Discover Financial Services
Form 10-K
February 21, 2018
UNITED STATES SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-K
(Mark One)
x ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the year ended December 31, 2017
o TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the transition period from to
Commission File Number 001-33378
DISCOVER FINANCIAL SERVICES
(Exact name of registrant as specified in its charter)

Delaware	36-2517428
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
2500 Lake Cook Road, Riverwoods, Illinois 60015	(224) 405-0900
(Address of principal executive offices, including zip code)	(Registrant's telephone number, including area code)

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Name of each exchange on which registered
Common Stock, par value $0.01 per share	New York Stock Exchange

Securities registered pursuant to Section 12(g) of the Act: None
Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes x No o
Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Exchange Act. Yes o No x
Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes x No o
Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes x No o
Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§229.405 of this chapter) is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. o
Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of "large accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer x	Accelerated filer o
Non-accelerated filer o (Do not check if a smaller reporting company)	Smaller reporting company o

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. o

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes o No x

The aggregate market value of the common equity held by non-affiliates of the registrant on the last business day of the registrant's most recently completed second fiscal quarter was approximately $23,205,033,259.

As of February 16, 2018, there were 354,756,870 shares of the registrant's Common Stock, par value $0.01 per share, outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's definitive proxy statement for its annual stockholders' meeting to be held on May 2, 2018 are incorporated by reference in Part III of this Form 10-K.

DISCOVER FINANCIAL SERVICES
Annual Report on Form 10-K for the year ended December 31, 2017

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Except as otherwise indicated or unless the context otherwise requires, “Discover Financial Services,” “Discover,” “DFS,” “we,” “us,” “our,” and “the Company” refer to Discover Financial Services and its subsidiaries.
We own or have rights to use the trademarks, trade names and service marks that we use in conjunction with the operation of our business, including, but not limited to: Discover®, PULSE®, Cashback Bonus®, Discover Cashback Checking®, Discover it®, College Covered®, and Diners Club International®. All other trademarks, trade names and service marks included in this annual report on Form 10-K are the property of their respective owners.

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Part I.

Part I | Item 1. Business

Introduction

Discover Financial Services (the “Company”) is a direct banking and payment services company. We were incorporated in Delaware in 1960. We are a bank holding company under the Bank Holding Company Act of 1956 as well as a financial holding company under the Gramm-Leach-Bliley Act and therefore are subject to oversight, regulation and examination by the Board of Governors of the Federal Reserve System (the “Federal Reserve”). We provide direct banking products and services and payment services through our subsidiaries. We offer our customers credit card loans, private student loans, personal loans, home equity loans and deposit products. We had $84.2 billion in loan receivables and $39.4 billion in deposits issued through direct-to-consumer channels and affinity relationships at December 31, 2017. We also operate the Discover Network, the PULSE network (“PULSE”) and Diners Club International (“Diners Club”). The Discover Network processes transactions for Discover-branded credit and debit cards and provides payment transaction processing and settlement services. PULSE operates an electronic funds transfer network, providing financial institutions issuing debit cards on the PULSE network with access to ATMs domestically and internationally, as well as point-of-sale (“POS”) terminals at retail locations throughout the U.S. for debit card transactions. Diners Club is a global payments network of licensees, which are generally financial institutions, that issue Diners Club branded charge cards and/or provide card acceptance services.

Available Information

We make available, free of charge through the investor relations page of our internet site www.discover.com, our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, proxy statements, Forms 3, 4 and 5 filed by or on behalf of our directors and executive officers, and any amendments to those documents filed with or furnished to the Securities and Exchange Commission (the “SEC”) pursuant to the Securities Exchange Act of 1934. These filings are available as soon as reasonably practicable after they are filed with or furnished to the SEC.

In addition, the following information is available on the investor relations page of our internet site: (i) our Corporate Governance Policies; (ii) our Code of Ethics and Business Conduct; and (iii) the charters of the Audit, Compensation and Leadership Development, Nominating and Governance, and Risk Oversight Committees of our Board of Directors. These documents are also available in print without charge to any person who requests them by writing or telephoning our principal executive offices: Discover Financial Services, Office of the Corporate Secretary, 2500 Lake Cook Road, Riverwoods, Illinois 60015, U.S.A., telephone number (224) 405-0900.

Operating Model

We manage our business activities in two segments: Direct Banking and Payment Services. Our Direct Banking segment includes consumer banking and lending products, specifically Discover-branded credit cards issued to individuals on the Discover Network and other consumer banking products and services, including private student loans, personal loans, home equity loans, and deposit products. Our Payment Services segment includes PULSE, Diners Club and our Network Partners business, which provides payment transaction processing and settlement services on the Discover Network.

We are principally engaged in providing products and services to customers in the United States, although the royalty and licensee revenue we receive from Diners Club licensees is mainly derived from sources outside of the United States. For quantitative information concerning our geographic distribution, see Note 4: Loan Receivables to our consolidated financial statements.

Below are descriptions of the principal products and services of each of our reportable segments. For additional financial information relating to our business and our operating segments, see Note 22: Segment Disclosures to our consolidated financial statements.

Direct Banking

Set forth below are descriptions of the credit cards, student loans, personal loans, home equity loans and deposit products issued by Discover Bank. For additional information regarding the terms and conditions of these products, see “— Product Terms and Conditions.”

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Credit Cards
We currently offer credit cards issued to consumers. Our credit card customers are permitted to "revolve" their balances and repay their obligations over a period of time and at an interest rate set forth in their cardmember agreements, which may be either fixed or variable. The interest that we earn on revolving credit card balances makes up approximately 82% of our total interest income. We also charge customers other fees as specified in the cardmember agreements. These fees may include fees for late payments, balance transfer transactions and cash advance transactions.
Our credit card customers' transactions in the U.S. are processed over the Discover Network. Where we have a direct relationship with a merchant, which is the case with respect to our large merchants representing a majority of Discover card sales volume, we receive discount and fee revenue from merchants. Discount and fee revenue is based on pricing that is set forth in contractual agreements with each such merchant and is based on a number of factors including industry practices, special marketing arrangements, competitive pricing levels and merchant size. Where we do not have a direct relationship with a merchant, we receive acquirer interchange and assessment fees from the merchant acquirer that settles transactions with the merchant. The amount of this fee is based on a standardized schedule and can vary based on the type of merchant.
Most of our cards offer the Cashback Bonus rewards program, the costs of which we record as a reduction of discount and interchange revenue. See "— Marketing — Rewards/Cashback Bonus" for further discussion of our programs offered.
The following chart* shows the Discover card transaction cycle as processed on the Discover Network:
Student Loans
Our private student loans are available to students attending eligible non-profit undergraduate and graduate schools. We also offer certain post-graduate loans, including consolidation, bar study and residency loans. These loans are unsecured loans and have terms and conditions that vary by product. We encourage students to borrow responsibly and maximize grants, scholarships and other free financial aid before taking student loans.
We currently offer fixed and variable rate private student loans. We market our student loans through digital channels, direct mail, email and radio to existing and potential customers. We also work with schools to create awareness of our products with students and their families. Students can apply for our student loans online, by telephone, or by mail, and we have dedicated staff within our call centers to service student loans. We invite applicants who qualify to apply with a creditworthy cosigner, which may improve the likelihood for loan approval and a lower interest rate.
As part of the loan approval process, all of our student loans, except for bar study, residency and private consolidation loans, are certified by and disbursed through the school to ensure students do not borrow more than the cost of attendance less other financial aid. Upon graduation, for variable rate loans originated before May 2014, students are generally eligible to receive a graduation reward. Students may redeem their graduation reward as a credit

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to the balance of any of their Discover student loans or as a direct deposit to a bank account. For all loans originated in May 2014 and after, students are generally eligible to receive a reward for achieving a specified grade point average during the academic period covered by the loan. Customers have the option to service their accounts through various digital mediums or by telephone.

Personal Loans

Our personal loans are primarily intended to help customers consolidate existing debt, although they can be used for other reasons. These loans are unsecured loans with fixed interest rates, terms and payments. We generally market personal loans through direct mail, digital channels and email. Prospective applicants can obtain information regarding Discover Personal Loans online or by telephone and have the ability to apply online, by telephone or through the mail. Customers have the option to service their accounts through various digital mediums or by telephone.

Home Equity Loans

Our home equity loans are intended for multiple purposes, including mortgage refinance, debt consolidation, home improvement and other major expenses. These loans are closed-end, secured loans with fixed interest rates, terms and payments. We market home equity loans primarily to existing customers through a mix of direct mail, digital channels and email. Prospective applicants can obtain information and apply online or by telephone. Customers have the option to service their accounts online or by telephone.

Deposits

We obtain deposits from consumers directly or through affinity relationships (“direct-to-consumer deposits”). Additionally, we also obtain deposits through third-party securities brokerage firms that offer our deposits to their customers (“brokered deposits”). Our deposit products include certificates of deposit, money market accounts, online savings accounts, checking accounts and Individual Retirement Arrangement certificates of deposit. We market our direct-to-consumer deposit products to our existing customer base and other prospective customers through the use of print materials, direct mail, affinity arrangements with third parties and digital channels. Customers can apply for, fund and service their deposit accounts online. Our U.S.-based staff in our call centers support all aspects of customers’ deposit accounts. Checking account applications can only be initiated through our digital properties. For more information regarding our deposit products, see “Management’s Discussion and Analysis of Financial Condition and Results of Operations — Liquidity and Capital Resources — Funding Sources — Deposits.”

Payment Services

Set forth below are descriptions of PULSE, Diners Club and our Network Partners business, which provides, among other services, payment transaction processing and settlement services.

PULSE

Our PULSE network is one of the nation’s leading debit/ATM networks. PULSE links cardholders served by approximately 4,300 financial institutions to ATMs and POS terminals located throughout the United States including financial institutions with which PULSE has direct relationships and through agreements PULSE has with other debit networks. PULSE also provides cash access at approximately 2.0 million ATMs in 138 countries.

PULSE’s primary source of revenue is transaction fees charged for switching and settling ATM, personal identification number (“PIN”) POS debit and signature debit transactions initiated through the use of debit cards issued by participating financial institutions. In addition, PULSE offers a variety of optional products and services that produce income for the network, including signature debit transaction processing, debit card fraud detection and risk mitigation services, and connections to other regional and national electronic funds transfer networks.

