietary programs						
Contractual interest rate reduction	84	151	191	28	244	22
Capitalization of past due amounts	24	16	69	10	71	2
Principal and/or interest forbearance	10	62	124	44	66	75
Other modifications (1)	4	71	34	95	40	47
Total modifications under proprietary programs	122	300	418	177	421	146
Trial modifications	597	234	1,516	452	3,421	182
Loans discharged in Chapter 7 bankruptcy (2)	158	68	263	116	521	189
Total modifications	$ 1,017	$ 649	$ 2,655	$ 775	$ 5,120	$ 592

(1) Includes other modifications such as term or payment extensions and repayment plans.
(2) Includes loans discharged in Chapter 7 bankruptcy with no change in repayment terms that are classified as TDRs.

The table below presents the carrying value of consumer real estate loans that entered into payment default during 2016, 2015 and 2014 that were modified in a TDR during the 12 months preceding payment default. A payment default for consumer real estate TDRs is recognized when a borrower has missed three monthly payments (not necessarily consecutively) since modification. Payment defaults on a trial modification where the borrower has not yet met the terms of the agreement are included in the table below if the borrower is 90 days or more past due three months after the offer to modify is made.

Consumer Real Estate – TDRs Entering Payment Default That Were Modified During the Preceding 12 Months (1)

	2016		2015		2014	
(Dollars in millions)	Residential Mortgage	Home Equity	Residential Mortgage	Home Equity	Residential Mortgage	Home Equity
Modifications under government programs	$ 259	$ 3	$ 452	$ 5	$ 696	$ 4
Modifications under proprietary programs	133	63	263	24	714	12
Loans discharged in Chapter 7 bankruptcy (2)	136	22	238	47	481	70
Trial modifications (3)	714	110	2,997	181	2,231	56
Total modifications	$ 1,242	$ 198	$ 3,950	$ 257	$ 4,122	$ 142

(1) Includes loans with a carrying value of $613 million, $1.8 billion and $2.0 billion that entered into payment default during 2016, 2015 and 2014, respectively, but were no longer held by the Corporation as of December 31, 2016, 2015 and 2014 due to sales and other dispositions.
(2) Includes loans discharged in Chapter 7 bankruptcy with no change in repayment terms that are classified as TDRs.
(3) Includes trial modification offers to which the customer did not respond.

Credit Card and Other Consumer

Impaired loans within the Credit Card and Other Consumer portfolio segment consist entirely of loans that have been modified in TDRs. The Corporation seeks to assist customers that are experiencing financial difficulty by modifying loans while ensuring compliance with federal, local and international laws and guidelines. Credit card and other consumer loan modifications generally involve reducing the interest rate on the account and placing the customer on a fixed payment plan not exceeding 60 months, all of which are considered TDRs. In addition, the accounts of non-U.S. credit card customers who do not qualify for a fixed payment plan may have their interest rates reduced, as required by certain local jurisdictions. These modifications, which are also TDRs, tend to experience higher payment default rates given that the borrowers may lack the ability to repay even with the interest rate reduction. In substantially all cases, the customer's available line of credit is canceled. The Corporation makes loan modifications directly with borrowers for debt held only by the Corporation (internal programs). Additionally, the Corporation makes loan modifications for borrowers working with third-party renegotiation agencies that provide solutions to customers' entire unsecured debt structures (external programs). The Corporation classifies other secured consumer loans that have been discharged in Chapter 7 bankruptcy as TDRs which are written down to collateral value and placed on nonaccrual status no later than the time of discharge. For more information on the regulatory guidance on loans discharged in Chapter 7 bankruptcy, see Nonperforming Loans and Leases in this Note.

The table below provides the unpaid principal balance, carrying value and related allowance at December 31, 2016 and 2015, and the average carrying value and interest income recognized for 2016, 2015 and 2014 on TDRs within the Credit Card and Other Consumer portfolio segment.

Impaired Loans – Credit Card and Other Consumer

	December 31, 2016			December 31, 2015		
(Dollars in millions)	Unpaid Principal Balance	Carrying Value [(1)]	Related Allowance	Unpaid Principal Balance	Carrying Value [(1)]	Related Allowance
With no recorded allowance						
Direct/Indirect consumer	$ 49	$ 22	$ —	$ 50	$ 21	$ —
With an allowance recorded						
U.S. credit card	$ 479	$ 485	$ 128	$ 598	$ 611	$ 176
Non-U.S. credit card	88	100	61	109	126	70
Direct/Indirect consumer	3	3	—	17	21	4
Total						
U.S. credit card	$ 479	$ 485	$ 128	$ 598	$ 611	$ 176
Non-U.S. credit card	88	100	61	109	126	70
Direct/Indirect consumer	52	25	—	67	42	4

	2016		2015		2014	
	Average Carrying Value	Interest Income Recognized [(2)]	Average Carrying Value	Interest Income Recognized [(2)]	Average Carrying Value	Interest Income Recognized [(2)]
With no recorded allowance						
Direct/Indirect consumer	$ 20	$ —	$ 22	$ —	$ 27	$ —
Other consumer	—	—	—	—	33	2
With an allowance recorded						
U.S. credit card	$ 556	$ 31	$ 749	$ 43	$ 1,148	$ 71
Non-U.S. credit card	111	3	145	4	210	6
Direct/Indirect consumer	10	1	51	3	180	9
Other consumer	—	—	—	—	23	1
Total						
U.S. credit card	$ 556	$ 31	$ 749	$ 43	$ 1,148	$ 71
Non-U.S. credit card	111	3	145	4	210	6
Direct/Indirect consumer	30	1	73	3	207	9
Other consumer	—	—	—	—	56	3

(1) Includes accrued interest and fees.
(2) Interest income recognized includes interest accrued and collected on the outstanding balances of accruing impaired loans as well as interest cash collections on nonaccruing impaired loans for which the principal is considered collectible.

The table below provides information on the Corporation's primary modification programs for the Credit Card and Other Consumer TDR portfolio at December 31, 2016 and 2015.

Credit Card and Other Consumer – TDRs by Program Type

	December 31									
	Internal Programs		External Programs		Other [(1)]		Total		Percent of Balances Current or Less Than 30 Days Past Due	
(Dollars in millions)	2016	2015	2016	2015	2016	2015	2016	2015	2016	2015
U.S. credit card	$ 220	$ 313	$ 264	$ 296	$ 1	$ 2	$ 485	$ 611	88.99%	88.74%
Non-U.S. credit card	11	21	7	10	82	95	100	126	38.47	44.25
Direct/Indirect consumer	2	11	1	7	22	24	25	42	90.49	89.12
Total TDRs by program type	$ 233	$ 345	$ 272	$ 313	$ 105	$ 121	$ 610	$ 779	80.79	81.55

(1) Other TDRs for non-U.S. credit card include modifications of accounts that are ineligible for a fixed payment plan.

The table below provides information on the Corporation's Credit Card and Other Consumer TDR portfolio including the December 31, 2016, 2015 and 2014 unpaid principal balance, carrying value, and average pre- and post-modification interest rates of loans that were modified in TDRs during 2016, 2015 and 2014, and net charge-offs recorded during the period in which the modification occurred.

Credit Card and Other Consumer – TDRs Entered into During 2016, 2015 and 2014

	December 31, 2016				2016
(Dollars in millions)	Unpaid Principal Balance	Carrying Value (1)	Pre-Modification Interest Rate	Post-Modification Interest Rate	Net Charge-offs
U.S. credit card	$ 163	$ 172	17.54%	5.47%	$ 15
Non-U.S. credit card	66	75	23.99	0.52	50
Direct/Indirect consumer	21	13	3.44	3.29	9
Total	$ 250	$ 260	18.73	3.93	$ 74
	December 31, 2015				2015
U.S. credit card	$ 205	$ 218	17.07%	5.08%	$ 26
Non-U.S. credit card	74	86	24.05	0.53	63
Direct/Indirect consumer	19	12	5.95	5.19	9
Total	$ 298	$ 316	18.58	3.84	$ 98
	December 31, 2014				2014
U.S. credit card	$ 276	$ 301	16.64%	5.15%	$ 37
Non-U.S. credit card	91	106	24.90	0.68	91
Direct/Indirect consumer	27	19	8.66	4.90	14
Total	$ 394	$ 426	18.32	4.03	$ 142

(1) Includes accrued interest and fees.

Credit card and other consumer loans are deemed to be in payment default during the quarter in which a borrower misses the second of two consecutive payments. Payment defaults are one of the factors considered when projecting future cash flows in the calculation of the allowance for loan and lease losses for impaired credit card and other consumer loans. Based on historical experience, the Corporation estimates that 13 percent of new U.S. credit card TDRs, 90 percent of new non-U.S. credit card TDRs and 14 percent of new direct/indirect consumer TDRs may be in payment default within 12 months after modification. Loans that entered into payment default during 2016, 2015 and 2014 that had been modified in a TDR during the preceding 12 months were $30 million, $43 million and $56 million for U.S. credit card, $127 million, $152 million and $200 million for non-U.S. credit card, and $2 million, $3 million and $5 million for direct/indirect consumer.

Commercial Loans

Impaired commercial loans include nonperforming loans and TDRs (both performing and nonperforming). Modifications of loans to commercial borrowers that are experiencing financial difficulty are designed to reduce the Corporation's loss exposure while providing the borrower with an opportunity to work through financial difficulties, often to avoid foreclosure or bankruptcy. Each modification is unique and reflects the individual circumstances of the borrower. Modifications that result in a TDR may include extensions of maturity at a concessionary (below market) rate of interest, payment forbearances or other actions designed to benefit the customer while mitigating the Corporation's risk exposure. Reductions in interest rates are rare. Instead, the interest rates are typically increased, although the increased rate may not represent a market rate of interest. Infrequently, concessions may also include principal forgiveness in connection with foreclosure, short sale or other settlement agreements leading to termination or sale of the loan.

At the time of restructuring, the loans are remeasured to reflect the impact, if any, on projected cash flows resulting from the modified terms. If there was no forgiveness of principal and the interest rate was not decreased, the modification may have little or no impact on the allowance established for the loan. If a portion of the loan is deemed to be uncollectible, a charge-off may be recorded at the time of restructuring. Alternatively, a charge-off may have already been recorded in a previous period such that no charge-off is required at the time of modification. For more information on modifications for the U.S. small business commercial portfolio, see Credit Card and Other Consumer in this Note.

At December 31, 2016 and 2015, remaining commitments to lend additional funds to debtors whose terms have been modified in a commercial loan TDR were $461 million and $187 million. Commercial foreclosed properties totaled $14 million and $15 million at December 31, 2016 and 2015.

The table below provides the unpaid principal balance, carrying value and related allowance at December 31, 2016 and 2015, and the average carrying value and interest income recognized for 2016, 2015 and 2014 for impaired loans in the Corporation's Commercial loan portfolio segment. Certain impaired commercial loans do not have a related allowance as the valuation of these impaired loans exceeded the carrying value, which is net of previously recorded charge-offs.

Impaired Loans – Commercial

	December 31, 2016			December 31, 2015		
(Dollars in millions)	Unpaid Principal Balance	Carrying Value	Related Allowance	Unpaid Principal Balance	Carrying Value	Related Allowance
With no recorded allowance						
U.S. commercial	$ 860	$ 827	$ —	$ 566	$ 541	$ —
Commercial real estate	77	71	—	82	77	—
Non-U.S. commercial	130	130	—	4	4	—
With an allowance recorded						
U.S. commercial	$ 2,018	$ 1,569	$ 132	$ 1,350	$ 1,157	$ 115
Commercial real estate	243	96	10	328	107	11
Commercial lease financing	6	4	—	—	—	—
Non-U.S. commercial	545	432	104	531	381	56
U.S. small business commercial [(1)]	85	73	27	105	101	35
Total						
U.S. commercial	$ 2,878	$ 2,396	$ 132	$ 1,916	$ 1,698	$ 115
Commercial real estate	320	167	10	410	184	11
Commercial lease financing	6	4	—	—	—	—
Non-U.S. commercial	675	562	104	535	385	56
U.S. small business commercial [(1)]	85	73	27	105	101	35

	2016		2015		2014	
	Average Carrying Value	Interest Income Recognized [(2)]	Average Carrying Value	Interest Income Recognized [(2)]	Average Carrying Value	Interest Income Recognized [(2)]
With no recorded allowance						
U.S. commercial	$ 787	$ 14	$ 688	$ 14	$ 546	$ 12
Commercial real estate	67	—	75	1	166	3
Non-U.S. commercial	34	1	29	1	15	—
With an allowance recorded						
U.S. commercial	$ 1,569	$ 59	$ 953	$ 48	$ 1,198	$ 51
Commercial real estate	92	4	216	7	632	16
Commercial lease financing	2	—	—	—	—	—
Non-U.S. commercial	409	14	125	7	52	3
U.S. small business commercial [(1)]	87	1	109	1	151	3
Total						
U.S. commercial	$ 2,356	$ 73	$ 1,641	$ 62	$ 1,744	$ 63
Commercial real estate	159	4	291	8	798	19
Commercial lease financing	2	—	—	—	—	—
Non-U.S. commercial	443	15	154	8	67	3
U.S. small business commercial [(1)]	87	1	109	1	151	3

(1) Includes U.S. small business commercial renegotiated TDR loans and related allowance.

(2) Interest income recognized includes interest accrued and collected on the outstanding balances of accruing impaired loans as well as interest cash collections on nonaccruing impaired loans for which the principal is considered collectible.

The table below presents the December 31, 2016, 2015 and 2014 unpaid principal balance and carrying value of commercial loans that were modified as TDRs during 2016, 2015 and 2014, and net charge-offs that were recorded during the period in which the modification occurred. The table below includes loans that were initially classified as TDRs during the period and also loans that had previously been classified as TDRs and were modified again during the period.

Commercial – TDRs Entered into During 2016, 2015 and 2014

	December 31, 2016		2016
(Dollars in millions)	Unpaid Principal Balance	Carrying Value	Net Charge-offs
U.S. commercial	**$ 1,556**	**$ 1,482**	**$ 86**
Commercial real estate	**77**	**77**	**1**
Commercial lease financing	**6**	**4**	**2**
Non-U.S. commercial	**255**	**253**	**48**
U.S. small business commercial [(1)]	**1**	**1**	**—**
Total	**$ 1,895**	**$ 1,817**	**$ 137**
	December 31, 2015		2015
U.S. commercial	$ 853	$ 779	$ 28
Commercial real estate	42	42	—
Non-U.S. commercial	329	326	—
U.S. small business commercial [(1)]	14	11	3
Total	$ 1,238	$ 1,158	$ 31
	December 31, 2014		2014
U.S. commercial	$ 818	$ 785	$ 49
Commercial real estate	346	346	8
Non-U.S. commercial	44	43	—
U.S. small business commercial [(1)]	3	3	—
Total	$ 1,211	$ 1,177	$ 57

(1) U.S. small business commercial TDRs are comprised of renegotiated small business card loans.

A commercial TDR is generally deemed to be in payment default when the loan is 90 days or more past due, including delinquencies that were not resolved as part of the modification. U.S. small business commercial TDRs are deemed to be in payment default during the quarter in which a borrower misses the second of two consecutive payments. Payment defaults are one of the factors considered when projecting future cash flows, along with observable market prices or fair value of collateral when measuring the allowance for loan and lease losses. TDRs that were in payment default had a carrying value of $140 million, $105 million and $103 million for U.S. commercial and $34 million, $25 million and $211 million for commercial real estate at December 31, 2016, 2015 and 2014, respectively.

Purchased Credit-impaired Loans

The table below shows activity for the accretable yield on PCI loans, which include the Countrywide Financial Corporation (Countrywide) portfolio and loans repurchased in connection with the 2013 settlement with FNMA. The amount of accretable yield is affected by changes in credit outlooks, including metrics such as default rates and loss severities, prepayment speeds, which can change the amount and period of time over which interest payments are expected to be received, and the interest rates on variable rate loans. The reclassifications from nonaccretable difference during 2016 and 2015 were primarily due to lower expected loss rates and a decrease in the forecasted prepayment speeds. Changes in the prepayment assumption affect the expected remaining life of the portfolio which results in a change to the amount of future interest cash flows.

Rollforward of Accretable Yield

(Dollars in millions)	
Accretable yield, January 1, 2015	$ 5,608
Accretion	(861)
Disposals/transfers	(465)
Reclassifications from nonaccretable difference	287
Accretable yield, December 31, 2015	4,569
Accretion	**(722)**
Disposals/transfers	**(486)**
Reclassifications from nonaccretable difference	**444**
Accretable yield, December 31, 2016	**$ 3,805**

During 2016, the Corporation sold PCI loans with a carrying value of $549 million, which excludes the related allowance of $60 million. For more information on PCI loans, see *Note 1 – Summary of Significant Accounting Principles*, and for the carrying value and valuation allowance for PCI loans, see *Note 5 – Allowance for Credit Losses*.

Loans Held-for-sale

The Corporation had LHFS of $9.1 billion and $7.5 billion at December 31, 2016 and 2015. Cash and non-cash proceeds from sales and paydowns of loans originally classified as LHFS were $32.6 billion, $41.2 billion and $40.1 billion for 2016, 2015 and 2014, respectively. Cash used for originations and purchases of LHFS totaled $33.1 billion, $37.9 billion and $39.4 billion for 2016, 2015 and 2014, respectively.

NOTE 5 Allowance for Credit Losses

The table below summarizes the changes in the allowance for credit losses by portfolio segment for 2016, 2015 and 2014.

(Dollars in millions)	Consumer Real Estate	Credit Card and Other Consumer	Commercial	Total Allowance
	2016			
Allowance for loan and lease losses, January 1	$ 3,914	$ 3,471	$ 4,849	$ 12,234
Loans and leases charged off	(1,155)	(3,553)	(740)	(5,448)
Recoveries of loans and leases previously charged off	619	770	238	1,627
Net charge-offs	(536)	(2,783)	(502)	(3,821)
Write-offs of PCI loans	(340)	—	—	(340)
Provision for loan and lease losses	(258)	2,826	1,013	3,581
Other [(1)]	(30)	(42)	(102)	(174)
Allowance for loan and lease losses, December 31	2,750	3,472	5,258	11,480
Less: Allowance included in assets of business held for sale [(2)]	—	(243)	—	(243)
Total allowance for loan and lease losses, December 31	2,750	3,229	5,258	11,237
Reserve for unfunded lending commitments, January 1	—	—	646	646
Provision for unfunded lending commitments	—	—	16	16
Other [(1)]	—	—	100	100
Reserve for unfunded lending commitments, December 31	—	—	762	762
Allowance for credit losses, December 31	$ 2,750	$ 3,229	$ 6,020	$ 11,999
	2015			
Allowance for loan and lease losses, January 1	$ 5,935	$ 4,047	$ 4,437	$ 14,419
Loans and leases charged off	(1,841)	(3,620)	(644)	(6,105)
Recoveries of loans and leases previously charged off	732	813	222	1,767
Net charge-offs	(1,109)	(2,807)	(422)	(4,338)
Write-offs of PCI loans	(808)	—	—	(808)
Provision for loan and lease losses	(70)	2,278	835	3,043
Other [(1)]	(34)	(47)	(1)	(82)
Allowance for loan and lease losses, December 31	3,914	3,471	4,849	12,234
Reserve for unfunded lending commitments, January 1	—	—	528	528
Provision for unfunded lending commitments	—	—	118	118
Reserve for unfunded lending commitments, December 31	—	—	646	646
Allowance for credit losses, December 31	$ 3,914	$ 3,471	$ 5,495	$ 12,880
	2014			
Allowance for loan and lease losses, January 1	$ 8,518	$ 4,905	$ 4,005	$ 17,428
Loans and leases charged off	(2,219)	(4,149)	(658)	(7,026)
Recoveries of loans and leases previously charged off	1,426	871	346	2,643
Net charge-offs	(793)	(3,278)	(312)	(4,383)
Write-offs of PCI loans	(810)	—	—	(810)
Provision for loan and lease losses	(976)	2,458	749	2,231
Other [(1)]	(4)	(38)	(5)	(47)
Allowance for loan and lease losses, December 31	5,935	4,047	4,437	14,419
Reserve for unfunded lending commitments, January 1	—	—	484	484
Provision for unfunded lending commitments	—	—	44	44
Reserve for unfunded lending commitments, December 31	—	—	528	528
Allowance for credit losses, December 31	$ 5,935	$ 4,047	$ 4,965	$ 14,947

(1) Primarily represents the net impact of portfolio sales, consolidations and deconsolidations, foreign currency translation adjustments and certain other reclassifications.

(2) Represents allowance for loan and lease losses related to the non-U.S. credit card loan portfolio, which is included in assets of business held for sale on the Consolidated Balance Sheet at December 31, 2016.

In 2016, 2015 and 2014, for the PCI loan portfolio, the Corporation recorded a provision benefit of $45 million, $40 million and $31 million, respectively. Write-offs in the PCI loan portfolio totaled $340 million, $808 million and $810 million during 2016, 2015 and 2014, respectively. Write-offs included $60 million, $234 million and $317 million associated with the sale of PCI loans during 2016, 2015 and 2014, respectively. The valuation allowance associated with the PCI loan portfolio was $419 million, $804 million and $1.7 billion at December 31, 2016, 2015 and 2014, respectively.

The table below presents the allowance and the carrying value of outstanding loans and leases by portfolio segment at December 31, 2016 and 2015.

Allowance and Carrying Value by Portfolio Segment

(Dollars in millions)	Consumer Real Estate	Credit Card and Other Consumer	Commercial	Total
	December 31, 2016			
Impaired loans and troubled debt restructurings (1)				
Allowance for loan and lease losses (2)	**$ 356**	**$ 189**	**$ 273**	**$ 818**
Carrying value (3)	**15,408**	**610**	**3,202**	**19,220**
Allowance as a percentage of carrying value	**2.31%**	**30.98%**	**8.53%**	**4.26%**
Loans collectively evaluated for impairment				
Allowance for loan and lease losses	**$ 1,975**	**$ 3,283**	**$ 4,985**	**$ 10,243**
Carrying value (3, 4)	**229,094**	**197,470**	**449,290**	**875,854**
Allowance as a percentage of carrying value (4)	**0.86%**	**1.66%**	**1.11%**	**1.17%**
Purchased credit-impaired loans				
Valuation allowance	**$ 419**	**n/a**	**n/a**	**$ 419**
Carrying value gross of valuation allowance	**13,738**	**n/a**	**n/a**	**13,738**
Valuation allowance as a percentage of carrying value	**3.05%**	**n/a**	**n/a**	**3.05%**
Less: Assets of business held for sale (5)				
Allowance for loan and lease losses (6)	**n/a**	**$ (243)**	**n/a**	**$ (243)**
Carrying value (3)	**n/a**	**(9,214)**	**n/a**	**(9,214)**
Total				
Total allowance for loan and lease losses	**$ 2,750**	**$ 3,229**	**$ 5,258**	**$ 11,237**
Carrying value (3, 4)	**258,240**	**188,866**	**452,492**	**899,598**
Total allowance as a percentage of carrying value (4)	**1.06%**	**1.71%**	**1.16%**	**1.25%**
	December 31, 2015			
Impaired loans and troubled debt restructurings (1)				
Allowance for loan and lease losses (2)	$ 634	$ 250	$ 217	$ 1,101
Carrying value (3)	21,058	779	2,368	24,205
Allowance as a percentage of carrying value	3.01%	32.09%	9.16%	4.55%
Loans collectively evaluated for impairment				
Allowance for loan and lease losses	$ 2,476	$ 3,221	$ 4,632	$ 10,329
Carrying value (3, 4)	226,116	189,660	433,379	849,155
Allowance as a percentage of carrying value (4)	1.10%	1.70%	1.07%	1.22%
Purchased credit-impaired loans				
Valuation allowance	$ 804	n/a	n/a	$ 804
Carrying value gross of valuation allowance	16,685	n/a	n/a	16,685
Valuation allowance as a percentage of carrying value	4.82%	n/a	n/a	4.82%
Total				
Allowance for loan and lease losses	$ 3,914	$ 3,471	$ 4,849	$ 12,234
Carrying value (3, 4)	263,859	190,439	435,747	890,045
Allowance as a percentage of carrying value (4)	1.48%	1.82%	1.11%	1.37%

(1) Impaired loans include nonperforming commercial loans and all TDRs, including both commercial and consumer TDRs. Impaired loans exclude nonperforming consumer loans unless they are TDRs, and all consumer and commercial loans accounted for under the fair value option.
(2) Allowance for loan and lease losses includes $27 million and $35 million related to impaired U.S. small business commercial at December 31, 2016 and 2015.
(3) Amounts are presented gross of the allowance for loan and lease losses.
(4) Outstanding loan and lease balances and ratios do not include loans accounted for under the fair value option of $7.1 billion and $6.9 billion at December 31, 2016 and 2015.
(5) Represents allowance for loan and lease losses and loans related to the non-U.S. credit card portfolio, which is included in assets of business held for sale on the Consolidated Balance Sheet at December 31, 2016.
(6) Includes $61 million of allowance for loan and lease losses related to impaired loans and TDRs and $182 million related to loans collectively evaluated for impairment.
n/a = not applicable

NOTE 6 Securitizations and Other Variable Interest Entities

The Corporation utilizes VIEs in the ordinary course of business to support its own and its customers' financing and investing needs. The Corporation routinely securitizes loans and debt securities using VIEs as a source of funding for the Corporation and as a means of transferring the economic risk of the loans or debt securities to third parties. The assets are transferred into a trust or other securitization vehicle such that the assets are legally isolated from the creditors of the Corporation and are not available to satisfy its obligations. These assets can only be used to settle obligations of the trust or other securitization vehicle. The Corporation also administers, structures or invests in other VIEs including CDOs, investment vehicles and other entities. For more information on the Corporation's utilization of VIEs, see *Note 1 – Summary of Significant Accounting Principles*.

The tables in this Note present the assets and liabilities of consolidated and unconsolidated VIEs at December 31, 2016 and 2015, in situations where the Corporation has continuing involvement with transferred assets or if the Corporation otherwise has a variable interest in the VIE. The tables also present the Corporation's maximum loss exposure at December 31, 2016 and 2015, resulting from its involvement with consolidated VIEs and unconsolidated VIEs in which the Corporation holds a variable interest. The Corporation's maximum loss exposure is based on the unlikely event that all of the assets in the VIEs become worthless and incorporates not only potential losses associated with assets recorded on the Consolidated Balance Sheet but also potential losses associated with off-balance sheet commitments, such as unfunded liquidity commitments and other contractual arrangements. The Corporation's maximum loss exposure does not include losses previously recognized through write-downs of assets. As a result of new accounting guidance, which was effective on January 1, 2016, the Corporation identified certain limited partnerships and similar entities that are now considered to be VIEs and are included in the unconsolidated VIE tables in this Note at December 31, 2016. The Corporation had a maximum loss exposure of $6.1 billion related to these VIEs, which had total assets of $16.7 billion.

The Corporation invests in ABS issued by third-party VIEs with which it has no other form of involvement and enters into certain commercial lending arrangements that may also incorporate the use of VIEs to hold collateral. These securities and loans are included in *Note 3 – Securities* or *Note 4 – Outstanding Loans and Leases*. In addition, the Corporation uses VIEs such as trust preferred securities trusts in connection with its funding activities. For additional information, see *Note 11 – Long-term Debt*. The Corporation uses VIEs, such as common trust funds managed within *Global Wealth & Investment Management* (*GWIM*), to provide investment opportunities for clients. These VIEs, which are generally not consolidated by the Corporation, as applicable, are not included in the tables in this Note.

Except as described below, the Corporation did not provide financial support to consolidated or unconsolidated VIEs during 2016 or 2015 that it was not previously contractually required to provide, nor does it intend to do so.

First-lien Mortgage Securitizations

First-lien Mortgages

As part of its mortgage banking activities, the Corporation securitizes a portion of the first-lien residential mortgage loans it originates or purchases from third parties, generally in the form of RMBS guaranteed by government-sponsored enterprises, FNMA and FHLMC (collectively the GSEs), or Government National Mortgage Association (GNMA) primarily in the case of FHA-insured and U.S. Department of Veterans Affairs (VA)-guaranteed mortgage loans. Securitization usually occurs in conjunction with or shortly after origination or purchase, and the Corporation may also securitize loans held in its residential mortgage portfolio. In addition, the Corporation may, from time to time, securitize commercial mortgages it originates or purchases from other entities. The Corporation typically services the loans it securitizes. Further, the Corporation may retain beneficial interests in the securitization trusts including senior and subordinate securities and equity tranches issued by the trusts. Except as described below and in *Note 7 – Representations and Warranties Obligations and Corporate Guarantees*, the Corporation does not provide guarantees or recourse to the securitization trusts other than standard representations and warranties.

The table below summarizes select information related to first-lien mortgage securitizations for 2016, 2015 and 2014.

First-lien Mortgage Securitizations

	Residential Mortgage								
	Agency			Non-agency - Subprime			Commercial Mortgage		
(Dollars in millions)	**2016**	2015	2014	**2016**	2015	2014	**2016**	2015	2014
Cash proceeds from new securitizations [1]	**$ 24,201**	$ 27,164	$ 36,905	**$ —**	$ —	$ 809	**$ 3,887**	$ 7,945	$ 5,710
Gain on securitizations [2]	**370**	894	371	**—**	—	49	**38**	49	68
Repurchases from securitization trusts [3]	**3,611**	3,716	5,155	**—**	—	—	**—**	—	—

(1) The Corporation transfers residential mortgage loans to securitizations sponsored by the GSEs or GNMA in the normal course of business and receives RMBS in exchange which may then be sold into the market to third-party investors for cash proceeds.

(2) A majority of the first-lien residential and commercial mortgage loans securitized are initially classified as LHFS and accounted for under the fair value option. Gains recognized on these LHFS prior to securitization, which totaled $487 million, $750 million and $715 million net of hedges, during 2016, 2015 and 2014, respectively are not included in the table above.

(3) The Corporation may have the option to repurchase delinquent loans out of securitization trusts, which reduces the amount of servicing advances it is required to make. The Corporation may also repurchase loans from securitization trusts to perform modifications. The majority of repurchased loans are FHA-insured mortgages collateralizing GNMA securities.

In addition to cash proceeds as reported in the table above, the Corporation received securities with an initial fair value of $4.2 billion, $22.3 billion and $5.4 billion in connection with first-lien mortgage securitizations in 2016, 2015 and 2014. The receipt of these securities represents non-cash operating and investing activities and, accordingly, is not reflected on the Consolidated Statement of Cash Flows. All of these securities were initially classified as Level 2 assets within the fair value hierarchy. During 2016, 2015 and 2014 there were no changes to the initial classification.

The Corporation recognizes consumer MSRs from the sale or securitization of first-lien mortgage loans. Servicing fee and ancillary fee income on consumer mortgage loans serviced, including securitizations where the Corporation has continuing involvement, were $1.1 billion, $1.4 billion and $1.8 billion in 2016, 2015 and 2014. Servicing advances on consumer mortgage loans, including securitizations where the Corporation has continuing involvement, were $6.2 billion and $7.8 billion at December 31, 2016 and 2015. For more information on MSRs, see *Note 23 – Mortgage Servicing Rights*.

During 2016 and 2015, the Corporation deconsolidated residential mortgage securitization vehicles with total assets of $3.8 billion and $4.5 billion, and total liabilities of $628 million and $0 following the sale of retained interests or MSRs to third parties, after which the Corporation no longer had a controlling financial interest through the unilateral ability to liquidate the vehicles or as a servicer of the loans. Of the balances deconsolidated in 2016, $706 million of assets and $628 million of liabilities represent non-cash investing and financing activities and, accordingly, are not reflected on the Consolidated Statement of Cash Flows. Gains on sale of $125 million and $287 million related to the deconsolidations were recorded in other income in the Consolidated Statement of Income.

The table below summarizes select information related to first-lien mortgage securitization trusts in which the Corporation held a variable interest at December 31, 2016 and 2015.