When a financial institution joins the PULSE network, debit cards issued by that institution are eligible to be used at all of the ATMs and PIN POS debit terminals that participate in the PULSE network, and the PULSE mark can be used on that institution’s debit cards and ATMs. In addition, financial institution participants may sponsor merchants, direct processors and independent sales organizations to participate in the PULSE PIN POS and ATM debit service. A participating financial institution assumes liability for transactions initiated through the use of debit cards issued by that institution, as well as for ensuring compliance with PULSE’s operating rules and policies applicable to that institution’s debit cards, ATMs and, if applicable, sponsored merchants, direct processors and independent sales organizations.

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When PULSE enters into a network-to-network agreement with another debit network, the other network's participating financial institutions' debit cards can be used at terminals in the PULSE network. PULSE does not have a direct relationship with these financial institutions and the other network bears the financial responsibility for transactions of those financial institutions' cardholders and for ensuring compliance with PULSE's operating rules.

Diners Club

Our Diners Club business maintains an acceptance network in 190 countries and territories through its relationships with over 110 licensees, which are generally financial institutions. We do not directly issue Diners Club cards to consumers, but grant our licensees the right to issue Diners Club branded cards and/or provide card acceptance services. Our licensees pay us royalties for the right to use the Diners Club brand, which is our primary source of Diners Club revenues. We also earn revenue from providing various support services to our Diners Club licensees, including processing and settlement of cross-border transactions. We also provide a centralized service center and internet services to our licensees.

When Diners Club cardholders use their cards outside the host country or territory of the issuing licensee, transactions are routed and settled over the Diners Club network through its centralized service center. In order to increase merchant acceptance in certain targeted countries and territories, we work with merchant acquirers to offer Diners Club and Discover acceptance to their merchants. These acquirers are granted licenses to market the Diners Club brands to existing and new merchants. As we continue to work toward achieving full card acceptance across our networks, Discover customers are using their cards at an increasing number of merchant and ATM locations that accept Diners Club cards around the world. Diners Club cardholders with cards issued by licensees outside of North America continue to use their cards on the Discover Network in North America and on the PULSE and Diners Club networks domestically and internationally, respectively.

Network Partners Business

We have agreements with a number of financial institutions, networks and commercial service providers for issuance of products or processing of payments on Discover networks. We refer to these financial institutions, networks and commercial service providers as "Network Partners." We may earn merchant discount and acquirer assessments net of issuer fees paid, in addition to other fees, for processing transactions for Network Partners. We also leverage our payments infrastructure in other ways, such as business-to-business payment processing.

The following chart* shows an example of Network Partners transaction cycle:

* * *

The discussion below provides additional detail concerning the supporting functions of our two segments. The credit card, student loan, personal loan, home equity loan and deposit products issued through our Direct Banking segment require significant investments in consumer portfolio risk management, marketing, customer service and related

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technology, whereas the operation of our Payment Services business requires that we invest in the technology to manage risk and service network partners, merchants and merchant acquirer relationships.

Credit Risk Management

Credit risk management is a critical component of our management and growth strategy. Credit risk refers to the risk of loss arising from borrower default when borrowers are unable or unwilling to meet their financial obligations to us. Our credit risk arising from consumer lending products is generally highly diversified across millions of accounts without significant individual exposures. We manage credit risk primarily based on customer segments and product types. See "— Risk Management" for more information regarding how we define and manage our credit and other risks.

Account Acquisition (New Customers)

We acquire new credit card customers through direct mail, internet, media advertising, merchant or partner relationships, or through unsolicited individual applications. We also acquire new student loan and personal loan customers through similar channels. In all cases we have a rigorous process for screening applicants.

To identify credit-worthy prospective customers, our credit risk management and marketing teams use proprietary analytical tools to match our product offerings with customer needs. We consider the prospective customer's financial stability, as well as ability and willingness to pay.

We assess the creditworthiness of each consumer loan applicant through evaluating an applicant's credit information provided by credit bureaus and information from other sources. The assessment is performed using our credit scoring systems, both externally developed and proprietary. For our unsecured lending products, we also use experienced credit underwriters to supplement our automated decision-making processes. For our home equity products, experienced credit underwriters must review and approve each application.

Upon approval of a customer's application for one of our lending products, we assign a specific annual percentage rate using an analytically driven pricing framework that simultaneously provides competitive pricing for customers and seeks to maximize revenue on a risk-adjusted basis. For our credit card loans, we also assign a credit line based on risk level and expected return.

Portfolio Management (Existing Customers)

The revolving nature of our credit card loans requires that we regularly assess the credit risk exposure of such accounts. This assessment uses the individual's Discover account performance information as well as information from credit bureaus. We utilize statistical evaluation models to support the measurement and management of credit risk. At the individual customer level, we use custom risk models together with generic industry models as an integral part of the credit decision-making process. Depending on the duration of the customer's account, risk profile and other performance metrics, the account may be subject to a range of account management treatments, including transaction authorization limits and increases or decreases on credit limits. Our installment loans are billed according to an amortization schedule that is calculated at the time of the disbursement of the loan and at the time the loan enters repayment.

Customer Assistance

We provide our customers with a variety of tools to proactively manage their accounts, including email, text message and push reminders and a website dedicated to customer education, as further discussed under the heading "— Customer Service." These tools are designed to limit a customer's risk of becoming delinquent. When a customer's account becomes delinquent or is at risk of becoming delinquent, we employ a variety of strategies to assist customers in returning to current status on their accounts.

All monthly billing statements of accounts with past due amounts include a request for payment of such amounts. Customer assistance personnel generally initiate contact with customers within 30 days after any portion of their balance becomes past due. The nature and the timing of the initial contact are determined by a review of the customer's prior account activity and payment habits.

We reevaluate our collection efforts, and consider the implementation of other techniques, as a customer becomes increasingly delinquent. We limit our exposure to delinquencies through controls within our process for authorizing transactions and credit limits and criteria-based account suspension and revocation. In situations involving

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customers with financial difficulties, we may enter into arrangements to extend or otherwise change payment schedules, lower interest rates and/or waive fees to aid customers in returning to current status on their obligations to us. For more information see "Management's Discussion and Analysis of Financial Condition and Results of Operations — Loan Quality — Modified and Restructured Loans."

Marketing

In addition to working with our credit risk management personnel on account acquisition and portfolio management, our marketing group provides other key functions, including product development, management of our Cashback Bonus and other rewards programs, protection product management, and brand and advertising management.

Product Development

In order to attract and retain customers and merchants, we continue to develop new programs, features and benefits and market them through a variety of channels, including television, radio, mail, telephone and digital. Marketing efforts may promote free FICO Credit Score, Freeze it, Cashback Bonus, Social Security Number Alerts, New Account Alerts, balance transfer offers and other rewards programs. Through the development of a large prospect database, use of credit bureau data and use of a customer contact strategy and management system, we continuously develop our modeling and customer engagement capabilities, which helps optimize product, pricing and channel selection.

Rewards / Cashback Bonus

Our cardmembers use several card products, all with no annual fee, that allow them to earn their rewards based on how they want to use credit, in general as set forth below.

- Discover it card offers 5% Cashback Bonus in categories that change each quarter up to a quarterly maximum (signing up is required) and 1% Cashback Bonus on all other purchases, as well as other benefits.
- Discover it Chrome card offers 2% Cashback Bonus at gas stations and restaurants on up to $1,000 in combined purchases each quarter and 1% Cashback Bonus on all other purchases, as well as other benefits.
- The Discover it Miles card offers 1.5 miles for every dollar spent on purchases and an annual credit of up to $30 for in-flight Wi-Fi charges.
- Discover it Secured card offers the same reward features as the Discover it Chrome card, as well as other benefits. Customers provide a security deposit as collateral for the credit card account. After seven months of the account opening, Discover reviews the account to determine if the security deposit can be refunded to the customer and they graduate to an unsecured line of credit.
- Discover More card offers 5% Cashback Bonus in categories that change each quarter up to a quarterly maximum (signing up is required). Customers earn .25% Cashback Bonus on their first $3,000 on all other annual purchases and on all warehouse purchases, and 1% Cashback Bonus on purchases over $3,000.
- Discover Business card offers 5% Cashback Bonus on the first $2,000 spent in office supply purchases, 2% Cashback Bonus on the first $2,000 spent in gas purchases each year, .25% Cashback Bonus on all other purchases up to $5,000 in annual spend and 1% Cashback Bonus on all other purchases over $5,000.

Protection Products

We currently service and maintain existing enrollments of the protection products detailed below for our credit card customers. Although new sales of these products had been suspended in recent years, we may resume offering these or similar products in the future.

- Identity Theft Protection. The most comprehensive identity theft monitoring product includes an initial credit report, credit bureau report monitoring at the three major credit bureaus, prompt alerts to key changes to credit bureau files that help customers spot possible identity theft quickly, internet surveillance to monitor multiple credit and debit card numbers and social security numbers on suspicious websites, identity theft insurance up to $1,000,000 to cover certain out-of-pocket expenses due to identity theft, and access to knowledgeable professionals who can help resolve issues.
- Payment Protection. This product allows customers to suspend their payments for up to two years, depending on the qualifying event and product level, when certain qualifying life events occur. While on benefit, customers have no minimum monthly payment, and are not charged interest, late fees or the fees for the product. This product covers a variety of different events, such as unemployment, disability, natural disasters or other life

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events, such as marriage or birth of a child. Depending on the product and availability under state laws, outstanding balances up to $10,000 or $25,000, depending on product level are cancelled in the event of death.

- Wallet Protection. This product offers one-call convenience if a customer's wallet is lost or stolen, including requesting cancellation and replacement of the customer's credit and debit cards, monitoring the customer's credit bureau reports at the three major credit bureaus for 180 days and alerting them to key changes to their credit files, and providing up to $100 to replace the customer's wallet or purse.

Brand and Advertising Management

We maintain a full-service marketing department charged with delivering integrated mass and direct communications to foster customer engagement with our products and services. We also leverage strategic partnerships with sponsorship properties such as the NHL and the Big Ten Conference to help drive loan growth. Our brand team utilizes consumer insights and market intelligence to define our mass communication strategy, create multi-channel advertising messages and develop marketing partnerships with sponsorship properties. This work is performed in house as well as with a variety of external agencies and vendors.