First-lien Mortgage VIEs

	Residential Mortgage								Commercial Mortgage	
			Non-agency							
	Agency		Prime		Subprime		Alt-A			
	December 31									
(Dollars in millions)	**2016**	2015	**2016**	2015	**2016**	2015	**2016**	2015	**2016**	2015
Unconsolidated VIEs										
Maximum loss exposure (1)	**$ 22,661**	$ 28,192	**$ 757**	$ 1,027	**$ 2,750**	$ 2,905	**$ 560**	$ 622	**$ 344**	$ 326
On-balance sheet assets										
Senior securities held (2):										
Trading account assets	**$ 1,399**	$ 1,297	**$ 20**	$ 42	**$ 112**	$ 94	**$ 118**	$ 99	**$ 51**	$ 59
Debt securities carried at fair value	**17,620**	24,369	**441**	613	**2,235**	2,479	**305**	340	**—**	—
Held-to-maturity securities	**3,630**	2,511	**—**	—	**—**	—	**—**	—	**64**	37
Subordinate securities held (2):										
Trading account assets	**—**	—	**1**	1	**23**	37	**1**	2	**14**	22
Debt securities carried at fair value	**—**	—	**8**	12	**2**	3	**23**	28	**54**	54
Held-to-maturity securities	**—**	—	**—**	—	**—**	—	**—**	—	**13**	13
Residual interests held	**—**	—	**—**	—	**—**	—	**—**	—	**25**	48
All other assets (3)	**12**	15	**28**	40	**—**	—	**113**	153	**—**	—
Total retained positions	**$ 22,661**	$ 28,192	**$ 498**	$ 708	**$ 2,372**	$ 2,613	**$ 560**	$ 622	**$ 221**	$ 233
Principal balance outstanding (4)	**$ 265,332**	$ 313,613	**$ 16,280**	$ 20,366	**$ 19,373**	$ 27,854	**$ 35,788**	$ 44,055	**$ 23,826**	$ 34,243
Consolidated VIEs										
Maximum loss exposure (1)	**$ 18,084**	$ 26,878	**$ —**	$ 65	**$ —**	$ 232	**$ 25**	$ —	**$ —**	$ —
On-balance sheet assets										
Trading account assets	**$ 434**	$ 1,101	**$ —**	$ —	**$ —**	$ 188	**$ 99**	$ —	**$ —**	$ —
Loans and leases	**17,223**	25,328	**—**	111	**—**	675	**—**	—	**—**	—
All other assets	**427**	449	**—**	—	**—**	54	**—**	—	**—**	—
Total assets	**$ 18,084**	$ 26,878	**$ —**	$ 111	**$ —**	$ 917	**$ 99**	$ —	**$ —**	$ —
On-balance sheet liabilities										
Long-term debt	**$ —**	$ —	**$ —**	$ 46	**$ —**	$ 840	**$ 74**	$ —	**$ —**	$ —
All other liabilities	**4**	1	**—**	—	**—**	—	**—**	—	**—**	—
Total liabilities	**$ 4**	$ 1	**$ —**	$ 46	**$ —**	$ 840	**$ 74**	$ —	**$ —**	$ —

(1) Maximum loss exposure includes obligations under loss-sharing reinsurance and other arrangements for non-agency residential mortgage and commercial mortgage securitizations, but excludes the liability for representations and warranties obligations and corporate guarantees and also excludes servicing advances and other servicing rights and obligations. For additional information, see *Note 7 – Representations and Warranties Obligations and Corporate Guarantees* and *Note 23 – Mortgage Servicing Rights.*

(2) As a holder of these securities, the Corporation receives scheduled principal and interest payments. During 2016 and 2015, the Corporation recognized $7 million and $34 million of credit-related impairment losses in earnings on those securities classified as AFS debt securities and none on HTM securities.

(3) Not included in the table above are all other assets of $189 million and $222 million, representing the unpaid principal balance of mortgage loans eligible for repurchase from unconsolidated residential mortgage securitization vehicles, principally guaranteed by GNMA, and all other liabilities of $189 million and $222 million, representing the principal amount that would be payable to the securitization vehicles if the Corporation was to exercise the repurchase option, at December 31, 2016 and 2015.

(4) Principal balance outstanding includes loans the Corporation transferred with which it has continuing involvement, which may include servicing the loans.

Other Asset-backed Securitizations

The table below summarizes select information related to home equity loan, credit card and other asset-backed VIEs in which the Corporation held a variable interest at December 31, 2016 and 2015.

Home Equity Loan, Credit Card and Other Asset-backed VIEs

	Home Equity Loan [1]		Credit Card [2, 3]		Resecuritization Trusts		Municipal Bond Trusts		Automobile and Other Securitization Trusts	
	December 31									
(Dollars in millions)	**2016**	2015	**2016**	2015	**2016**	2015	**2016**	2015	**2016**	2015
Unconsolidated VIEs										
Maximum loss exposure	**$ 2,732**	$ 3,988	**$ —**	$ —	**$ 9,906**	$ 13,046	**$ 1,635**	$ 1,572	**$ 47**	$ 63
On-balance sheet assets										
Senior securities held [4, 5]:										
Trading account assets	**$ —**	$ —	**$ —**	$ —	**$ 902**	$ 1,248	**$ —**	$ 2	**$ —**	$ —
Debt securities carried at fair value	**46**	57	**—**	—	**2,338**	4,341	**—**	—	**47**	53
Held-to-maturity securities	**—**	—	**—**	—	**6,569**	7,370	**—**	—	**—**	—
Subordinate securities held [4, 5]:										
Trading account assets	**—**	—	**—**	—	**27**	17	**—**	—	**—**	—
Debt securities carried at fair value	**—**	—	**—**	—	**70**	70	**—**	—	**—**	—
All other assets	**—**	—	**—**	—	**—**	—	**—**	—	**—**	10
Total retained positions	**$ 46**	$ 57	**$ —**	$ —	**$ 9,906**	$ 13,046	**$ —**	$ 2	**$ 47**	$ 63
Total assets of VIEs [6]	**$ 4,274**	$ 5,883	**$ —**	$ —	**$ 22,155**	$ 35,362	**$ 2,406**	$ 2,518	**$ 174**	$ 314
Consolidated VIEs										
Maximum loss exposure	**$ 149**	$ 231	**$ 25,859**	$ 32,678	**$ 420**	$ 354	**$ 1,442**	$ 1,973	**$ —**	$ —
On-balance sheet assets										
Trading account assets	**$ —**	$ —	**$ —**	$ —	**$ 1,428**	$ 771	**$ 1,454**	$ 1,984	**$ —**	$ —
Loans and leases	**244**	321	**35,135**	43,194	**—**	—	**—**	—	**—**	—
Allowance for loan and lease losses	**(16)**	(18)	**(1,007)**	(1,293)	**—**	—	**—**	—	**—**	—
All other assets	**7**	20	**793**	342	**—**	—	**—**	1	**—**	—
Total assets	**$ 235**	$ 323	**$ 34,921**	$ 42,243	**$ 1,428**	$ 771	**$ 1,454**	$ 1,985	**$ —**	$ —
On-balance sheet liabilities										
Short-term borrowings	**$ —**	$ —	**$ —**	$ —	**$ —**	$ —	**$ 348**	$ 681	**$ —**	$ —
Long-term debt	**108**	183	**9,049**	9,550	**1,008**	417	**12**	12	**—**	—
All other liabilities	**—**	—	**13**	15	**—**	—	**—**	—	**—**	—
Total liabilities	**$ 108**	$ 183	**$ 9,062**	$ 9,565	**$ 1,008**	$ 417	**$ 360**	$ 693	**$ —**	$ —

(1) For unconsolidated home equity loan VIEs, the maximum loss exposure includes outstanding trust certificates issued by trusts in rapid amortization, net of recorded reserves. For both consolidated and unconsolidated home equity loan VIEs, the maximum loss exposure excludes the liability for representations and warranties obligations and corporate guarantees. For additional information, see *Note 7 – Representations and Warranties Obligations and Corporate Guarantees*.

(2) At December 31, 2016 and 2015, loans and leases in the consolidated credit card trust included $17.6 billion and $24.7 billion of seller's interest.

(3) At December 31, 2016 and 2015, all other assets in the consolidated credit card trust included restricted cash, certain short-term investments, and unbilled accrued interest and fees.

(4) As a holder of these securities, the Corporation receives scheduled principal and interest payments. During 2016 and 2015, the Corporation recognized $2 million and $5 million of credit-related impairment losses in earnings on those securities classified as AFS debt securities and none on HTM securities.

(5) The retained senior and subordinate securities were valued using quoted market prices or observable market inputs (Level 2 of the fair value hierarchy).

(6) Total assets include loans the Corporation transferred with which the Corporation has continuing involvement, which may include servicing the loan.

Home Equity Loans

The Corporation retains interests in home equity securitization trusts to which it transferred home equity loans. These retained interests include senior and subordinate securities and residual interests. In addition, the Corporation may be obligated to provide subordinate funding to the trusts during a rapid amortization event. The Corporation typically services the loans in the trusts. Except as described below and in *Note 7 – Representations and Warranties Obligations and Corporate Guarantees*, the Corporation does not provide guarantees or recourse to the securitization trusts other than standard representations and warranties. There were no securitizations of home equity loans during 2016 and 2015, and all of the home equity trusts that hold revolving home equity lines of credit (HELOCs) have entered the rapid amortization phase.

The maximum loss exposure in the table above includes the Corporation's obligation to provide subordinate funding to the consolidated and unconsolidated home equity loan securitizations that have entered the rapid amortization phase. During this period, cash payments from borrowers are accumulated to repay outstanding debt securities, and the Corporation continues to make advances to borrowers when they draw on their lines of credit. At December 31, 2016 and 2015, home equity loan securitizations in rapid amortization for which the Corporation has a subordinate funding obligation, including both consolidated and unconsolidated trusts, had $2.7 billion and $4.0 billion of trust certificates outstanding that were held by third parties. The charges that will ultimately be recorded as a result of the rapid amortization events depend on the undrawn available credit on the home equity lines, performance of the loans, the amount of subsequent draws and the timing of related cash flows. During 2016 and 2015, amounts actually funded by the Corporation under this obligation totaled $1 million and $7 million.

During 2015, the Corporation deconsolidated several home equity line of credit trusts with total assets of $488 million and total liabilities of $611 million as its obligation to provide subordinated funding is no longer considered to be a potentially significant variable interest in the trusts following a decline in the amount of credit available to be drawn by borrowers. In connection with deconsolidation, the Corporation recorded a gain of $123 million in other income in the Consolidated Statement of Income.

The derecognition of assets and liabilities represents non-cash investing and financing activities and, accordingly, is not reflected on the Consolidated Statement of Cash Flows.

Credit Card Securitizations

The Corporation securitizes originated and purchased credit card loans. The Corporation's continuing involvement with the securitization trust includes servicing the receivables, retaining an undivided interest (seller's interest) in the receivables, and holding certain retained interests including senior and subordinate securities, subordinate interests in accrued interest and fees on the securitized receivables, and cash reserve accounts. The seller's interest in the trust, which is pari passu to the investors' interest, is classified in loans and leases.

During 2016, $750 million of new senior debt securities were issued to third-party investors from the credit card securitization trust compared to $2.3 billion issued during 2015.

The Corporation held subordinate securities issued by the credit card securitization trust with a notional principal amount of $7.5 billion at both December 31, 2016 and 2015. These securities serve as a form of credit enhancement to the senior debt securities and have a stated interest rate of zero percent. There were $121 million of these subordinate securities issued during 2016 and $371 million issued during 2015.

Resecuritization Trusts

The Corporation transfers trading securities, typically MBS, into resecuritization vehicles at the request of customers seeking securities with specific characteristics. The Corporation may also resecuritize debt securities carried at fair value, including AFS securities, within its investment portfolio for purposes of improving liquidity and capital, and managing credit or interest rate risk. Generally, there are no significant ongoing activities performed in a resecuritization trust and no single investor has the unilateral ability to liquidate the trust.

The Corporation resecuritized $23.4 billion, $30.7 billion and $14.4 billion of securities in 2016, 2015 and 2014. Resecuritizations in 2014 included $1.5 billion of AFS debt securities, and gains on sale of $85 million were recorded. There were no resecuritizations of AFS debt securities during 2016 and 2015. Other securities transferred into resecuritization vehicles during 2016, 2015 and 2014, were measured at fair value with changes in fair value recorded in trading account profits or other income prior to the resecuritization and no gain or loss on sale was recorded. During 2016, 2015 and 2014, resecuritization proceeds included securities with an initial fair value of $3.3 billion, $9.8 billion and $4.6 billion, including $6.9 billion and $747 million which were classified as HTM during 2015 and 2014. Substantially all of the other securities received as resecuritization proceeds were classified as trading securities and were categorized as Level 2 within the fair value hierarchy.

Municipal Bond Trusts

The Corporation administers municipal bond trusts that hold highly-rated, long-term, fixed-rate municipal bonds. The trusts obtain financing by issuing floating-rate trust certificates that reprice on a weekly or other short-term basis to third-party investors. The Corporation may transfer assets into the trusts and may also serve as remarketing agent and/or liquidity provider for the trusts. The floating-rate investors have the right to tender the certificates at specified dates. Should the Corporation be unable to remarket the tendered certificates, it may be obligated to purchase them at par under standby liquidity facilities. The Corporation also provides credit enhancement to investors in certain municipal bond trusts whereby the Corporation guarantees the payment of interest and principal on floating-rate certificates issued by these trusts in the event of default by the issuer of the underlying municipal bond.

The Corporation's liquidity commitments to unconsolidated municipal bond trusts, including those for which the Corporation was transferor, totaled $1.6 billion at both December 31, 2016 and 2015. The weighted-average remaining life of bonds held in the trusts at December 31, 2016 was 5.6 years. There were no material write-downs or downgrades of assets or issuers during 2016 and 2015.

Automobile and Other Securitization Trusts

The Corporation transfers automobile and other loans into securitization trusts, typically to improve liquidity or manage credit risk. At December 31, 2016 and 2015, the Corporation serviced assets or otherwise had continuing involvement with automobile and other securitization trusts with outstanding balances of $174 million and $314 million, including trusts collateralized by other loans of $174 million and $189 million and automobile loans of $0 and $125 million.

During 2015, the Corporation deconsolidated a student loan trust with total assets of $515 million and total liabilities of $449 million following the transfer of servicing and sale of retained interests to third parties. No gain or loss was recorded as a result of the deconsolidation. The derecognition of assets and liabilities represents non-cash investing and financing activities and, accordingly, is not reflected on the Consolidated Statement of Cash Flows.

Other Variable Interest Entities

The table below summarizes select information related to other VIEs in which the Corporation held a variable interest at December 31, 2016 and 2015.

Other VIEs

	December 31					
	2016			2015		
(Dollars in millions)	**Consolidated**	**Unconsolidated**	**Total**	Consolidated	Unconsolidated	Total
Maximum loss exposure	**$ 6,114**	**$ 17,707**	**$ 23,821**	$ 6,295	$ 12,916	$ 19,211
On-balance sheet assets						
Trading account assets	**$ 2,358**	**$ 233**	**$ 2,591**	$ 2,300	$ 366	$ 2,666
Debt securities carried at fair value	**—**	**75**	**75**	—	126	126
Loans and leases	**3,399**	**3,249**	**6,648**	3,317	3,389	6,706
Allowance for loan and lease losses	**(9)**	**(24)**	**(33)**	(9)	(23)	(32)
Loans held-for-sale	**188**	**464**	**652**	284	1,025	1,309
All other assets	**369**	**13,156**	**13,525**	664	6,925	7,589
Total	**$ 6,305**	**$ 17,153**	**$ 23,458**	$ 6,556	$ 11,808	$ 18,364
On-balance sheet liabilities						
Long-term debt (1)	**$ 395**	**$ —**	**$ 395**	$ 3,025	$ —	$ 3,025
All other liabilities	**24**	**2,959**	**2,983**	5	2,697	2,702
Total	**$ 419**	**$ 2,959**	**$ 3,378**	$ 3,030	$ 2,697	$ 5,727
Total assets of VIEs	**$ 6,305**	**$ 62,095**	**$ 68,400**	$ 6,556	$ 49,190	$ 55,746

(1) Includes $229 million and $2.8 billion of long-term debt at December 31, 2016 and 2015 issued by other consolidated VIEs, which has recourse to the general credit of the Corporation.

During 2015, the Corporation consolidated certain customer vehicles after redeeming long-term debt owed to the vehicles and acquiring a controlling financial interest in the vehicles. The Corporation also deconsolidated certain investment vehicles following the sale or disposition of variable interests. These actions resulted in a net decrease in long-term debt of $1.2 billion which represents a non-cash financing activity and, accordingly, is not reflected on the Consolidated Statement of Cash Flows. No gain or loss was recorded as a result of the consolidation or deconsolidation of these VIEs.

Customer Vehicles

Customer vehicles include credit-linked, equity-linked and commodity-linked note vehicles, repackaging vehicles, and asset acquisition vehicles, which are typically created on behalf of customers who wish to obtain market or credit exposure to a specific company, index, commodity or financial instrument. The Corporation may transfer assets to and invest in securities issued by these vehicles. The Corporation typically enters into credit, equity, interest rate, commodity or foreign currency derivatives to synthetically create or alter the investment profile of the issued securities.

The Corporation's maximum loss exposure to consolidated and unconsolidated customer vehicles totaled $2.9 billion and $3.9 billion at December 31, 2016 and 2015, including the notional amount of derivatives to which the Corporation is a counterparty, net of losses previously recorded, and the Corporation's investment, if any, in securities issued by the vehicles. The maximum loss exposure has not been reduced to reflect the benefit of offsetting swaps with the customers or collateral arrangements. The Corporation also had liquidity commitments, including written put options and collateral value guarantees, with certain unconsolidated vehicles of $323 million and $691 million at December 31, 2016 and 2015, that are included in the table above.

Collateralized Debt Obligation Vehicles

The Corporation receives fees for structuring CDO vehicles, which hold diversified pools of fixed-income securities, typically corporate debt or ABS, which the CDO vehicles fund by issuing multiple tranches of debt and equity securities. Synthetic CDOs enter into a portfolio of CDS to synthetically create exposure to fixed-income securities. CLOs, which are a subset of CDOs, hold pools of loans, typically corporate loans. CDOs are typically managed by third-party portfolio managers. The Corporation typically transfers assets to these CDOs, holds securities issued by the CDOs and may be a derivative counterparty to the CDOs, including a CDS counterparty for synthetic CDOs. The Corporation has also entered into total return swaps with certain CDOs whereby the Corporation absorbs the economic returns generated by specified assets held by the CDO.

The Corporation’s maximum loss exposure to consolidated and unconsolidated CDOs totaled $430 million and $543 million at December 31, 2016 and 2015. This exposure is calculated on a gross basis and does not reflect any benefit from insurance purchased from third parties.

At December 31, 2016, the Corporation had $127 million of aggregate liquidity exposure, included in the Other VIEs table net of previously recorded losses, to unconsolidated CDOs which hold senior CDO debt securities or other debt securities on the Corporation’s behalf.

Investment Vehicles

The Corporation sponsors, invests in or provides financing, which may be in connection with the sale of assets, to a variety of investment vehicles that hold loans, real estate, debt securities or other financial instruments and are designed to provide the desired investment profile to investors or the Corporation. At December 31, 2016 and 2015, the Corporation’s consolidated investment vehicles had total assets of $846 million and $397 million. The Corporation also held investments in unconsolidated vehicles with total assets of $17.3 billion and $14.7 billion at December 31, 2016 and 2015. The Corporation’s maximum loss exposure associated with both consolidated and unconsolidated investment vehicles totaled $5.1 billion at both December 31, 2016 and 2015 comprised primarily of on-balance sheet assets less non-recourse liabilities.

In prior periods, the Corporation transferred servicing advance receivables to independent third parties in connection with the sale of MSRs. Portions of the receivables were transferred into unconsolidated securitization trusts. At both December 31, 2016 and 2015 the Corporation retained senior interests in such receivables with a maximum loss exposure and funding obligation of $150 million, including a funded balance of $75 million and $122 million respectively, which were classified in other debt securities carried at fair value.

Leveraged Lease Trusts

The Corporation’s net investment in consolidated leveraged lease trusts totaled $2.6 billion and $2.8 billion at December 31, 2016 and 2015. The trusts hold long-lived equipment such as rail cars, power generation and distribution equipment, and commercial aircraft. The Corporation structures the trusts and holds a significant residual interest. The net investment represents the Corporation’s maximum loss exposure to the trusts in the unlikely event that the leveraged lease investments become worthless. Debt issued by the leveraged lease trusts is non-recourse to the Corporation.

Tax Credit Vehicles

The Corporation holds investments in unconsolidated limited partnerships and similar entities that construct, own and operate affordable housing, wind and solar projects. An unrelated third party is typically the general partner or managing member and has control over the significant activities of the vehicle. The Corporation earns a return primarily through the receipt of tax credits allocated to the projects. The maximum loss exposure included in the Other VIEs table was $12.6 billion at December 31, 2016 which includes the impact of the adoption of the new accounting guidance on determining whether limited partnerships and similar entities are VIEs. The maximum loss exposure included in this table was $6.5 billion at December 31, 2015 and primarily relates to affordable housing. The Corporation’s risk of loss is generally mitigated by policies requiring that the project qualify for the expected tax credits prior to making its investment.

The Corporation's investments in affordable housing partnerships, which are reported in other assets on the Consolidated Balance Sheet, totaled $7.4 billion and $7.1 billion, including unfunded commitments to provide capital contributions of $2.7 billion and $2.4 billion at December 31, 2016 and December 31, 2015. The unfunded commitments are expected to be paid over the next five years. During 2016 and 2015, the Corporation recognized tax credits and other tax benefits from investments in affordable housing partnerships of $1.1 billion and $928 million, and reported pretax losses in other noninterest income of $789 million and $629 million. Tax credits are recognized as part of the Corporation's annual effective tax rate used to determine tax expense in a given quarter. Accordingly, the portion of a year's expected tax benefits recognized in any given quarter may differ from 25 percent. The Corporation may from time to time be asked to invest additional amounts to support a troubled affordable housing project. Such additional investments have not been and are not expected to be significant.

NOTE 7 Representations and Warranties Obligations and Corporate Guarantees

Background

The Corporation securitizes first-lien residential mortgage loans generally in the form of RMBS guaranteed by the GSEs or by GNMA in the case of FHA-insured, VA-guaranteed and Rural Housing Service-guaranteed mortgage loans, and sells pools of first-lien residential mortgage loans in the form of whole loans. In addition, in prior years, legacy companies and certain subsidiaries sold pools of first-lien residential mortgage loans and home equity loans as private-label securitizations or in the form of whole loans. In connection with these transactions, the Corporation or certain of its subsidiaries or legacy companies made various representations and warranties. Breaches of these representations and warranties have resulted in and may continue to result in the requirement to repurchase mortgage loans or to otherwise make whole or provide other remedies to investors, securitization trusts, guarantors, insurers or other parties (collectively, repurchases).

Settlement Actions

The Corporation has vigorously contested any request for repurchase where it has concluded that a valid basis for repurchase does not exist and will continue to do so in the future. However, in an effort to resolve legacy mortgage-related issues, the Corporation has reached bulk settlements, certain of which have been for significant amounts, in lieu of a loan-by-loan review process, including settlements with the GSEs, four monoline insurers and Bank of New York Mellon (BNY Mellon), as trustee for certain securitization trusts. These bulk settlements generally did not cover all transactions with the relevant counterparties or all potential claims that may arise, including in some instances securities law, fraud, indemnification and servicing claims, which may be addressed separately. The Corporation's liability in connection with the transactions and claims not covered by these settlements could be material to the Corporation's results of operations or liquidity for any particular reporting period. The Corporation may reach other settlements in the future if opportunities arise on terms it believes to be advantageous. However, there can be no assurance that the Corporation will reach future settlements or, if it does, that the terms of past settlements can be relied upon to predict the terms of future settlements.

Unresolved Repurchase Claims

Unresolved representations and warranties repurchase claims represent the notional amount of repurchase claims made by counterparties, typically the outstanding principal balance or the unpaid principal balance at the time of default. In the case of first-lien mortgages, the claim amount is often significantly greater than the expected loss amount due to the benefit of collateral and, in some cases, mortgage insurance (MI) or mortgage guarantee payments. Claims received from a counterparty remain outstanding until the underlying loan is repurchased, the claim is rescinded by the counterparty, the Corporation determines that the applicable statute of limitations has expired, or representations and warranties claims with respect to the applicable trust are settled, and fully and finally released. The Corporation does not include duplicate claims in the amounts disclosed.

The table below presents unresolved repurchase claims at December 31, 2016 and 2015. The unresolved repurchase claims include only claims where the Corporation believes that the counterparty has the contractual right to submit claims. The unresolved repurchase claims predominantly relate to subprime and pay option first-lien loans and home equity loans. For additional information, see Private-label Securitizations and Whole-loan Sales Experience in this Note and *Note 12 – Commitments and Contingencies*.

Unresolved Repurchase Claims by Counterparty, net of duplicate claims

	December 31	
(Dollars in millions)	**2016**	2015
By counterparty		
Private-label securitization trustees, whole-loan investors, including third-party securitization sponsors and other [1]	**$ 16,685**	$ 16,748
Monolines	**1,583**	1,599
GSEs	**9**	17
Total unresolved repurchase claims by counterparty, net of duplicate claims	**$ 18,277**	$ 18,364

[1] Includes $11.9 billion of claims based on individual file reviews and $4.8 billion of claims submitted without individual file reviews at both December 31, 2016 and 2015.

During 2016, the Corporation received $647 million in new repurchase claims, including $440 million of claims that are deemed time-barred. During 2016, $734 million in claims were resolved, including $477 million that are deemed time-barred. Of the remaining unresolved monoline claims, substantially all of the claims pertain to second-lien loans and are currently the subject of litigation with a single monoline insurer. There may be additional claims or file requests in the future.

In addition to the unresolved repurchase claims in the Unresolved Repurchase Claims by Counterparty, net of duplicate claims table, the Corporation has received notifications from sponsors of third-party securitizations with whom the Corporation engaged in whole-loan transactions indicating that the Corporation may have indemnity obligations with respect to loans for which the Corporation has not received a repurchase request. These outstanding notifications totaled $1.3 billion and $1.4 billion at December 31, 2016 and 2015.

The presence of repurchase claims on a given trust, receipt of notices of indemnification obligations and receipt of other communications, as discussed above, are all factors that inform the Corporation's liability for representations and warranties and the corresponding estimated range of possible loss.

Private-label Securitizations and Whole-loan Sales Experience

Prior to 2009, legacy companies and certain subsidiaries sold pools of first-lien residential mortgage loans and home equity loans as private-label securitizations or in the form of whole loans. In connection with these transactions, the Corporation or certain of its subsidiaries or legacy companies made various representations and warranties. When the Corporation provided representations and warranties in connection with the sale of whole loans, the whole-loan investors may retain the right to make repurchase claims even when the loans were aggregated with other collateral into private-label securitizations sponsored by the whole-loan investors. In other third-party securitizations, the whole-loan investors' rights to enforce the representations and warranties were transferred to the securitization trustees. Private-label securitization investors generally do not have the contractual right to demand repurchase of loans directly or the right to access loan files directly.

At December 31, 2016 and 2015, for loans originated between 2004 and 2008, the notional amount of unresolved repurchase claims submitted by private-label securitization trustees, whole-loan investors, including third-party securitization sponsors, and others was $16.6 billion and $16.7 billion. The notional amount of unresolved repurchase claims at December 31, 2016 and 2015 includes $5.6 billion and $3.5 billion of claims related to loans in specific private-label securitization groups or tranches where the Corporation owns substantially all of the outstanding securities or will otherwise realize the benefit of any repurchase claims paid.

The notional amount of outstanding unresolved repurchase claims remained relatively unchanged in 2016 compared to 2015. Outstanding repurchase claims remained unresolved primarily due to (1) the level of detail, support and analysis accompanying such claims, which impact overall claim quality and, therefore, claims resolution, and (2) the lack of an established process to resolve disputes related to these claims.

The Corporation reviews properly presented repurchase claims on a loan-by-loan basis. For time-barred claims, the counterparty is informed that the claim is denied on the basis of the statute of limitations and the claim is treated as resolved. For timely claims, if the Corporation, after review, does not believe a claim is valid, it will deny the claim and generally indicate a reason for the denial. If the counterparty agrees with the Corporation's denial of the claim, the counterparty may rescind the claim. If there is a disagreement as to the resolution of the claim, meaningful dialogue and negotiation between the parties are generally necessary to reach a resolution on an individual claim. When a claim is denied and the Corporation does not hear from the counterparty for six months, the Corporation views the claim as inactive; however, such claims remain in the outstanding claims balance until resolution. In the case of private-label securitization trustees and third-party sponsors, there is currently no established process in place for the parties to reach a conclusion on an individual loan if there is a disagreement on the resolution of the claim. The Corporation has performed an initial review with respect to substantially all outstanding claims and, although the Corporation does not believe a valid basis for repurchase has been established by the claimant, it considers such claims activity in the computation of its liability for representations and warranties.

Liability for Representations and Warranties and Corporate Guarantees and Estimated Range of Possible Loss

The liability for representations and warranties and corporate guarantees is included in accrued expenses and other liabilities on the Consolidated Balance Sheet and the related provision is included in mortgage banking income in the Consolidated Statement of Income. The liability for representations and warranties is established when those obligations are both probable and reasonably estimable.

The Corporation's representations and warranties liability and the corresponding estimated range of possible loss at December 31, 2016 considers, among other things, the repurchase experience implied in the settlements with BNY Mellon and other counterparties. Since the securitization trusts that were included in the settlement with BNY Mellon differ from other securitization trusts where the possibility of timely claims exists, the Corporation adjusted the repurchase experience implied in the settlement in order to determine the representations and warranties liability and the corresponding estimated range of possible loss.

The table below presents a rollforward of the liability for representations and warranties and corporate guarantees.

Representations and Warranties and Corporate Guarantees

(Dollars in millions)	2016	2015
Liability for representations and warranties and corporate guarantees, January 1	**$ 11,326**	$ 12,081
Additions for new sales	**4**	6
Payments	**(9,097)**	(722)
Provision (benefit)	**106**	(39)
Liability for representations and warranties and corporate guarantees, December 31 [(1)]	**$ 2,339**	$ 11,326

(1) In February 2016, the Corporation made an $8.5 billion settlement payment to BNY Mellon as part of the settlement with BNY Mellon.

The representations and warranties liability represents the Corporation's best estimate of probable incurred losses as of December 31, 2016. However, it is reasonably possible that future representations and warranties losses may occur in excess of the amounts recorded for these exposures.

The Corporation currently estimates that the range of possible loss for representations and warranties exposures could be up to $2 billion over existing accruals at December 31, 2016. The Corporation treats claims that are time-barred as resolved and does not consider such claims in the estimated range of possible loss. The estimated range of possible loss reflects principally exposures related to loans in private-label securitization trusts. It represents a reasonably possible loss, but does not represent a probable loss, and is based on currently available information, significant judgment and a number of assumptions that are subject to change.

The liability for representations and warranties exposures and the corresponding estimated range of possible loss do not consider certain losses related to servicing, including foreclosure and related costs, fraud, indemnity, or claims (including for RMBS) related to securities law or monoline insurance litigation. Losses with respect to one or more of these matters could be material to the Corporation's results of operations or liquidity for any particular reporting period.

Future provisions and/or ranges of possible loss for representations and warranties may be significantly impacted if actual experiences are different from the Corporation's assumptions in predictive models, including, without limitation, the actual repurchase rates on loans in trusts not settled as part of the settlement with BNY Mellon which may be different than the implied repurchase experience, estimated MI rescission rates, economic conditions, estimated home prices, consumer and counterparty behavior, the applicable statute of limitations, potential indemnity obligations to third parties to whom the Corporation has sold loans subject to representations and warranties and a variety of other judgmental factors. Adverse developments with respect to one or more of the assumptions underlying the liability for representations and warranties and the corresponding estimated range of possible loss, such as investors or trustees successfully challenging or avoiding the application of the relevant statute of limitations, could result in significant increases to future provisions and/or the estimated range of possible loss.

NOTE 8 Goodwill and Intangible Assets

Goodwill

The table below presents goodwill balances by business segment and *All Other* at December 31, 2016 and 2015. The reporting units utilized for goodwill impairment testing are the operating segments or one level below.

Goodwill

	December 31	
(Dollars in millions)	**2016**	2015
Consumer Banking	**$ 30,123**	$ 30,123
Global Wealth & Investment Management	**9,681**	9,698
Global Banking	**23,923**	23,923
Global Markets	**5,197**	5,197
All Other	**820**	820
Less: Goodwill of business held for sale [1]	**(775)**	—
Total goodwill	**$ 68,969**	$ 69,761

[1] Reflects the goodwill assigned to the non-U.S. consumer credit card business, which is included in assets of business held for sale on the Consolidated Balance Sheet.

During 2016, the Corporation completed its annual goodwill impairment test as of June 30, 2016 for all applicable reporting units. Based on the results of the annual goodwill impairment test, the Corporation determined there was no impairment.

Intangible Assets

The table below presents the gross and net carrying values and accumulated amortization for intangible assets at December 31, 2016 and 2015.

Intangible Assets [1, 2]

	December 31					
	2016			2015		
(Dollars in millions)	**Gross Carrying Value**	**Accumulated Amortization**	**Net Carrying Value**	Gross Carrying Value	Accumulated Amortization	Net Carrying Value
Purchased credit card and affinity relationships	**$ 6,830**	**$ 6,243**	**$ 587**	$ 7,006	$ 6,111	$ 895
Core deposit and other intangibles [3]	**3,836**	**2,046**	**1,790**	3,922	1,986	1,936
Customer relationships	**3,887**	**3,275**	**612**	3,927	2,990	937
Total intangible assets [4]	**$ 14,553**	**$ 11,564**	**$ 2,989**	$ 14,855	$ 11,087	$ 3,768

[1] Excludes fully amortized intangible assets.
[2] At December 31, 2016 and 2015, none of the intangible assets were impaired.
[3] Includes $1.6 billion at both December 31, 2016 and 2015 of intangible assets associated with trade names that have an indefinite life and, accordingly, are not amortized.
[4] Includes $67 million of intangible assets assigned to the non-U.S. consumer credit card business, which is included in assets of business held for sale on the Consolidated Balance Sheet.

Amortization of intangibles expense was $730 million, $834 million and $936 million for 2016, 2015 and 2014. The Corporation estimates aggregate amortization expense will be $638 million, $559 million, $120 million, $60 million, and $3 million for the years ended 2017, 2018, 2019, 2020, and 2021.

NOTE 9 Deposits

The Corporation had U.S. certificates of deposit and other U.S. time deposits of $100 thousand or more totaling $32.9 billion and $28.3 billion at December 31, 2016 and 2015. Non-U.S. certificates of deposit and other non-U.S. time deposits of $100 thousand or more totaled $14.7 billion and $14.1 billion at December 31, 2016 and 2015. The Corporation also had aggregate time deposits of $18.3 billion in denominations that met or exceeded the Federal Deposit Insurance Corporation (FDIC) insurance limit at December 31, 2016. The table below presents the contractual maturities for time deposits of $100 thousand or more at December 31, 2016.

Time Deposits of $100 Thousand or More

(Dollars in millions)	Three Months or Less	Over Three Months to Twelve Months	Thereafter	Total
U.S. certificates of deposit and other time deposits	$ 16,112	$ 14,580	$ 2,206	**$ 32,898**
Non-U.S. certificates of deposit and other time deposits	8,688	2,746	3,243	**14,677**

The scheduled contractual maturities for total time deposits at December 31, 2016 are presented in the table below.

Contractual Maturities of Total Time Deposits

(Dollars in millions)	U.S.	Non-U.S.	Total
Due in 2017	$ 53,584	$ 11,528	**$ 65,112**
Due in 2018	3,081	1,702	**4,783**
Due in 2019	1,131	47	**1,178**
Due in 2020	1,475	250	**1,725**
Due in 2021	406	1,238	**1,644**
Thereafter	483	19	**502**
Total time deposits	$ 60,160	$ 14,784	**$ 74,944**

NOTE 10 Federal Funds Sold or Purchased, Securities Financing Agreements and Short-term Borrowings

The table below presents federal funds sold or purchased, securities financing agreements, which include securities borrowed or purchased under agreements to resell and securities loaned or sold under agreements to repurchase, and short-term borrowings. The Corporation elects to account for certain securities financing agreements and short-term borrowings under the fair value option. For more information on the election of the fair value option, see *Note 21 – Fair Value Option*.

	2016		2015	
(Dollars in millions)	**Amount**	**Rate**	Amount	Rate
Federal funds sold and securities borrowed or purchased under agreements to resell				
Average during year	**$ 216,161**	**0.52%**	$ 211,471	0.47%
Maximum month-end balance during year	**225,015**	**n/a**	226,502	n/a
Federal funds purchased and securities loaned or sold under agreements to repurchase				
Average during year	**$ 183,818**	**0.97%**	$ 213,497	0.89%
Maximum month-end balance during year	**196,631**	**n/a**	235,232	n/a
Short-term borrowings				
Average during year	**29,440**	**1.95**	32,798	1.49
Maximum month-end balance during year	**33,051**	**n/a**	40,110	n/a

n/a = not applicable

Bank of America, N.A. maintains a global program to offer up to a maximum of $75 billion outstanding at any one time, of bank notes with fixed or floating rates and maturities of at least seven days from the date of issue. Short-term bank notes outstanding under this program totaled $9.3 billion and $16.8 billion at December 31, 2016 and 2015. These short-term bank notes, along with FHLB advances, U.S. Treasury tax and loan notes, and term federal funds purchased, are included in short-term borrowings on the Consolidated Balance Sheet.

Offsetting of Securities Financing Agreements

The Corporation enters into securities financing agreements to accommodate customers (also referred to as "matched-book transactions"), obtain securities to cover short positions, and to finance inventory positions. Substantially all of the Corporation's securities financing activities are transacted under legally enforceable master repurchase agreements or legally enforceable master securities lending agreements that give the Corporation, in the event of default by the counterparty, the right to liquidate securities held and to offset receivables and payables with the same counterparty. The Corporation offsets securities financing transactions with the same counterparty on the Consolidated Balance Sheet where it has such a legally enforceable master netting agreement and the transactions have the same maturity date.

The Securities Financing Agreements table presents securities financing agreements included on the Consolidated Balance Sheet in federal funds sold and securities borrowed or purchased under agreements to resell, and in federal funds purchased and securities loaned or sold under agreements to repurchase at December 31, 2016 and 2015. Balances are presented on a gross basis, prior to the application of counterparty netting. Gross assets and liabilities are adjusted on an aggregate basis to take into consideration the effects of legally enforceable master netting agreements. For more information on the offsetting of derivatives, see *Note 2 – Derivatives*.

The "Other" amount in the table, which is included on the Consolidated Balance Sheet in accrued expenses and other liabilities, relates to transactions where the Corporation acts as the lender in a securities lending agreement and receives securities that can be pledged as collateral or sold. In these transactions, the Corporation recognizes an asset at fair value, representing the securities received, and a liability, representing the obligation to return those securities.

Gross assets and liabilities in the table include activity where uncertainty exists as to the enforceability of certain master netting agreements under bankruptcy laws in some countries or industries and, accordingly, these are reported on a gross basis.

The column titled "Financial Instruments" in the table includes securities collateral received or pledged under repurchase or securities lending agreements where there is a legally enforceable master netting agreement. These amounts are not offset on the Consolidated Balance Sheet, but are shown as a reduction to the net balance sheet amount in this table to derive a net asset or liability. Securities collateral received or pledged where the legal enforceability of the master netting agreements is not certain is not included.

Securities Financing Agreements

(Dollars in millions)	Gross Assets/ Liabilities	Amounts Offset	Net Balance Sheet Amount	Financial Instruments	Net Assets/ Liabilities
	December 31, 2016				
Securities borrowed or purchased under agreements to resell [1]	**$ 326,970**	**$ (128,746)**	**$ 198,224**	**$ (154,974)**	**$ 43,250**
Securities loaned or sold under agreements to repurchase	**$ 299,028**	**$ (128,746)**	**$ 170,282**	**$ (140,774)**	**$ 29,508**
Other	**14,448**	**—**	**14,448**	**(14,448)**	**—**
Total	**$ 313,476**	**$ (128,746)**	**$ 184,730**	**$ (155,222)**	**$ 29,508**
	December 31, 2015				
Securities borrowed or purchased under agreements to resell [1]	$ 347,281	$ (154,799)	$ 192,482	$ (144,332)	$ 48,150
Securities loaned or sold under agreements to repurchase	$ 329,078	$ (154,799)	$ 174,279	$ (135,737)	$ 38,542
Other	13,235	—	13,235	(13,235)	—
Total	$ 342,313	$ (154,799)	$ 187,514	$ (148,972)	$ 38,542

[1] Excludes repurchase activity of $10.1 billion and $9.3 billion reported in loans and leases on the Consolidated Balance Sheet at December 31, 2016 and 2015.

Repurchase Agreements and Securities Loaned Transactions Accounted for as Secured Borrowings

The tables below present securities sold under agreements to repurchase and securities loaned by remaining contractual term to maturity and class of collateral pledged. Included in "Other" are transactions where the Corporation acts as the lender in a securities lending agreement and receives securities that can be pledged as collateral or sold. Certain agreements contain a right to substitute collateral and/or terminate the agreement prior to maturity at the option of the Corporation or the counterparty. Such agreements are included in the table below based on the remaining contractual term to maturity. At December 31, 2016 and 2015, the Corporation had no outstanding repurchase-to-maturity transactions.

Remaining Contractual Maturity

	December 31, 2016				
(Dollars in millions)	Overnight and Continuous	30 Days or Less	After 30 Days Through 90 Days	Greater than 90 Days [1]	Total
Securities sold under agreements to repurchase	$ 129,853	$ 77,780	$ 31,851	$ 40,752	$ 280,236
Securities loaned	8,564	6,602	1,473	2,153	18,792
Other	14,448	—	—	—	14,448
Total	$ 152,865	$ 84,382	$ 33,324	$ 42,905	$ 313,476
	December 31, 2015				
Securities sold under agreements to repurchase	$ 126,694	$ 86,879	$ 43,216	$ 27,514	$ 284,303
Securities loaned	39,772	363	2,352	2,288	44,775
Other	13,235	—	—	—	13,235
Total	$ 179,701	$ 87,242	$ 45,568	$ 29,802	$ 342,313

[1] No agreements have maturities greater than three years.

Class of Collateral Pledged

	December 31, 2016			
(Dollars in millions)	Securities Sold Under Agreements to Repurchase	Securities Loaned	Other	Total
U.S. government and agency securities	$ 153,184	$ —	$ 70	$ 153,254
Corporate securities, trading loans and other	11,086	1,630	127	12,843
Equity securities	24,007	11,175	14,196	49,378
Non-U.S. sovereign debt	84,171	5,987	55	90,213
Mortgage trading loans and ABS	7,788	—	—	7,788
Total	$ 280,236	$ 18,792	$ 14,448	$ 313,476
	December 31, 2015			
U.S. government and agency securities	$ 142,572	$ —	$ 27	$ 142,599
Corporate securities, trading loans and other	11,767	265	278	12,310
Equity securities	32,323	13,350	12,929	58,602
Non-U.S. sovereign debt	87,849	31,160	1	119,010
Mortgage trading loans and ABS	9,792	—	—	9,792
Total	$ 284,303	$ 44,775	$ 13,235	$ 342,313

The Corporation is required to post collateral with a market value equal to or in excess of the principal amount borrowed under repurchase agreements. For securities loaned transactions, the Corporation receives collateral in the form of cash, letters of credit or other securities. To help ensure that the market value of the underlying collateral remains sufficient, collateral is generally valued daily and the Corporation may be required to deposit additional collateral or may receive or return collateral pledged when appropriate. Repurchase agreements and securities loaned transactions are generally either overnight, continuous (i.e., no stated term) or short-term. The Corporation manages liquidity risks related to these agreements by sourcing funding from a diverse group of counterparties, providing a range of securities collateral and pursuing longer durations, when appropriate.

NOTE 11 Long-term Debt

Long-term debt consists of borrowings having an original maturity of one year or more. The table below presents the balance of long-term debt at December 31, 2016 and 2015, and the related contractual rates and maturity dates as of December 31, 2016.

	December 31	
(Dollars in millions)	2016	2015
Notes issued by Bank of America Corporation		
Senior notes:		
Fixed, with a weighted-average rate of 4.25%, ranging from 0.39% to 8.40%, due 2017 to 2046	$ 108,933	$ 109,861
Floating, with a weighted-average rate of 1.73%, ranging from 0.19% to 5.64%, due 2017 to 2044	13,164	13,900
Senior structured notes	17,049	17,548
Subordinated notes:		
Fixed, with a weighted-average rate of 4.87%, ranging from 2.40% to 8.57%, due 2017 to 2045	26,047	27,216
Floating, with a weighted-average rate of 0.83%, ranging from 0.23% to 2.52%, due 2017 to 2026	4,350	5,029
Junior subordinated notes (related to trust preferred securities):		
Fixed, with a weighted-average rate of 6.91%, ranging from 5.25% to 8.05%, due 2027 to 2067	3,280	5,295
Floating, with a weighted-average rate of 1.60%, ranging from 1.43% to 1.99%, due 2027 to 2056	552	553
Total notes issued by Bank of America Corporation	173,375	179,402
Notes issued by Bank of America, N.A.		
Senior notes:		
Fixed, with a weighted-average rate of 1.67%, ranging from 0.02% to 2.05%, due 2017 to 2018	5,936	7,483
Floating, with a weighted-average rate of 1.66%, ranging from 0.94% to 2.86%, due 2017 to 2041	3,383	4,942
Subordinated notes:		
Fixed, with a weighted-average rate of 5.66%, ranging from 5.30% to 6.10%, due 2017 to 2036	4,424	4,815
Floating, with a weighted-average rate of 1.26%, ranging from 0.85% to 1.26%, due 2017 to 2019	598	1,401
Advances from Federal Home Loan Banks:		
Fixed, with a weighted-average rate of 5.31%, ranging from 0.01% to 7.72%, due 2017 to 2034	162	172
Floating	—	6,000
Securitizations and other BANA VIEs (1)	9,164	9,756
Other	3,084	2,985
Total notes issued by Bank of America, N.A.	26,751	37,554
Other debt		
Senior notes:		
Fixed, with a weighted-average rate of 5.50%, due 2017 to 2021	1	30
Structured liabilities	15,171	14,974
Nonbank VIEs (1)	1,482	4,317
Other	43	487
Total other debt	16,697	19,808
Total long-term debt	$ 216,823	$ 236,764

(1) Represents the total long-term debt included in the liabilities of consolidated VIEs on the Consolidated Balance Sheet.

Bank of America Corporation and Bank of America, N.A. maintain various U.S. and non-U.S. debt programs to offer both senior and subordinated notes. The notes may be denominated in U.S. Dollars or foreign currencies. At December 31, 2016 and 2015, the amount of foreign currency-denominated debt translated into U.S. Dollars included in total long-term debt was $44.7 billion and $46.4 billion. Foreign currency contracts may be used to convert certain foreign currency-denominated debt into U.S. Dollars.

At December 31, 2016, long-term debt of consolidated VIEs in the table above included debt of credit card, home equity and all other VIEs of $9.0 billion, $108 million and $1.5 billion, respectively. Long-term debt of VIEs is collateralized by the assets of the VIEs. For additional information, see *Note 6 – Securitizations and Other Variable Interest Entities.*

The weighted-average effective interest rates for total long-term debt (excluding senior structured notes), total fixed-rate debt and total floating-rate debt were 3.80 percent, 4.36 percent and 1.52 percent, respectively, at December 31, 2016, and 3.80 percent, 4.61 percent and 0.96 percent, respectively, at December 31, 2015. The Corporation's ALM activities maintain an overall interest rate risk management strategy that incorporates the use of interest rate contracts to manage fluctuations in earnings that are caused by interest rate volatility. The Corporation's goal is to manage interest rate sensitivity so that movements in interest rates do not significantly adversely affect earnings and capital. The weighted-average rates are the contractual interest rates on the debt and do not reflect the impacts of derivative transactions.

Certain senior structured notes and structured liabilities are accounted for under the fair value option. For more information on these notes, see *Note 21 – Fair Value Option.* Debt outstanding of $75 million at December 31, 2016 was issued by a 100 percent owned finance subsidiary of the parent company and is unconditionally guaranteed by the parent company.

The following table shows the carrying value for aggregate annual contractual maturities of long-term debt as of December 31, 2016. Included in the table are certain structured notes issued by the Corporation that contain provisions whereby the borrowings are redeemable at the option of the holder (put options) at specified dates prior to maturity. Other structured notes have coupon or repayment terms linked to the performance of debt or equity securities, indices, currencies or commodities, and the maturity may be accelerated based on the value of a referenced index or security. In both cases, the Corporation or a subsidiary may be required to settle the obligation for cash or other securities prior to the contractual maturity date. These borrowings are reflected in the table as maturing at their contractual maturity date.

During 2016, the Corporation had total long-term debt maturities and redemptions in the aggregate of $51.6 billion consisting of $30.6 billion for Bank of America Corporation, $11.6 billion for Bank of America, N.A. and $9.4 billion of other debt. During 2015, the Corporation had total long-term debt maturities and redemptions in the aggregate of $40.4 billion consisting of $25.3 billion for Bank of America Corporation, $6.6 billion for Bank of America, N.A. and $8.5 billion of other debt.

Long-term Debt by Maturity

(Dollars in millions)	2017	2018	2019	2020	2021	Thereafter	Total
Bank of America Corporation							
Senior notes	$ 17,913	$ 19,765	$ 17,858	$ 12,168	$ 10,382	$ 44,011	**$ 122,097**
Senior structured notes	3,931	3,137	1,341	969	409	7,262	**17,049**
Subordinated notes	4,760	2,603	1,431	—	349	21,254	**30,397**
Junior subordinated notes	—	—	—	—	—	3,832	**3,832**
Total Bank of America Corporation	26,604	25,505	20,630	13,137	11,140	76,359	**173,375**
Bank of America, N.A.							
Senior notes	3,649	5,649	—	—	—	21	**9,319**
Subordinated notes	3,328	—	1	—	—	1,693	**5,022**
Advances from Federal Home Loan Banks	9	9	14	12	2	116	**162**
Securitizations and other Bank VIEs [1]	3,549	2,300	3,200	—	—	115	**9,164**
Other	2,718	102	105	10	—	149	**3,084**
Total Bank of America, N.A.	13,253	8,060	3,320	22	2	2,094	**26,751**
Other debt							
Senior notes	1	—	—	—	—	—	**1**
Structured liabilities	3,860	1,288	1,261	977	756	7,029	**15,171**
Nonbank VIEs [1]	246	27	15	—	—	1,194	**1,482**
Other	—	—	—	—	—	43	**43**
Total other debt	4,107	1,315	1,276	977	756	8,266	**16,697**
Total long-term debt	**$ 43,964**	**$ 34,880**	**$ 25,226**	**$ 14,136**	**$ 11,898**	**$ 86,719**	**$ 216,823**

[1] Represents the total long-term debt included in the liabilities of consolidated VIEs on the Consolidated Balance Sheet.

Trust Preferred and Hybrid Securities

Trust preferred securities (Trust Securities) are primarily issued by trust companies (the Trusts) that are not consolidated. These Trust Securities are mandatorily redeemable preferred security obligations of the Trusts. The sole assets of the Trusts generally are junior subordinated deferrable interest notes of the Corporation or its subsidiaries (the Notes). The Trusts generally are 100 percent-owned finance subsidiaries of the Corporation. Obligations associated with the Notes are included in the long-term debt table on page 170.

Certain of the Trust Securities were issued at a discount and may be redeemed prior to maturity at the option of the Corporation. The Trusts generally have invested the proceeds of such Trust Securities in the Notes. Each issue of the Notes has an interest rate equal to the corresponding Trust Securities distribution rate. The Corporation has the right to defer payment of interest on the Notes at any time or from time to time for a period not exceeding five years provided that no extension period may extend beyond the stated maturity of the relevant Notes. During any such extension period, distributions on the Trust Securities will also be deferred, and the Corporation's ability to pay dividends on its common and preferred stock will be restricted.

The Trust Securities generally are subject to mandatory redemption upon repayment of the related Notes at their stated maturity dates or their earlier redemption at a redemption price equal to their liquidation amount plus accrued distributions to the date fixed for redemption and the premium, if any, paid by the Corporation upon concurrent repayment of the related Notes.

Periodic cash payments and payments upon liquidation or redemption with respect to Trust Securities are guaranteed by the Corporation or its subsidiaries to the extent of funds held by the Trusts (the Preferred Securities Guarantee). The Preferred Securities Guarantee, when taken together with the Corporation's other obligations including its obligations under the Notes, generally will constitute a full and unconditional guarantee, on a subordinated basis, by the Corporation of payments due on the Trust Securities.

On December 29, 2015, the Corporation provided notice of the redemption, which settled on January 29, 2016, of all trust preferred securities of Merrill Lynch Preferred Capital Trust III, Merrill Lynch Preferred Capital Trust IV and Merrill Lynch Preferred Capital Trust V with a total carrying value in the aggregate of $2.0 billion. In connection with the Corporation's acquisition of Merrill Lynch & Co., Inc. (Merrill Lynch) in 2009, the Corporation recorded a discount to par value as purchase accounting adjustments associated with these Trust Preferred Securities. The Corporation recorded a charge to net interest income of $612 million in 2015 related to the discount on the securities.

The Trust Securities Summary table details the outstanding Trust Securities and the related Notes previously issued which remained outstanding at December 31, 2016.

Trust Securities Summary (1)

(Dollars in millions)

Issuer	Issuance Date	December 31, 2016 Aggregate Principal Amount of Trust Securities	December 31, 2016 Aggregate Principal Amount of the Notes	Stated Maturity of the Trust Securities	Per Annum Interest Rate of the Notes	Interest Payment Dates	Redemption Period
Bank of America							
Capital Trust VI	March 2005	$ 27	$ 27	March 2035	5.63%	Semi-Annual	Any time
Capital Trust VII (2)	August 2005	5	5	August 2035	5.25	Semi-Annual	Any time
Capital Trust XI	May 2006	658	678	May 2036	6.63	Semi-Annual	Any time
Capital Trust XV	May 2007	1	1	June 2056	3-mo. LIBOR + 80 bps	Quarterly	On or after 6/01/37
NationsBank							
Capital Trust III	February 1997	131	136	January 2027	3-mo. LIBOR + 55 bps	Quarterly	On or after 1/15/07
BankAmerica							
Capital III	January 1997	103	106	January 2027	3-mo. LIBOR + 57 bps	Quarterly	On or after 1/15/02
Fleet							
Capital Trust V	December 1998	79	82	December 2028	3-mo. LIBOR + 100 bps	Quarterly	On or after 12/18/03
BankBoston							
Capital Trust III	June 1997	53	55	June 2027	3-mo. LIBOR + 75 bps	Quarterly	On or after 6/15/07
Capital Trust IV	June 1998	102	106	June 2028	3-mo. LIBOR + 60 bps	Quarterly	On or after 6/08/03
MBNA							
Capital Trust B	January 1997	70	73	February 2027	3-mo. LIBOR + 80 bps	Quarterly	On or after 2/01/07
Countrywide							
Capital III	June 1997	200	206	June 2027	8.05	Semi-Annual	Only under special event
Capital V	November 2006	1,495	1,496	November 2036	7.00	Quarterly	On or after 11/01/11
Merrill Lynch							
Capital Trust I	December 2006	1,050	1,051	December 2066	6.45	Quarterly	On or after 12/11
Capital Trust III	August 2007	750	751	September 2067	7.375	Quarterly	On or after 9/12
Total		$ 4,724	$ 4,773				

(1) Bank of America Capital Trust VIII, Countrywide Capital IV and Merrill Lynch Capital Trust II were redeemed during 2016.

(2) Notes are denominated in British Pound. Presentation currency is U.S. Dollar.

NOTE 12 Commitments and Contingencies

In the normal course of business, the Corporation enters into a number of off-balance sheet commitments. These commitments expose the Corporation to varying degrees of credit and market risk and are subject to the same credit and market risk limitation reviews as those instruments recorded on the Consolidated Balance Sheet.

Credit Extension Commitments

The Corporation enters into commitments to extend credit such as loan commitments, SBLCs and commercial letters of credit to meet the financing needs of its customers. The table below includes the notional amount of unfunded legally binding lending commitments net of amounts distributed (e.g., syndicated or participated) to other financial institutions. The distributed amounts were $12.1 billion and $14.3 billion at December 31, 2016 and 2015. At December 31, 2016, the carrying value of these commitments, excluding commitments accounted for under the fair value option, was $779 million, including deferred revenue of $17 million and a reserve for unfunded lending commitments of $762 million. At December 31, 2015, the comparable amounts were $664 million, $18 million and $646 million, respectively. The carrying value of these commitments is classified in accrued expenses and other liabilities on the Consolidated Balance Sheet.

The table below also includes the notional amount of commitments of $7.0 billion and $10.9 billion at December 31, 2016 and 2015 that are accounted for under the fair value option. However, the table below excludes cumulative net fair value of $173 million and $658 million on these commitments, which is classified in accrued expenses and other liabilities. For more information regarding the Corporation's loan commitments accounted for under the fair value option, see *Note 21 – Fair Value Option.*

Credit Extension Commitments

(Dollars in millions)	Expire in One Year or Less	Expire After One Year Through Three Years	Expire After Three Years Through Five Years	Expire After Five Years	Total
	December 31, 2016				
Notional amount of credit extension commitments					
Loan commitments	**$ 82,609**	**$ 133,063**	**$ 152,854**	**$ 22,129**	**$ 390,655**
Home equity lines of credit	**8,806**	**10,701**	**2,644**	**25,050**	**47,201**
Standby letters of credit and financial guarantees (1)	**19,165**	**10,754**	**3,225**	**1,027**	**34,171**
Letters of credit	**1,285**	**103**	**114**	**53**	**1,555**
Legally binding commitments	**111,865**	**154,621**	**158,837**	**48,259**	**473,582**
Credit card lines (2)	**377,773**	**—**	**—**	**—**	**377,773**
Total credit extension commitments	**$ 489,638**	**$ 154,621**	**$ 158,837**	**$ 48,259**	**$ 851,355**
	December 31, 2015				
Notional amount of credit extension commitments					
Loan commitments	$ 84,884	$ 119,272	$ 158,920	$ 37,112	$ 400,188
Home equity lines of credit	7,074	18,438	5,126	19,697	50,335
Standby letters of credit and financial guarantees (1)	19,584	9,903	3,385	1,218	34,090
Letters of credit	1,650	165	258	54	2,127
Legally binding commitments	113,192	147,778	167,689	58,081	486,740
Credit card lines (2)	370,127	—	—	—	370,127
Total credit extension commitments	$ 483,319	$ 147,778	$ 167,689	$ 58,081	$ 856,867

(1) The notional amounts of SBLCs and financial guarantees classified as investment grade and non-investment grade based on the credit quality of the underlying reference name within the instrument were $25.5 billion and $8.3 billion at December 31, 2016, and $25.5 billion and $8.4 billion at December 31, 2015. Amounts in the table include consumer SBLCs of $376 million and $164 million at December 31, 2016 and 2015.

(2) Includes business card unused lines of credit.

Legally binding commitments to extend credit generally have specified rates and maturities. Certain of these commitments have adverse change clauses that help to protect the Corporation against deterioration in the borrower's ability to pay.

Other Commitments

At December 31, 2016 and 2015, the Corporation had commitments to purchase loans (e.g., residential mortgage and commercial real estate) of $767 million and $729 million, and commitments to purchase commercial loans of $636 million and $874 million, which upon settlement will be included in loans or LHFS.

At both December 31, 2016 and 2015, the Corporation had commitments to purchase commodities, primarily liquefied natural gas of $1.9 billion, which upon settlement will be included in trading account assets.

At December 31, 2016 and 2015, the Corporation had commitments to enter into resale and forward-dated resale and securities borrowing agreements of $48.9 billion and $88.6 billion, and commitments to enter into forward-dated repurchase and securities lending agreements of $24.4 billion and $53.7 billion. These commitments expire within the next 12 months.

The Corporation has entered into agreements to purchase retail automotive loans from certain auto loan originators. These agreements provide for stated purchase amounts and contain cancellation provisions that allow the Corporation to terminate its commitment to purchase at any time, with a minimum notification period. At December 31, 2016 and 2015, the Corporation's maximum purchase commitment was $475 million and $1.2 billion. In addition, the Corporation has a commitment to originate or purchase auto loans and leases from a strategic partner up to $2.4 billion in 2017, with this commitment expiring on December 31, 2017.

The Corporation is a party to operating leases for certain of its premises and equipment. Commitments under these leases are approximately $2.3 billion, $2.1 billion, $1.8 billion, $1.6 billion and $1.3 billion for 2017 through 2021, respectively, and $4.5 billion in the aggregate for all years thereafter.

Other Guarantees

Bank-owned Life Insurance Book Value Protection

The Corporation sells products that offer book value protection to insurance carriers who offer group life insurance policies to corporations, primarily banks. The book value protection is provided on portfolios of intermediate investment-grade fixed-income securities and is intended to cover any shortfall in the event that policyholders surrender their policies and market value is below book value. These guarantees are recorded as derivatives and carried at fair value in the trading portfolio. At December 31, 2016 and 2015, the notional amount of these guarantees totaled $13.9 billion and $13.8 billion. At December 31, 2016 and 2015, the Corporation's maximum exposure related to these guarantees totaled $3.2 billion and $3.1 billion, with estimated maturity dates between 2031 and 2039. The net fair value including the fee receivable associated with these guarantees was $4 million and $12 million at December 31, 2016 and 2015, and reflects the probability of surrender as well as the multiple structural protection features in the contracts.

Indemnifications

In the ordinary course of business, the Corporation enters into various agreements that contain indemnifications, such as tax indemnifications, whereupon payment may become due if certain external events occur, such as a change in tax law. The indemnification clauses are often standard contractual terms and were entered into in the normal course of business based on an assessment that the risk of loss would be remote. These agreements typically contain an early termination clause that permits the Corporation to exit the agreement upon these events. The maximum potential future payment under indemnification agreements is difficult to assess for several reasons, including the occurrence of an external event, the inability to predict future changes in tax and other laws, the difficulty in determining how such laws would apply to parties in contracts, the absence of exposure limits contained in standard contract language and the timing of the early termination clause. Historically, any payments made under these guarantees have been de minimis. The Corporation has assessed the probability of making such payments in the future as remote.

Merchant Services

In accordance with credit and debit card association rules, the Corporation sponsors merchant processing servicers that process credit and debit card transactions on behalf of various merchants. In connection with these services, a liability may arise in the event of a billing dispute between the merchant and a cardholder that is ultimately resolved in the cardholder's favor. If the merchant defaults on its obligation to reimburse the cardholder, the cardholder, through its issuing bank, generally has until six months after the date of the transaction to present a chargeback to the merchant processor, which is primarily liable for any losses on covered transactions. However, if the merchant processor fails to meet its obligation to reimburse the cardholder for disputed transactions, then the Corporation, as the sponsor, could be held liable for the disputed amount. In 2016 and 2015, the sponsored entities processed and settled $731.4 billion and $669.0 billion of transactions and recorded losses of $33 million and $22 million. A significant portion of this activity was processed by a joint venture in which the Corporation holds a 49 percent ownership, and is recorded in other assets on the Consolidated Balance Sheet and in *All Other*. At December 31, 2016 and 2015, the carrying value of the Corporation's investment in the merchant services joint venture was $2.9 billion and $3.0 billion. At December 31, 2016 and 2015, the sponsored merchant processing servicers held as collateral $188 million and $181 million of merchant escrow deposits which may be used to offset amounts due from the individual merchants.

The Corporation believes the maximum potential exposure for chargebacks would not exceed the total amount of merchant transactions processed through Visa and MasterCard for the last six months, which represents the claim period for the cardholder, plus any outstanding delayed-delivery transactions. As of December 31, 2016 and 2015, the maximum potential exposure for sponsored transactions totaled $325.7 billion and $277.1 billion. However, the Corporation believes that the maximum potential exposure is not representative of the actual potential loss exposure and does not expect to make material payments in connection with these guarantees.

Exchange and Clearing House Member Guarantees

The Corporation is a member of various securities and derivative exchanges and clearinghouses, both in the U.S. and other countries. As a member, the Corporation may be required to pay a pro-rata share of the losses incurred by some of these organizations as a result of another member default and under other loss scenarios. The Corporation's potential obligations may be limited to its membership interests in such exchanges and clearinghouses, to the amount (or multiple) of the Corporation's contribution to the guarantee fund or, in limited instances, to the full pro-rata share of the residual losses after applying the guarantee fund. The Corporation's maximum potential exposure under these membership agreements is difficult to estimate; however, the potential for the Corporation to be required to make these payments is remote.

Prime Brokerage and Securities Clearing Services

In connection with its prime brokerage and clearing businesses, the Corporation performs securities clearance and settlement services with other brokerage firms and clearinghouses on behalf of its clients. Under these arrangements, the Corporation stands ready to meet the obligations of its clients with respect to securities transactions. The Corporation's obligations in this respect are secured by the assets in the clients' accounts and the accounts of their customers as well as by any proceeds received from the transactions cleared and settled by the firm on behalf of clients or their customers. The Corporation's maximum potential exposure under these arrangements is difficult to estimate; however, the potential for the Corporation to incur material losses pursuant to these arrangements is remote.

Other Guarantees

The Corporation has entered into additional guarantee agreements and commitments, including sold risk participation swaps, liquidity facilities, lease-end obligation agreements, partial credit guarantees on certain leases, real estate joint venture guarantees, divested business commitments and sold put options that require gross settlement. The maximum potential future payment under these agreements was approximately $6.7 billion and $6.0 billion at December 31, 2016 and 2015. The estimated maturity dates of these obligations extend up to 2040. The Corporation has made no material payments under these guarantees.

In the normal course of business, the Corporation periodically guarantees the obligations of its affiliates in a variety of transactions including ISDA-related transactions and non-ISDA related transactions such as commodities trading, repurchase agreements, prime brokerage agreements and other transactions.

Payment Protection Insurance Claims Matter

In the U.K., the Corporation previously sold PPI through its international card services business to credit card customers and consumer loan customers. PPI covers a consumer's loan or debt repayment if certain events occur such as loss of job or illness. In response to an elevated level of customer complaints across the industry, heightened media coverage and pressure from consumer advocacy groups, the Prudential Regulation Authority and the Financial Conduct Authority (FCA) investigated and raised concerns about the way some companies have handled complaints related to the sale of these insurance policies. On December 20, 2016, the Corporation entered into an agreement to sell its non-U.S. consumer credit card business to a third party. Subject to regulatory approval, this transaction is expected to close by mid-2017. After closing, the Corporation will retain substantially all PPI exposure above existing reserves. The Corporation has considered this exposure in its estimate of a small after-tax gain on the sale. In August 2016, the FCA issued a further consultation paper on the treatment of certain PPI claims and expects to finalize guidance by the first quarter of 2017.

The reserve for PPI claims was $252 million and $360 million at December 31, 2016 and 2015. The Corporation recorded expense of $145 million and $319 million in 2016 and 2015.