Customer Service

Our customers have the option to manage their accounts online via Discover.com, through Discover Mobile applications, and/or contact our customer service personnel by calling 1-800-Discover. Our digital solutions offer a range of benefits, including:

- Digital servicing channels that facilitate account management, including features such as transaction review, payments and rewards;
- Proactive notifications via email, text messaging and in-app messaging for monitoring transaction activity and account security;
- Access to overall credit health tools such as Credit Scorecard, Social Security Number Alerts and New Account Alerts; and
- 24/7 customer service via multiple communication channels, including messaging, email and chat.

Our student loan, personal loan, home equity and deposit product customers can utilize our online account services to manage their accounts, and to use interactive tools and calculators.

Processing Services

Our processing services cover four functional areas: card personalization/embossing, print/mail, remittance processing and document processing. Card personalization/embossing is responsible for the embossing and mailing of credit cards for new accounts, replacements and reissues. Print/mail specializes in statement and letter printing and mailing for merchants and customers. Remittance processing, currently a function outsourced to third-party vendors, handles account payments and check processing. Document processing handles hard-copy forms, including new account applications.

Fraud Prevention

We monitor our customers' accounts to help prevent, detect, investigate and resolve fraud. Our fraud prevention processes are designed to protect the security of cards, applications and accounts in a manner consistent with our customers' needs to easily acquire and use our products. Prevention systems monitor the authorization of application information, verification of customer identity, sales, processing of convenience and balance transfer checks, and electronic transactions.

Each credit card transaction is subject to screening, authorization and approval through a proprietary POS decision system and each deposit transaction is subject to screening and approval through a dynamic transaction evaluation and scoring methodology. We use a variety of techniques that help identify and halt fraudulent transactions, including adaptive models, rules-based decision-making logic, report analysis, data integrity checks and manual account reviews. We manage accounts identified by the fraud detection system through technology that integrates fraud prevention and customer service. Strategies are subject to regular review and enhancement to enable us to respond quickly to changing conditions as well as to protect our customers and our business from emerging fraud activity.

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Product Terms and Conditions

Credit Cards

The terms and conditions governing our credit card products vary by product and change over time. Each credit card customer enters into a cardmember agreement governing the terms and conditions of the customer's account. Discover card's terms and conditions are generally uniform from state to state. We are allowed, to the extent permitted by law, to change any term of the cardmember agreement, including any finance charge, rate or fee, or add or delete any term of the cardmember agreement, with notice to the customer as required by law. The customer has the right to opt out of certain changes of terms and pay their balance off under the original terms. Each cardmember agreement provides that the account can be used for purchases, cash advances and balance transfers. Each Discover card account is assigned a credit limit when the account is initially opened. Thereafter, individual credit limits may be increased or decreased from time to time, at our discretion, based primarily on our evaluation of the customer's creditworthiness. We offer various features and services with the Discover card accounts, including the Cashback Bonus rewards programs described under "— Marketing — Rewards/Cashback Bonus."

All Discover card accounts generally have the same billing structure. We generally send a monthly billing statement to each customer who has an outstanding debit or credit balance. Customers also can waive their right to receive a physical copy of their bill, in which case they will receive email notifications of the availability of their billing statement online. Discover card accounts are grouped into multiple billing cycles for operational purposes. Each billing cycle has a separate billing date, on which we process and bill to customers all activity that occurred in the related accounts during a period of approximately 28 to 32 days that ends on the billing date.

Discover card accounts are assessed periodic finance charges using fixed and/or variable interest rates. Certain account balances, such as balance transfers, may accrue periodic finance charges at lower fixed rates for a specified period of time. Variable rates are indexed to the highest prime rate published in The Wall Street Journal on the last business day of the month. Periodic finance charges are calculated using the daily balance (including current transactions) method, which results in daily compounding of periodic finance charges, subject to a grace period on new purchases. The grace period provides that periodic finance charges are not imposed on new purchases, or any portion of a new purchase, that is paid by the due date on the customer's current billing statement if the customer paid the balance on his or her previous billing statement in full by the due date on that statement. Neither cash advances nor balance transfers are subject to a grace period.

Each customer with an outstanding debit balance on his or her Discover card account must generally make a minimum payment each month. If a customer exceeds his or her credit limit as of the last day of the billing period, we may include all or a portion of this excess amount in the customer's minimum monthly payment. A customer may pay the total amount due at any time. We also may enter into arrangements with delinquent customers to extend or otherwise change payment schedules, and to waive finance charges and/or fees, including re-aging accounts in accordance with regulatory guidance.

In addition to periodic finance charges, we may impose other charges and fees on Discover card accounts, including cash advance transaction fees, late fees where a customer has not made a minimum payment by the required due date, balance transfer fees and returned payment fees.

The Credit Card Accountability Responsibility and Disclosure Act of 2009 (the "CARD Act") required us to review, every six months, certain interest rates that were increased on accounts since January 1, 2009 to determine whether to reduce the interest rate based on the factors that prompted the increase or factors we currently consider in determining interest rates applicable to similar new credit card accounts. The amount of any rate decrease must be determined based upon our reasonable policies and procedures. Any reduced interest rate must be applied to the account not later than 45 days after completion of the review.

Student Loans

The terms and conditions governing student loans are set at the time the loan is accepted and generally do not change for the life of the loan. Student loans feature fixed or variable interest rates with zero origination fees, and customers can elect to make extra payments to pay their loans off faster without penalty. The loans can feature potential rewards for good grades and we also offer an optional "In-School Payment" product that requires a student to make monthly payments while in school. The standard repayment period is 15 to 20 years, depending on the type of student loan.

Customers have the ability to view their account information and make payments online or by telephone and are sent monthly statements approximately 20 days prior to payment due dates.

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Our student loans are assessed periodic finance charges using simple interest on a daily basis. The variable interest rate we offer is equal to a variable index (e.g., based on the prime rate or London Interbank Offered Rate ("LIBOR") plus a fixed margin assigned to the loan during origination. Variable interest rates may adjust quarterly if the index changes. The interest rate will never be higher than 18%, as stated in the promissory note and disclosures. Student loans may include a deferment period, during which customers are not required to make payments while enrolled in school at least half time as determined by the school. This period begins on the date the loan is first disbursed and ends six to nine months (depending on loan type) after the customer ceases to be enrolled in school at least half time. In certain circumstances, we may offer customers assistance programs including forbearance periods of up to 12 months over the life of the loan, short-term payment reductions or maturity extensions. We accrue interest when loans are in forbearance or in other payment assistance programs.

Personal Loans

The terms and conditions governing personal loans are set at the time the loan is accepted and generally do not change for the life of the loan. All personal loan accounts generally have the same billing structure and have zero origination fees. Our personal loans have fixed interest rates, terms and payments and they are assessed periodic finance charges using simple interest on a daily basis. There is no prepayment penalty for repaying any portion of a personal loan balance prior to the scheduled maturity date. Customers may be subject to other charges, including late fees when a customer has not made a minimum payment by the required due date. Customers have the ability to view their account information and make payments online or by telephone and are sent monthly statements approximately 20 days prior to payment due dates. In certain circumstances, we may offer customers temporary and permanent assistance programs, which may reduce payments, extend loan terms and/or reduce the interest rate on loan balances.

Home Equity Loans

The terms and conditions governing home equity loans are set at the time the loan is accepted and generally do not change for the life of the loan. Home equity loans are secured by a first or second lien on a customer's home. Home equity loans are fixed-rate loans that require a monthly payment over a 10-20 year term and are assessed periodic finance charges using simple interest on a daily basis. Customers have the ability to make larger than minimum payments without being subject to a prepayment penalty. Certain third party costs may be required to be reimbursed by the customer if the loan is repaid in full within three years. Customers may also be subject to additional charges, including late fees and returned payment charges. Customers have the ability to view their account information and make payments online or by telephone and are sent monthly statements approximately 20 days prior to payment due dates. In certain circumstances, we may offer customers temporary and permanent assistance programs, which may reduce payments, extend loan terms and/or reduce the interest rate on loan balances.

Deposits

We offer four main types of deposit products directly to consumers on a national basis: certificates of deposit, Individual Retirement Arrangement certificates of deposit, savings accounts, money market accounts and checking accounts. All of these deposits are insured by the Federal Deposit Insurance Corporation (the "FDIC") to the maximum permitted by law. Interest is compounded daily and credited to each account on a monthly basis, using the daily balance method. We do not pay interest on checking account balances and instead offer cashback rewards for certain debit card purchases. We offer a range of ownership options, including single, joint, trust and custodial. Deposit accounts are primarily funded through electronic funds transfer, check or wire transfer. Customers may service their accounts through a variety of convenient methods, including online, mobile and tablet device applications, and by telephone.

Certificates of deposit are offered on a full range of tenors from three months through ten years with interest rates that are fixed for the full period. We provide automatic renewal along with options on reinvestment or disbursement of interest. There are minimum balance requirements to open certificates of deposit and penalties for early withdrawals. Money market accounts are transactional accounts with minimum balance requirements. Money market account funds may be accessed through electronic funds transfer, checks, wire transfer and debit cards. Savings accounts may be accessed through electronic funds transfer, wire transfer and official checks. Money market accounts and savings accounts have limitations on withdrawal frequency, as required by law. Interest rates on money market accounts and savings accounts are subject to change at any time. Fees apply to some transactions and availability of funds varies based on product and method of funding.

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We also issue certificates of deposit through select contracted brokerage firms. All of these deposits are also FDIC insured to the maximum allowed by law. All settlements occur through the Depository Trust Company. Tenors issued, interest and commission rates are determined weekly with tenor issuances of five months to ten years. Simple interest is applied to brokered certificates of deposit. At any given time, we may choose to not issue these certificates of deposit or to issue only certain tenors in a given week. Early redemption of these certificates occurs only in the event of death or adjudication of incompetence.