FDIC

In 2016, the FDIC implemented a surcharge of 4.5 cents per $100 of their assessment base, after making certain adjustments, on insured depository institutions with total assets of $10 billion or more. The FDIC expects the surcharge to be in effect for approximately two years. If the Deposit Insurance Fund (DIF) reserve ratio does not reach 1.35 percent by December 31, 2018, the FDIC will impose a shortfall assessment on any bank subject to the surcharge. The surcharge increased the Corporation's deposit insurance assessment for 2016 by approximately $200 million, and the Corporation expects approximately $100 million of expense per quarter related to the surcharge in the future. The FDIC has also adopted regulations that establish a long-term target DIF ratio of greater than two percent, which would be expected to impose additional deposit insurance costs on the Corporation. Deposit insurance assessment rates are subject to change by the FDIC, and can be impacted by the overall economy, the stability of the banking industry as a whole, and regulations or regulatory interpretations.

Litigation and Regulatory Matters

In the ordinary course of business, the Corporation and its subsidiaries are routinely defendants in or parties to many pending and threatened legal, regulatory and governmental actions and proceedings.

In view of the inherent difficulty of predicting the outcome of such matters, particularly where the claimants seek very large or indeterminate damages or where the matters present novel legal theories or involve a large number of parties, the Corporation generally cannot predict what the eventual outcome of the pending matters will be, what the timing of the ultimate resolution of these matters will be, or what the eventual loss, fines or penalties related to each pending matter may be.

In accordance with applicable accounting guidance, the Corporation establishes an accrued liability when those matters present loss contingencies that are both probable and estimable. In such cases, there may be an exposure to loss in excess of any amounts accrued. As a matter develops, the Corporation, in conjunction with any outside counsel handling the matter, evaluates on an ongoing basis whether such matter presents a loss contingency that is probable and estimable. Once the loss contingency is deemed to be both probable and estimable, the Corporation will establish an accrued liability and record a corresponding amount of litigation-related expense. The Corporation continues to monitor the matter for further developments that could affect the amount of the accrued liability that has been previously established. Excluding expenses of internal and external legal service providers, litigation-related expense of $1.2 billion was recognized for both 2016 and 2015.

For a limited number of the matters disclosed in this Note, for which a loss, whether in excess of a related accrued liability or where there is no accrued liability, is reasonably possible in future periods, the Corporation is able to estimate a range of possible loss. In determining whether it is possible to estimate a range of possible loss, the Corporation reviews and evaluates its matters on an ongoing basis, in conjunction with any outside counsel handling the matter, in light of potentially relevant factual and legal developments. In cases in which the Corporation possesses sufficient appropriate information to estimate a range of possible loss, that estimate is aggregated and disclosed below. There may be other disclosed matters for which a loss is probable or reasonably possible but such an estimate of the range of possible loss may not be possible. For those matters where an estimate of the range of possible loss is possible, management currently estimates the aggregate range of possible loss is $0 to $1.5 billion in excess of the accrued liability (if any) related to those matters. This estimated range of possible loss is based upon currently available information and is subject to significant judgment and a variety of assumptions, and known and unknown uncertainties. The matters underlying the estimated range will change from time to time, and actual results may vary significantly from the current estimate. Therefore, this estimated range of possible loss represents what the Corporation believes to be an estimate of possible loss only for certain matters meeting these criteria. It does not represent the Corporation's maximum loss exposure.

Information is provided below regarding the nature of all of these contingencies and, where specified, the amount of the claim associated with these loss contingencies. Based on current knowledge, management does not believe that loss contingencies arising from pending matters, including the matters described herein, will have a material adverse effect on the consolidated financial position or liquidity of the Corporation. However, in light of the inherent uncertainties involved in these matters, some of which are beyond the Corporation's control, and the very large or indeterminate damages sought in some of these matters, an adverse outcome in one or more of these matters could be material to the Corporation's results of operations or liquidity for any particular reporting period.

Ambac Bond Insurance Litigation

Ambac Assurance Corporation and the Segregated Account of Ambac Assurance Corporation (together, Ambac) have filed five separate lawsuits against the Corporation and its subsidiaries relating to bond insurance policies Ambac provided on certain securitized pools of HELOCs, first-lien subprime home equity loans, fixed-rate second-lien mortgage loans and negative amortization pay option adjustable-rate mortgage loans. Ambac alleges that they have paid or will pay claims as a result of defaults in the underlying loans and assert that the defendants misrepresented the characteristics of the underlying loans and/or breached certain contractual representations and warranties regarding the underwriting and servicing of the loans. In those actions where the Corporation is named as a defendant, Ambac contends the Corporation is liable on various successor and vicarious liability theories.

Ambac v. Countrywide I

The Corporation, Countrywide and other Countrywide entities are named as defendants in an action filed on September 29, 2010 in New York Supreme Court. Ambac claims damages in excess of $2.2 billion, plus unspecified punitive damages.

On October 22, 2015, the New York Supreme Court granted in part and denied in part Countrywide's motion for summary judgment and Ambac's motion for partial summary judgment. Among other things, the court granted summary judgment dismissing Ambac's claim for rescissory damages and denied summary judgment regarding Ambac's claims for fraud and breach of the insurance agreements. The court also denied the Corporation's motion for summary judgment and granted in part Ambac's motion for partial summary judgment on Ambac's successor-liability claims with respect to a single element of its de facto merger claim. The court denied summary judgment on the other elements of Ambac's de facto merger claim and the other successor-liability claims. The parties filed cross-appeals with the First Department, which are pending.

Ambac v. Countrywide II

On December 30, 2014, Ambac filed a complaint in New York Supreme Court against the same defendants, claiming fraudulent inducement against Countrywide, and successor and vicarious liability against the Corporation. Ambac claims damages in excess of $600 million plus punitive damages. On December 19, 2016, the court granted in part and denied in part Countrywide's motion to dismiss the complaint.

Ambac v. Countrywide III

On December 30, 2014, Ambac filed an action in Wisconsin state court against Countrywide. The complaint seeks damages in excess of $350 million plus punitive damages. Countrywide has challenged the Wisconsin courts' jurisdiction over it. Following a ruling by the lower court that jurisdiction did not exist, the Court of Appeals of Wisconsin reversed. Countrywide sought review by the Wisconsin Supreme Court, which has agreed to decide the issue. The appeal is pending.

Ambac v. Countrywide IV

On July 21, 2015, Ambac filed an action in New York Supreme Court against Countrywide asserting the same claims for fraudulent inducement that Ambac asserted in *Ambac v. Countrywide III*. Ambac simultaneously moved to stay the action pending resolution of its appeal in *Ambac v. Countrywide III*. Countrywide moved to dismiss the complaint. On September 20, 2016, the court granted Ambac's motion to stay the action pending resolution of the Wisconsin Supreme Court appeal in *Ambac v. Countrywide III.*

Ambac v. First Franklin

On April 16, 2012, Ambac filed an action against BANA, First Franklin and various Merrill Lynch entities, including Merrill Lynch, Pierce, Fenner & Smith Incorporated (MLPF&S), in New York Supreme Court relating to guaranty insurance Ambac provided on a First Franklin securitization sponsored by Merrill Lynch. The complaint alleges fraudulent inducement and breach of contract, including breach of contract claims against BANA based upon its servicing of the loans in the securitization. The complaint alleges that Ambac has paid hundreds of millions of dollars in claims and has accrued and continues to accrue tens of millions of dollars in additional claims. Ambac seeks as damages the total claims it has paid and its projected future claims payment obligations, as well as specific performance of defendants' contractual repurchase obligations.

On July 19, 2013, the court granted in part and denied in part defendants' motion to dismiss the complaint. On September 17, 2015, the court granted Ambac's motion to strike defendants' affirmative defense of unclean hands.

ATM Access Fee Litigation

On January 10, 2012, a putative consumer class action was filed against Visa, Inc., MasterCard, Inc., and several financial institutions, including Bank of America Corporation and Bank of America, N.A. (collectively "Bank of America"), alleging that surcharges paid at bank ATMs are artificially inflated by Visa and MasterCard rules and regulations. The network rules are alleged to be the product of a conspiracy between Visa, MasterCard and banks in violation of Section 1 of the Sherman Act. Plaintiffs seek both injunctive relief, and monetary damages equal to treble the damages they claim to have sustained as a result of the alleged violations.

Bank of America, along with all other co-defendants, moved to dismiss the complaint on January 30, 2012. On February 13, 2013, the District Court granted the motion and dismissed the case. The plaintiffs moved the District Court for leave to file amended complaints, and on December 19, 2013, the District Court denied the motions to amend.

On January 14, 2014, plaintiffs filed a notice of appeal in the United States Court of Appeals for the District of Columbia Circuit (the "D.C. Circuit"). On August 4, 2015, the D.C. Circuit vacated the District Court's decision and remanded the case to the District Court for further proceedings. On September 3, 2015, the networks and bank defendants filed petitions for re-hearing or re-hearing en banc before the D.C. Circuit. In a per curium order, the D.C. Circuit denied the petitions on September 28, 2015. On January 27, 2016, defendants filed a petition for certiorari with the United States Supreme Court. On June 28, 2016, the U.S. Supreme Court granted defendants' petition for a writ of certiorari seeking review of the decision of the D.C. Circuit. On November 17, 2016, the U.S. Supreme Court ordered that the writ of certiorari be dismissed as improvidently granted.

Deposit Insurance Assessment

On January 9, 2017, the FDIC filed suit against BANA in federal district court in the District of Columbia alleging failure to pay a December 15, 2016 invoice for additional deposit insurance assessments and interest in the amount of $542 million for the quarters ending June 30, 2013 through December 31, 2014. The

FDIC asserts this claim based on BANA's alleged underreporting of counterparty exposures that resulted in underpayment of assessments for those quarters. The FDIC also has raised the prospect that it will seek to assert that BANA underpaid its assessments for the quarters ending June 30, 2012 through March 31, 2013. BANA disagrees with the FDIC's interpretation of the regulations as they existed during the relevant time period, and intends to defend itself against the FDIC's claims.

Interchange and Related Litigation

In 2005, a group of merchants filed a series of putative class actions and individual actions directed at interchange fees associated with Visa and MasterCard payment card transactions. These actions, which were consolidated in the U.S. District Court for the Eastern District of New York under the caption *In re Payment Card Interchange Fee and Merchant Discount Anti-Trust Litigation (Interchange)*, named Visa, MasterCard and several banks and bank holding companies, including the Corporation, as defendants. Plaintiffs allege that defendants conspired to fix the level of default interchange rates and that certain rules of Visa and MasterCard related to merchant acceptance of payment cards at the point of sale were unreasonable restraints of trade. Plaintiffs sought unspecified damages and injunctive relief. On October 19, 2012, defendants settled the matter.

The settlement provided for, among other things, (i) payments by defendants to the class and individual plaintiffs totaling approximately $6.6 billion, allocated proportionately to each defendant based upon various loss-sharing agreements; (ii) distribution to class merchants of an amount equal to 10 basis points (bps) of default interchange across all Visa and MasterCard credit card transactions for a period of eight consecutive months, which otherwise would have been paid to issuers and which effectively reduces credit interchange for that period of time; and (iii) modifications to certain Visa and MasterCard rules regarding merchant point of sale practices.

The court granted final approval of the class settlement agreement on December 13, 2013. On June 30, 2016, the Second Circuit Court of Appeals vacated the judgment approving the settlement and remanded the case for further proceedings. On November 23, 2016, counsel for the class filed a *certiorari* petition with the United States Supreme Court seeking review of the Second Circuit decision. As a result of the Second Circuit's decision, the Interchange class case was remanded to the district court, and the parties are in the process of coordinating the case with the already-pending actions brought by merchants who had opted out of the class settlement, as described below.

Following district court approval of the class settlement agreement, a number of class members opted out of the settlement, and many filed individual actions against the defendants. The Corporation was named as a defendant in one such individual action, as well as one action brought by cardholders (the "Cardholder Action"). In addition, a number of these individual actions were filed that do not name the Corporation as a defendant. As a result of various loss-sharing agreements, however, the Corporation remains liable for any settlement or judgment in these individual suits where it is not named as a defendant. Now that Interchange has been remanded to the district court, these individual actions will be coordinated as individual merchant lawsuits alongside the Interchange class case.

On November 26, 2014, the court granted defendants' motion to dismiss the Sherman Act claim in the Cardholder Action. Plaintiffs appealed that dismissal to the Second Circuit Court of Appeals. On October 17, 2016, the Second Circuit issued a summary order affirming the dismissal and, on October 31, 2016, it denied plaintiffs' petition for rehearing en banc.

LIBOR, Other Reference Rates, Foreign Exchange (FX) and Bond Trading Matters

Government authorities in the Americas, Europe and the Asia Pacific region continue to conduct investigations and make inquiries of a significant number of FX market participants, including the Corporation, regarding FX market participants' conduct and systems and controls. Government authorities also continue to conduct investigations concerning conduct and systems and controls of panel banks in connection with the setting of LIBOR and other reference rates as well as the trading of government, sovereign, supranational, and agency bonds. The Corporation is responding to and cooperating with these investigations.

In addition, the Corporation, BANA and certain Merrill Lynch entities have been named as defendants along with most of the other LIBOR panel banks in a number of individual and putative class actions relating to defendants' U.S. Dollar LIBOR contributions. All cases naming the Corporation and its affiliates relating to U.S. Dollar LIBOR have been or are in the process of being consolidated for pre-trial purposes in the U.S. District Court for the Southern District of New York by the Judicial Panel on Multidistrict Litigation. Plaintiffs allege that they held or transacted in U.S. Dollar LIBOR-based financial instruments and sustained losses as a result of collusion or manipulation by defendants regarding the setting of U.S. Dollar LIBOR. Plaintiffs assert a variety of claims, including antitrust, Commodity Exchange Act (CEA), Racketeer Influenced and Corrupt Organizations (RICO), Securities Exchange Act of 1934 (Exchange Act), common law fraud, and breach of contract claims, and seek compensatory, treble and punitive damages, and injunctive relief.

Beginning in March 2013, in a series of rulings, the court dismissed antitrust, RICO, Exchange Act and certain state law claims, and substantially limited the scope of CEA and various other claims. As to the Corporation and BANA, the court also dismissed manipulation claims based on alleged trader conduct. On May 23, 2016, the U.S. Court of Appeals for the Second Circuit reversed the district court's dismissal of the antitrust claims and remanded for further proceedings in the district court, and on December 20, 2016, the district court dismissed certain plaintiffs' antitrust claims in their entirety and substantially limited the scope of the remaining antitrust claims.

On October 20, 2016, defendants filed a petition for a writ of certiorari to the U.S. Supreme Court to review the Second Circuit's decision and, on January 17, 2017, the U.S. Supreme Court denied the defendants' petition. Certain antitrust, CEA, and state law claims remain pending in the district court against the Corporation, BANA and certain Merrill Lynch entities, and the court is continuing to consider motions regarding them. Certain plaintiffs are also pursuing an appeal in the Second Circuit of the dismissal of their Exchange Act and state law claims.

In addition, the Corporation, BANA and MLPF&S were named as defendants along with other FX market participants in a putative class action filed in the U.S. District Court for the Southern District of New York, in which plaintiffs allege that they sustained losses as a result of the defendants' alleged conspiracy to manipulate the prices of over-the-counter FX transactions and FX transactions on an exchange. Plaintiffs assert antitrust claims and claims for violations of the CEA and seek compensatory and treble damages, as well as declaratory and injunctive relief. On October 1, 2015, the Corporation, BANA and MLPF&S executed a final settlement agreement, in which they agreed to pay $187.5 million to settle the litigation. The settlement is subject to final court approval.

Mortgage-backed Securities Litigation

The Corporation and its affiliates, Countrywide entities and their affiliates, and Merrill Lynch entities and their affiliates have been named as defendants in cases relating to their various roles in MBS offerings. These cases generally allege that the registration statements, prospectuses and prospectus supplements for securities issued by securitization trusts contained material misrepresentations and omissions, in violation of the Securities Act of 1933 and/or state securities laws and other state statutory laws and/or common law. In addition, certain of these entities have received claims for contractual indemnification related to MBS securities actions, including claims from underwriters of MBS that were issued by these entities, and from underwriters and issuers of MBS backed by loans originated by these entities.

These cases generally involve allegations of false and misleading statements regarding: (i) the process by which the properties that served as collateral for the mortgage loans underlying the MBS were appraised; (ii) the percentage of equity that mortgage borrowers had in their homes; (iii) the borrowers' ability to repay their mortgage loans; (iv) the underwriting practices by which those mortgage loans were originated; and (v) the ratings given to the different tranches of MBS by rating agencies. Plaintiffs in these cases generally seek unspecified compensatory and/or rescissory damages, unspecified costs and legal fees.

Mortgage Repurchase Litigation

U.S. Bank - Harborview Repurchase Litigation

On August 29, 2011, U.S. Bank, National Association (U.S. Bank), as trustee for the HarborView Mortgage Loan Trust 2005-10 (the Trust), a mortgage pool backed by loans originated by Countrywide Home Loans, Inc. (CHL), filed a complaint in New York Supreme Court, in a case entitled *U.S. Bank National Association, as Trustee for HarborView Mortgage Loan Trust, Series 2005-10 v. Countrywide Home Loans, Inc. (dba Bank of America Home Loans), Bank of America Corporation, Countrywide Financial Corporation, Bank of America, N.A., and NB Holdings Corporation*. U.S. Bank asserts that, as a result of alleged misrepresentations by CHL in connection with its sale of the loans, defendants must repurchase all the loans in the pool, or in the alternative, that it must repurchase a subset of those loans as to which U.S. Bank alleges that defendants have refused specific repurchase demands.

On December 5, 2016, certain certificate-holders in the Trust agreed to settle the claims in an amount not material to the Corporation, subject to acceptance by U.S. Bank.

U.S. Bank - SURF/OWNIT Repurchase Litigation

On August 29, 2014 and September 2, 2014, U.S. Bank, solely in its capacity as Trustee for seven securitization trusts (the Trusts), served seven summonses with notice commencing actions against First Franklin Financial Corporation, Merrill Lynch Mortgage Lending, Inc., Merrill Lynch Mortgage Investors, Inc. (MLMI), and Ownit Mortgage Solutions Inc. in New York Supreme Court. The summonses advance breach of contract claims alleging that defendants breached representations and warranties related to loans securitized in the Trusts. The summonses allege that defendants failed to repurchase breaching mortgage loans from the Trusts, and seek specific performance of defendants' alleged obligation to repurchase breaching loans, declaratory judgment, compensatory, rescissory and other damages, and indemnity.

On February 25, 2015 and March 11, 2015, U.S. Bank served complaints regarding four of the seven Trusts. On December 7, 2015, the court granted in part and denied in part defendants' motion to dismiss the complaints. The court dismissed claims for breach of representations and warranties against MLMI, dismissed U.S. Bank's claims for indemnity and attorneys' fees, and deferred a ruling regarding defendants' alleged failure to provide notice of alleged representations and warranties breaches, but upheld the complaints in all other respects. On December 28, 2016, U.S. Bank filed a complaint with respect to a fifth Trust.

Pennsylvania Public School Employees' Retirement System

The Corporation and several current and former officers were named as defendants in a putative class action filed in the U.S. District Court for the Southern District of New York entitled *Pennsylvania Public School Employees' Retirement System v. Bank of America, et al.*

Through a series of complaints first filed on February 2, 2011, plaintiff sued on behalf of all persons who acquired the Corporation's common stock between February 27, 2009 and October 19, 2010 and "Common Equivalent Securities" sold in a December 2009 offering. The amended complaint asserted claims under Sections 10(b) and 20(a) of the Securities Exchange Act of 1934 and Sections 11 and 15 of the Securities Act of 1933, alleging, among other things that the Corporation's public statements: (i) concealed problems in the Corporation's mortgage servicing business resulting from the widespread use of the Mortgage Electronic Recording System; and (ii) failed to disclose the Corporation's exposure to mortgage repurchase claims.

On August 12, 2015, the parties agreed to settle the claims for $335 million. On December 27, 2016, the court granted final approval to the settlement.

NOTE 13 Shareholders' Equity

Common Stock

Declared Quarterly Cash Dividends on Common Stock [1]

Declaration Date	Record Date	Payment Date	Dividend Per Share
January 26, 2017	March 3, 2017	March 31, 2017	$ 0.075
October 27, 2016	December 2, 2016	December 30, 2016	0.075
July 27, 2016	September 2, 2016	September 23, 2016	0.075
April 27, 2016	June 3, 2016	June 24, 2016	0.05
January 21, 2016	March 4, 2016	March 25, 2016	0.05

(1) In 2016 and through February 23, 2017.

The following table summarizes common stock repurchases during 2016, 2015 and 2014.

Common Stock Repurchase Summary

(in millions)	2016	2015	2014
Total number of shares repurchased and retired			
CCAR capital plan repurchases	**278**	140	101
Other authorized repurchases	**55**	—	—
Total purchase price of shares repurchased and retired [1]			
CCAR capital plan repurchases	**$ 4,312**	$ 2,374	$ 1,675
Other authorized repurchases	**800**	—	—

(1) Represents reductions to shareholders' equity due to common stock repurchases.

On June 29, 2016, the Corporation announced that the Federal Reserve completed its review of the Corporation's 2016 Comprehensive Capital Analysis and Review (CCAR) capital plan to which the Federal Reserve did not object. The 2016 CCAR capital plan included requests to repurchase $5.0 billion of common stock over four quarters beginning in the third quarter of 2016, to repurchase common stock to offset the dilution resulting from certain equity-based compensation awards and to increase the quarterly common stock dividend from $0.05 per share to $0.075. On January 13, 2017, the Corporation announced a plan to repurchase an additional $1.8 billion of common stock during the first half of 2017, to which the Federal Reserve did not object, in addition to the previously announced repurchases associated with the 2016 CCAR capital plan.

In 2016, the Corporation repurchased and retired 113 million shares of common stock in connection with the 2015 CCAR capital plan, which reduced shareholders' equity by $1.6 billion, completing the share repurchases under the 2015 CCAR capital plan. On March 18, 2016, the Corporation announced that the Board of Directors authorized additional repurchases of common stock up to $800 million outside of the scope of the 2015 CCAR capital plan to offset the share count dilution resulting from equity incentive compensation awarded to retirement-eligible employees, to which the Federal Reserve did not object. In 2016, the Corporation repurchased and retired 55 million shares of common stock in connection with this additional authorization, which reduced shareholders' equity by $800 million, completing this additional authorization.

At December 31, 2016, the Corporation had warrants outstanding and exercisable to purchase 122 million shares of its common stock expiring on October 28, 2018, and warrants outstanding and exercisable to purchase 150 million shares of common stock expiring on January 16, 2019. These warrants were originally issued in connection with preferred stock issuances to the U.S. Department of the Treasury in 2009 and 2008, and are listed on the New York Stock Exchange. The exercise price of the warrants expiring on January 16, 2019 is subject to continued adjustment each time the quarterly cash dividend is in excess of $0.01 per common share to compensate the holders of the warrants for dilution resulting from an increased dividend. The Corporation had cash dividends of $0.075 per share for the third and fourth quarters of 2016, and cash dividends of $0.05 per share for the first and second quarters of 2016, or $0.25 per share for the year, resulting in an adjustment to the exercise price of these warrants in each quarter. As a result of the Corporation's 2016 dividends of $0.25 per common share, the exercise price of the warrants expiring on January 16, 2019, was adjusted to $12.938 per share. The warrants expiring on October 28, 2018, which have an exercise price of $30.79 per share, also contain this anti-dilution provision except the adjustment is triggered only when the Corporation declares quarterly dividends at a level greater than $0.32 per common share.

In connection with the issuance of the Corporation's 6% Cumulative Perpetual Preferred Stock, Series T (the Series T Preferred Stock), the Corporation issued a warrant to purchase 700 million shares of the Corporation's common stock. The warrant is exercisable at the holder's option at any time, in whole or in part, until September 1, 2021, at an exercise price of $7.142857 per share of common stock. The warrant may be settled in cash or by exchanging all or a portion of the Series T Preferred Stock. For more information on the Series T Preferred Stock, see Preferred Stock in this Note.

In connection with employee stock plans, in 2016, the Corporation issued approximately 9 million shares and repurchased approximately 4 million shares of its common stock to satisfy tax withholding obligations. At December 31, 2016, the Corporation had reserved 1.6 billion unissued shares of common stock for future issuances under employee stock plans, common stock warrants, convertible notes and preferred stock.

Preferred Stock

The table below presents a summary of perpetual preferred stock outstanding at December 31, 2016.

Preferred Stock Summary

(Dollars in millions, except as noted)

Series	Description	Initial Issuance Date	Total Shares Outstanding	Liquidation Preference per Share (in dollars)	Carrying Value (1)	Per Annum Dividend Rate	Redemption Period (2)
Series B	7% Cumulative Redeemable	June 1997	7,110	$ 100	$ 1	7.00%	n/a
Series D (3)	6.204% Non-Cumulative	September 2006	26,174	25,000	654	6.204%	On or after September 14, 2011
Series E (3)	Floating Rate Non-Cumulative	November 2006	12,691	25,000	317	3-mo. LIBOR + 35 bps (4)	On or after November 15, 2011
Series F	Floating Rate Non-Cumulative	March 2012	1,409	100,000	141	3-mo. LIBOR + 40 bps (4)	On or after March 15, 2012
Series G	Adjustable Rate Non-Cumulative	March 2012	4,926	100,000	493	3-mo. LIBOR + 40 bps (4)	On or after March 15, 2012
Series I (3)	6.625% Non-Cumulative	September 2007	14,584	25,000	365	6.625%	On or after October 1, 2017
Series K (5)	Fixed-to-Floating Rate Non-Cumulative	January 2008	61,773	25,000	1,544	8.00% to, but excluding, 1/30/18; 3-mo. LIBOR + 363 bps thereafter	On or after January 30, 2018
Series L	7.25% Non-Cumulative Perpetual Convertible	January 2008	3,080,182	1,000	3,080	7.25%	n/a
Series M (5)	Fixed-to-Floating Rate Non-Cumulative	April 2008	52,399	25,000	1,310	8.125% to, but excluding, 5/15/18; 3-mo. LIBOR + 364 bps thereafter	On or after May 15, 2018
Series T	6% Non-Cumulative	September 2011	50,000	100,000	2,918	6.00%	See below (6)
Series U (5)	Fixed-to-Floating Rate Non-Cumulative	May 2013	40,000	25,000	1,000	5.2% to, but excluding, 6/1/23; 3-mo. LIBOR + 313.5 bps thereafter	On or after June 1, 2023
Series V (5)	Fixed-to-Floating Rate Non-Cumulative	June 2014	60,000	25,000	1,500	5.125% to, but excluding, 6/17/19; 3-mo. LIBOR + 338.7 bps thereafter	On or after June 17, 2019
Series W (3)	6.625% Non-Cumulative	September 2014	44,000	25,000	1,100	6.625%	On or after September 9, 2019
Series X (5)	Fixed-to-Floating Rate Non-Cumulative	September 2014	80,000	25,000	2,000	6.250% to, but excluding, 9/5/24; 3-mo. LIBOR + 370.5 bps thereafter	On or after September 5, 2024
Series Y (3)	6.500% Non-Cumulative	January 2015	44,000	25,000	1,100	6.500%	On or after January 27, 2020
Series Z (5)	Fixed-to-Floating Rate Non-Cumulative	October 2014	56,000	25,000	1,400	6.500% to, but excluding, 10/23/24; 3-mo. LIBOR + 417.4 bps thereafter	On or after October 23, 2024
Series AA (5)	Fixed-to-Floating Rate Non-Cumulative	March 2015	76,000	25,000	1,900	6.100% to, but excluding, 3/17/25; 3-mo. LIBOR + 389.8 bps thereafter	On or after March 17, 2025
Series CC (3)	6.200% Non-Cumulative	January 2016	44,000	25,000	1,100	6.200%	On or after January 29, 2021
Series DD (5)	Fixed-to-Floating Rate Non-Cumulative	March 2016	40,000	25,000	1,000	6.300% to, but excluding, 3/10/26; 3-mo. LIBOR + 455.3 bps thereafter	On or after March 10, 2026
Series EE (3)	6.000% Non-Cumulative	April 2016	36,000	25,000	900	6.000%	On or after April 25, 2021
Series 1 (7)	Floating Rate Non-Cumulative	November 2004	3,275	30,000	98	3-mo. LIBOR + 75 bps (8)	On or after November 28, 2009
Series 2 (7)	Floating Rate Non-Cumulative	March 2005	9,967	30,000	299	3-mo. LIBOR + 65 bps (8)	On or after November 28, 2009
Series 3 (7)	6.375% Non-Cumulative	November 2005	21,773	30,000	653	6.375%	On or after November 28, 2010
Series 4 (7)	Floating Rate Non-Cumulative	November 2005	7,010	30,000	210	3-mo. LIBOR + 75 bps (4)	On or after November 28, 2010
Series 5 (7)	Floating Rate Non-Cumulative	March 2007	14,056	30,000	422	3-mo. LIBOR + 50 bps (4)	On or after May 21, 2012
Total			**3,887,329**		**$ 25,505**		

(1) Amounts shown are before third-party issuance costs and certain book value adjustments of $285 million.
(2) The Corporation may redeem series of preferred stock on or after the redemption date, in whole or in part, at its option, at the liquidation preference plus declared and unpaid dividends. Series B and Series L Preferred Stock do not have early redemption/call rights.
(3) Ownership is held in the form of depositary shares, each representing a 1/1,000th interest in a share of preferred stock, paying a quarterly cash dividend, if and when declared.
(4) Subject to 4.00% minimum rate per annum.
(5) Ownership is held in the form of depositary shares, each representing a 1/25th interest in a share of preferred stock, paying a semi-annual cash dividend, if and when declared, until the first redemption date at which time, it adjusts to a quarterly cash dividend, if and when declared, thereafter.
(6) The terms of the Series T preferred stock were amended in 2014, which included changes such that (1) dividends are no longer cumulative, (2) the dividend rate is fixed at 6% and (3) the Corporation may redeem the Series T preferred stock only after the fifth anniversary of the amendment's effective date.
(7) Ownership is held in the form of depositary shares, each representing a 1/1,200th interest in a share of preferred stock, paying a quarterly cash dividend, if and when declared.
(8) Subject to 3.00% minimum rate per annum.
n/a = not applicable

The cash dividends declared on preferred stock were $1.7 billion, $1.5 billion and $1.0 billion for 2016, 2015 and 2014, respectively.

The 7.25% Non-Cumulative Perpetual Convertible Preferred Stock, Series L (Series L Preferred Stock) listed in the Preferred Stock Summary table does not have early redemption/call rights. Each share of the Series L Preferred Stock may be converted at any time, at the option of the holder, into 20 shares of the Corporation's common stock plus cash in lieu of fractional shares. The Corporation may cause some or all of the Series L Preferred Stock, at its option, at any time or from time to time, to be converted into shares of common stock at the then-applicable conversion rate if, for 20 trading days during any period of 30 consecutive trading days, the closing price of common stock exceeds 130 percent of the then-applicable conversion price of the Series L Preferred Stock. If a conversion of Series L Preferred Stock occurs at the option of the holder, subsequent to a dividend record date but prior to the dividend payment date, the Corporation will still pay any accrued dividends payable.

All series of preferred stock in the Preferred Stock Summary table have a par value of $0.01 per share, are not subject to the operation of a sinking fund, have no participation rights, and with the exception of the Series L Preferred Stock, are not convertible. The holders of the Series B Preferred Stock and Series 1 through 5 Preferred Stock have general voting rights, and the holders of the other series included in the table have no general voting rights. All outstanding series of preferred stock of the Corporation have preference over the Corporation's common stock with respect to the payment of dividends and distribution of the Corporation's assets in the event of a liquidation or dissolution. With the exception of the Series B, F, G and T Preferred Stock, if any dividend payable on these series is in arrears for three or more semi-annual or six or more quarterly dividend periods, as applicable (whether consecutive or not), the holders of these series and any other class or series of preferred stock ranking equally as to payment of dividends and upon which equivalent voting rights have been conferred and are exercisable (voting as a single class) will be entitled to vote for the election of two additional directors. These voting rights terminate when the Corporation has paid in full dividends on these series for at least two semi-annual or four quarterly dividend periods, as applicable, following the dividend arrearage.

NOTE 14 Accumulated Other Comprehensive Income (Loss)

The table below presents the changes in accumulated OCI after-tax for 2014, 2015 and 2016.

(Dollars in millions)	Debt Securities	Available-for-Sale Marketable Equity Securities	Debit Valuation Adjustments	Derivatives	Employee Benefit Plans	Foreign Currency	Total
Balance, December 31, 2013	$ (2,487)	$ (4)	n/a	$ (2,277)	$ (2,407)	$ (512)	$ (7,687)
Net change	4,128	21	n/a	616	(943)	(157)	3,665
Balance, December 31, 2014	$ 1,641	$ 17	n/a	$ (1,661)	$ (3,350)	$ (669)	$ (4,022)
Cumulative adjustment for accounting change	—	—	$ (1,226)	—	—	—	(1,226)
Net change	(1,625)	45	615	584	394	(123)	(110)
Balance, December 31, 2015	$ 16	$ 62	$ (611)	$ (1,077)	$ (2,956)	$ (792)	$ (5,358)
Net change	**(1,315)**	**(30)**	**(156)**	**182**	**(524)**	**(87)**	**(1,930)**
Balance, December 31, 2016	**$ (1,299)**	**$ 32**	**$ (767)**	**$ (895)**	**$ (3,480)**	**$ (879)**	**$ (7,288)**

n/a = not applicable

The table below presents the net change in fair value recorded in accumulated OCI, net realized gains and losses reclassified into earnings and other changes for each component of OCI before- and after-tax for 2016, 2015 and 2014.