Discover Network Operations

We support our merchants through a merchant acquiring model that includes direct relationships with large merchants in the United States and arrangements with merchant acquirers generally for small- and mid-size merchants. In addition to our U.S.-based merchant acceptance locations, Discover Network cards also are accepted at many locations in Canada, Mexico, the Caribbean, China, Japan and a growing number of countries around the world on the Diners Club network, or through reciprocal acceptance arrangements made with international payment networks (i.e., network-to-network).

We maintain direct relationships with most of our large merchant accounts, which enables us to benefit from joint marketing programs and opportunities and to retain the entire discount revenue from the merchants. The terms of our direct merchant relationships are governed by merchant services agreements. These agreements are also accompanied by additional program documents that further define our network functionality and requirements, including operating regulations, technical specifications and dispute rules. To enable ongoing improvements in our network's functionality and in accordance with industry convention, we publish updates to our program documents on a semi-annual basis. Discover card transaction volume was concentrated among our top 100 merchants in the year ended December 31, 2017 with our largest merchant accounting for approximately 6% of total Discover card transaction volume.

In order to increase merchant acceptance, Discover Network services the majority of its small- and mid-size merchant portfolios through third-party merchant acquirers to allow such acquirers to offer a comprehensive payments processing package to such merchants. Merchants also can apply to our merchant acquirer partners directly to accept Discover Network cards through the acquirers' integrated payments solutions. Merchant acquirers provide merchants with consolidated servicing for Discover, Visa and MasterCard transactions, resulting in streamlined statements and customer service for merchants, and reduced costs for us. These acquirer partners also perform credit evaluations and screen applications against unacceptable business types and the Office of Foreign Asset Control Specifically Designated Nationals list.

Discover Network operates systems and processes that seek to ensure data integrity, prevent fraud and ensure compliance with our operating regulations. Our systems evaluate incoming transaction activity to identify abnormalities that require investigation and fraud mitigation. Designated Discover Network personnel are responsible for validating compliance with our operating regulations and law, including enforcing our data security standards and prohibitions against illegal or otherwise unacceptable activities. Discover Network is a founding and current member of the Payment Card Industry Security Standards Council, LLC (the "Council"), and is working to expand the adoption of the Council's security standards globally for merchants and service providers that store, transmit or process cardholder data.

Technology

We provide technology systems processing through a combination of owned and hosted data centers and the use of third-party vendors. These data centers support our payment networks, provide customers with access to their accounts and manage transaction authorizations, among other functions. Discover Network works with a number of vendors to maintain our connectivity in support of POS authorizations. This connectivity also enables merchants to receive timely payment for their Discover Network card transactions.

Our approach to technology development and management involves both third-party and in-house resources. We use third-party vendors for basic technology services (e.g., telecommunications, hardware and operating systems) as well as for processing and other services for our direct banking and payment services businesses. We subject each vendor to a formal approval process, which includes among other things a security assessment, to ensure that the vendor can assist us in maintaining a cost-effective and reliable technology platform. We use our in-house resources to build, maintain and oversee some of our technology systems. We believe this approach enhances our operations and improves cost efficiencies.

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Seasonality

In our credit card business, we experience fluctuations in transaction volumes and the level of loan receivables as a result of higher seasonal consumer spending and payment patterns around the winter holidays, summer vacations and back-to-school periods. In our student loan business, our loan disbursements peak at the beginning of a school's academic semester or quarter. Although there is a seasonal impact to transaction volumes and the levels of credit card and student loan receivables, seasonal trends have not caused significant fluctuations in our results of operations or credit quality metrics between quarterly and annual periods.

Revenues in our Diners Club business are generally higher in the first half of the year as a result of Diners Club's tiered pricing system where licensees qualify for lower royalty rate tiers as cumulative volume grows during the course of the year.

Competition

We compete with other consumer financial services providers, including non-traditional providers such as financial technology firms and payment networks on the basis of a number of factors, including brand, reputation, customer service, product offerings, incentives, pricing and other terms. Our credit card business also competes on the basis of reward programs and merchant acceptance. We compete for accounts and utilization with cards issued by other financial institutions (including American Express, Bank of America, JPMorgan Chase, Capital One and Citi) and, to a lesser extent, businesses that issue their own private label cards or otherwise extend credit to their customers. In comparison to our largest credit card competitors, our strengths include cash rewards, conservative portfolio management and strong customer service. Competition based on cash and other rewards programs, however, has increased in recent years. Our student loan product competes for customers with Sallie Mae and Wells Fargo, as well as other lenders that offer student loans. Our personal loan product competes for customers primarily with Wells Fargo, Citi and non-traditional lenders, including financial technology firms and peer to peer lenders. Our home equity product faces competition primarily from traditional branch lending institutions like Wells Fargo, JPMorgan Chase and U.S. Bank.

Although our student and personal loan receivables have increased, our credit card receivables continue to represent a majority of our receivables. The credit card business is highly competitive. Some of our competitors offer a wider variety of financial products than we do, including automobile loans, which may currently position them better among customers who prefer to use a single financial institution to meet all of their financial needs. Some of our competitors enjoy greater financial resources, diversification and scale than we do, and are therefore able to invest more in initiatives to attract and retain customers, such as advertising, targeted marketing, account acquisitions and pricing offerings in interest rates, annual fees, reward programs and low-priced balance transfer programs. In addition, some of our competitors have assets such as branch locations and co-brand relationships that may help them compete more effectively. Another competitive factor in the credit card business is the increasing use of debit cards as an alternative to credit cards for purchases.

Because most domestically-issued credit cards, other than those issued on the American Express network, are issued on the Visa and MasterCard networks, most other card issuers benefit from the dominant market share of Visa and MasterCard. The former exclusionary rules of Visa and MasterCard limited our ability to attract merchants and credit and debit card issuers, contributing to Discover not being as widely accepted in the U.S. as Visa and MasterCard. Merchant acceptance of the Discover card has increased in the past several years, both in the number of merchants enabled for acceptance and the number of merchants actively accepting Discover. We continue to make investments in expanding Discover and Diners Club acceptance in key international markets where an acceptance gap exists.

In our payment services business, we compete with other networks for volume and to attract network partners to issue credit, debit and prepaid cards on the Discover, PULSE and Diners Club networks. We generally compete on the basis of customization of services and various pricing strategies, including incentives and rebates. We also compete on the basis of issuer fees, fees paid to networks (including switch fees), merchant acceptance, network functionality, customer perception of service quality, brand image, reputation and market share. The Diners Club and Discover networks' primary competitors are Visa, MasterCard and American Express, and PULSE's network competitors include Visa's Interlink, MasterCard's Maestro and First Data's STAR. American Express is a particularly strong competitor to Diners Club as both cards target international business travelers. As the payments industry continues to evolve, we are also facing increasing competition from new entrants to the market, such as online networks, telecom providers and other alternative payment providers, which leverage new technologies and a customer's existing deposit and credit card accounts and bank relationships to create payment or other fee-based solutions.

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In our direct-to-consumer deposits business, we have acquisition and servicing capabilities similar to other large direct banks, including USAA, Ally, American Express, Capital One (360), Barclays, Goldman Sachs and Synchrony. We also compete with traditional banks and credit unions that source deposits through branch locations. We seek to differentiate our deposit product offerings on the basis of brand reputation, digital experience, customer service and value.

For more information regarding the nature of and the risks we face in connection with the competitive environment for our products and services, see "Risk Factors — Strategic Business Risk."

Intellectual Property

We use a variety of methods, such as trademarks, patents, copyrights and trade secrets, to protect our intellectual property. We also place appropriate restrictions on our proprietary information to control access and prevent unauthorized disclosures. Our Discover, PULSE and Diners Club brands are important assets, and we take steps to protect the value of these assets and our reputation.

Employees

As of January 31, 2018, we employed approximately 16,500 individuals.

Risk Management

Our business exposes us to strategic (including reputational), credit, market, liquidity, operational, compliance and legal risks. We use an enterprise-wide risk management framework to identify, measure, monitor, manage and report risks that affect or could affect the achievement of our strategic, financial and other objectives.

Enterprise Risk Management Principles

Our enterprise risk management philosophy is expressed through five key principles that guide our approach to risk management: Comprehensiveness, Accountability, Independence, Defined Risk Appetite and Transparency.

Comprehensiveness

We seek to maintain a comprehensive risk management framework for managing risk enterprise-wide, including policies, risk management processes, monitoring and testing, and reporting. Our framework is designed to be comprehensive with respect to our business units and their control and support functions, and across all risk types.

Accountability

We structure accountability across three lines of defense along the principles of risk management execution, oversight and independent validation. As the first line of defense, our business units seek to manage the risks to which they are exposed as a result of their activities, including those risks arising from activities that have been outsourced to third parties. The principles apply across all businesses and risk types and guide the definition of specific roles and responsibilities.

Independence

Our second and third lines of defense, which are comprised of risk and control functions, operate independent of the business units. The second line of defense includes our corporate risk management ("CRM") department, which is led by our Chief Risk Officer ("CRO"), who is appointed by our Board of Directors. The CRM department sets risk management standards and policies that are consistent with the size and complexity of our business, industry practices and applicable legal and regulatory requirements. The CRO is accountable for providing our Board of Directors and executive management with an independent perspective on: the risks to which we are exposed; how well management is identifying, assessing and managing risk; and the capabilities we have in place to manage risks across the enterprise. Our internal audit department, as the third line of defense, performs periodic, independent reviews and tests compliance with risk management policies, procedures and standards across the Company. It also periodically reviews the design and operating effectiveness of our risk management program and processes, including the independence and effectiveness of our CRM function, and reports the results to our Audit Committee of the Board of the Directors ("Audit Committee") and, where appropriate, the Risk Oversight Committee of the Board of Directors ("Risk Oversight Committee").