Changes in OCI Components Before- and After-tax

	2016			2015			2014		
(Dollars in millions)	**Before-tax**	**Tax effect**	**After-tax**	Before-tax	Tax effect	After-tax	Before-tax	Tax effect	After-tax
Debt securities:									
Net increase (decrease) in fair value	**$ (1,645)**	**$ 622**	**$ (1,023)**	$ (1,564)	$ 595	$ (969)	$ 8,064	$ (3,027)	$ 5,037
Reclassifications into earnings:									
Gains on sales of debt securities	**(490)**	**186**	**(304)**	(1,138)	432	(706)	(1,481)	563	(918)
Other income	**19**	**(7)**	**12**	81	(31)	50	16	(7)	9
Net realized (gains) losses reclassified into earnings	**(471)**	**179**	**(292)**	(1,057)	401	(656)	(1,465)	556	(909)
Net change	**(2,116)**	**801**	**(1,315)**	(2,621)	996	(1,625)	6,599	(2,471)	4,128
Available-for-sale marketable equity securities:									
Net increase (decrease) in fair value [1]	**(49)**	**19**	**(30)**	72	(27)	45	34	(13)	21
Net change	**(49)**	**19**	**(30)**	72	(27)	45	34	(13)	21
Debit valuation adjustments:									
Net increase (decrease) in fair value	**(271)**	**104**	**(167)**	436	(166)	270	n/a	n/a	n/a
Net realized (gains) losses reclassified into earnings [2]	**17**	**(6)**	**11**	556	(211)	345	n/a	n/a	n/a
Net change	**(254)**	**98**	**(156)**	992	(377)	615	n/a	n/a	n/a
Derivatives:									
Net increase (decrease) in fair value	**(299)**	**113**	**(186)**	55	(22)	33	195	(54)	141
Reclassifications into earnings:									
Net interest income	**553**	**(205)**	**348**	974	(367)	607	1,119	(421)	698
Personnel	**32**	**(12)**	**20**	(91)	35	(56)	(359)	136	(223)
Net realized (gains) losses reclassified into earnings	**585**	**(217)**	**368**	883	(332)	551	760	(285)	475
Net change	**286**	**(104)**	**182**	938	(354)	584	955	(339)	616
Employee benefit plans:									
Net increase (decrease) in fair value	**(921)**	**329**	**(592)**	408	(121)	287	(1,629)	614	(1,015)
Reclassifications into earnings:									
Prior service cost	**5**	**(2)**	**3**	5	(2)	3	5	(2)	3
Net actuarial losses	**92**	**(34)**	**58**	164	(60)	104	50	(21)	29
Net realized (gains) losses reclassified into earnings [3]	**97**	**(36)**	**61**	169	(62)	107	55	(23)	32
Settlements, curtailments and other	**15**	**(8)**	**7**	1	(1)	—	(1)	41	40
Net change	**(809)**	**285**	**(524)**	578	(184)	394	(1,575)	632	(943)
Foreign currency:									
Net increase (decrease) in fair value	**514**	**(601)**	**(87)**	600	(723)	(123)	714	(879)	(165)
Net realized (gains) losses reclassified into earnings [2]	**—**	**—**	**—**	(38)	38	—	20	(12)	8
Net change	**514**	**(601)**	**(87)**	562	(685)	(123)	734	(891)	(157)
Total other comprehensive income (loss)	**$ (2,428)**	**$ 498**	**$ (1,930)**	$ 521	$ (631)	$ (110)	$ 6,747	$ (3,082)	$ 3,665

(1) There were no amounts reclassified out of AFS marketable equity securities for 2016, 2015 and 2014.
(2) Reclassifications of pretax DVA and foreign currency transactions are recorded in other income in the Consolidated Statement of Income.
(3) Reclassifications of pretax employee benefit plan costs are recorded in personnel expense in the Consolidated Statement of Income.
n/a = not applicable

NOTE 15 Earnings Per Common Share

The calculation of EPS and diluted EPS for 2016, 2015 and 2014 is presented below. For more information on the calculation of EPS, see *Note 1 – Summary of Significant Accounting Principles*.

(Dollars in millions, except per share information; shares in thousands)	2016	2015	2014
Earnings per common share			
Net income	$ 17,906	$ 15,836	$ 5,520
Preferred stock dividends	(1,682)	(1,483)	(1,044)
Net income applicable to common shareholders	$ 16,224	$ 14,353	$ 4,476
Average common shares issued and outstanding	10,284,147	10,462,282	10,527,818
Earnings per common share	$ 1.58	$ 1.37	$ 0.43
Diluted earnings per common share			
Net income applicable to common shareholders	$ 16,224	$ 14,353	$ 4,476
Add preferred stock dividends due to assumed conversions	300	300	—
Net income allocated to common shareholders	$ 16,524	$ 14,653	$ 4,476
Average common shares issued and outstanding	10,284,147	10,462,282	10,527,818
Dilutive potential common shares [1]	751,510	751,710	56,717
Total diluted average common shares issued and outstanding	11,035,657	11,213,992	10,584,535
Diluted earnings per common share	$ 1.50	$ 1.31	$ 0.42

[1] Includes incremental dilutive shares from RSUs, restricted stock and warrants.

The Corporation previously issued a warrant to purchase 700 million shares of the Corporation's common stock to the holder of the Series T Preferred Stock. The warrant may be exercised, at the option of the holder, through tendering the Series T Preferred Stock or paying cash. For 2016 and 2015, the 700 million average dilutive potential common shares were included in the diluted share count under the "if-converted" method. For 2014, the 700 million average dilutive potential common shares were not included in the diluted share count because the result would have been antidilutive under the "if-converted" method. For additional information, see *Note 13 – Shareholders' Equity.*

For 2016, 2015 and 2014, 62 million average dilutive potential common shares associated with the Series L Preferred Stock were not included in the diluted share count because the result would have been antidilutive under the "if-converted" method. For 2016, 2015 and 2014, average options to purchase 45 million, 66 million and 91 million shares of common stock, respectively, were outstanding but not included in the computation of EPS because the result would have been antidilutive under the treasury stock method. For 2016, 2015 and 2014, average warrants to purchase 122 million shares of common stock were outstanding but not included in the computation of EPS because the result would have been antidilutive under the treasury stock method, and average warrants to purchase 150 million shares of common stock were included in the diluted EPS calculation under the treasury stock method.

NOTE 16 Regulatory Requirements and Restrictions

The Federal Reserve, Office of the Comptroller of the Currency (OCC) and FDIC (collectively, U.S. banking regulators) jointly establish regulatory capital adequacy guidelines for U.S. banking organizations. As a financial holding company, the Corporation is subject to capital adequacy rules issued by the Federal Reserve. The Corporation's banking entity affiliates are subject to capital adequacy rules issued by the OCC.

Basel 3 updated the composition of capital and established a Common equity tier 1 capital ratio. Common equity tier 1 capital primarily includes common stock, retained earnings and accumulated OCI. Basel 3 revised minimum capital ratios and buffer requirements, added a supplementary leverage ratio, and addressed the adequately capitalized minimum requirements under the Prompt Corrective Action (PCA) framework. Finally, Basel 3 established two methods of calculating risk-weighted assets, the Standardized approach and the Advanced approaches.

The Corporation and its primary banking entity affiliate, BANA, are Advanced approaches institutions under Basel 3. As Advanced approaches institutions, the Corporation and its banking entity affiliates are required to report regulatory risk-based capital ratios and risk-weighted assets under both the Standardized and Advanced approaches. The approach that yields the lower ratio is used to assess capital adequacy, including under the PCA framework.

The table below presents capital ratios and related information in accordance with Basel 3 Standardized and Advanced approaches – Transition as measured at December 31, 2016 and 2015 for the Corporation and BANA.

Regulatory Capital under Basel 3 – Transition [1]

	December 31, 2016					
	Bank of America Corporation			Bank of America, N.A.		
(Dollars in millions)	Standardized Approach	Advanced Approaches	Regulatory Minimum [2, 3]	Standardized Approach	Advanced Approaches	Regulatory Minimum [4]
Risk-based capital metrics:						
Common equity tier 1 capital	**$ 168,866**	**$ 168,866**		**$ 149,755**	**$ 149,755**	
Tier 1 capital	**190,315**	**190,315**		**149,755**	**149,755**	
Total capital [5]	**228,187**	**218,981**		**163,471**	**154,697**	
Risk-weighted assets (in billions)	**1,399**	**1,530**		**1,176**	**1,045**	
Common equity tier 1 capital ratio	**12.1%**	**11.0%**	**5.875%**	**12.7%**	**14.3%**	**6.5%**
Tier 1 capital ratio	**13.6**	**12.4**	**7.375**	**12.7**	**14.3**	**8.0**
Total capital ratio	**16.3**	**14.3**	**9.375**	**13.9**	**14.8**	**10.0**
Leverage-based metrics:						
Adjusted quarterly average assets (in billions) [6]	**$ 2,131**	**$ 2,131**		**$ 1,611**	**$ 1,611**	
Tier 1 leverage ratio	**8.9%**	**8.9%**	**4.0**	**9.3%**	**9.3%**	**5.0**
	December 31, 2015					
Risk-based capital metrics:						
Common equity tier 1 capital	$ 163,026	$ 163,026		$ 144,869	$ 144,869	
Tier 1 capital	180,778	180,778		144,869	144,869	
Total capital [5]	220,676	210,912		159,871	150,624	
Risk-weighted assets (in billions)	1,403	1,602		1,183	1,104	
Common equity tier 1 capital ratio	11.6%	10.2%	4.5%	12.2%	13.1%	6.5%
Tier 1 capital ratio	12.9	11.3	6.0	12.2	13.1	8.0
Total capital ratio	15.7	13.2	8.0	13.5	13.6	10.0
Leverage-based metrics:						
Adjusted quarterly average assets (in billions) [6]	$ 2,103	$ 2,103		$ 1,575	$ 1,575	
Tier 1 leverage ratio	8.6%	8.6%	4.0	9.2%	9.2%	5.0

(1) As Advanced approaches institutions, the Corporation and its banking entity affiliates are required to report regulatory capital risk-weighted assets and ratios under both the Standardized and Advanced approaches. The approach that yields the lower ratio is to be used to assess capital adequacy and was the Advanced approaches method at December 31, 2016 and 2015.
(2) The December 31, 2016 amount includes a transition capital conservation buffer of 0.625 percent and a transition global systemically important bank (G-SIB) surcharge of 0.75 percent. The 2016 countercyclical capital buffer is zero.
(3) To be "well capitalized" under the current U.S. banking regulatory agency definitions, a BHC must maintain a Total capital ratio of 10 percent or greater.
(4) Percent required to meet guidelines to be considered "well capitalized" under the PCA framework.
(5) Total capital under the Advanced approaches differs from the Standardized approach due to differences in the amount permitted in Tier 2 capital related to the qualifying allowance for credit losses.
(6) Reflects adjusted average total assets for the three months ended December 31, 2016 and 2015.

The capital adequacy rules issued by the U.S. banking regulators require institutions to meet the established minimums outlined in the Regulatory Capital under Basel 3 – Transition table. Failure to meet the minimum requirements can lead to certain mandatory and discretionary actions by regulators that could have a material adverse impact on the Corporation's financial position. At December 31, 2016 and 2015, the Corporation and its banking entity affiliates were "well capitalized."

Other Regulatory Matters

The Federal Reserve requires the Corporation's banking subsidiaries to maintain reserve requirements based on a percentage of certain deposit liabilities. The average daily reserve balance requirements, in excess of vault cash, maintained by the Corporation with the Federal Reserve were $7.7 billion and $9.8 billion for 2016 and 2015. At December 31, 2016 and 2015, the Corporation had cash and cash equivalents in the amount of $4.8 billion and $5.1 billion, and securities with a fair value of $14.6 billion and $16.4 billion that were segregated in compliance with securities regulations. In addition, at December 31, 2016 and 2015, the Corporation had cash deposited with clearing organizations of $10.2 billion and $9.7 billion primarily in other assets.

The primary sources of funds for cash distributions by the Corporation to its shareholders are capital distributions received from its banking subsidiaries, BANA and Bank of America California, N.A. In 2016, the Corporation received dividends of $13.4 billion from BANA and $150 million from Bank of America California, N.A. The amount of dividends that a subsidiary bank may declare in a calendar year is the subsidiary bank's net profits for that year combined with its retained net profits for the preceding two years. Retained net profits, as defined by the OCC, consist of net income less dividends declared during the period. In 2017, BANA can declare and pay dividends of approximately $6.2 billion to the Corporation plus an additional amount equal to its retained net profits for 2017 up to the date of any such dividend declaration. Bank of America California, N.A. can pay dividends of $546 million in 2017 plus an additional amount equal to its retained net profits for 2017 up to the date of any such dividend declaration.

NOTE 17 Employee Benefit Plans

Pension and Postretirement Plans

The Corporation sponsors a qualified noncontributory trusteed pension plan (Qualified Pension Plan), a number of noncontributory nonqualified pension plans, and postretirement health and life plans that cover eligible employees. Non-U.S. pension plans sponsored by the Corporation vary based on the country and local practices.

The Qualified Pension Plan has a balance guarantee feature for account balances with participant-selected investments, applied at the time a benefit payment is made from the plan that effectively provides principal protection for participant balances transferred and certain compensation credits. The Corporation is responsible for funding any shortfall on the guarantee feature.

The Corporation has an annuity contract that guarantees the payment of benefits vested under a terminated U.S. pension plan (Other Pension Plan). The Corporation, under a supplemental agreement, may be responsible for, or benefit from actual experience and investment performance of the annuity assets. The Corporation made no contribution under this agreement in 2016 or 2015. Contributions may be required in the future under this agreement.

The Corporation's noncontributory, nonqualified pension plans are unfunded and provide supplemental defined pension benefits to certain eligible employees.

In addition to retirement pension benefits, certain benefits-eligible employees may become eligible to continue participation as retirees in health care and/or life insurance plans sponsored by the Corporation. These plans are referred to as the Postretirement Health and Life Plans.

The Pension and Postretirement Plans table summarizes the changes in the fair value of plan assets, changes in the projected benefit obligation (PBO), the funded status of both the accumulated benefit obligation (ABO) and the PBO, and the weighted-average assumptions used to determine benefit obligations for the pension plans and postretirement plans at December 31, 2016 and 2015. The estimate of the Corporation's PBO associated with these plans considers various actuarial assumptions, including assumptions for mortality rates and discount rates. The discount rate assumptions are derived from a cash flow matching technique that utilizes rates that are based on Aa-rated corporate bonds with cash flows that match estimated benefit payments of each of the plans. The decrease in the weighted-average discount rates in 2016 resulted in an increase to the PBO of approximately $1.3 billion at December 31, 2016. The increase in the weighted-average discount rates in 2015 resulted in a decrease to the PBO of approximately $930 million at December 31, 2015.

The Corporation's estimate of its contributions to be made to the Non-U.S. Pension Plans, Nonqualified and Other Pension Plans, and Postretirement Health and Life Plans in 2017 is $20 million, $96 million and $99 million, respectively. The Corporation does not expect to make a contribution to the Qualified Pension Plan in 2017. It is the policy of the Corporation to fund no less than the minimum funding amount required by the Employee Retirement Income Security Act of 1974 (ERISA).

Pension and Postretirement Plans

	Qualified Pension Plan [1]		Non-U.S. Pension Plans [1]		Nonqualified and Other Pension Plans [1]		Postretirement Health and Life Plans [1]	
(Dollars in millions)	**2016**	2015	**2016**	2015	**2016**	2015	**2016**	2015
Change in fair value of plan assets								
Fair value, January 1	**$ 17,962**	$ 18,614	**$ 2,738**	$ 2,564	**$ 2,805**	$ 2,927	**$ —**	$ 28
Actual return on plan assets	**1,075**	199	**541**	342	**74**	14	**—**	—
Company contributions	**—**	—	**48**	58	**104**	97	**104**	79
Plan participant contributions	**—**	—	**1**	1	**—**	—	**125**	127
Settlements and curtailments	**—**	—	**(20)**	(7)	**(6)**	—	**—**	—
Benefits paid	**(798)**	(851)	**(118)**	(78)	**(233)**	(233)	**(242)**	(247)
Federal subsidy on benefits paid	**n/a**	n/a	**n/a**	n/a	**n/a**	n/a	**13**	13
Foreign currency exchange rate changes	**n/a**	n/a	**(401)**	(142)	**n/a**	n/a	**n/a**	n/a
Fair value, December 31	**$ 18,239**	$ 17,962	**$ 2,789**	$ 2,738	**$ 2,744**	$ 2,805	**$ —**	$ —
Change in projected benefit obligation								
Projected benefit obligation, January 1	**$ 14,461**	$ 15,508	**$ 2,580**	$ 2,688	**$ 3,053**	$ 3,329	**$ 1,152**	$ 1,346
Service cost	**—**	—	**25**	27	**—**	—	**7**	8
Interest cost	**634**	621	**86**	93	**127**	122	**47**	48
Plan participant contributions	**—**	—	**1**	1	**—**	—	**125**	127
Plan amendments	**—**	—	**—**	(1)	**—**	—	**—**	—
Settlements and curtailments	**—**	—	**(31)**	(7)	**(6)**	—	**—**	—
Actuarial loss (gain)	**685**	(817)	**535**	(2)	**106**	(165)	**25**	(141)
Benefits paid	**(798)**	(851)	**(118)**	(78)	**(233)**	(233)	**(242)**	(247)
Federal subsidy on benefits paid	**n/a**	n/a	**n/a**	n/a	**n/a**	n/a	**13**	13
Foreign currency exchange rate changes	**n/a**	n/a	**(315)**	(141)	**n/a**	n/a	**(2)**	(2)
Projected benefit obligation, December 31	**$ 14,982**	$ 14,461	**$ 2,763**	$ 2,580	**$ 3,047**	$ 3,053	**$ 1,125**	$ 1,152
Amount recognized, December 31	**$ 3,257**	$ 3,501	**$ 26**	$ 158	**$ (303)**	$ (248)	**$ (1,125)**	$ (1,152)
Funded status, December 31								
Accumulated benefit obligation	**$ 14,982**	$ 14,461	**$ 2,645**	$ 2,479	**$ 3,046**	$ 3,052	**n/a**	n/a
Overfunded (unfunded) status of ABO	**3,257**	3,501	**144**	259	**(302)**	(247)	**n/a**	n/a
Provision for future salaries	**—**	—	**118**	101	**1**	1	**n/a**	n/a
Projected benefit obligation	**14,982**	14,461	**2,763**	2,580	**3,047**	3,053	**$ 1,125**	$ 1,152
Weighted-average assumptions, December 31								
Discount rate	**4.16%**	4.51%	**2.56%**	3.59%	**4.01%**	4.34%	**3.99%**	4.32%
Rate of compensation increase	**n/a**	n/a	**4.51**	4.64	**4.00**	4.00	**n/a**	n/a

[1] The measurement date for the Qualified Pension Plan, Non-U.S. Pension Plans, Nonqualified and Other Pension Plans, and Postretirement Health and Life Plans was December 31 of each year reported.

n/a = not applicable

Amounts Recognized on Consolidated Balance Sheet

	Qualified Pension Plan		Non-U.S. Pension Plans		Nonqualified and Other Pension Plans		Postretirement Health and Life Plans	
(Dollars in millions)	**2016**	2015	**2016**	2015	**2016**	2015	**2016**	2015
Other assets	**$ 3,257**	$ 3,501	**$ 475**	$ 548	**$ 760**	$ 825	**$ —**	$ —
Accrued expenses and other liabilities	**—**	—	**(449)**	(390)	**(1,063)**	(1,073)	**(1,125)**	(1,152)
Net amount recognized at December 31	**$ 3,257**	$ 3,501	**$ 26**	$ 158	**$ (303)**	$ (248)	**$ (1,125)**	$ (1,152)

Pension Plans with ABO and PBO in excess of plan assets as of December 31, 2016 and 2015 are presented in the table below. For these plans, funding strategies vary due to legal requirements and local practices.

Plans with PBO and ABO in Excess of Plan Assets

(Dollars in millions)	Non-U.S. Pension Plans 2016	Non-U.S. Pension Plans 2015	Nonqualified and Other Pension Plans 2016	Nonqualified and Other Pension Plans 2015
PBO	**$ 626**	$ 574	**$ 1,065**	$ 1,075
ABO	**594**	551	**1,064**	1,074
Fair value of plan assets	**179**	183	**1**	1

Components of Net Periodic Benefit Cost

(Dollars in millions)	Qualified Pension Plan 2016	Qualified Pension Plan 2015	Qualified Pension Plan 2014	Non-U.S. Pension Plans 2016	Non-U.S. Pension Plans 2015	Non-U.S. Pension Plans 2014
Components of net periodic benefit cost (income)						
Service cost	**$ —**	$ —	$ —	**$ 25**	$ 27	$ 29
Interest cost	**634**	621	665	**86**	93	109
Expected return on plan assets	**(1,038)**	(1,045)	(1,018)	**(123)**	(133)	(137)
Amortization of prior service cost	**—**	—	—	**1**	1	1
Amortization of net actuarial loss	**139**	170	111	**6**	6	3
Recognized loss due to settlements and curtailments	**—**	—	—	**1**	—	2
Net periodic benefit cost (income)	**$ (265)**	$ (254)	$ (242)	**$ (4)**	$ (6)	$ 7
Weighted-average assumptions used to determine net cost for years ended December 31						
Discount rate	**4.51%**	4.12%	4.85%	**3.59%**	3.56%	4.30%
Expected return on plan assets	**6.00**	6.00	6.00	**4.84**	5.27	5.52
Rate of compensation increase	**n/a**	n/a	n/a	**4.67**	4.70	4.91

(Dollars in millions)	Nonqualified and Other Pension Plans 2016	Nonqualified and Other Pension Plans 2015	Nonqualified and Other Pension Plans 2014	Postretirement Health and Life Plans 2016	Postretirement Health and Life Plans 2015	Postretirement Health and Life Plans 2014
Components of net periodic benefit cost (income)						
Service cost	**$ —**	$ —	$ 1	**$ 7**	$ 8	$ 8
Interest cost	**127**	122	133	**47**	48	58
Expected return on plan assets	**(101)**	(92)	(124)	**—**	(1)	(4)
Amortization of prior service cost	**—**	—	—	**4**	4	4
Amortization of net actuarial loss (gain)	**25**	34	25	**(81)**	(46)	(89)
Recognized loss due to settlements and curtailments	**3**	—	—	**—**	—	—
Net periodic benefit cost (income)	**$ 54**	$ 64	$ 35	**$ (23)**	$ 13	$ (23)
Weighted-average assumptions used to determine net cost for years ended December 31						
Discount rate	**4.34%**	3.80%	4.55%	**4.32%**	3.75%	4.50%
Expected return on plan assets	**3.66**	3.26	4.60	**n/a**	6.00	6.00
Rate of compensation increase	**4.00**	4.00	4.00	**n/a**	n/a	n/a

n/a = not applicable

The asset valuation method used to calculate the expected return on plan assets component of net periodic benefit cost for the Qualified Pension Plan recognizes 60 percent of the prior year's market gains or losses at the next measurement date with the remaining 40 percent spread equally over the subsequent four years.

Net periodic postretirement health and life expense was determined using the "projected unit credit" actuarial method. Gains and losses for all benefit plans except postretirement health care are recognized in accordance with the standard amortization provisions of the applicable accounting guidance. For the Postretirement Health and Life Plans, 50 percent of the unrecognized gain or loss at the beginning of the fiscal year (or at subsequent remeasurement) is recognized on a level basis during the year.

Assumed health care cost trend rates affect the postretirement benefit obligation and benefit cost reported for the Postretirement Health and Life Plans. The assumed health care cost trend rate used to measure the expected cost of benefits covered by the Postretirement Health and Life Plans is 7.00 percent for 2017, reducing in steps to 5.00 percent in 2023 and later years. A one-percentage-point increase in assumed health care cost trend rates would have increased the service and interest costs, and the benefit obligation by $1 million and $29 million in 2016. A one-percentage-point decrease in assumed health care cost trend rates would have lowered the service and interest costs, and the benefit obligation by $1 million and $25 million in 2016.

The Corporation's net periodic benefit cost (income) recognized for the plans is sensitive to the discount rate and expected return on plan assets. With all other assumptions held constant, a 25 bp decline in the discount rate and expected return on plan asset assumptions would have resulted in an increase in the net periodic benefit cost for the Qualified Pension Plan recognized in 2016 of approximately $9 million and $43 million, and to be recognized in 2017 of approximately $6 million and $45 million. For the Postretirement Health and Life Plans, a 25 bp decline in the discount rate would have resulted in an increase in the net periodic benefit cost recognized in 2016 of approximately $8 million, and to be recognized in 2017 of approximately $7 million. For the Non-U.S. Pension Plans and the Nonqualified and Other Pension Plans, a 25 bp decline in discount rates would not have a significant impact on the net periodic benefit cost for 2016 and 2017.

Pretax Amounts Included in Accumulated OCI

	Qualified Pension Plan		Non-U.S. Pension Plans		Nonqualified and Other Pension Plans		Postretirement Health and Life Plans		Total	
(Dollars in millions)	**2016**	2015	**2016**	2015	**2016**	2015	**2016**	2015	**2016**	2015
Net actuarial loss (gain)	**$ 4,429**	$ 3,920	**$ 216**	$ 137	**$ 953**	$ 848	**$ (44)**	$ (150)	**$ 5,554**	$ 4,755
Prior service cost (credits)	**—**	—	**4**	(10)	**—**	—	**12**	16	**16**	6
Amounts recognized in accumulated OCI	**$ 4,429**	$ 3,920	**$ 220**	$ 127	**$ 953**	$ 848	**$ (32)**	$ (134)	**$ 5,570**	$ 4,761

Pretax Amounts Recognized in OCI

	Qualified Pension Plan		Non-U.S. Pension Plans		Nonqualified and Other Pension Plans		Postretirement Health and Life Plans		Total	
(Dollars in millions)	**2016**	2015	**2016**	2015	**2016**	2015	**2016**	2015	**2016**	2015
Current year actuarial loss (gain)	**$ 648**	$ 29	**$ 100**	$ (211)	**$ 133**	$ (86)	**$ 25**	$ (140)	**$ 906**	$ (408)
Amortization of actuarial gain (loss)	**(139)**	(170)	**(6)**	(6)	**(28)**	(34)	**81**	46	**(92)**	(164)
Current year prior service cost (credit)	**—**	—	**—**	(1)	**—**	—	**—**	—	**—**	(1)
Amortization of prior service cost	**—**	—	**(1)**	(1)	**—**	—	**(4)**	(4)	**(5)**	(5)
Amounts recognized in OCI	**$ 509**	$ (141)	**$ 93**	$ (219)	**$ 105**	$ (120)	**$ 102**	$ (98)	**$ 809**	$ (578)

Estimated Pretax Amounts Amortized from Accumulated OCI into Period Cost in 2017

(Dollars in millions)	Qualified Pension Plan	Non-U.S. Pension Plans	Nonqualified and Other Pension Plans	Postretirement Health and Life Plans	Total
Net actuarial loss (gain)	$ 152	$ 10	$ 34	$ (20)	$ 176
Prior service cost	—	1	—	4	5
Total amounts amortized from accumulated OCI	**$ 152**	**$ 11**	**$ 34**	**$ (16)**	**$ 181**

Plan Assets

The Qualified Pension Plan has been established as a retirement vehicle for participants, and trusts have been established to secure benefits promised under the Qualified Pension Plan. The Corporation's policy is to invest the trust assets in a prudent manner for the exclusive purpose of providing benefits to participants and defraying reasonable expenses of administration. The Corporation's investment strategy is designed to provide a total return that, over the long term, increases the ratio of assets to liabilities. The strategy attempts to maximize the investment return on assets at a level of risk deemed appropriate by the Corporation while complying with ERISA and any applicable regulations and laws. The investment strategy utilizes asset allocation as a principal determinant for establishing the risk/return profile of the assets. Asset allocation ranges are established, periodically reviewed and adjusted as funding levels and liability characteristics change. Active and passive investment managers are employed to help enhance the risk/return profile of the assets. An additional aspect of the investment strategy used to minimize risk (part of the asset allocation plan) includes matching the exposure of participant-selected investment measures. No plan assets are expected to be returned to the Corporation during 2017.

The assets of the Non-U.S. Pension Plans are primarily attributable to a U.K. pension plan. This U.K. pension plan's assets are invested prudently so that the benefits promised to members are provided with consideration given the nature and the duration of the plan's liabilities. The selected asset allocation strategy is designed to achieve a higher return than the lowest risk strategy.

The expected rate of return on plan assets assumption was developed through analysis of historical market returns, historical asset class volatility and correlations, current market conditions, anticipated future asset allocations, the funds' past experience, and expectations on potential future market returns. The expected return on plan assets assumption is determined using the calculated market-related value for the Qualified Pension Plan and the Other Pension Plan and the fair value for the Non-U.S. Pension Plans and Postretirement Health and Life Plans. The expected return on plan assets assumption represents a long-term average view of the performance of the assets in the Qualified Pension Plan, the Non-U.S. Pension Plans, the Other Pension Plan, and Postretirement Health and Life Plans, a return that may or may not be achieved during any one calendar year. The Other Pension Plan is invested solely in an annuity contract which is primarily invested in fixed-income securities structured such that asset maturities match the duration of the plan's obligations.

The target allocations for 2017 by asset category for the Qualified Pension Plan, Non-U.S. Pension Plans, and Nonqualified and Other Pension Plans are presented in the table below.

2017 Target Allocation

	Percentage		
Asset Category	**Qualified Pension Plan**	**Non-U.S. Pension Plans**	**Nonqualified and Other Pension Plans**
Equity securities	30 - 60	10 - 35	0 - 5
Debt securities	40 - 70	40 - 80	95 - 100
Real estate	0 - 10	0 - 15	0 - 5
Other	0 - 5	0 - 25	0 - 5

Equity securities for the Qualified Pension Plan include common stock of the Corporation in the amounts of $203 million (1.11 percent of total plan assets) and $189 million (1.05 percent of total plan assets) at December 31, 2016 and 2015.

Fair Value Measurements

For information on fair value measurements, including descriptions of Level 1, 2 and 3 of the fair value hierarchy and the valuation methods employed by the Corporation, see *Note 1 – Summary of Significant Accounting Principles* and *Note 20 – Fair Value Measurements*.

Combined plan investment assets measured at fair value by level and in total at December 31, 2016 and 2015 are summarized in the Fair Value Measurements table.

Fair Value Measurements

(Dollars in millions)	December 31, 2016			
	Level 1	Level 2	Level 3	Total
Cash and short-term investments				
Money market and interest-bearing cash	$ 776	$ —	$ —	$ 776
Cash and cash equivalent commingled/mutual funds	—	997	—	997
Fixed income				
U.S. government and agency securities	3,125	816	10	3,951
Corporate debt securities	—	1,892	—	1,892
Asset-backed securities	—	2,246	—	2,246
Non-U.S. debt securities	789	705	—	1,494
Fixed income commingled/mutual funds	778	1,503	—	2,281
Equity				
Common and preferred equity securities	6,120	—	—	6,120
Equity commingled/mutual funds	735	1,225	—	1,960
Public real estate investment trusts	145	—	—	145
Real estate				
Private real estate	—	—	150	150
Real estate commingled/mutual funds	—	12	748	760
Limited partnerships	—	132	38	170
Other investments (1)	15	732	83	830
Total plan investment assets, at fair value	$ 12,483	$ 10,260	$ 1,029	$ 23,772
	December 31, 2015			
Cash and short-term investments				
Money market and interest-bearing cash	$ 3,061	$ —	$ —	$ 3,061
Cash and cash equivalent commingled/mutual funds	—	4	—	4
Fixed income				
U.S. government and agency securities	2,723	881	11	3,615
Corporate debt securities	—	1,795	—	1,795
Asset-backed securities	—	1,939	—	1,939
Non-U.S. debt securities	632	662	—	1,294
Fixed income commingled/mutual funds	551	1,421	—	1,972
Equity				
Common and preferred equity securities	6,735	—	—	6,735
Equity commingled/mutual funds	3	1,503	—	1,506
Public real estate investment trusts	138	—	—	138
Real estate				
Private real estate	—	—	144	144
Real estate commingled/mutual funds	—	12	731	743
Limited partnerships	—	121	49	170
Other investments (1)	—	287	102	389
Total plan investment assets, at fair value	$ 13,843	$ 8,625	$ 1,037	$ 23,505

(1) Other investments include interest rate swaps of $257 million and $114 million, participant loans of $36 million and $58 million, commodity and balanced funds of $369 million and $165 million and other various investments of $168 million and $52 million at December 31, 2016 and 2015.

The Level 3 Fair Value Measurements table presents a reconciliation of all plan investment assets measured at fair value using significant unobservable inputs (Level 3) during 2016, 2015 and 2014.