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Defined Risk Appetite
We operate within a risk appetite framework approved by our Board of Directors, which guides an acceptable level of risk-taking, considering desired financial returns and other objectives. To that end, limits and escalation thresholds are set consistent with the risk appetite approved by our Board of Directors.
Transparency
We seek to provide transparency of exposures and outcomes, which is core to our risk culture and operating style. We provide this risk transparency through our risk committee structure and standardized processes for escalating issues and reporting. This is accomplished at several levels within the organization, including quarterly meetings held by our Risk Committee and quarterly reports to the Risk Oversight Committee, as well as regular reporting to our Risk subcommittees commensurate with the needs of our businesses. Further, our CRO is a member of the Company's Executive Committee.
Enterprise Risk Management Governance Structure
Our governance structure is based on the principle that each line of business is responsible for managing risks inherent in its business with appropriate oversight from our senior management and Board of Directors. Various committees are in place to oversee the management of risks across our Company. We seek to apply operating principles consistently to each committee. These operating principles are detailed in committee charters which are approved by the Risk Committee. Our banking subsidiaries have their own risk governance, compliance, auditing and other requirements. Our risk governance framework is implemented such that bank-level risk governance requirements are satisfied as well.
Board of Directors
Our Board of Directors (i) approves certain risk management policies, (ii) approves our capital targets and goals, (iii) approves our risk appetite framework, (iv) monitors our strategic plan, (v) appoints our CRO, and other risk governance function leaders, as appropriate, (vi) receives reports on any exceptions to the Enterprise Risk Management policy and (vii) receives and reviews regulatory examination reports. The Board of Directors receives reports from the Audit Committee and Risk Oversight Committee on risk management matters.
Risk Oversight Committee of our Board of Directors
Our Risk Oversight Committee is responsible for overseeing our risk management policies and the operations of our enterprise-wide risk management framework and our capital planning, liquidity risk management and resolution planning activities. The Committee is responsible for (i) approving and periodically reviewing our risk management policies, (ii) overseeing the operation of our policies and procedures establishing our risk management governance, risk management procedures, and our risk-control infrastructure, (iii) overseeing the operation of processes and systems for implementing and monitoring compliance with such policies and procedures, (iv) reviewing and making recommendations to the Board of Directors, as appropriate, regarding the Company's risk management framework, key risk management policies and the Company's risk appetite and tolerance, (v) receiving and reviewing regular reports from our CRO on risk management deficiencies and emerging risks, the status of and changes to risk exposures, policies, procedures and practices, and the steps management has taken to monitor and control risk exposures, (vi) receiving reports on compliance with our risk appetite and limit structure and risk management policies, procedures and controls, (vii) overseeing Capital Planning, Liquidity Risk Management and Resolution Planning related activities, and (viii) sharing information, liaising and meeting in joint session with the Audit Committee (which it may do through the Chairs of the Committees) as necessary or desirable to help ensure that the committees have received the information necessary to permit them to fulfill their duties and responsibilities with respect to oversight of risk management matters.
Audit Committee of our Board of Directors
With respect to the enterprise risk management framework, our Audit Committee is responsible for the following: (i) discussing policies with respect to risk assessment and management, (ii) receiving and reviewing reports from our CRO and other members of management as the Committee deems appropriate on the guidelines and policies for assessing and managing our exposure to risks, the corporation's major financial risk exposures and the steps management has taken to monitor and control such exposures, and (iii) sharing information and liaising with the Risk Oversight Committee as necessary or desirable to help ensure that the committees have received the information

necessary to permit them to fulfill their duties and responsibilities with respect to oversight of risk management matters.

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Compensation and Leadership Development Committee of our Board of Directors

Our Compensation and Leadership Development Committee is responsible for overseeing risk management associated with the Company's compensation practices. The Committee receives reporting regarding the Company's compensation practices and evaluates whether these practices encourage excessive risk-taking. As a part of its reviews, the Committee considers input from our CRO and takes into account risk outcomes.

Risk Committee

Our Risk Committee is an executive management-level committee that establishes a comprehensive enterprise risk management program which includes (i) providing a regular forum for representatives of our different functional groups to identify and discuss key risk issues and to recommend to senior management actions that should be taken to manage the level of risk taken by the business lines, (ii) establishing and overseeing an enterprise-wide approach to risk management through the development of our Enterprise Risk Management Policy and the associated oversight framework for the identification, measurement, monitoring, management and reporting of enterprise risk, (iii) communicating our risk appetite and philosophy, including establishing limits and thresholds for managing enterprise-wide risks, and (iv) reviewing, on a periodic basis, our aggregate enterprise-wide risk exposures and the effectiveness of risk identification, measurement, monitoring, management and reporting policies and procedures, and related controls within the lines of business.

Our Risk Committee has formed and designated a number of committees to assist it in carrying out its responsibilities. These committees, made up of representatives from senior levels of management, escalate issues to our Risk Committee as guided by escalation thresholds. These risk management committees include the Discover Bank Credit Committee, Asset/Liability Management Committees (Discover Financial Services and Discover Bank), the Counterparty Credit Committee, the New Initiatives Committee, the Operational Risk Committee, the Capital Planning Committee, the Compliance Committee, the Information Security Executive Committee and the Human Resources Committee.

Chief Executive Officer

The Chief Executive Officer ("CEO") is ultimately responsible for risk management within our Company. In that capacity, the CEO establishes a risk management culture throughout the Company and ensures that businesses operate in accordance with this risk culture.

Business Unit Heads

Our business unit heads are responsible for managing risk associated with pursuit of their strategic, financial and other business objectives. Business unit heads are responsible for (i) complying with all risk limits and risk policies, (ii) identifying risks and implementing appropriate controls, (iii) explicitly considering risk when developing strategic plans, budgets and new products, (iv) implementing appropriate controls when pursuing business strategies and objectives, (v) ensuring business units implement business unit processes, controls and monitoring to support corporate model risk management standards such as documentation standards and reporting standards, (vi) coordinating with CRM to produce relevant, sufficient, accurate and timely risk reporting that is consistent with the processes and methodology established by CRM, (vii) ensuring sufficient financial resources and qualified personnel are deployed to control the risks inherent in the business activities, and (viii) designating, in consultation with the CRO, a Business Risk Officer to assist with the above and to perform the specific duties described below.

Business Risk Officers work in conjunction with the business unit head to implement a business risk management program that satisfies business unit needs and adheres to corporate policy, standards and risk architecture.

Chief Risk Officer

As a member of the Company's senior management team, the CRO chairs our Risk Committee. In addition, the CRO has oversight responsibility to establish the CRM function with capabilities to exercise its mandate across all risk categories. Our CRO reports directly to our Risk Oversight Committee and administratively to the CEO. Our CRO provides an independent view on the key risks to which our Company is exposed to our Risk Committee, our Audit Committee, our Risk Oversight Committee and our Board of Directors.

Corporate Risk Management

The CRM department is led by the CRO and supports business units by providing objective oversight of our risk profile to help ensure that risks are managed, aggregated and reported to our Risk Committee, our Risk Oversight

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Committee and our Audit Committee. The CRM department participates in our Risk Committee and sub-committee meetings to provide an enterprise-wide perspective on risk, governance matters, policies and risk thresholds. The CRM department is comprised of operational, consumer credit, counterparty credit, and market and liquidity risk oversight functions. In addition, the CRM department has enterprise risk management, corporate compliance, third-party risk management, model risk management, enterprise threat and intelligence management and risk and insurance management frameworks to manage potential risk that might arise within these respective areas.

Credit Risk Management

Credit Risk Management is responsible for (i) developing, validating and implementing credit policy criteria and predictive loan origination and servicing models in order to optimize the profitability of Company lending activities, (ii) ensuring adherence to our credit risk policies and approval limits, and that departmental policies, procedures, and internal controls are consistent with the standards defined by the Company, (iii) ensuring that we manage credit risk within approved limits, and (iv) monitoring performance for both new and existing consumer loan products and portfolios.

Law Department

The CRM department collaborates and coordinates closely with other risk and control functions in exercising its oversight responsibilities, in particular with the Law department. This department plays a significant role in managing our legal risk by, among other things, identifying, interpreting and advising on legal and regulatory risks. Our Law department participates in meetings of the Risk Committee and the sub-committees of the Risk Committee in order to advise on legal risks and to inform the committees of any relevant legislative and regulatory developments.

Internal Audit Department

Our Internal Audit Department performs periodic, independent reviews and testing of compliance with risk management policies and standards across the Company, as well as assessments of the design and operating effectiveness of these policies and standards. The Internal Audit Department also validates that risk management controls are functioning as intended by reviewing and evaluating the design and operating effectiveness of the CRM program and processes, including the independence and effectiveness of the CRM function. The results of such reviews are reported to our Audit Committee.

Risk Categories

We are exposed to a broad set of risks in the course of our business activities due to both internal and external factors, which we segment into six major risk categories. The first five are defined to be broadly consistent with guidance published by the Federal Reserve and the Basel Committee on Banking Supervision ("BCBS"): credit, market, liquidity, operational, and compliance/legal risk. We recognize the sixth, strategic risk, as a separate risk category. We evaluate the potential impact of a risk event on the Company by assessing the financial impact, the impact to our reputation, the legal and regulatory impact, and the client/customer impact. In addition, we have established various policies to help govern these risks.

Credit Risk

Our credit risk arises from the potential that a borrower or counterparty will fail to perform on an obligation. Our credit risk includes consumer credit risk and counterparty credit risk. Consumer credit risk is primarily incurred by Discover Bank through the issuance of (i) unsecured credit including credit cards, student loans and personal loans and (ii) secured credit including secured credit cards, deposit secured loans and home equity loans. Counterparty credit risk is incurred through a number of activities including settlement, certain marketing programs, treasury and asset/liability management, network incentive programs, guarantors, vendor relationships and insurers.

Our Counterparty Credit Committee is responsible for the enterprise-wide approach to counterparty credit risk management through development of the Counterparty Credit Risk Management Policy and the associated oversight framework for the identification, measurement, monitoring, managing and reporting of counterparty credit risk.

Market Risk

Market risk is the risk to our financial condition resulting from adverse movements in market rates or prices, such as interest rates, foreign exchange rates, credit spreads or equity prices. Given the nature of our business activities, we

are exposed to various types of market risk; in particular interest rate risk, foreign exchange risk and other risks that arise through the management of our investment portfolio. Interest rate risk is more significant relative to other market risk exposures and results from potential mismatches in the repricing term of assets and liabilities (yield curve risk) and volatility in reference rates used to reprice floating-rate structures (basis risk). Foreign exchange risk is primarily incurred through exposure to currency movements across a variety of business activities and is derived, specifically, from the timing differences between transaction authorizations and settlement.