Level 3 Fair Value Measurements

(Dollars in millions)	Balance January 1	Actual Return on Plan Assets Still Held at the Reporting Date	Purchases, Sales and Settlements	Transfers out of Level 3	Balance December 31
	2016				
Fixed income					
U.S. government and agency securities	**$ 11**	**$ —**	**$ (1)**	**$ —**	**$ 10**
Real estate					
Private real estate	**144**	**1**	**5**	**—**	**150**
Real estate commingled/mutual funds	**731**	**21**	**(4)**	**—**	**748**
Limited partnerships	**49**	**(2)**	**(9)**	**—**	**38**
Other investments	**102**	**4**	**(23)**	**—**	**83**
Total	**$ 1,037**	**$ 24**	**$ (32)**	**$ —**	**$ 1,029**
	2015				
Fixed income					
U.S. government and agency securities	$ 11	$ —	$ —	$ —	$ 11
Real estate					
Private real estate	127	14	3	—	144
Real estate commingled/mutual funds	632	37	62	—	731
Limited partnerships	65	(1)	(15)	—	49
Other investments	127	(5)	(20)	—	102
Total	$ 962	$ 45	$ 30	$ —	$ 1,037
	2014				
Fixed income					
U.S. government and agency securities	$ 12	$ —	$ (1)	$ —	$ 11
Non-U.S. debt securities	6	—	(2)	(4)	—
Real estate					
Private real estate	119	5	3	—	127
Real estate commingled/mutual funds	462	20	150	—	632
Limited partnerships	145	5	(85)	—	65
Other investments	135	1	(9)	—	127
Total	$ 879	$ 31	$ 56	$ (4)	$ 962

Projected Benefit Payments

Benefit payments projected to be made from the Qualified Pension Plan, Non-U.S. Pension Plans, Nonqualified and Other Pension Plans, and Postretirement Health and Life Plans are presented in the table below.

Projected Benefit Payments

				Postretirement Health and Life Plans	
(Dollars in millions)	Qualified Pension Plan [1]	Non-U.S. Pension Plans [2]	Nonqualified and Other Pension Plans [2]	Net Payments [3]	Medicare Subsidy
2017	$ 906	$ 55	$ 240	$ 111	$ 13
2018	906	55	239	108	12
2019	898	58	241	102	12
2020	909	61	241	99	12
2021	905	66	236	96	11
2022 - 2026	4,446	427	1,091	425	49

(1) Benefit payments expected to be made from the plan's assets.
(2) Benefit payments expected to be made from a combination of the plans' and the Corporation's assets.
(3) Benefit payments (net of retiree contributions) expected to be made from the Corporation's assets.

Defined Contribution Plans

The Corporation maintains qualified and non-qualified defined contribution retirement plans. The Corporation recorded expense of $1.0 billion in each of 2016, 2015 and 2014, related to the qualified defined contribution plans. At December 31, 2016 and 2015, 224 million and 236 million shares of the Corporation's common stock were held by these plans. Payments to the plans for dividends on common stock were $60 million, $48 million and $29 million in 2016, 2015 and 2014, respectively.

Certain non-U.S. employees are covered under defined contribution pension plans that are separately administered in accordance with local laws.

NOTE 18 Stock-based Compensation Plans

The Corporation administers a number of equity compensation plans, with awards being granted predominantly from the Bank of America Key Employee Equity Plan (KEEP). Under this plan, 450 million shares of the Corporation's common stock, and any shares that were subject to an award under this plan as of December 31, 2014, if such award is canceled, terminates, expires, lapses or is settled in cash for any reason from and after January 1, 2015, are authorized to be used for grants of awards under the KEEP.

During 2016, the Corporation granted 163 million RSU awards to certain employees under the KEEP. Generally, one-third of the RSUs vest on each of the first three anniversaries of the grant date provided that the employee remains continuously employed with the Corporation during that time. The RSUs are authorized to settle predominantly in shares of common stock of the Corporation, and are expensed ratably over the vesting period, net of estimated forfeitures, for non-retirement eligible employees based on the grant-date fair value of the shares. Certain RSUs will be settled in cash or contain settlement provisions that subject these awards to variable accounting whereby compensation expense is adjusted to fair value based on changes in the share price of the Corporation's common stock up to the settlement date. Awards granted in prior years were predominantly cash settled.

RSUs granted to employees who are retirement eligible or will become retirement eligible during the vesting period are expensed as of the grant date or ratably over the period from the grant date to the date the employee becomes retirement eligible, net of estimated forfeitures.

The compensation cost for the stock-based plans was $2.08 billion, $2.17 billion and $2.30 billion in 2016, 2015 and 2014 and the related income tax benefit was $792 million, $824 million and $854 million for 2016, 2015 and 2014, respectively.

From time to time, the Corporation has entered into equity total return swaps to hedge a portion of cash-settled RSUs granted to certain employees as part of their compensation in order to minimize the change in the expense to the Corporation driven by fluctuations in the fair value of the RSUs. Certain of these derivatives are designated as cash flow hedges of unrecognized unvested awards with the changes in fair value of the hedge recorded in accumulated OCI and reclassified into earnings in the same period as the RSUs affect earnings. The remaining derivatives are used to hedge the price risk of cash-settled awards with changes in fair value recorded in personnel expense. For information on amounts recognized on equity total return swaps used to hedge the Corporation's outstanding RSUs, see *Note 2 – Derivatives.*

Restricted Stock/Units

The table below presents the status at December 31, 2016 of the share-settled restricted stock/units and changes during 2016.

Stock-settled Restricted Stock/Units

	Shares/Units	Weighted-average Grant Date Fair Value
Outstanding at January 1, 2016	22,556,018	$ 9.14
Granted	157,125,817	11.95
Vested	(18,729,422)	8.31
Canceled	(4,459,467)	11.60
Outstanding at December 31, 2016	156,492,946	$ 11.99

The table below presents the status at December 31, 2016 of the cash-settled RSUs granted under the KEEP and changes during 2016.

Cash-settled Restricted Units

	Units
Outstanding at January 1, 2016	255,355,014
Granted	5,787,494
Vested	(132,833,423)
Canceled	(7,073,596)
Outstanding at December 31, 2016	121,235,489

At December 31, 2016, there was an estimated $1.2 billion of total unrecognized compensation cost related to certain share-based compensation awards that is expected to be recognized over a period of up to four years, with a weighted-average period of 1.6 years. The total fair value of restricted stock vested in 2016, 2015 and 2014 was $358 million, $145 million and $704 million, respectively. In 2016, 2015 and 2014, the amount of cash paid to settle equity-based awards for all equity compensation plans was $1.7 billion, $3.0 billion and $2.7 billion, respectively.

Stock Options

The table below presents the status of all option plans at December 31, 2016 and changes during 2016.

Stock Options

	Options	Weighted-average Exercise Price
Outstanding at January 1, 2016	63,875,475	$ 49.18
Forfeited	(21,518,193)	46.45
Outstanding at December 31, 2016	42,357,282	50.57

All options outstanding as of December 31, 2016 were vested and exercisable with a weighted-average remaining contractual term of less than one year and have no aggregate intrinsic value. No options have been granted since 2008.

NOTE 19 Income Taxes

The components of income tax expense for 2016, 2015 and 2014 are presented in the table below.

Income Tax Expense

(Dollars in millions)	2016	2015	2014
Current income tax expense			
U.S. federal	$ **302**	$ 2,539	$ 443
U.S. state and local	**120**	210	340
Non-U.S.	**984**	561	513
Total current expense	**1,406**	3,310	1,296
Deferred income tax expense			
U.S. federal	**5,464**	1,812	953
U.S. state and local	**(279)**	515	136
Non-U.S.	**656**	597	58
Total deferred expense	**5,841**	2,924	1,147
Total income tax expense	$ **7,247**	$ 6,234	$ 2,443

Total income tax expense does not reflect the tax effects of items that are included in accumulated OCI. For additional information, see *Note 14 – Accumulated Other Comprehensive*

Income (Loss). These tax effects resulted in a benefit of $498 million in 2016 and an expense of $631 million and $3.1 billion in 2015 and 2014, respectively, recorded in accumulated OCI. In addition, total income tax expense does not reflect tax effects associated with the Corporation's employee stock plans which decreased common stock and additional paid-in capital $41 million, $44 million and $35 million in 2016, 2015 and 2014, respectively.

Income tax expense for 2016, 2015 and 2014 varied from the amount computed by applying the statutory income tax rate to income before income taxes. A reconciliation of the expected U.S. federal income tax expense, calculated by applying the federal statutory tax rate of 35 percent, to the Corporation's actual income tax expense, and the effective tax rates for 2016, 2015 and 2014 are presented in the table below.

Reconciliation of Income Tax Expense

	2016		2015		2014	
(Dollars in millions)	**Amount**	**Percent**	Amount	Percent	Amount	Percent
Expected U.S. federal income tax expense	**$ 8,804**	**35.0%**	$ 7,725	35.0%	$ 2,787	35.0%
Increase (decrease) in taxes resulting from:						
State tax expense, net of federal benefit	**420**	**1.7**	438	1.9	322	4.0
Affordable housing/energy/other credits	**(1,203)**	**(4.8)**	(1,087)	(4.9)	(950)	(11.9)
Tax-exempt income, including dividends	**(562)**	**(2.3)**	(539)	(2.4)	(533)	(6.6)
Changes in prior-period UTBs, including interest	**(328)**	**(1.3)**	(52)	(0.2)	(754)	(9.5)
Non-U.S. tax rate differential	**(307)**	**(1.2)**	(559)	(2.5)	(507)	(6.4)
Non-U.S. tax law changes	**348**	**1.4**	289	1.3	—	—
Nondeductible expenses	**180**	**0.7**	40	0.1	1,982	24.9
Other	**(105)**	**(0.4)**	(21)	(0.1)	96	1.2
Total income tax expense	**$ 7,247**	**28.8%**	$ 6,234	28.2%	$ 2,443	30.7%

The reconciliation of the beginning unrecognized tax benefits (UTB) balance to the ending balance is presented in the table below.

Reconciliation of the Change in Unrecognized Tax Benefits

(Dollars in millions)	**2016**	2015	2014
Balance, January 1	**$ 1,095**	$ 1,068	$ 3,068
Increases related to positions taken during the current year	**104**	36	75
Increases related to positions taken during prior years	**1,318**	187	519
Decreases related to positions taken during prior years	**(1,091)**	(177)	(973)
Settlements	**(503)**	(1)	(1,594)
Expiration of statute of limitations	**(48)**	(18)	(27)
Balance, December 31	**$ 875**	$ 1,095	$ 1,068

At December 31, 2016, 2015 and 2014, the balance of the Corporation's UTBs which would, if recognized, affect the Corporation's effective tax rate was $0.6 billion, $0.7 billion and $0.7 billion, respectively. Included in the UTB balance are some items the recognition of which would not affect the effective tax rate, such as the tax effect of certain temporary differences, the portion of gross state UTBs that would be offset by the tax benefit of the associated federal deduction and the portion of gross non-U.S. UTBs that would be offset by tax reductions in other jurisdictions.

The Corporation files income tax returns in more than 100 state and non-U.S. jurisdictions each year. The IRS and other tax authorities in countries and states in which the Corporation has significant business operations examine tax returns periodically (continuously in some jurisdictions). The Tax Examination Status table summarizes the status of examinations by major jurisdiction for the Corporation and various subsidiaries as of December 31, 2016.

Tax Examination Status

	Years under Examination [(1)]	**Status at December 31 2016**
U.S.	2012 – 2013	Field examination
New York	2015	To begin in 2017
U.K.	2012-2014	Field examination

[(1)] All tax years subsequent to the years shown remain subject to examination.

During 2016, the Corporation settled federal examinations for the 2010 and 2011 tax years and settled various state and local examinations for multiple years, including New York through 2014. Also, field work for the federal 2012 through 2013 and for the U.K. 2012 through 2014 examinations were substantially completed during 2016.

It is reasonably possible that the UTB balance may decrease by as much as $0.2 billion during the next 12 months, since resolved items will be removed from the balance whether their resolution results in payment or recognition.

The Corporation recognized expense of $56 million during 2016 and benefits of $82 million and $196 million in 2015 and 2014, respectively, for interest and penalties, net-of-tax, in income tax expense. At December 31, 2016 and 2015, the Corporation's accrual for interest and penalties that related to income taxes, net of taxes and remittances, was $167 million and $288 million.

Significant components of the Corporation's net deferred tax assets and liabilities at December 31, 2016 and 2015 are presented in the table below.

Deferred Tax Assets and Liabilities

	December 31	
(Dollars in millions)	**2016**	2015
Deferred tax assets		
Net operating loss carryforwards	**$ 9,199**	$ 9,439
Security, loan and debt valuations	**4,726**	4,919
Allowance for credit losses	**4,362**	4,649
Tax credit carryforwards	**3,125**	2,266
Accrued expenses	**3,016**	6,340
Employee compensation and retirement benefits	**2,677**	3,593
Available-for-sale securities	**784**	152
Other	**1,599**	2,483
Gross deferred tax assets	**29,488**	33,841
Valuation allowance	**(1,117)**	(1,149)
Total deferred tax assets, net of valuation allowance	**28,371**	32,692
Deferred tax liabilities		
Equipment lease financing	**3,489**	3,014
Intangibles	**1,171**	1,306
Fee income	**847**	864
Mortgage servicing rights	**829**	689
Long-term borrowings	**355**	327
Other	**2,454**	1,859
Gross deferred tax liabilities	**9,145**	8,059
Net deferred tax assets, net of valuation allowance	**$ 19,226**	$ 24,633

The table below summarizes the deferred tax assets and related valuation allowances recognized for the net operating loss (NOL) and tax credit carryforwards at December 31, 2016.

Net Operating Loss and Tax Credit Carryforward Deferred Tax Assets

(Dollars in millions)	Deferred Tax Asset	Valuation Allowance	Net Deferred Tax Asset	First Year Expiring
Net operating losses – U.S.	$ 1,908	$ —	**$ 1,908**	After 2027
Net operating losses – U.K.	5,410	—	**5,410**	None [1]
Net operating losses – other non-U.S.	411	(311)	**100**	Various
Net operating losses – U.S. states [2]	1,470	(398)	**1,072**	Various
General business credits	3,053	—	**3,053**	After 2031
Foreign tax credits	72	(72)	**—**	n/a

(1) The U.K. net operating losses may be carried forward indefinitely.

(2) The net operating losses and related valuation allowances for U.S. states before considering the benefit of federal deductions were $2.3 billion and $612 million.

n/a = not applicable

Management concluded that no valuation allowance was necessary to reduce the deferred tax assets related to the U.K. NOL carryforwards, U.S. NOL and general business credit carryforwards since estimated future taxable income will be sufficient to utilize these assets prior to their expiration. The majority of the Corporation's U.K. net deferred tax assets, which consist primarily of NOLs, are expected to be realized by certain subsidiaries over an extended number of years. Management's conclusion is supported by financial results, profit forecasts for the relevant entities and the indefinite period to carry forward NOLs. However, a material change in those estimates could lead management to reassess its U.K. valuation allowance conclusions.

At December 31, 2016, U.S. federal income taxes had not been provided on $17.8 billion of undistributed earnings of non-U.S. subsidiaries that management has determined have been reinvested for an indefinite period of time. If the Corporation were to record a deferred tax liability associated with these undistributed earnings, the amount would be approximately $4.9 billion at December 31, 2016.

NOTE 20 Fair Value Measurements

Under applicable accounting guidance, fair value is defined as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. The Corporation determines the fair values of its financial instruments under applicable accounting guidance which requires an entity to maximize the use of observable inputs and minimize the use of unobservable inputs. The Corporation categorizes its financial instruments into three levels based on the established fair value hierarchy. The Corporation conducts a review of its fair value hierarchy classifications on a quarterly basis. Transfers into or out of fair value hierarchy classifications are made if the significant inputs used in the financial models measuring the fair values of the assets and liabilities became unobservable or observable in the current marketplace. These transfers are considered to be effective as of the beginning of the quarter in which they occur. For more information regarding the fair value hierarchy and how the Corporation measures fair value, see *Note 1 – Summary of Significant Accounting Principles*. The Corporation accounts for certain financial instruments under the fair value option. For additional information, see *Note 21 – Fair Value Option*.

Valuation Processes and Techniques

The Corporation has various processes and controls in place so that fair value is reasonably estimated. A model validation policy governs the use and control of valuation models used to estimate fair value. This policy requires review and approval of models by personnel who are independent of the front office and periodic reassessments of models so that they are continuing to perform as designed. In addition, detailed reviews of trading gains and losses are conducted on a daily basis by personnel who are independent of the front office. A price verification group, which is also independent of the front office, utilizes available market information including executed trades, market prices and market-observable valuation model inputs so that fair values are reasonably estimated. The Corporation performs due diligence procedures over third-party pricing service providers in order to support their use in the valuation process. Where market information is not available to support internal valuations, independent reviews of the valuations are performed and any material exposures are escalated through a management review process.

While the Corporation believes its valuation methods are appropriate and consistent with other market participants, the use of different methodologies or assumptions to determine the fair value of certain financial instruments could result in a different estimate of fair value at the reporting date.

During 2016, there were no changes to valuation approaches or techniques that had, or are expected to have, a material impact on the Corporation's consolidated financial position or results of operations.

For information regarding Level 1, 2 and 3 valuation techniques, see *Note 1 – Summary of Significant Accounting Principles*.

Trading Account Assets and Liabilities and Debt Securities

The fair values of trading account assets and liabilities are primarily based on actively traded markets where prices are based on either direct market quotes or observed transactions. The fair values of debt securities are generally based on quoted market prices or market prices for similar assets. Liquidity is a significant factor in the determination of the fair values of trading account assets and liabilities and debt securities. Market price quotes may not be readily available for some positions, or positions within a market sector where trading activity has slowed significantly or ceased. Some of these instruments are valued using a discounted cash flow model, which estimates the fair value of the securities using internal credit risk, interest rate and prepayment risk models that incorporate management's best estimate of current key assumptions such as default rates, loss severity and prepayment rates. Principal and interest cash flows are discounted using an observable discount rate for similar instruments with adjustments that management believes a market participant would consider in determining fair value for the specific security. Other instruments are valued using a net asset value approach which considers the value of the underlying securities. Underlying assets are valued using external pricing services, where available, or matrix pricing based on the vintages and ratings. Situations of illiquidity generally are triggered by the market's perception of credit uncertainty regarding a single company or a specific market sector. In these instances, fair value is determined based on limited available market information and other factors, principally from reviewing the issuer's financial statements and changes in credit ratings made by one or more rating agencies.

Derivative Assets and Liabilities

The fair values of derivative assets and liabilities traded in the OTC market are determined using quantitative models that utilize multiple market inputs including interest rates, prices and indices to generate continuous yield or pricing curves and volatility factors to value the position. The majority of market inputs are actively quoted and can be validated through external sources, including brokers, market transactions and third-party pricing services. When third-party pricing services are used, the methods and assumptions are reviewed by the Corporation. Estimation risk is greater for derivative asset and liability positions that are either option-based or have longer maturity dates where observable market inputs are less readily available, or are unobservable, in which case, quantitative-based extrapolations of rate, price or index scenarios are used in determining fair values. The fair values of derivative assets and liabilities include adjustments for market liquidity, counterparty credit quality and other instrument-specific factors, where appropriate. In addition, the Corporation incorporates within its fair value measurements of OTC derivatives a valuation adjustment to reflect the credit risk associated with the net position. Positions are netted by counterparty, and fair value for net long exposures is adjusted for counterparty credit risk while the fair value for net short exposures is adjusted for the Corporation's own credit risk. The Corporation also incorporates FVA within its fair value measurements to include funding costs on uncollateralized derivatives and derivatives where the Corporation is not permitted to use the collateral it receives. An estimate of severity of loss is also used in the determination of fair value, primarily based on market data.

Loans and Loan Commitments

The fair values of loans and loan commitments are based on market prices, where available, or discounted cash flow analyses using market-based credit spreads of comparable debt instruments or credit derivatives of the specific borrower or comparable borrowers. Results of discounted cash flow analyses may be adjusted, as appropriate, to reflect other market conditions or the perceived credit risk of the borrower.

Mortgage Servicing Rights

The fair values of MSRs are primarily determined using an option-adjusted spread (OAS) valuation approach, which factors in prepayment risk to determine the fair value of MSRs. This approach consists of projecting servicing cash flows under multiple interest rate scenarios and discounting these cash flows using risk-adjusted discount rates.

Loans Held-for-sale

The fair values of LHFS are based on quoted market prices, where available, or are determined by discounting estimated cash flows using interest rates approximating the Corporation's current origination rates for similar loans adjusted to reflect the inherent credit risk. The borrower-specific credit risk is embedded within the quoted market prices or is implied by considering loan performance when selecting comparables.

Private Equity Investments

Private equity investments consist of direct investments and fund investments which are initially valued at their transaction price. Thereafter, the fair value of direct investments is based on an assessment of each individual investment using methodologies that include publicly-traded comparables derived by multiplying a key performance metric (e.g., earnings before interest, taxes, depreciation and amortization) of the portfolio company by the relevant valuation multiple observed for comparable companies, acquisition comparables, entry level multiples and discounted cash flow analyses, and are subject to appropriate discounts for lack of liquidity or marketability. After initial recognition, the fair value of fund investments is based on the Corporation's proportionate interest in the fund's capital as reported by the respective fund managers.

Short-term Borrowings and Long-term Debt

The Corporation issues structured liabilities that have coupons or repayment terms linked to the performance of debt or equity securities, indices, currencies or commodities. The fair values of these structured liabilities are estimated using quantitative models for the combined derivative and debt portions of the notes. These models incorporate observable and, in some instances, unobservable inputs including security prices, interest rate yield curves, option volatility, currency, commodity or equity rates and correlations among these inputs. The Corporation also considers the impact of its own credit spreads in determining the discount rate used to value these liabilities. The credit spread is determined by reference to observable spreads in the secondary bond market.

Securities Financing Agreements

The fair values of certain reverse repurchase agreements, repurchase agreements and securities borrowed transactions are determined using quantitative models, including discounted cash flow models that require the use of multiple market inputs including interest rates and spreads to generate continuous yield or pricing curves, and volatility factors. The majority of market inputs are actively quoted and can be validated through external sources, including brokers, market transactions and third-party pricing services.

Deposits

The fair values of deposits are determined using quantitative models, including discounted cash flow models that require the use of multiple market inputs including interest rates and spreads to generate continuous yield or pricing curves, and volatility factors. The majority of market inputs are actively quoted and can be validated through external sources, including brokers, market transactions and third-party pricing services. The Corporation considers the impact of its own credit spreads in the valuation of these liabilities. The credit risk is determined by reference to observable credit spreads in the secondary cash market.

Asset-backed Secured Financings

The fair values of asset-backed secured financings are based on external broker bids, where available, or are determined by discounting estimated cash flows using interest rates approximating the Corporation's current origination rates for similar loans adjusted to reflect the inherent credit risk.

Recurring Fair Value

Assets and liabilities carried at fair value on a recurring basis at December 31, 2016 and 2015, including financial instruments which the Corporation accounts for under the fair value option, are summarized in the following tables.

	December 31, 2016				
	Fair Value Measurements				
(Dollars in millions)	Level 1	Level 2	Level 3	Netting Adjustments [1]	Assets/Liabilities at Fair Value
Assets					
Federal funds sold and securities borrowed or purchased under agreements to resell	$ —	$ 49,750	$ —	$ —	$ 49,750
Trading account assets:					
U.S. Treasury and agency securities [2]	34,587	1,927	—	—	36,514
Corporate securities, trading loans and other	171	22,861	2,777	—	25,809
Equity securities	50,169	21,601	281	—	72,051
Non-U.S. sovereign debt	9,578	9,940	510	—	20,028
Mortgage trading loans, MBS and ABS:					
U.S. government-sponsored agency guaranteed [2]	—	15,799	—	—	15,799
Mortgage trading loans, ABS and other MBS	—	8,797	1,211	—	10,008
Total trading account assets [3]	94,505	80,925	4,779	—	180,209
Derivative assets [4]	7,337	619,848	3,931	(588,604)	42,512
AFS debt securities:					
U.S. Treasury and agency securities	46,787	1,465	—	—	48,252
Mortgage-backed securities:					
Agency	—	189,486	—	—	189,486
Agency-collateralized mortgage obligations	—	8,330	—	—	8,330
Non-agency residential	—	2,013	—	—	2,013
Commercial	—	12,322	—	—	12,322
Non-U.S. securities	2,553	3,600	229	—	6,382
Other taxable securities	—	10,020	594	—	10,614
Tax-exempt securities	—	16,618	542	—	17,160
Total AFS debt securities	49,340	243,854	1,365	—	294,559
Other debt securities carried at fair value:					
Mortgage-backed securities:					
Agency-collateralized mortgage obligations	—	5	—	—	5
Non-agency residential	—	3,114	25	—	3,139
Non-U.S. securities	15,109	1,227	—	—	16,336
Other taxable securities	—	240	—	—	240
Total other debt securities carried at fair value	15,109	4,586	25	—	19,720
Loans and leases	—	6,365	720	—	7,085
Mortgage servicing rights	—	—	2,747	—	2,747
Loans held-for-sale	—	3,370	656	—	4,026
Other assets	11,824	1,739	239	—	13,802
Total assets	**$ 178,115**	**$ 1,010,437**	**$ 14,462**	**$ (588,604)**	**$ 614,410**
Liabilities					
Interest-bearing deposits in U.S. offices	$ —	$ 731	$ —	$ —	$ 731
Federal funds purchased and securities loaned or sold under agreements to repurchase	—	35,407	359	—	35,766
Trading account liabilities:					
U.S. Treasury and agency securities	15,854	197	—	—	16,051
Equity securities	25,884	3,014	—	—	28,898
Non-U.S. sovereign debt	9,409	2,103	—	—	11,512
Corporate securities and other	163	6,380	27	—	6,570
Total trading account liabilities	51,310	11,694	27	—	63,031
Derivative liabilities [4]	7,173	615,896	5,244	(588,833)	39,480
Short-term borrowings	—	2,024	—	—	2,024
Accrued expenses and other liabilities	12,978	1,643	9	—	14,630
Long-term debt	—	28,523	1,514	—	30,037
Total liabilities	**$ 71,461**	**$ 695,918**	**$ 7,153**	**$ (588,833)**	**$ 185,699**

(1) Amounts represent the impact of legally enforceable master netting agreements and also cash collateral held or placed with the same counterparties.
(2) Includes $17.5 billion of GSE obligations.
(3) Includes securities with a fair value of $14.6 billion that were segregated in compliance with securities regulations or deposited with clearing organizations. This amount is included in the parenthetical disclosure on the Consolidated Balance Sheet.
(4) During 2016, $2.3 billion of derivative assets and $2.4 billion of derivative liabilities were transferred from Level 1 to Level 2 and $2.0 billion of derivative assets and $1.8 billion of derivative liabilities were transferred from Level 2 to Level 1 based on the inputs used to measure fair value. For further disaggregation of derivative assets and liabilities, see *Note 2 – Derivatives*.

(Dollars in millions)	December 31, 2015				
	Fair Value Measurements				
	Level 1	Level 2	Level 3	Netting Adjustments (1)	Assets/Liabilities at Fair Value
Assets					
Federal funds sold and securities borrowed or purchased under agreements to resell	$ —	$ 55,143	$ —	$ —	$ 55,143
Trading account assets:					
U.S. Treasury and agency securities (2)	33,034	2,413	—	—	35,447
Corporate securities, trading loans and other	325	22,738	2,838	—	25,901
Equity securities	41,735	20,887	407	—	63,029
Non-U.S. sovereign debt	15,651	12,915	521	—	29,087
Mortgage trading loans, MBS and ABS:					
U.S. government-sponsored agency guaranteed (2)	—	13,088	—	—	13,088
Mortgage trading loans, ABS and other MBS	—	8,107	1,868	—	9,975
Total trading account assets (3)	90,745	80,148	5,634	—	176,527
Derivative assets (4)	5,149	678,355	5,134	(638,648)	49,990
AFS debt securities:					
U.S. Treasury and agency securities	23,374	1,903	—	—	25,277
Mortgage-backed securities:					
Agency	—	228,947	—	—	228,947
Agency-collateralized mortgage obligations	—	10,985	—	—	10,985
Non-agency residential	—	3,073	106	—	3,179
Commercial	—	7,165	—	—	7,165
Non-U.S. securities	2,768	2,999	—	—	5,767
Other taxable securities	—	9,688	757	—	10,445
Tax-exempt securities	—	13,439	569	—	14,008
Total AFS debt securities	26,142	278,199	1,432	—	305,773
Other debt securities carried at fair value:					
Mortgage-backed securities:					
Agency-collateralized mortgage obligations	—	7	—	—	7
Non-agency residential	—	3,460	30	—	3,490
Non-U.S. securities	11,691	1,152	—	—	12,843
Other taxable securities	—	267	—	—	267
Total other debt securities carried at fair value	11,691	4,886	30	—	16,607
Loans and leases	—	5,318	1,620	—	6,938
Mortgage servicing rights	—	—	3,087	—	3,087
Loans held-for-sale	—	4,031	787	—	4,818
Other assets (5)	11,923	2,023	374	—	14,320
Total assets	$ 145,650	$ 1,108,103	$ 18,098	$ (638,648)	$ 633,203
Liabilities					
Interest-bearing deposits in U.S. offices	$ —	$ 1,116	$ —	$ —	$ 1,116
Federal funds purchased and securities loaned or sold under agreements to repurchase	—	24,239	335	—	24,574
Trading account liabilities:					
U.S. Treasury and agency securities	14,803	169	—	—	14,972
Equity securities	27,898	2,392	—	—	30,290
Non-U.S. sovereign debt	13,589	1,951	—	—	15,540
Corporate securities and other	193	5,947	21	—	6,161
Total trading account liabilities	56,483	10,459	21	—	66,963
Derivative liabilities (4)	4,941	670,600	5,575	(642,666)	38,450
Short-term borrowings	—	1,295	30	—	1,325
Accrued expenses and other liabilities	11,656	2,234	9	—	13,899
Long-term debt	—	28,584	1,513	—	30,097
Total liabilities	$ 73,080	$ 738,527	$ 7,483	$ (642,666)	$ 176,424

(1) Amounts represent the impact of legally enforceable master netting agreements and also cash collateral held or placed with the same counterparties.
(2) Includes $14.8 billion of GSE obligations.
(3) Includes securities with a fair value of $16.4 billion that were segregated in compliance with securities regulations or deposited with clearing organizations. This amount is included in the parenthetical disclosure on the Consolidated Balance Sheet.
(4) During 2015, $6.6 billion of derivative assets and $6.7 billion of derivative liabilities were transferred from Level 1 to Level 2 based on inputs used to measure fair value. Additionally $6.4 billion of derivative assets and $6.2 billion of derivative liabilities were transferred from Level 2 to Level 1 due to additional information related to certain options. For further disaggregation of derivative assets and liabilities, see *Note 2 – Derivatives.*
(5) During 2015, approximately $327 million of assets were transferred from Level 2 to Level 1 due to a restriction that was lifted for an equity investment.

The following tables present a reconciliation of all assets and liabilities measured at fair value on a recurring basis using significant unobservable inputs (Level 3) during 2016, 2015 and 2014, including net realized and unrealized gains (losses) included in earnings and accumulated OCI.

Level 3 – Fair Value Measurements (1)

	2016										
				Gross							
(Dollars in millions)	Balance January 1 2016	Total Realized/ Unrealized Gains/ (Losses) (2)	Gains (Losses) in OCI (3)	Purchases	Sales	Issuances	Settlements	Gross Transfers into Level 3	Gross Transfers out of Level 3	Balance December 31 2016	Change in Unrealized Gains/ (Losses) Related to Financial Instruments Still Held (2)
Trading account assets:											
Corporate securities, trading loans and other	$ 2,838	$ 78	$ 2	$ 1,508	$ (847)	$ —	$ (725)	$ 728	$ (805)	$ 2,777	$ (82)
Equity securities	407	74	—	73	(169)	—	(82)	70	(92)	281	(59)
Non-U.S. sovereign debt	521	122	91	12	(146)	—	(90)	—	—	510	120
Mortgage trading loans, ABS and other MBS	1,868	188	(2)	988	(1,491)	—	(344)	158	(154)	1,211	64
Total trading account assets	5,634	462	91	2,581	(2,653)	—	(1,241)	956	(1,051)	4,779	43
Net derivative assets (4)	(441)	285	—	470	(1,155)	—	76	(186)	(362)	(1,313)	(376)
AFS debt securities:											
Non-agency residential MBS	106	—	—	—	(106)	—	—	—	—	—	
Non-U.S. securities	—	—	(6)	584	(92)	—	(263)	6	—	229	—
Other taxable securities	757	4	(2)	—	—	—	(83)	—	(82)	594	—
Tax-exempt securities	569	—	(1)	1	—	—	(2)	10	(35)	542	—
Total AFS debt securities	1,432	4	(9)	585	(198)	—	(348)	16	(117)	1,365	—
Other debt securities carried at fair value – Non-agency residential MBS	30	(5)	—	—	—	—	—	—	—	25	—
Loans and leases (5, 6)	1,620	(44)	—	69	(553)	50	(194)	6	(234)	720	17
Mortgage servicing rights (6)	3,087	149	—	—	(80)	411	(820)	—	—	2,747	(107)
Loans held-for-sale (5)	787	79	50	22	(256)	—	(93)	173	(106)	656	70
Other assets	374	(13)	—	38	(111)	—	(52)	3	—	239	(36)
Federal funds purchased and securities loaned or sold under agreements to repurchase (5)	(335)	(11)	—	—	—	(22)	27	(19)	1	(359)	4
Trading account liabilities – Corporate securities and other	(21)	5	—	—	(11)	—	—	—	—	(27)	4
Short-term borrowings (5)	(30)	1	—	—	—	—	29	—	—	—	—
Accrued expenses and other liabilities (5)	(9)	—	—	—	—	—	—	—	—	(9)	—
Long-term debt (5)	(1,513)	(74)	(20)	140	—	(521)	948	(939)	465	(1,514)	(184)

(1) Assets (liabilities). For assets, increase (decrease) to Level 3 and for liabilities, (increase) decrease to Level 3.
(2) Includes gains/losses reported in earnings in the following income statement line items: Trading account assets/liabilities - trading account profits (losses); Net derivative assets - primarily trading account profits (losses) and mortgage banking income (loss); Mortgage servicing rights - primarily mortgage banking income (loss); Long-term debt - primarily trading account profits (losses).
(3) Includes gains/losses in OCI related to unrealized gains/losses on AFS debt securities, foreign currency translation adjustments and the impact of changes in the Corporation's credit spreads on long-term debt accounted for under the fair value option.
(4) Net derivatives include derivative assets of $3.9 billion and derivative liabilities of $5.2 billion.
(5) Amounts represent instruments that are accounted for under the fair value option.
(6) Issuances represent loan originations and MSRs retained following securitizations or whole-loan sales.