Liquidity Risk

Liquidity risk is the risk that we will be unable to meet our obligations as they become due because of an inability to liquidate assets or obtain adequate funding, or an inability to easily unwind or offset specific exposures without significantly lowering market prices because of inadequate market depth or market disruptions.

Operational Risk

Operational risk is defined as the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events. Operational risk is inherent in all our businesses. Operational risk categories incorporate all of the operational loss event-type categories set forth by the BCBS, which include the following: (i) internal fraud, (ii) external fraud, (iii) employment practices and workplace safety, (iv) clients, products and business practices, (v) damage to physical assets, (vi) business disruption and system failures, and (vii) execution, delivery and process management.

Compliance and Legal Risk

Compliance risk is the operational risk of legal or regulatory sanctions, financial loss or damage to reputation resulting from failure to comply with laws, regulations, rules, other regulatory requirements, or codes of conduct and other standards of self-regulatory organizations applicable to us.

Legal risk arises from the potential that unenforceable contracts, lawsuits or adverse judgments can disrupt or otherwise negatively affect our operations or condition. These risks are inherent in all of our businesses. Both compliance and legal risk are subsets of operational risk but are recognized together as a separate and complementary risk category by us given their importance and the specific capabilities and resources we deploy to manage these risk types effectively.

Compliance and legal risk exposures are actively and primarily managed by our business units in conjunction with our compliance and law departments. Our compliance program governs the management of compliance risk. Our Risk Committee and Compliance Committee oversee our compliance and legal risk management. Specifically, the Law department is responsible for providing advice, interpreting and identifying developments regarding laws, regulations, regulatory guidance and litigation, and setting standards for communicating relevant changes to Corporate Compliance, the Business and Internal Audit. The Law department also identifies and communicates legal risk associated with new products and business practices.

Strategic Risk

Strategic risk can arise from: adverse business decisions; improper implementation of decisions; or a failure to anticipate and respond to industry changes, create and maintain a competitive business model, and attract and profitably serve clients.

Our Risk Committee actively manages strategic risk through the development, implementation and oversight of our business strategies, including the development of budgets and business plans. Our business units take on and are accountable for managing strategic risk in pursuit of their objectives.

Enterprise Risk Management Framework

Our enterprise risk management principles are executed through a risk management framework that is based upon industry standards for managing risk and controls. While the detailed activities vary by risk type, there are common process elements that apply across risk types. We seek to apply these elements consistently in the interest of effective and efficient risk management. This framework seeks to link risk processes and infrastructure with the appropriate risk oversight to create a risk management structure that raises risk awareness, reduces impact of potential risk events, improves business decision-making and increases operational efficiency.

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Risk Identification

We seek to identify potential exposures that could adversely affect our ability to successfully implement strategies and achieve objectives. To ensure that the full scale and scope of risk exposures from firm-wide activities are identified, we seek to identify risk exposures based on (i) significant enterprise-level risks that are strategic, systemic, or emerging in nature, (ii) granular risk exposures from on-balance sheet and off-balance sheet positions, including concentrations, and (iii) risk exposures from initiatives focused on new, expanded, customized, or modified products, services, and processes.

Risk exposures identified through these three approaches are consolidated to create a comprehensive risk inventory. This inventory is leveraged by a number of processes within the Company including stress scenario design, capital planning, risk appetite setting, and risk modeling. The risk inventory is reviewed and approved at least annually by the Risk Committee while the sub-committees review the risks mapped to the relevant risk categories for transparency and comprehensive coverage of risk exposures.

Risk Measurement

Our risk measurement process seeks to ensure that the identified risk exposures are appropriately assessed. Risk measurement techniques appropriate to the risk category, econometric modeling, statistical analysis, peer benchmarking, and qualitative assessments are employed to measure our material risk exposures.

Risk Monitoring

Our risks are monitored through an integrated monitoring framework consisting of risk appetite metrics and key risk indicators (“KRIs”). These metrics are established to monitor changes in our risk exposures and external environment. Risk appetite metrics are used to monitor the overall risk profile of the Company by setting risk boundaries and expectations through quantitative limits and qualitative expressions. We use KRIs to monitor our risk profile through direct or indirect alignment with the risk appetite limits.

These metrics enable monitoring of risk by business management and by measuring risk and performance data against risk appetite and KRI escalation thresholds that are updated periodically. Escalation procedures are in place to notify the appropriate governance committees in the event of any actual risk limit breaches or potential upcoming breaches.

Risk Management

We have policies and a defined governance structure in place to manage risks. In the event of a risk exposure exceeding established thresholds, management determines appropriate response actions. Responses which may be taken by the Board of Directors, the Risk Oversight Committee, the Audit Committee, the Risk Committee, sub-committees or the CRO, or business units may include (i) actions to directly mitigate or resolve risk, (ii) actions to terminate any activities resulting in an undesired or unintended risk position, or (iii) actions to prevent, avoid or modify an undesired risk position (or activity prior to its occurrence), risk reduction, risk sharing or risk acceptance.

Risk Reporting

As the constituents primarily responsible for proactively managing the risks to which they are exposed, our business units and risk and control functions periodically report to the governance committees. The CRM function is responsible for independent reporting on risk matters to various constituencies across the Company on a periodic basis. The CRM department periodically provides risk management reporting to the Risk Committee, the Audit Committee, the Risk Oversight Committee and the Board of Directors.

Stress Testing

We use stress testing to better understand the range of potential risks and their impacts to which the Company is exposed. A stress testing framework is employed to provide a comprehensive, integrated and forward-looking assessment of material risks and vulnerabilities. Stress test results inform on business strategy, risk appetite setting, and decisions related to capital actions, contingency capital plans, liquidity buffer, contingency funding plans and balance sheet positioning. Our stress testing framework utilizes a risk inventory, which covers our risk exposures across our defined risk categories. The risk inventory provides a comprehensive view of our vulnerabilities capturing current and emerging risks from management’s view, granular risks relevant to business units and emerging risks associated with new initiatives.

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Risk Management Review of Compensation

We believe in a pay for performance philosophy which considers performance across the Company, business segments and individual performance, as appropriate, and the long-term interests of our shareholders and the safety and soundness of the Company. We design compensation to be competitive relative to our peers to attract, retain and motivate our employees. In addition to being competitive in the markets in which we compete for talent and encouraging employees to achieve objectives set out by our management, our compensation programs are designed to balance an appropriate mix of compensation components to align the interests of employees with the long-term interests of shareholders and the safety and soundness of the Company.

The design and administration of our compensation programs provide incentives that seek to appropriately balance risk and financial results in a manner that does not incentivize employees to take imprudent risks, is compatible with effective controls and enterprise-wide risk management, and is supported by strong corporate governance, including oversight by our Board of Directors and the Compensation and Leadership Development Committee of our Board of Directors.

Risk Appetite and Strategic Limit Structure

Risk appetite is defined as the aggregate level in the type of risks we are willing to accept or avoid in order to achieve our strategic objectives. Risk appetite expressions are consistent with the Company’s aspirations, mission statement and core values, and also serve as tools to preclude business activities that could have a negative impact on our reputation.

Our risk appetite statement consists of both quantitative limits and qualitative expressions under baseline and stress scenarios to recognize a range of possible outcomes and set boundaries for proactive management of risks. Baseline scenario limits focus on achieving business performance and earnings objectives, while the stress scenario limits focus on maintaining capital and franchise resiliency under stress conditions featuring combined impacts of macroeconomic and idiosyncratic shocks. These limits and expressions are revised at least annually or as warranted by changes in business strategy, risk profile and external environment.

Management and our CRM department monitor approved limits and escalation triggers to ensure that the business is operating within the approved risk appetite. Risk limits are monitored and reported on to various risk sub-committees, the Risk Committee and our Board of Directors, as appropriate. Through ongoing monitoring of risk exposures, management seeks to be able to identify appropriate risk response and mitigation strategies in order to react dynamically to changing conditions.

Capital Planning

Risk exposures identified through the risk identification process across risk categories and risk types are consolidated to create a comprehensive risk inventory. This inventory is leveraged by a number of processes within the Company including stress scenario design, capital planning, risk appetite setting and risk modeling. The risk inventory is reviewed and approved at least annually by the Capital Planning Committee along with the Risk Committee and sub-committees to ensure transparency and comprehensive coverage of risk exposures. Our capital planning and management framework encompasses forecasting capital levels, establishing capital targets, monitoring capital adequacy against targets, maintaining appropriate contingency capital plans and identifying strategic options to deploy excess capital.

Supervision and Regulation

General

Our operations are subject to extensive regulation, supervision and examination under U.S. federal, state and foreign laws and regulations. As a bank holding company under the Bank Holding Company Act of 1956 and a financial holding company under the Gramm-Leach-Bliley Act, we are subject to the supervision, examination and regulation of the Federal Reserve. As a large provider of consumer financial services, we are subject to the supervision, examination and regulation of the Consumer Financial Protection Bureau (the “CFPB”).

We operate two banking subsidiaries, each of which is in the United States. Discover Bank, our main banking subsidiary, offers credit card loans, student loans, personal loans and home equity loans as well as certificates of deposit, savings and checking accounts and other types of deposit accounts. Discover Bank is chartered and regulated by the Office of the Delaware State Bank Commissioner (the “Delaware Commissioner”), and is also regulated by the

FDIC, which insures its deposits up to applicable limits and serves as the bank's primary federal banking regulator. Our other bank, Bank of New Castle, is also chartered and regulated by the Delaware Commissioner and insured and regulated by the FDIC.

Bank Holding Company Regulation

Permissible activities for a bank holding company include owning a bank as well as those activities that are so closely related to banking as to be a proper incident thereto, such as consumer lending and other activities that have been approved by the Federal Reserve by regulation or order. Certain servicing activities are also permissible for a bank holding company if conducted for or on behalf of the bank holding company or any of its affiliates. Impermissible activities for bank holding companies include activities that are related to commerce such as retail sales of nonfinancial products.