Significant transfers into Level 3, primarily due to decreased price observability, during 2016 included $956 million of trading account assets, $186 million of net derivative assets, $173 million of LHFS and $939 million of long-term debt. Transfers occur on a regular basis for these long-term debt instruments due to changes in the impact of unobservable inputs on the value of the embedded derivative in relation to the instrument as a whole.

Significant transfers out of Level 3, primarily due to increased price observability, during 2016 included $1.1 billion of trading account assets, $362 million of net derivative assets, $117 million of AFS debt securities, $234 million of loans and leases, $106 million of LHFS and $465 million of long-term debt.

Level 3 – Fair Value Measurements (1)

(Dollars in millions)	2015										
				Gross							
	Balance January 1 2015	Total Realized/ Unrealized Gains/ (Losses) (2)	Gains (Losses) in OCI (3)	Purchases	Sales	Issuances	Settlements	Gross Transfers into Level 3	Gross Transfers out of Level 3	Balance December 31 2015	Change in Unrealized Gains/ (Losses) Related to Financial Instruments Still Held (2)
Trading account assets:											
Corporate securities, trading loans and other	$ 3,270	$ (31)	$ (11)	$ 1,540	$(1,616)	$ —	$ (1,122)	$ 1,570	$ (762)	$ 2,838	$ (123)
Equity securities	352	9	—	49	(11)	—	(11)	41	(22)	407	3
Non-U.S. sovereign debt	574	114	(179)	185	(1)	—	(145)	—	(27)	521	74
Mortgage trading loans, ABS and other MBS	2,063	154	1	1,250	(1,117)	—	(493)	50	(40)	1,868	(93)
Total trading account assets	6,259	246	(189)	3,024	(2,745)	—	(1,771)	1,661	(851)	5,634	(139)
Net derivative assets (4)	(920)	1,335	(7)	273	(863)	—	(261)	(40)	42	(441)	605
AFS debt securities:											
Non-agency residential MBS	279	(12)	—	134	—	—	(425)	167	(37)	106	
Non-U.S. securities	10	—	—	—	—	—	(10)	—	—	—	—
Other taxable securities	1,667	—	—	189	—	—	(160)	—	(939)	757	—
Tax-exempt securities	599	—	—	—	—	—	(30)	—	—	569	—
Total AFS debt securities	2,555	(12)	—	323	—	—	(625)	167	(976)	1,432	—
Other debt securities carried at fair value – Non-agency residential MBS	—	(3)	—	33	—	—	—	—	—	30	—
Loans and leases (5, 6)	1,983	(23)	—	—	(4)	57	(237)	144	(300)	1,620	13
Mortgage servicing rights (6)	3,530	187	—	—	(393)	637	(874)	—	—	3,087	(85)
Loans held-for-sale (5)	173	(51)	(8)	771	(203)	61	(61)	203	(98)	787	(39)
Other assets	911	(55)	—	11	(130)	—	(51)	10	(322)	374	(61)
Federal funds purchased and securities loaned or sold under agreements to repurchase (5)	—	(11)	—	—	—	(131)	217	(411)	1	(335)	—
Trading account liabilities – Corporate securities and other	(36)	19	—	30	(34)	—	—	—	—	(21)	(3)
Short-term borrowings (5)	—	17	—	—	—	(52)	10	(24)	19	(30)	1
Accrued expenses and other liabilities (5)	(10)	1	—	—	—	—	—	—	—	(9)	1
Long-term debt (5)	(2,362)	287	19	616	—	(188)	273	(1,592)	1,434	(1,513)	255

(1) Assets (liabilities). For assets, increase (decrease) to Level 3 and for liabilities, (increase) decrease to Level 3.
(2) Includes gains/losses reported in earnings in the following income statement line items: Trading account assets/liabilities - trading account profits (losses); Net derivative assets - primarily trading account profits (losses) and mortgage banking income (loss); Mortgage servicing rights - primarily mortgage banking income (loss); Long-term debt - primarily trading account profits (losses).
(3) Includes gains/losses in OCI related to unrealized gains/losses on AFS debt securities, foreign currency translation adjustments and the impact of changes in the Corporation's credit spreads on long-term debt accounted for under the fair value option.
(4) Net derivatives include derivative assets of $5.1 billion and derivative liabilities of $5.6 billion.
(5) Amounts represent instruments that are accounted for under the fair value option.
(6) Issuances represent loan originations and MSRs retained following securitizations or whole-loan sales.

Significant transfers into Level 3, primarily due to decreased price observability, during 2015 included $1.7 billion of trading account assets, $167 million of AFS debt securities, $144 million of loans and leases, $203 million of LHFS, $411 million of federal funds purchased and securities loaned or sold under agreements to repurchase and $1.6 billion of long-term debt. Transfers occur on a regular basis for these long-term debt instruments due to changes in the impact of unobservable inputs on the value of the embedded derivative in relation to the instrument as a whole.

Significant transfers out of Level 3, primarily due to increased price observability, unless otherwise noted, during 2015 included $851 million of trading account assets, as a result of increased market liquidity, $976 million of AFS debt securities, $300 million of loans and leases, $322 million of other assets and $1.4 billion of long-term debt.

Level 3 – Fair Value Measurements (1)

	2014										
				Gross							
(Dollars in millions)	Balance January 1 2014	Total Realized/ Unrealized Gains/ (Losses) (2)	Gains (Losses) in OCI (3)	Purchases	Sales	Issuances	Settlements	Gross Transfers into Level 3	Gross Transfers out of Level 3	Balance December 31 2014	Change in Unrealized Gains/ (Losses) Related to Financial Instruments Still Held (2)
Trading account assets:											
U.S. government and agency securities	$ —	$ —	$ —	$ 87	$ (87)	$ —	$ —	$ —	$ —	$ —	$ —
Corporate securities, trading loans and other	3,559	180	—	1,675	(857)	—	(938)	1,275	(1,624)	3,270	69
Equity securities	386	—	—	104	(86)	—	(16)	146	(182)	352	(8)
Non-U.S. sovereign debt	468	30	—	120	(34)	—	(19)	11	(2)	574	31
Mortgage trading loans, ABS and other MBS	4,631	199	—	1,643	(1,259)	—	(585)	39	(2,605)	2,063	79
Total trading account assets	9,044	409	—	3,629	(2,323)	—	(1,558)	1,471	(4,413)	6,259	171
Net derivative assets (4)	(224)	463	—	823	(1,738)	—	(432)	28	160	(920)	(87)
AFS debt securities:											
Non-agency residential MBS	—	(2)	—	11	—	—	—	270	—	279	—
Non-U.S. securities	107	(7)	(11)	241	—	—	(147)	—	(173)	10	—
Other taxable securities	3,847	9	(8)	154	—	—	(1,381)	93	(1,047)	1,667	—
Tax-exempt securities	806	8	—	—	(16)	—	(235)	36	—	599	—
Total AFS debt securities	4,760	8	(19)	406	(16)	—	(1,763)	399	(1,220)	2,555	—
Loans and leases (5, 6)	3,057	69	—	—	(3)	699	(1,591)	25	(273)	1,983	76
Mortgage servicing rights (6)	5,042	(1,231)	—	—	(61)	707	(927)	—	—	3,530	(1,753)
Loans held-for-sale (5)	929	45	—	59	(725)	23	(216)	83	(25)	173	(4)
Other assets	1,669	(98)	—	—	(430)	—	(245)	39	(24)	911	52
Trading account liabilities – Corporate securities and other	(35)	1	—	10	(13)	—	—	(9)	10	(36)	1
Accrued expenses and other liabilities (5)	(10)	2	—	—	—	(3)	—	—	1	(10)	1
Long-term debt (5)	(1,990)	49	—	169	—	(615)	540	(1,581)	1,066	(2,362)	(8)

(1) Assets (liabilities). For assets, increase (decrease) to Level 3 and for liabilities, (increase) decrease to Level 3.
(2) Includes gains/losses reported in earnings in the following income statement line items: Trading account assets/liabilities - trading account profits (losses); Net derivative assets - trading account profits (losses), mortgage banking income (loss) and other income (loss); Mortgage servicing rights - primarily mortgage banking income (loss); Long-term debt - trading account profits (losses) and other income (loss).
(3) Includes gains/losses in OCI related to unrealized gains/losses on AFS debt securities.
(4) Net derivatives include derivative assets of $6.9 billion and derivative liabilities of $7.8 billion.
(5) Amounts represent instruments that are accounted for under the fair value option.
(6) Issuances represent loan originations and MSRs retained following securitizations or whole-loan sales.

Significant transfers into Level 3, primarily due to decreased price observability, during 2014 included $1.5 billion of trading account assets, $399 million of AFS debt securities and $1.6 billion of long-term debt. Transfers occur on a regular basis for these long-term debt instruments due to changes in the impact of unobservable inputs on the value of the embedded derivative in relation to the instrument as a whole.

Significant transfers out of Level 3, primarily due to increased price observability unless otherwise noted, during 2014 included $4.4 billion of trading account assets, as a result of increased market liquidity, $160 million of net derivative assets, $1.2 billion of AFS debt securities, $273 million of loans and leases and $1.1 billion of long-term debt.

The following tables present information about significant unobservable inputs related to the Corporation's material categories of Level 3 financial assets and liabilities at December 31, 2016 and 2015.

Quantitative Information about Level 3 Fair Value Measurements at December 31, 2016

(Dollars in millions)

Financial Instrument	Fair Value	Valuation Technique	Inputs: Significant Unobservable Inputs	Inputs: Ranges of Inputs	Inputs: Weighted Average
Loans and Securities (1)					
Instruments backed by residential real estate assets	$ 1,066	Discounted cash flow, Market comparables	Yield	0% to 50%	7%
Trading account assets – Mortgage trading loans, ABS and other MBS	337		Prepayment speed	0% to 27% CPR	14%
Loans and leases	718		Default rate	0% to 3% CDR	2%
Loans held-for-sale	11		Loss severity	0% to 54%	18%
Instruments backed by commercial real estate assets	$ 317	Discounted cash flow, Market comparables	Yield	0% to 39%	11%
Trading account assets – Corporate securities, trading loans and other	178		Price	$0 to $100	$65
Trading account assets – Mortgage trading loans, ABS and other MBS	53				
Loans held-for-sale	86				
Commercial loans, debt securities and other	$ 4,486	Discounted cash flow, Market comparables	Yield	1% to 37%	14%
Trading account assets – Corporate securities, trading loans and other	2,565		Prepayment speed	5% to 20%	19%
Trading account assets – Non-U.S. sovereign debt	510		Default rate	3% to 4%	4%
Trading account assets – Mortgage trading loans, ABS and other MBS	821		Loss severity	0% to 50%	19%
AFS debt securities – Other taxable securities	29		Price	$0 to $292	$68
Loans and leases	2		Duration	0 to 5 years	3 years
Loans held-for-sale	559		Enterprise value/EBITDA multiple	34x	n/a
Auction rate securities	$ 1,141	Discounted cash flow, Market comparables	Price	$10 to $100	$94
Trading account assets – Corporate securities, trading loans and other	34				
AFS debt securities – Other taxable securities	565				
AFS debt securities – Tax-exempt securities	542				
MSRs	$ 2,747	Discounted cash flow, Market comparables	Weighted-average life, fixed rate (4)	0 to 15 years	6 years
			Weighted-average life, variable rate (4)	0 to 14 years	4 years
			Option Adjusted Spread, fixed rate	9% to 14%	10%
			Option Adjusted Spread, variable rate	9% to 15%	12%
Structured liabilities					
Long-term debt	$ (1,514)	Discounted cash flow, Market comparables, Industry standard derivative pricing (2)	Equity correlation	13% to 100%	68%
			Long-dated equity volatilities	4% to 76%	26%
			Yield	6% to 37%	20%
			Price	$12 to $87	$73
			Duration	0 to 5 years	3 years
Net derivative assets					
Credit derivatives	$ (129)	Discounted cash flow, Stochastic recovery correlation model	Yield	0% to 24%	13%
			Upfront points	0 points to 100 points	72 points
			Credit spreads	17 bps to 814 bps	248 bps
			Credit correlation	21% to 80%	44%
			Prepayment speed	10% to 20% CPR	18%
			Default rate	1% to 4% CDR	3%
			Loss severity	35%	n/a
Equity derivatives	$ (1,690)	Industry standard derivative pricing (2)	Equity correlation	13% to 100%	68%
			Long-dated equity volatilities	4% to 76%	26%
Commodity derivatives	$ 6	Discounted cash flow, Industry standard derivative pricing (2)	Natural gas forward price	$2/MMBtu to $6/MMBtu	$4/MMBtu
			Correlation	66% to 95%	85%
			Volatilities	23% to 96%	36%
Interest rate derivatives	$ 500	Industry standard derivative pricing (3)	Correlation (IR/IR)	15% to 99%	56%
			Correlation (FX/IR)	0% to 40%	2%
			Illiquid IR and long-dated inflation rates	-12% to 35%	5%
			Long-dated inflation volatilities	0% to 2%	1%
Total net derivative assets	$ (1,313)				

(1) The categories are aggregated based upon product type which differs from financial statement classification. The following is a reconciliation to the line items in the table on page 199: Trading account assets – Corporate securities, trading loans and other of $2.8 billion, Trading account assets – Non-U.S. sovereign debt of $510 million, Trading account assets – Mortgage trading loans, ABS and other MBS of $1.2 billion, AFS debt securities – Other taxable securities of $594 million, AFS debt securities – Tax-exempt securities of $542 million, Loans and leases of $720 million and LHFS of $656 million.

(2) Includes models such as Monte Carlo simulation and Black-Scholes.

(3) Includes models such as Monte Carlo simulation, Black-Scholes and other methods that model the joint dynamics of interest, inflation and foreign exchange rates.

(4) The weighted-average life is a product of changes in market rates of interest, prepayment rates and other model and cash flow assumptions.

CPR = Constant Prepayment Rate
CDR = Constant Default Rate
EBITDA = Earnings before interest, taxes, depreciation and amortization
MMBtu = Million British thermal units
IR = Interest Rate
FX = Foreign Exchange
n/a = not applicable

Quantitative Information about Level 3 Fair Value Measurements at December 31, 2015

(Dollars in millions)

Financial Instrument	Fair Value	Valuation Technique	Inputs: Significant Unobservable Inputs	Inputs: Ranges of Inputs	Inputs: Weighted Average
Loans and Securities (1)					
Instruments backed by residential real estate assets	**$ 2,017**	Discounted cash flow, Market comparables	Yield	0% to 25%	6%
Trading account assets – Mortgage trading loans, ABS and other MBS	400		Prepayment speed	0% to 27% CPR	11%
Loans and leases	1,520		Default rate	0% to 10% CDR	4%
Loans held-for-sale	97		Loss severity	0% to 90%	40%
Instruments backed by commercial real estate assets	**$ 852**	Discounted cash flow, Market comparables	Yield	0% to 25%	8%
Trading account assets – Mortgage trading loans, ABS and other MBS	162		Price	$0 to $100	$73
Loans held-for-sale	690				
Commercial loans, debt securities and other	**$ 4,558**	Discounted cash flow, Market comparables	Yield	0% to 37%	13%
Trading account assets – Corporate securities, trading loans and other	2,503		Prepayment speed	5% to 20%	16%
Trading account assets – Non-U.S. sovereign debt	521		Default rate	2% to 5%	4%
Trading account assets – Mortgage trading loans, ABS and other MBS	1,306		Loss severity	25% to 50%	37%
AFS debt securities – Other taxable securities	128		Duration	0 to 5 years	3 years
Loans and leases	100		Price	$0 to $258	$64
Auction rate securities	**$ 1,533**	Discounted cash flow, Market comparables	Price	$10 to $100	$94
Trading account assets – Corporate securities, trading loans and other	335				
AFS debt securities – Other taxable securities	629				
AFS debt securities – Tax-exempt securities	569				
MSRs	**$ 3,087**	Discounted cash flow, Market comparables	Weighted-average life, fixed rate (4)	0 to 15 years	4 years
			Weighted-average life, variable rate (4)	0 to 16 years	3 years
			Option Adjusted Spread, fixed rate	3% to 11%	5%
			Option Adjusted Spread, variable rate	3% to 11%	8%
Structured liabilities					
Long-term debt	**$ (1,513)**	Industry standard derivative pricing (3)	Equity correlation	25% to 100%	67%
			Long-dated equity volatilities	4% to 101%	28%
Net derivative assets					
Credit derivatives	**$ (75)**	Discounted cash flow, Stochastic recovery correlation model	Yield	6% to 25%	16%
			Upfront points	0 to 100 points	60 points
			Credit spreads	0 bps to 447 bps	111 bps
			Credit correlation	31% to 99%	38%
			Prepayment speed	10% to 20% CPR	19%
			Default rate	1% to 4% CDR	3%
			Loss severity	35% to 40%	35%
Equity derivatives	**$ (1,037)**	Industry standard derivative pricing (2)	Equity correlation	25% to 100%	67%
			Long-dated equity volatilities	4% to 101%	28%
Commodity derivatives	**$ 169**	Discounted cash flow, Industry standard derivative pricing (2)	Natural gas forward price	$1/MMBtu to $6/MMBtu	$4/MMBtu
			Propane forward price	$0/Gallon to $1/Gallon	$1/Gallon
			Correlation	66% to 93%	84%
			Volatilities	18% to 125%	39%
Interest rate derivatives	**$ 502**	Industry standard derivative pricing (3)	Correlation (IR/IR)	17% to 99%	48%
			Correlation (FX/IR)	-15% to 40%	-9%
			Long-dated inflation rates	0% to 7%	3%
			Long-dated inflation volatilities	0% to 2%	1%
Total net derivative assets	**$ (441)**				

(1) The categories are aggregated based upon product type which differs from financial statement classification. The following is a reconciliation to the line items in the table on page 200: Trading account assets – Corporate securities, trading loans and other of $2.8 billion, Trading account assets – Non-U.S. sovereign debt of $521 million, Trading account assets – Mortgage trading loans, ABS and other MBS of $1.9 billion, AFS debt securities – Other taxable securities of $757 million, AFS debt securities – Tax-exempt securities of $569 million, Loans and leases of $1.6 billion and LHFS of $787 million.
(2) Includes models such as Monte Carlo simulation and Black-Scholes.
(3) Includes models such as Monte Carlo simulation, Black-Scholes and other methods that model the joint dynamics of interest, inflation and foreign exchange rates.
(4) The weighted-average life is a product of changes in market rates of interest, prepayment rates and other model and cash flow assumptions.
CPR = Constant Prepayment Rate
CDR = Constant Default Rate
MMBtu = Million British thermal units
IR = Interest Rate
FX = Foreign Exchange

In the tables above, instruments backed by residential and commercial real estate assets include RMBS, commercial MBS, whole loans and mortgage CDOs. Commercial loans, debt securities and other include corporate CLOs and CDOs, commercial loans and bonds, and securities backed by non-real estate assets. Structured liabilities primarily include equity-linked notes that are accounted for under the fair value option.

The Corporation uses multiple market approaches in valuing certain of its Level 3 financial instruments. For example, market comparables and discounted cash flows are used together. For a given product, such as corporate debt securities, market comparables may be used to estimate some of the unobservable inputs and then these inputs are incorporated into a discounted cash flow model. Therefore, the balances disclosed encompass both of these techniques.

The level of aggregation and diversity within the products disclosed in the tables result in certain ranges of inputs being wide and unevenly distributed across asset and liability categories.

Sensitivity of Fair Value Measurements to Changes in Unobservable Inputs

Loans and Securities

A significant increase in market yields, default rates, loss severities or duration would result in a significantly lower fair value for long positions. Short positions would be impacted in a directionally opposite way. The impact of changes in prepayment speeds would have differing impacts depending on the seniority of the instrument and, in the case of CLOs, whether prepayments can be reinvested. A significant increase in price would result in a significantly higher fair value for long positions and short positions would be impacted in a directionally opposite way.

Mortgage Servicing Rights

The weighted-average lives and fair value of MSRs are sensitive to changes in modeled assumptions. The weighted-average life is a product of changes in market rates of interest, prepayment rates and other model and cash flow assumptions. The weighted-average life represents the average period of time that the MSRs' cash flows are expected to be received. Absent other changes, an increase (decrease) to the weighted-average life would generally result in an increase (decrease) in the fair value of the MSRs. For example, a 10 percent or 20 percent decrease in prepayment rates, which impact the weighted-average life, could result in an increase in fair value of $101 million or $210 million, while a 10 percent or 20 percent increase in prepayment rates could result in a decrease in fair value of $93 million or $180 million. A 100 bp or 200 bp decrease in OAS levels could result in an increase in fair value of $95 million or $197 million, while a 100 bp or 200 bp increase in OAS levels could result in a decrease in fair value of $88 million or $171 million. These sensitivities are hypothetical and actual amounts may vary materially. As the amounts indicate, changes in fair value based on variations in assumptions generally cannot be extrapolated because the relationship of the change in assumption to the change in fair value may not be linear. Also, the effect of a variation in a particular assumption on the fair value of MSRs that continue to be held by the Corporation is calculated without changing any other assumption. In reality, changes in one factor may result in changes in another, which might magnify or counteract the sensitivities. In addition, these sensitivities do not reflect any hedge strategies that may be undertaken to mitigate such risk.

Structured Liabilities and Derivatives

For credit derivatives, a significant increase in market yield, upfront points (i.e., a single upfront payment made by a protection buyer at inception), credit spreads, default rates or loss severities would result in a significantly lower fair value for protection sellers and higher fair value for protection buyers. The impact of changes in prepayment speeds would have differing impacts depending on the seniority of the instrument and, in the case of CLOs, whether prepayments can be reinvested.

Structured credit derivatives are impacted by credit correlation. Default correlation is a parameter that describes the degree of dependence among credit default rates within a credit portfolio that underlies a credit derivative instrument. The sensitivity of this input on the fair value varies depending on the level of subordination of the tranche. For senior tranches that are net purchases of protection, a significant increase in default correlation would result in a significantly higher fair value. Net short protection positions would be impacted in a directionally opposite way.

For equity derivatives, commodity derivatives, interest rate derivatives and structured liabilities, a significant change in long-dated rates and volatilities and correlation inputs (e.g., the degree of correlation between an equity security and an index, between two different commodities, between two different interest rates, or between interest rates and foreign exchange rates) would result in a significant impact to the fair value; however, the magnitude and direction of the impact depends on whether the Corporation is long or short the exposure. For structured liabilities, a significant increase in yield or decrease in price would result in a significantly lower fair value. A significant decrease in duration may result in a significantly higher fair value.

Nonrecurring Fair Value

The Corporation holds certain assets that are measured at fair value, but only in certain situations (e.g., impairment) and these measurements are referred to herein as nonrecurring. The amounts below represent assets still held as of the reporting date for which a nonrecurring fair value adjustment was recorded during 2016, 2015 and 2014.

Assets Measured at Fair Value on a Nonrecurring Basis

	December 31			
	2016		2015	
(Dollars in millions)	**Level 2**	**Level 3**	Level 2	Level 3
Assets				
Loans held-for-sale	**$ 193**	**$ 44**	$ 9	$ 33
Loans and leases [(1)]	**—**	**1,416**	34	2,739
Foreclosed properties [(2, 3)]	**—**	**77**	—	172
Other assets	**358**	**—**	88	—

	Gains (Losses)		
	2016	2015	2014
Assets			
Loans held-for-sale	**$ (54)**	$ (8)	$ (19)
Loans and leases [(1)]	**(458)**	(993)	(1,152)
Foreclosed properties	**(41)**	(57)	(66)
Other assets	**(74)**	(28)	(26)

(1) Includes $150 million of losses on loans that were written down to a collateral value of zero during 2016 compared to losses of $174 million and $370 million in 2015 and 2014.

(2) Amounts are included in other assets on the Consolidated Balance Sheet and represent the carrying value of foreclosed properties that were written down subsequent to their initial classification as foreclosed properties. Losses on foreclosed properties include losses taken during the first 90 days after transfer of a loan to foreclosed properties.

(3) Excludes $1.2 billion and $1.4 billion of properties acquired upon foreclosure of certain government-guaranteed loans (principally FHA-insured loans) as of December 31, 2016 and 2015.

The table below presents information about significant unobservable inputs related to the Corporation's nonrecurring Level 3 financial assets and liabilities at December 31, 2016 and 2015. Instruments backed by residential real estate assets represent residential mortgages where the loan has been written down to the fair value of the underlying collateral.

Quantitative Information about Nonrecurring Level 3 Fair Value Measurements

(Dollars in millions)	December 31, 2016				
			Inputs		
Financial Instrument	**Fair Value**	**Valuation Technique**	**Significant Unobservable Inputs**	**Ranges of Inputs**	**Weighted Average**
Loans and leases backed by residential real estate assets	**$ 1,416**	Market comparables	OREO discount	8% to 56%	21%
			Cost to sell	7% to 45%	9%
	December 31, 2015				
Loans and leases backed by residential real estate assets	**$ 2,739**	Market comparables	OREO discount	7% to 55%	20%
			Cost to sell	8% to 45%	10%

NOTE 21 Fair Value Option

Loans and Loan Commitments

The Corporation elects to account for certain consumer and commercial loans and loan commitments that exceed the Corporation's single name credit risk concentration guidelines under the fair value option. Lending commitments, both funded and unfunded, are actively managed and monitored and, as appropriate, credit risk for these lending relationships may be mitigated through the use of credit derivatives, with the Corporation's public side credit view and market perspectives determining the size and timing of the hedging activity. These credit derivatives do not meet the requirements for designation as accounting hedges and therefore are carried at fair value with changes in fair value recorded in other income (loss). Electing the fair value option allows the Corporation to carry these loans and loan commitments at fair value, which is more consistent with management's view of the underlying economics and the manner in which they are managed. In addition, election of the fair value option allows the Corporation to reduce the accounting volatility that would otherwise result from the asymmetry created by accounting for the financial instruments at historical cost and the credit derivatives at fair value. The Corporation also elected the fair value option for certain loans held in consolidated VIEs.

Loans Held-for-sale

The Corporation elects to account for residential mortgage LHFS, commercial mortgage LHFS and certain other LHFS under the fair value option with interest income on these LHFS recorded in other interest income. These loans are actively managed and monitored and, as appropriate, certain market risks of the loans may be mitigated through the use of derivatives. The Corporation has elected not to designate the derivatives as qualifying accounting hedges and therefore they are carried at fair value with changes in fair value recorded in other income (loss). The changes in fair value of the loans are largely offset by changes in the fair value of the derivatives. Election of the fair value option allows the Corporation to reduce the accounting volatility that would otherwise result from the asymmetry created by accounting for the financial instruments at the lower of cost or fair value and the derivatives at fair value. The Corporation has not elected to account for certain other LHFS under the fair value option primarily because these loans are floating-rate loans that are not hedged using derivative instruments.

Loans Reported as Trading Account Assets

The Corporation elects to account for certain loans that are held for the purpose of trading and are risk-managed on a fair value basis under the fair value option.

Other Assets

The Corporation elects to account for certain long-term fixed-rate margin loans that are hedged with derivatives under the fair value option. Election of the fair value option allows the Corporation to reduce the accounting volatility that would otherwise result from the asymmetry created by accounting for the financial instruments at historical cost and the derivatives at fair value.

Securities Financing Agreements

The Corporation elects to account for certain securities financing agreements, including resale and repurchase agreements, under the fair value option based on the tenor of the agreements, which reflects the magnitude of the interest rate risk. The majority of securities financing agreements collateralized by U.S. government securities are not accounted for under the fair value option as these contracts are generally short-dated and therefore the interest rate risk is not significant.

Long-term Deposits

The Corporation elects to account for certain long-term fixed-rate and rate-linked deposits that are hedged with derivatives that do not qualify for hedge accounting under the fair value option. Election of the fair value option allows the Corporation to reduce the accounting volatility that would otherwise result from the asymmetry created by accounting for the financial instruments at historical cost and the derivatives at fair value. The Corporation has not elected to carry other long-term deposits at fair value because they are not hedged using derivatives.

Short-term Borrowings

The Corporation elects to account for certain short-term borrowings, primarily short-term structured liabilities, under the fair value option because this debt is risk-managed on a fair value basis.

The Corporation elects to account for certain asset-backed secured financings, which are also classified in short-term borrowings, under the fair value option. Election of the fair value option allows the Corporation to reduce the accounting volatility that would otherwise result from the asymmetry created by accounting for the asset-backed secured financings at historical cost and the corresponding mortgage LHFS securing these financings at fair value.

Long-term Debt

The Corporation elects to account for certain long-term debt, primarily structured liabilities, under the fair value option. This long-term debt is either risk-managed on a fair value basis or the related hedges do not qualify for hedge accounting.

The table below provides information about the fair value carrying amount and the contractual principal outstanding of assets and liabilities accounted for under the fair value option at December 31, 2016 and 2015.

Fair Value Option Elections

	December 31					
	2016			2015		
(Dollars in millions)	**Fair Value Carrying Amount**	**Contractual Principal Outstanding**	**Fair Value Carrying Amount Less Unpaid Principal**	Fair Value Carrying Amount	Contractual Principal Outstanding	Fair Value Carrying Amount Less Unpaid Principal
Federal funds sold and securities borrowed or purchased under agreements to resell	**$ 49,750**	**$ 49,615**	**$ 135**	$ 55,143	$ 54,999	$ 144
Loans reported as trading account assets [1]	**6,215**	**11,557**	**(5,342)**	4,995	9,214	(4,219)
Trading inventory – other	**8,206**	**n/a**	**n/a**	8,149	n/a	n/a
Consumer and commercial loans	**7,085**	**7,190**	**(105)**	6,938	7,293	(355)
Loans held-for-sale	**4,026**	**5,595**	**(1,569)**	4,818	6,157	(1,339)
Other assets	**253**	**250**	**3**	275	270	5
Long-term deposits	**731**	**672**	**59**	1,116	1,021	95
Federal funds purchased and securities loaned or sold under agreements to repurchase	**35,766**	**35,929**	**(163)**	24,574	24,718	(144)
Short-term borrowings	**2,024**	**2,024**	**—**	1,325	1,325	—
Unfunded loan commitments	**173**	**n/a**	**n/a**	658	n/a	n/a
Long-term debt [2]	**30,037**	**29,862**	**175**	30,097	30,593	(496)

(1) A significant portion of the loans reported as trading account assets are distressed loans which trade and were purchased at a deep discount to par, and the remainder are loans with a fair value near contractual principal outstanding.

(2) Includes structured liabilities with a fair value of $29.7 billion and $29.0 billion, and contractual principal outstanding of $29.5 billion and $29.4 billion at December 31, 2016 and 2015.

n/a = not applicable

The following tables provide information about where changes in the fair value of assets and liabilities accounted for under the fair value option are included in the Consolidated Statement of Income for 2016, 2015 and 2014.

Gains (Losses) Relating to Assets and Liabilities Accounted for Under the Fair Value Option

(Dollars in millions)	Trading Account Profits (Losses)	Mortgage Banking Income (Loss)	Other Income (Loss)	Total
	2016			
Federal funds sold and securities borrowed or purchased under agreements to resell	**$ (64)**	**$ —**	**$ 1**	**$ (63)**
Loans reported as trading account assets	**301**	**—**	**—**	**301**
Trading inventory – other [(1)]	**57**	**—**	**—**	**57**
Consumer and commercial loans	**49**	**—**	**(37)**	**12**
Loans held-for-sale [(2)]	**11**	**518**	**6**	**535**
Other assets	**—**	**—**	**20**	**20**
Long-term deposits	**1**	**—**	**32**	**33**
Federal funds purchased and securities loaned or sold under agreements to repurchase	**(22)**	**—**	**—**	**(22)**
Unfunded loan commitments	**—**	**—**	**487**	**487**
Long-term debt [(3, 4)]	**(489)**	**—**	**(97)**	**(586)**
Total	**$ (156)**	**$ 518**	**$ 412**	**$ 774**
	2015			
Federal funds sold and securities borrowed or purchased under agreements to resell	$ (195)	$ —	$ —	$ (195)
Loans reported as trading account assets	(199)	—	—	(199)
Trading inventory – other [(1)]	1,284	—	—	1,284
Consumer and commercial loans	52	—	(295)	(243)
Loans held-for-sale [(2)]	(36)	673	63	700
Other assets	—	—	10	10
Long-term deposits	1	—	13	14
Federal funds purchased and securities loaned or sold under agreements to repurchase	33	—	—	33
Short-term borrowings	3	—	—	3
Unfunded loan commitments	—	—	(210)	(210)
Long-term debt [(3, 4)]	2,107	—	(633)	1,474
Total	$ 3,050	$ 673	$ (1,052)	$ 2,671
	2014			
Federal funds sold and securities borrowed or purchased under agreements to resell	$ (114)	$ —	$ —	$ (114)
Loans reported as trading account assets	(87)	—	—	(87)
Trading inventory – other [(1)]	1,091	—	—	1,091
Consumer and commercial loans	(24)	—	69	45
Loans held-for-sale [(2)]	(56)	798	83	825
Long-term deposits	23	—	(26)	(3)
Federal funds purchased and securities loaned or sold under agreements to repurchase	4	—	—	4
Short-term borrowings	52	—	—	52
Unfunded loan commitments	—	—	(64)	(64)
Long-term debt [(3)]	239	—	407	646
Total	$ 1,128	$ 798	$ 469	$ 2,395

(1) The gains (losses) in trading account profits (losses) are primarily offset by gains (losses) on trading liabilities that hedge these assets.
(2) Includes the value of IRLCs on funded loans, including those sold during the period.
(3) The majority of the net gains (losses) in trading account profits relate to the embedded derivative in structured liabilities and are offset by gains (losses) on derivatives and securities that hedge these liabilities. In connection with the implementation of new accounting guidance in 2015 relating to DVA on structured liabilities accounted for under the fair value option, unrealized DVA gains (losses) in 2016 and 2015 are recorded in accumulated OCI while realized gains (losses) are recorded in other income (loss); for 2014, the realized and unrealized gains (losses) are reflected in other income (loss). For more information on the implementation of new accounting guidance, see *Note 1 – Summary of Significant Accounting Principles.*
(4) For the cumulative impact of changes in the Corporation's own credit spreads and the amount recognized in OCI, see *Note 14 – Accumulated Other Comprehensive Income (Loss)*. For more information on how the Corporation's own credit spread is determined, see *Note 20 – Fair Value Measurements*.

Gains (Losses) Related to Borrower-specific Credit Risk for Assets Accounted for Under the Fair Value Option

(Dollars in millions)	December 31 2016	2015	2014
Loans reported as trading account assets	**$ 7**	$ 37	$ 28
Consumer and commercial loans	**(53)**	(200)	32
Loans held-for-sale	**(34)**	37	84

NOTE 22 Fair Value of Financial Instruments

Financial instruments are classified within the fair value hierarchy using the methodologies described in *Note 20 – Fair Value Measurements*. The following disclosures include financial instruments that are not carried at fair value or only a portion of the ending balance is carried at fair value on the Consolidated Balance Sheet.

Short-term Financial Instruments

The carrying value of short-term financial instruments, including cash and cash equivalents, time deposits placed and other short-term investments, federal funds sold and purchased, certain resale and repurchase agreements, customer and other receivables, customer payables (within accrued expenses and other liabilities on the Consolidated Balance Sheet), and short-term borrowings approximates the fair value of these instruments. These financial instruments generally expose the Corporation to limited credit risk and have no stated maturities or have short-term maturities and carry interest rates that approximate market. The Corporation elected to account for certain resale and repurchase agreements under the fair value option.

Under the fair value hierarchy, cash and cash equivalents are classified as Level 1. Time deposits placed and other short-term investments, such as U.S. government securities and short-term commercial paper, are classified as Level 1 and Level 2. Federal funds sold and purchased are classified as Level 2. Resale and repurchase agreements are classified as Level 2 because they are generally short-dated and/or variable-rate instruments collateralized by U.S. government or agency securities. Customer and other receivables primarily consist of margin loans, servicing advances and other accounts receivable and are classified as Level 2 and Level 3. Customer payables and short-term borrowings are classified as Level 2.

Held-to-maturity Debt Securities

HTM debt securities, which consist primarily of U.S. agency debt securities, are classified as Level 2 using the same methodologies as AFS U.S. agency debt securities. For more information on HTM debt securities, see *Note 3 – Securities*.

Loans

The fair values for commercial and consumer loans are generally determined by discounting both principal and interest cash flows expected to be collected using a discount rate for similar instruments with adjustments that the Corporation believes a market participant would consider in determining fair value. The Corporation estimates the cash flows expected to be collected using internal credit risk, interest rate and prepayment risk models that incorporate the Corporation's best estimate of current key assumptions, such as default rates, loss severity and prepayment speeds for the life of the loan. The carrying value of loans is presented net of the applicable allowance for loan losses and excludes leases. The Corporation accounts for certain commercial loans and residential mortgage loans under the fair value option.

Deposits

The fair value for certain deposits with stated maturities was determined by discounting contractual cash flows using current market rates for instruments with similar maturities. The carrying value of non-U.S. time deposits approximates fair value. For deposits with no stated maturities, the carrying value was considered to approximate fair value and does not take into account the significant value of the cost advantage and stability of the Corporation's long-term relationships with depositors. The Corporation accounts for certain long-term fixed-rate deposits under the fair value option.

Long-term Debt

The Corporation uses quoted market prices, when available, to estimate fair value for its long-term debt. When quoted market prices are not available, fair value is estimated based on current market interest rates and credit spreads for debt with similar terms and maturities. The Corporation accounts for certain structured liabilities under the fair value option.

Fair Value of Financial Instruments

The carrying values and fair values by fair value hierarchy of certain financial instruments where only a portion of the ending balance was carried at fair value at December 31, 2016 and 2015 are presented in the table below.

Fair Value of Financial Instruments

	December 31, 2016			
		Fair Value		
(Dollars in millions)	Carrying Value	Level 2	Level 3	Total
Financial assets				
Loans	$ 873,209	$ 71,793	$ 815,329	$ 887,122
Loans held-for-sale	9,066	8,082	984	9,066
Financial liabilities				
Deposits	1,260,934	1,261,086	—	1,261,086
Long-term debt	216,823	220,071	1,514	221,585
	December 31, 2015			
Financial assets				
Loans	$ 863,561	$ 70,223	$ 805,371	$ 875,594
Loans held-for-sale	7,453	5,347	2,106	7,453
Financial liabilities				
Deposits	1,197,259	1,197,577	—	1,197,577
Long-term debt	236,764	239,596	1,513	241,109

Commercial Unfunded Lending Commitments

Fair values were generally determined using a discounted cash flow valuation approach which is applied using market-based CDS or internally developed benchmark credit curves. The Corporation accounts for certain loan commitments under the fair value option.

The carrying values and fair values of the Corporation's commercial unfunded lending commitments were $937 million and $4.9 billion at December 31, 2016, and $1.3 billion and $6.3 billion at December 31, 2015. Commercial unfunded lending commitments are primarily classified as Level 3. The carrying value of these commitments is classified in accrued expenses and other liabilities.

The Corporation does not estimate the fair values of consumer unfunded lending commitments because, in many instances, the Corporation can reduce or cancel these commitments by providing notice to the borrower. For more information on commitments, see *Note 12 – Commitments and Contingencies*.

NOTE 23 Mortgage Servicing Rights

The Corporation accounts for consumer MSRs at fair value, with changes in fair value primarily recorded in mortgage banking income in the Consolidated Statement of Income. The Corporation manages the risk in these MSRs with derivatives such as options and interest rate swaps, which are not designated as accounting hedges, as well as securities including MBS and U.S. Treasury securities. The securities used to manage the risk in the MSRs are classified in other assets, with changes in the fair value of the securities and the related interest income recorded in mortgage banking income.

The table below presents activity for residential mortgage and home equity MSRs for 2016 and 2015.

Rollforward of Mortgage Servicing Rights

(Dollars in millions)	**2016**	2015
Balance, January 1	**$ 3,087**	$ 3,530
Additions	**411**	637
Sales	**(80)**	(393)
Amortization of expected cash flows [1]	**(820)**	(874)
Changes in fair value due to changes in inputs and assumptions [2]	**149**	187
Balance, December 31 [3]	**$ 2,747**	$ 3,087
Mortgage loans serviced for investors (in billions)	**$ 326**	$ 394

(1) Represents the net change in fair value of the MSR asset due to the recognition of modeled cash flows and the passage of time.
(2) These amounts reflect the changes in modeled MSR fair value due to observed changes in interest rates, volatility, spreads, and the shape of the forward swap curve; periodic adjustments to valuation based on third-party price discovery; and periodic adjustments to the valuation model and other cash flow assumptions.
(3) At December 31, 2016, includes the $2.1 billion core MSR portfolio held in *Consumer Banking*, the $212 million non-core MSR portfolio held in *All Other* and the $469 million non-U.S. MSR portfolio held in *Global Markets* compared to $2.3 billion, $355 million and $407 million at December 31, 2015, respectively.

The Corporation revised certain MSR valuation assumptions during 2016, resulting in a net $306 million increase in fair value, which is included within “Changes in fair value due to changes in inputs and assumptions” in the table above. The increase was primarily driven by changes in prepayment assumptions based on recent observed differences between modeled and actual prepayment behavior, which had the impact of slowing the weighted-average rate of projected prepayments, thus increasing both the weighted-average life of the MSRs and the yield that a market participant would require to buy the MSR.

NOTE 24 Business Segment Information

The Corporation reports its results of operations through the following four business segments: *Consumer Banking*, *GWIM*, *Global Banking* and *Global Markets*, with the remaining operations recorded in *All Other*.

Consumer Banking

Consumer Banking offers a diversified range of credit, banking and investment products and services to consumers and small businesses. *Consumer Banking* product offerings include traditional savings accounts, money market savings accounts, CDs and IRAs, checking accounts, investment accounts and products, as well as credit and debit cards, residential mortgages and home equity loans, and direct and indirect loans to consumers and small businesses in the U.S. *Consumer Banking* includes the impact of servicing residential mortgages and home equity loans in the core portfolio.

Global Wealth & Investment Management

GWIM provides a high-touch client experience through a network of financial advisors focused on clients with over $250,000 in total investable assets, including tailored solutions to meet clients' needs through a full set of investment management, brokerage, banking and retirement products. *GWIM* also provides comprehensive wealth management solutions targeted to high net worth and ultra high net worth clients, as well as customized solutions to meet clients' wealth structuring, investment management, trust and banking needs, including specialty asset management services.

Global Banking

Global Banking provides a wide range of lending-related products and services, integrated working capital management and treasury solutions, and underwriting and advisory services through the Corporation's network of offices and client relationship teams. *Global Banking* also provides investment banking products to clients. The economics of certain investment banking and underwriting activities are shared primarily between *Global Banking* and *Global Markets* under an internal revenue-sharing arrangement. *Global Banking* clients generally include middle-market companies, commercial real estate firms, not-for-profit companies, large global corporations, financial institutions, leasing clients, and mid-sized U.S.-based businesses requiring customized and integrated financial advice and solutions.

Global Markets

Global Markets offers sales and trading services, including research, to institutional clients across fixed-income, credit, currency, commodity and equity businesses. *Global Markets* provides market-making, financing, securities clearing, settlement and custody services globally to institutional investor clients in support of their investing and trading activities. *Global Markets* also works with commercial and corporate clients to provide risk management products. As a result of market-making activities, *Global Markets* may be required to manage risk in a broad range of financial products. In addition, the economics of certain investment banking and underwriting activities are shared primarily between *Global Markets* and *Global Banking* under an internal revenue-sharing arrangement.

All Other

All Other consists of ALM activities, equity investments, the non-U.S. consumer credit card business, non-core mortgage loans and servicing activities, the net impact of periodic revisions to the MSR valuation model for both core and non-core MSRs, other liquidating businesses, residual expense allocations and other. ALM activities encompass certain residential mortgages, debt securities, interest rate and foreign currency risk management activities, the impact of certain allocation methodologies and accounting hedge ineffectiveness. The results of certain ALM activities are allocated to the business segments. Equity investments include the merchant services joint venture as well as GPI. On December, 20, 2016, the Corporation entered into an agreement to sell its non-U.S. consumer credit card business to a third party. Subject to regulatory approval, this transaction is expected to close by mid-2017.

Basis of Presentation

The management accounting and reporting process derives segment and business results by utilizing allocation methodologies for revenue and expense. The net income derived for the businesses is dependent upon revenue and cost allocations using an activity-based costing model, funds transfer pricing, and other methodologies and assumptions management believes are appropriate to reflect the results of the business.

Total revenue, net of interest expense, includes net interest income on an FTE basis and noninterest income. The adjustment of net interest income to an FTE basis results in a corresponding increase in income tax expense. The segment results also reflect certain revenue and expense methodologies that are utilized to determine net income. The net interest income of the businesses includes the results of a funds transfer pricing process that matches assets and liabilities with similar interest rate sensitivity and maturity characteristics. In segments where the total of liabilities and equity exceeds assets, which are generally deposit-taking segments, the Corporation allocates assets to match liabilities. Net interest income of the business segments also includes an allocation of net interest income generated by certain of the Corporation's ALM activities.

In addition, the business segments are impacted by the migration of customers and clients and their deposit, loan and brokerage balances between businesses. Subsequent to the date of migration, the associated net interest income, noninterest income and noninterest expense are recorded in the business to which the customers or clients migrated.

The Corporation's ALM activities include an overall interest rate risk management strategy that incorporates the use of various derivatives and cash instruments to manage fluctuations in earnings and capital that are caused by interest rate volatility. The Corporation's goal is to manage interest rate sensitivity so that movements in interest rates do not significantly adversely affect earnings and capital. The results of a majority of the Corporation's ALM activities are allocated to the business segments and fluctuate based on the performance of the ALM activities. ALM activities include external product pricing decisions including deposit pricing strategies, the effects of the Corporation's internal funds transfer pricing process and the net effects of other ALM activities.

Certain expenses not directly attributable to a specific business segment are allocated to the segments. The costs of certain centralized or shared functions are allocated based on methodologies that reflect utilization.

The tables below present net income (loss) and the components thereto (with net interest income on an FTE basis) for 2016, 2015 and 2014, and total assets at December 31, 2016 and 2015 for each business segment, as well as *All Other,* including a reconciliation of the four business segments' total revenue, net of interest expense, on an FTE basis, and net income to the Consolidated Statement of Income, and total assets to the Consolidated Balance Sheet.

Results of Business Segments and All Other

At and for the Year Ended December 31 (Dollars in millions)	**Total Corporation** [(1)]			**Consumer Banking**		
	2016	2015	2014	**2016**	2015	2014
Net interest income (FTE basis)	**$ 41,996**	$ 39,847	$ 41,630	**$ 21,290**	$ 20,428	$ 20,790
Noninterest income	**42,605**	44,007	45,115	**10,441**	11,097	11,038
Total revenue, net of interest expense (FTE basis)	**84,601**	83,854	86,745	**31,731**	31,525	31,828
Provision for credit losses	**3,597**	3,161	2,275	**2,715**	2,346	2,470
Noninterest expense	**54,951**	57,734	75,656	**17,653**	18,716	19,390
Income before income taxes (FTE basis)	**26,053**	22,959	8,814	**11,363**	10,463	9,968
Income tax expense (FTE basis)	**8,147**	7,123	3,294	**4,190**	3,814	3,717
Net income	**$ 17,906**	$ 15,836	$ 5,520	**$ 7,173**	$ 6,649	$ 6,251
Year-end total assets	**$ 2,187,702**	$ 2,144,287		**$ 702,339**	$ 645,427	

	Global Wealth & Investment Management			**Global Banking**		
	2016	2015	2014	**2016**	2015	2014
Net interest income (FTE basis)	**$ 5,759**	$ 5,527	$ 5,830	**$ 9,942**	$ 9,244	$ 9,752
Noninterest income	**11,891**	12,507	12,573	**8,488**	8,377	8,514
Total revenue, net of interest expense (FTE basis)	**17,650**	18,034	18,403	**18,430**	17,621	18,266
Provision for credit losses	**68**	51	14	**883**	686	325
Noninterest expense	**13,182**	13,943	13,836	**8,486**	8,481	8,806
Income before income taxes (FTE basis)	**4,400**	4,040	4,553	**9,061**	8,454	9,135
Income tax expense (FTE basis)	**1,629**	1,473	1,698	**3,341**	3,114	3,353
Net income	**$ 2,771**	$ 2,567	$ 2,855	**$ 5,720**	$ 5,340	$ 5,782
Year-end total assets	**$ 298,932**	$ 296,271		**$ 408,268**	$ 386,132	

	Global Markets			**All Other**		
	2016	2015	2014	**2016**	2015	2014
Net interest income (FTE basis)	**$ 4,558**	$ 4,191	$ 3,851	**$ 447**	$ 457	$ 1,407
Noninterest income	**11,532**	10,822	12,279	**253**	1,204	711
Total revenue, net of interest expense (FTE basis)	**16,090**	15,013	16,130	**700**	1,661	2,118
Provision for credit losses	**31**	99	110	**(100)**	(21)	(644)
Noninterest expense	**10,170**	11,374	11,989	**5,460**	5,220	21,635
Income (loss) before income taxes (FTE basis)	**5,889**	3,540	4,031	**(4,660)**	(3,538)	(18,873)
Income tax expense (benefit) (FTE basis)	**2,072**	1,117	1,441	**(3,085)**	(2,395)	(6,915)
Net income (loss)	**$ 3,817**	$ 2,423	$ 2,590	**$ (1,575)**	$ (1,143)	$ (11,958)
Year-end total assets	**$ 566,060**	$ 548,790		**$ 212,103**	$ 267,667	

Business Segment Reconciliations

	2016	2015	2014
Segments' total revenue, net of interest expense (FTE basis)	**$ 83,901**	$ 82,193	$ 84,627
Adjustments [(2)]:			
ALM activities	**(286)**	(208)	13
Liquidating businesses and other	**986**	1,869	2,105
FTE basis adjustment	**(900)**	(889)	(851)
Consolidated revenue, net of interest expense	**$ 83,701**	$ 82,965	$ 85,894
Segments' total net income	**19,481**	16,979	17,478
Adjustments, net-of-taxes [(2)]:			
ALM activities	**(642)**	(694)	(262)
Liquidating businesses and other	**(933)**	(449)	(11,696)
Consolidated net income	**$ 17,906**	$ 15,836	$ 5,520

	December 31	
	2016	2015
Segments' total assets	**$ 1,975,599**	$ 1,876,620
Adjustments [(2)]:		
ALM activities, including securities portfolio	**613,058**	612,364
Liquidating businesses and other [(3)]	**117,708**	144,310
Elimination of segment asset allocations to match liabilities	**(518,663)**	(489,007)
Consolidated total assets	**$ 2,187,702**	$ 2,144,287

(1) There were no material intersegment revenues.
(2) Adjustments include consolidated income, expense and asset amounts not specifically allocated to individual business segments.
(3) Includes assets of the non-U.S. consumer credit card business which are included in assets of business held for sale on the Consolidated Balance Sheet.

NOTE 25 Parent Company Information

The following tables present the Parent Company-only financial information. This financial information is presented in accordance with bank regulatory reporting requirements.

Condensed Statement of Income

(Dollars in millions)	2016	2015	2014
Income			
Dividends from subsidiaries:			
Bank holding companies and related subsidiaries	$ 4,127	$ 18,970	$ 12,400
Nonbank companies and related subsidiaries	77	53	149
Interest from subsidiaries	2,996	2,004	1,836
Other income (loss)	111	(623)	72
Total income	7,311	20,404	14,457
Expense			
Interest on borrowed funds from related subsidiaries	969	1,169	1,661
Other interest expense	5,096	5,098	5,552
Noninterest expense	2,572	4,747	4,471
Total expense	8,637	11,014	11,684
Income (loss) before income taxes and equity in undistributed earnings of subsidiaries	(1,326)	9,390	2,773
Income tax benefit	(2,263)	(3,574)	(4,079)
Income before equity in undistributed earnings of subsidiaries	937	12,964	6,852
Equity in undistributed earnings (losses) of subsidiaries:			
Bank holding companies and related subsidiaries	16,817	3,068	4,300
Nonbank companies and related subsidiaries	152	(196)	(5,632)
Total equity in undistributed earnings (losses) of subsidiaries	16,969	2,872	(1,332)
Net income	$ 17,906	$ 15,836	$ 5,520

Condensed Balance Sheet

	December 31	
(Dollars in millions)	2016	2015
Assets		
Cash held at bank subsidiaries [1]	$ 20,248	$ 98,024
Securities	909	937
Receivables from subsidiaries:		
Bank holding companies and related subsidiaries	117,072	23,594
Banks and related subsidiaries	171	569
Nonbank companies and related subsidiaries	26,500	56,426
Investments in subsidiaries:		
Bank holding companies and related subsidiaries	287,416	272,567
Nonbank companies and related subsidiaries	6,875	2,402
Other assets	10,672	9,360
Total assets [2]	$ 469,863	$ 463,879
Liabilities and shareholders' equity		
Short-term borrowings	$ —	$ 15
Accrued expenses and other liabilities	13,273	13,900
Payables to subsidiaries:		
Banks and related subsidiaries	352	465
Bank holding companies and related subsidiaries	4,013	—
Nonbank companies and related subsidiaries	12,010	13,921
Long-term debt	173,375	179,402
Total liabilities	203,023	207,703
Shareholders' equity	266,840	256,176
Total liabilities and shareholders' equity	$ 469,863	$ 463,879

(1) Balance includes third-party cash held of $342 million and $28 million at December 31, 2016 and 2015.
(2) During 2016, the Corporation entered into intercompany arrangements with certain key subsidiaries under which the Corporation transferred certain parent company assets to NB Holdings, Inc.

Condensed Statement of Cash Flows

(Dollars in millions)	**2016**	2015	2014
Operating activities			
Net income	**$ 17,906**	$ 15,836	$ 5,520
Reconciliation of net income to net cash provided by (used in) operating activities:			
Equity in undistributed (earnings) losses of subsidiaries	**(16,969)**	(2,872)	1,332
Other operating activities, net	**(2,944)**	(2,509)	2,143
Net cash provided by (used in) operating activities	**(2,007)**	10,455	8,995
Investing activities			
Net sales (purchases) of securities	**—**	15	(142)
Net payments to subsidiaries	**(65,481)**	(7,944)	(5,902)
Other investing activities, net	**(308)**	70	19
Net cash used in investing activities	**(65,789)**	(7,859)	(6,025)
Financing activities			
Net decrease in short-term borrowings	**(136)**	(221)	(55)
Net increase (decrease) in other advances	**(44)**	(770)	1,264
Proceeds from issuance of long-term debt	**27,363**	26,492	29,324
Retirement of long-term debt	**(30,804)**	(27,393)	(33,854)
Proceeds from issuance of preferred stock	**2,947**	2,964	5,957
Common stock repurchased	**(5,112)**	(2,374)	(1,675)
Cash dividends paid	**(4,194)**	(3,574)	(2,306)
Net cash used in financing activities	**(9,980)**	(4,876)	(1,345)
Net increase (decrease) in cash held at bank subsidiaries	**(77,776)**	(2,280)	1,625
Cash held at bank subsidiaries at January 1	**98,024**	100,304	98,679
Cash held at bank subsidiaries at December 31	**$ 20,248**	$ 98,024	$ 100,304

NOTE 26 Performance by Geographical Area

Since the Corporation's operations are highly integrated, certain asset, liability, income and expense amounts must be allocated to arrive at total assets, total revenue, net of interest expense, income before income taxes and net income by geographic area. The Corporation identifies its geographic performance based on the business unit structure used to manage the capital or expense deployed in the region as applicable. This requires certain judgments related to the allocation of revenue so that revenue can be appropriately matched with the related capital or expense deployed in the region.

		December 31	Year Ended December 31		
(Dollars in millions)	Year	Total Assets (1)	Total Revenue, Net of Interest Expense (2)	Income Before Income Taxes	Net Income
U.S. (3)	**2016**	**$ 1,900,678**	**$ 72,418**	**$ 22,414**	**$ 16,267**
	2015	1,849,099	72,117	20,064	14,637
	2014		74,607	5,751	3,992
Asia	**2016**	**85,410**	**3,365**	**674**	**488**
	2015	86,994	3,524	726	457
	2014		3,605	759	473
Europe, Middle East and Africa	**2016**	**174,934**	**6,608**	**1,705**	**925**
	2015	178,899	6,081	938	516
	2014		6,409	1,098	813
Latin America and the Caribbean	**2016**	**26,680**	**1,310**	**360**	**226**
	2015	29,295	1,243	342	226
	2014		1,273	355	242
Total Non-U.S.	**2016**	**287,024**	**11,283**	**2,739**	**1,639**
	2015	295,188	10,848	2,006	1,199
	2014		11,287	2,212	1,528
Total Consolidated	**2016**	**$ 2,187,702**	**$ 83,701**	**$ 25,153**	**$ 17,906**
	2015	2,144,287	82,965	22,070	15,836
	2014		85,894	7,963	5,520

(1) Total assets include long-lived assets, which are primarily located in the U.S.
(2) There were no material intercompany revenues between geographic regions for any of the periods presented.
(3) Substantially reflects the U.S.

Disclosure Controls and Procedures

Bank of America Corporation and Subsidiaries

As of the end of the period covered by this report and pursuant to Rule 13a-15 of the Securities Exchange Act of 1934 (Exchange Act), Bank of America's management, including the Chief Executive Officer and Chief Financial Officer, conducted an evaluation of the effectiveness and design of our disclosure controls and procedures (as that term is defined in Rule 13a-15(e) of the Exchange Act). Based upon that evaluation, Bank of America's Chief Executive Officer and Chief Financial Officer concluded that Bank of America's disclosure controls and procedures were effective, as of the end of the period covered by this report, in recording, processing, summarizing and reporting information required to be disclosed by the Corporation in reports that it files or submits under the Exchange Act, within the time periods specified in the Securities and Exchange Commission's rules and forms.

Executive Management Team and Board of Directors
Bank of America Corporation

Executive Management Team

Brian T. Moynihan*
Chairman of the Board and
Chief Executive Officer

Dean C. Athanasia*
President, Preferred and
Small Business Banking and Co-head—
Consumer Banking

Catherine P. Bessant*
Chief Operations and Technology Officer

Sheri B. Bronstein
Global Human Resources Executive

Paul M. Donofrio*
Chief Financial Officer

Anne M. Finucane
Vice Chairman

Geoffrey S. Greener*
Chief Risk Officer

Christine P. Katziff
Corporate General Auditor

Terrence P. Laughlin*
Vice Chairman, Head of Global Wealth
and Investment Management

David G. Leitch*
Global General Counsel

Gary G. Lynch
Vice Chairman

Thomas K. Montag*
Chief Operating Officer

Thong M. Nguyen*
President, Retail Banking and
Co-head—Consumer Banking

Andrea B. Smith*
Chief Administrative Officer

Bruce R. Thompson
Vice Chairman

Board of Directors

Brian T. Moynihan
Chairman of the Board and
Chief Executive Officer,
Bank of America Corporation

Jack O. Bovender, Jr.
Lead Independent Director,
Bank of America Corporation;
Former Chairman
and Chief Executive Officer,
HCA, Inc.

Sharon L. Allen
Former Chairman,
Deloitte LLP

Susan S. Bies
Former Member,
Board of Governors of the
Federal Reserve System

Frank P. Bramble, Sr.
Former Executive Vice Chairman,
MBNA Corporation

Pierre J. P. de Weck
Former Chairman and
Global Head of Private
Wealth Management,
Deutsche Bank AG

Arnold W. Donald
President and Chief Executive Officer,
Carnival Corporation and Carnival plc

Linda P. Hudson
Chairman and Chief Executive Officer,
The Cardea Group, LLC;
Former President and
Chief Executive Officer,
BAE Systems, Inc.

Monica C. Lozano
Former Chairman,
US Hispanic Media Inc.

Thomas J. May
Chairman, and Former
Chief Executive Officer,
Eversource Energy;
Chairman, Viacom, Inc.

Lionel L. Nowell, III
Lead Director, Reynolds American, Inc.;
Former Senior Vice President
and Treasurer, PepsiCo, Inc.

Michael D. White
Former Chairman, President and
CEO, DIRECTV

Thomas D. Woods
Former Vice Chairman and SEVP,
Canadian Imperial Bank of Commerce

R. David Yost
Former Chief Executive Officer,
AmerisourceBergen Corporation

*Executive Officer

Corporate Information

Bank of America Corporation

Headquarters

The principal executive offices of Bank of America Corporation (the Corporation) are located in the Bank of America Corporate Center, 100 North Tryon Street, Charlotte, NC 28255.

Stock Listing

The Corporation's common stock is listed on the New York Stock Exchange (NYSE) under the symbol BAC. The Corporation's common stock is also listed on the London Stock Exchange, and certain shares are listed on the Tokyo Stock Exchange. The stock is typically listed as BankAm in newspapers. As of December 31, 2016, there were 184,637 registered holders of the Corporation's common stock.

Investor Relations

Analysts, portfolio managers and other investors seeking additional information about Bank of America stock should contact our Equity Investor Relations group at 1.704.386.5681 or i_r@bankofamerica.com. For additional information about Bank of America from a credit perspective, including debt and preferred securities, contact our Fixed Income Investor Relations group at 1.866.607.1234 or fixedincomeir@bankofamerica.com. Visit the Investor Relations area of the Bank of America website, http://investor.bankofamerica.com, for stock and dividend information, financial news releases, links to Bank of America SEC filings, electronic versions of our annual reports and other items of interest to the Corporation's shareholders.

Customers

For assistance with Bank of America products and services, call 1.800.432.1000, or visit the Bank of America website at www.bankofamerica.com. Additional toll-free numbers for specific products and services are listed on our website at www.bankofamerica.com/contact.

News Media

News media seeking information should visit our online newsroom at www.bankofamerica.com/newsroom for news releases, speeches and other items relating to the Corporation, including a complete list of the Corporation's media relations specialists grouped by business specialty or geography.

Annual Report on Form 10-K

The Corporation's 2016 Annual Report on Form 10-K is available at http://investor.bankofamerica.com. The Corporation also will provide a copy of the 2016 Annual Report on Form 10-K (without exhibits) upon written request addressed to:

Bank of America Corporation
Office of the Corporate Secretary
NC1-027-18-05
Hearst Tower, 214 North Tryon Street
Charlotte, NC 28255

Shareholder Inquiries

For inquiries concerning dividend checks, electronic deposit of dividends, dividend reinvestment, tax statements, electronic delivery, transferring ownership, address changes or lost or stolen stock certificates, contact Bank of America Shareholder Services at Computershare Trust Company, N.A. via the Internet at www.computershare.com/bac; call 1.800.642.9855; or write to P.O. Box 43078, Providence, RI 02940-3078. For general shareholder information, contact Bank of America Office of the Corporate Secretary at 1.800.521.3984. Shareholders outside of the United States and Canada may call 1.781.575.2621.

Electronic Delivery

As part of our ongoing commitment to reduce paper consumption, we offer electronic methods for customer communications and transactions. Customers can sign up to receive online statements through their Bank of America or Merrill Lynch account website. In 2012, we adopted the SEC's Notice and Access rule, which allows certain issuers to inform shareholders of the electronic availability of Proxy materials, including the Annual Report, which significantly reduced the number of printed copies we produce and mail to shareholders. Shareholders still receiving printed copies can join our efforts by electing to receive an electronic copy of the Annual Report and Proxy materials. If you have an account maintained in your name at Computershare Investor Services, you may sign up for this service at www.computershare.com/bac. If your shares are held by a broker, bank or other nominee, you may elect to receive electronic delivery of the Proxy materials online at www.proxyvote.com, or contact your broker.

Investment products:

Are Not FDIC Insured	Are Not Bank Guaranteed	May Lose Value

"Bank of America Merrill Lynch" is the marketing name for the global banking and global markets businesses of Bank of America Corporation. Lending, derivatives and other commercial banking activities are performed globally by banking affiliates of Bank of America Corporation, including Bank of America, N.A., Member FDIC. Securities, strategic advisory, and other investment banking activities are performed globally by investment banking affiliates of Bank of America Corporation ("Investment Banking Affiliates"), including, in the United States, Merrill Lynch, Pierce, Fenner & Smith Incorporated and Merrill Lynch Professional Clearing Corp., both of which are registered as broker-dealers and Members of SIPC, and, in other jurisdictions, by locally registered entities. Merrill Lynch, Pierce, Fenner & Smith Incorporated and Merrill Lynch Professional Clearing Corp. are registered as futures commission merchants with the CFTC and are members of the NFA.

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U.S. Trust, Bank of America Private Wealth Management operates through Bank of America, N.A., and other subsidiaries of BofA Corp.

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