A financial holding company and the non-bank companies under its control are permitted to engage in activities considered financial in nature, incidental to financial activities, or complementary to financial activities, if the Federal Reserve determines that such activities pose no risk to the safety or soundness of depository institutions or the financial system in general. Being a financial holding company under the Gramm-Leach-Bliley Act requires that the depository institutions that we control meet certain criteria, including capital, management and Community Reinvestment Act requirements. In addition, under the Dodd-Frank Wall Street Reform and Consumer Protection Act (the "Dodd-Frank Act") we are required to meet certain capital and management criteria to maintain our status as a financial holding company. Failure to meet the criteria for financial holding company status results in restrictions on new financial activities or acquisitions and could require discontinuance of existing activities that are not generally permissible for bank holding companies.

Federal Reserve regulations and the Federal Deposit Insurance Act (the "FDIA"), as amended by the Dodd-Frank Act, require that bank holding companies serve as a source of strength to each subsidiary bank and commit resources to support each subsidiary bank. This support may be required at times when a bank holding company may not be able to provide such support without adversely affecting its ability to meet other obligations.

The Dodd-Frank Act addresses risks to the economy and the payments system, especially those posed by large systemically significant financial firms. Bank holding companies with $50 billion or more in total consolidated assets, including Discover, are considered systemically significant under the Dodd-Frank Act and are subject to heightened prudential standards established by the Federal Reserve. Regulatory developments, findings and ratings could negatively impact our business strategies or require us to: limit or change our business practices, restructure our products in ways that we may not currently anticipate, limit our product offerings, invest more management time and resources in compliance efforts, limit the fees we can charge for services, or limit our ability to pursue certain business opportunities and obtain related required regulatory approvals. For additional information regarding bank regulatory limitations on acquisitions and investments, see "— Acquisitions and Investments." See Note 19: Litigation and Regulatory Matters to our consolidated financial statements for more information on recent matters affecting Discover. Regulatory developments could also impact our strategies, the value of our assets, or otherwise adversely affect our businesses. For more information regarding the regulatory environment and developments under the Dodd-Frank Act, see "Management's Discussion and Analysis of Financial Condition and Results of Operations — Regulatory Environment and Developments" and "Risk Factors."

Capital, Dividends and Share Repurchases

We, Discover Bank and Bank of New Castle are subject to capital adequacy guidelines adopted by federal banking regulators, which include maintaining minimum capital and leverage ratios for capital adequacy and higher ratios to be deemed "well-capitalized" for other regulatory purposes. We and our subsidiary banks are each required to maintain Tier 1 and total capital equal to at least 6% and 8% of our total risk-weighted assets, respectively. We and our subsidiary banks are also required to maintain a minimum "leverage ratio" (Tier 1 capital to adjusted total assets) of 4% and a common equity Tier 1 capital ratio (common equity Tier 1 capital to total risk-weighted assets) of 4.5%. Further, under the Federal Reserve's annual capital plan requirements, Discover Financial Services is required to demonstrate that under stress scenarios we will maintain each of the minimum capital ratios on a pro-forma basis throughout the nine quarter planning horizon.

In addition to the supervisory minimum levels of capital described above, Federal Reserve rules applicable to Discover Financial Services require maintenance of the following minimum capital ratios to be considered "well-capitalized" for certain purposes under Regulation Y (12 CFR 225): (i) a Tier 1 risk-based capital ratio of 6% and (ii) a

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total risk-based capital ratio of 10%. Our banking subsidiaries are required by the FDIC's Prompt Corrective Action rules to maintain the following minimum capital ratios to be considered "well-capitalized": (i) a common equity Tier 1 capital ratio of 6.5%; (ii) a Tier 1 risk-based capital ratio of 8%; (iii) a total risk-based capital ratio of 10%; and (iv) a Tier 1 leverage ratio of 5%. At December 31, 2017, Discover Financial Services met all requirements to be deemed "well-capitalized" pursuant to the applicable regulations. For related information regarding our bank subsidiaries see "— FDIA" below.

There are various federal and state law limitations on the extent to which our banking subsidiaries can provide funds to us through dividends, loans or otherwise. These limitations include minimum regulatory capital requirements, federal and state banking law requirements concerning the payment of dividends out of net profits or surplus, affiliate transaction limits and general federal and state regulatory oversight to prevent unsafe or unsound practices. In general, federal and applicable state banking laws prohibit, without first obtaining regulatory approval, insured depository institutions, such as our banking subsidiaries, from making dividend distributions if such distributions are not paid out of available earnings or would cause the institution to fail to meet applicable capital adequacy standards. For more information, see "— FDIA" below.

Additionally, we are required to submit an annual capital plan to the Federal Reserve that includes an assessment of our expected uses and sources of capital over the nine-quarter planning horizon. We submitted our annual capital plan to the Federal Reserve under the Federal Reserve's Comprehensive Capital Analysis and Review ("CCAR") program and received notice in June 2017 that the Federal Reserve does not object to our proposed capital plan, including planned quarterly capital distributions through June 30, 2018. In April 2018, we will be submitting our annual capital plan to the Federal Reserve under the Federal Reserve's CCAR program, which includes planned dividends and share repurchases over the nine quarter planning horizon. Our ability to make capital distributions, including our ability to pay dividends or repurchase shares of our common stock, is subject to the Federal Reserve's review and non-objection of the actions that we propose each year in our annual capital plan. When evaluating a firm's capital plan, the Federal Reserve considers factors such as the firm's projected capital ratios under a hypothetical scenario of severe economic and financial market stress. In addition, Discover Financial Services is required to publish company-run stress tests results twice each year in accordance with Federal Reserve rules and Discover Bank is required to publish company-run stress test results under FDIC rules.

For more information, including additional conditions and limits on our ability to pay dividends and repurchase our stock, see "Risk Factors — Credit, Market and Liquidity Risk — We may be limited in our ability to pay dividends on and repurchase our stock" and "— We are a holding company and depend on payments from our subsidiaries," "Management's Discussion and Analysis of Financial Condition and Results of Operations — Liquidity and Capital Resources — Capital" and Note 17: Capital Adequacy to our consolidated financial statements.

FDIA

The FDIA imposes various requirements on insured depository institutions. For example, the FDIA requires, among other things, the federal banking agencies to take "prompt corrective action" in respect of depository institutions that do not meet minimum capital requirements. The FDIA sets forth the following five capital tiers: "well-capitalized," "adequately capitalized," "undercapitalized," "significantly undercapitalized" and "critically undercapitalized." A depository institution's capital tier will depend upon how its capital levels compare with various relevant capital measures and certain other factors that are established by regulation. At December 31, 2017, Discover Bank and Bank of New Castle met all applicable requirements to be deemed "well-capitalized."

The FDIA also prohibits any depository institution from making any capital distributions (including payment of a dividend) or paying any management fee to its parent holding company if the depository institution would thereafter be "undercapitalized." "Undercapitalized" institutions are subject to growth limitations and are required to submit a capital restoration plan. For a capital restoration plan to be acceptable, among other things, the depository institution's parent holding company must guarantee that the institution will comply with the capital restoration plan.

If a depository institution fails to submit an acceptable capital restoration plan, it is treated as if it is "significantly undercapitalized." "Significantly undercapitalized" depository institutions may be subject to a number of requirements and restrictions, including orders to sell sufficient voting stock to become "adequately capitalized," requirements to reduce total assets, and cessation of receipt of deposits from correspondent banks. "Critically undercapitalized" institutions are subject to the appointment of a receiver or conservator.

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Each of our banking subsidiaries may also be held liable by the FDIC for any loss incurred, or reasonably expected to be incurred, due to the default of the other U.S. banking subsidiary and for any assistance provided by the FDIC to the other U.S. banking subsidiary that is in danger of default.

The FDIA prohibits insured banks from accepting brokered deposits or offering interest rates on any deposits significantly higher than the prevailing rate in the bank's normal market area or nationally (depending upon where the deposits are solicited), unless it is "well-capitalized," or it is "adequately capitalized" and receives a waiver from the FDIC. A bank that is less than "well-capitalized" is generally prohibited from paying an interest rate on deposits in excess of 75 basis points over the national market average. There are no such restrictions under the FDIA on a bank that is "well-capitalized." As of December 31, 2017, Discover Bank and Bank of New Castle each met the FDIC's definition of a "well-capitalized" institution for purposes of accepting brokered deposits. An inability to accept brokered deposits in the future could materially adversely impact our funding costs and liquidity. For more information, see "Risk Factors — Credit, Market and Liquidity Risk — An inability to accept or maintain deposits in the future could materially adversely affect our liquidity position and our ability to fund our business."

The FDIA also affords FDIC insured depository institutions, such as Discover Bank and Bank of New Castle, the ability to "export" interest rates permitted under the laws of the state where the bank is located. Discover Bank and Bank of New Castle are both located in Delaware and, therefore, charge interest on loans to out-of-state borrowers at rates permitted under Delaware law, regardless of the usury limitations imposed by the state laws of the borrower's residence. Delaware law does not limit the amount of interest that may be charged on loans of the type offered by Discover Bank or Bank of New Castle. This flexibility facilitates the current nationwide lending activities of Discover Bank and Bank of New Castle.

The FDIA subjects Discover Bank to deposit insurance assessments. Under the Dodd-Frank Act, in order to bolster the reserves of the Deposit Insurance Fund, the minimum reserve ratio set by the FDIC was increased to 1.35%. In 2011, the FDIC set a reserve ratio of 2%, 65 basis points above the statutory minimum. The FDIC also amended its deposit insurance regulations with two changes. First, the FDIC implemented a provision of the Dodd-Frank Act that changed the assessment base for deposit insurance premiums from one based on domestic deposits to one based on average consolidated total assets minus average tangible equity. Second, the FDIC revised the risk-based assessment system for all large insured depository institutions (generally, institutions with at least $10 billion in total assets, including Discover Bank) to one based on a scorecard method. Further increases may occur in the future. The Dodd-Frank Act removed the statutory cap for the reserve ratio, leaving the FDIC free to set a cap in the future.

Acquisitions and Investments

Since we are a bank holding company, and Discover Bank and Bank of New Castle are insured depository institutions, we are subject to banking laws and regulations that limit the types of acquisitions and investments that we can make. In addition, certain permitted acquisitions and investments that we seek to make are subject to the prior review and approval of our banking regulators, including the Federal Reserve and FDIC. Our banking regulators have broad discretion on whether to approve proposed acquisitions and investments. In deciding whether to approve a proposed acquisition, federal bank regulators will consider, among other factors, the effect of the acquisition on competition, our financial condition, and our future prospects, including current and projected capital ratios and levels; the competence, experience, and integrity of our management and our record of compliance with laws and regulations; the convenience and needs of the communities to be served, including our record of compliance under the Community Reinvestment Act; and our effectiveness in combating money laundering. Therefore, results of supervisory activities of the banking regulators, including examination results and ratings, can impact whether regulators approve proposed acquisitions and investments. Supervisory action related to anti-money laundering and related laws and regulations will limit for a period of time our ability to enter into certain types of acquisitions and make certain types of investments. For more information on recent matters affecting Discover, see Note 19: Litigation and Regulatory Matters to our consolidated financial statements. For information on the challenging regulatory environment, see "Risk Factors."

In addition, certain acquisitions of our voting stock may be subject to regulatory approval or notice under U.S. federal or Delaware state law. Investors are responsible for ensuring that they do not, directly or indirectly, acquire shares of our stock in excess of the amount that can be acquired without regulatory approval under the Change in Bank Control

Act, the Bank Holding Company Act and the Delaware Change in Bank Control provisions, which prohibit any person or company from acquiring control of us without, in most cases, the prior written approval of each of the FDIC, the Federal Reserve and the Delaware Commissioner.

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Consumer Financial Services
The relationship between us and our U.S. customers is regulated extensively under federal and state consumer protection laws. Federal laws include the Truth in Lending Act, the Equal Credit Opportunity Act, the Fair Credit Reporting Act, the Gramm-Leach-Bliley Act, the CARD Act and the Dodd-Frank Act. These and other federal laws, among other things, prohibit unfair, deceptive and abusive trade practices, require disclosures of the cost of credit, provide substantive consumer rights, prohibit discrimination in credit transactions, regulate the use of credit report information, provide financial privacy protections, require safe and sound banking operations, restrict our ability to raise interest rates, and subject us to substantial regulatory oversight. The CFPB has rulemaking and interpretive authority under the Dodd-Frank Act and other federal consumer financial services laws, as well as broad supervisory, examination and enforcement authority over large providers of consumer financial products and services, such as Discover. For more information, see “Management’s Discussion and Analysis of Financial Condition and Results of Operations — Regulatory Environment and Developments — Consumer Financial Services.”
State and, in some cases, local laws also may regulate in these areas, as well as in the areas of collection practices, and may provide other additional consumer protections. Moreover, our U.S. subsidiaries are subject to the Servicemembers Civil Relief Act (the “SCRA”) as well as the Military Lending Act (the “MLA”), which protects persons called to active military service and their dependents from undue hardship resulting from their military service. The SCRA applies to all debts incurred prior to the commencement of active duty (including credit card and other open-end debt) and limits the amount of interest, including service and renewal charges and any other fees or charges (other than bona fide insurance) that is related to the obligation or liability. The MLA applies to several of our financial products, including credit cards, private student loans and personal loans. Among other requirements, it imposes an interest rate cap for loans made to active duty servicemembers and their dependents, requires additional disclosures, and prohibits Discover from requiring MLA protected consumers to submit disputes to arbitration. The requirements of the SCRA and the MLA apply to our student loan and personal loan products as of October 3, 2016 and to our credit card products as of October 3, 2017.

Violations of applicable consumer protection laws can result in significant potential liability in litigation by customers, including civil monetary penalties, actual damages, restitution and attorneys’ fees. Federal banking regulators, as well as state attorneys general and other state and local consumer protection agencies, also may seek to enforce consumer protection requirements and obtain these and other remedies. Further violations may cause federal banking regulators to deny, or delay approval of, potential acquisitions and investments. See “— Acquisitions and Investments.”
We are subject to additional laws and regulations affecting mortgage lenders. Federal, state and, in some instances, local laws apply to mortgage lending activities. These laws generally regulate the manner in which mortgage lending and lending-related activities are conducted, including advertising and other consumer disclosures, payments for services and recordkeeping requirements. These laws include the Real Estate Settlement Procedures Act, the Fair Credit Reporting Act, the Truth in Lending Act, the Equal Credit Opportunity Act, the Fair Housing Act, the Home Mortgage Disclosure Act and various state laws. For more information, see “Management’s Discussion and Analysis of Financial Condition and Results of Operations — Regulatory Environment and Developments — Consumer Financial Services.”
Payment Networks
We operate the Discover and PULSE networks, which deliver switching and settlement services to financial institutions and other program participants for a variety of ATM, POS and other electronic banking transactions. These operations are regulated by certain federal and state banking, privacy and data security laws. Moreover, the Discover and PULSE networks are subject to examination under the oversight of the Federal Financial Institutions Examination Council, an interagency body composed of the federal bank regulators and the National Credit Union Association. In addition, as our payments business has expanded globally through Diners Club, we are subject to government regulation in countries in which our networks operate or our cards are used, either directly or indirectly through regulation affecting Diners Club network licensees. Changes in existing federal, state or international regulation could increase the cost or risk of providing network services, change the competitive environment, or

otherwise materially adversely affect our operations. The legal environment regarding privacy and data security is particularly dynamic, and any unpermitted disclosure of confidential customer information could have a material adverse impact on our business, including loss of consumer confidence.

The Dodd-Frank Act contains several provisions that are relevant to the business practices, network transaction volume, revenue and prospects for future growth of PULSE, our debit card network business. The Dodd-Frank Act

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requires that merchants control the routing of debit transactions, and that interchange fees received by certain payment card issuers on debit card transactions be "reasonable and proportional" to the issuer's cost in connection with such transactions, as determined by the Federal Reserve. The Dodd-Frank Act also requires the Federal Reserve to restrict debit card networks and issuers from requiring debit card transactions to be processed solely on a single payment network or two or more affiliated networks, or from requiring that transactions be routed over certain networks. For information regarding related impacts on our debit card business, see "Management's Discussion and Analysis of Financial Condition and Results of Operations — Regulatory Environment and Developments — Payment Networks."

Money Laundering & Terrorist Financing Prevention Program

We maintain an enterprise-wide program designed to comply with all applicable anti-money laundering and anti-terrorism laws and regulations, including the Bank Secrecy Act and the USA PATRIOT Act of 2001. This program includes policies, procedures, training and other internal controls designed to mitigate the risk of money laundering or terrorist financing posed by our products, services, customers and geographic locale. These controls include procedures and processes to detect and report suspicious transactions, perform customer due diligence, and meet all recordkeeping and reporting requirements related to particular transactions involving currency or monetary instruments. The program is coordinated by a compliance officer and undergoes an annual independent audit to assess its effectiveness. Our program is typically reviewed on an annual basis by federal banking regulators. In May 2015, Discover Financial Services entered into a written agreement with the Federal Reserve Bank of Chicago to resolve matters related to the Federal Reserve's examination of Discover Financial Services' anti-money laundering and related compliance programs. Discover Financial Services agreed to, among other things, enhance its anti-money laundering and related compliance programs. See Note 19: Litigation and Regulatory Matters to our consolidated financial statements for more information. For additional information regarding bank regulatory limitations on acquisitions and investments, see "— Acquisitions and Investments."

Sanctions Programs

We have a program designed to comply with applicable economic and trade sanctions programs, including those administered and enforced by the U.S. Department of the Treasury's Office of Foreign Assets Control. These sanctions are usually targeted against foreign countries, terrorists, international narcotics traffickers and those believed to be involved in the proliferation of weapons of mass destruction. These regulations generally require either the blocking of accounts or other property of specified entities or individuals, but they may also require the rejection of certain transactions involving specified entities or individuals. We maintain policies, procedures and other internal controls designed to comply with these sanctions programs.

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Executive Officers of the Registrant

Set forth below is information concerning our executive officers, each of whom is a member of our Executive Committee.

Name	Age	Position
David W. Nelms	57	Chairman and Chief Executive Officer
Roger C. Hochschild	53	President and Chief Operating Officer
R. Mark Graf	53	Executive Vice President, Chief Financial Officer
Kathryn McNamara Corley	58	Executive Vice President, General Counsel and Secretary
Brian D. Hughes	50	Executive Vice President, Chief Risk Officer
Julie A. Loeger	54	Executive Vice President, Chief Marketing Officer
Carlos M. Minetti	55	Executive Vice President, President of Consumer Banking
Diane E. Offereins	60	Executive Vice President, President - Payment Services
Glenn P. Schneider	56	Executive Vice President and Chief Information Officer
Daniel P. Capozzi	46	Senior Vice President, Credit and Decision Management
R. Douglas Rose	49	Senior Vice President and Chief Human Resources Officer

David W. Nelms is our Chairman and Chief Executive Officer. He has held the role of Chief Executive Officer since February 2004 and assumed the role of Chairman in January 2009. Mr. Nelms served as President and Chief Operating Officer from 1998 to 2004. Prior to joining us, Mr. Nelms worked at MBNA America Bank from 1991 to 1998, most recently as Vice Chairman. Mr. Nelms holds a Bachelor's degree in Mechanical Engineering from the University of Florida and an M.B.A. from Harvard Business School.

Roger C. Hochschild is our President and Chief Operating Officer. He has held this role since March 2004. Mr. Hochschild was Executive Vice President, Chief Administrative and Strategic Officer (2001 to 2004) and Executive Vice President, Chief Marketing Officer - Discover (1998 to 2001) of our former parent company Morgan Stanley. Mr. Hochschild holds a Bachelor's degree in Economics from Georgetown University and an M.B.A. from the Amos Tuck School at Dartmouth College.

R. Mark Graf is our Executive Vice President, Chief Financial Officer. He has held this role since April 2011. In his role, he is also responsible for the Comprehensive Capital Analysis and Review and Resolution Planning program offices. He was also Chief Accounting Officer until December 2012. Prior to joining us, Mr. Graf was an investment advisor with Aquiline Capital Partners, a private equity firm specializing in investments in the financial services industry. From 2006 to 2008, Mr. Graf was a partner at Barrett Ellman Stoddard Capital. Mr. Graf was Executive Vice President and Chief Financial Officer for Fifth Third Bank from 2004 to 2006, after having served as its Treasurer from 2001 to 2004. He holds a Bachelor's degree in Economics from the Wharton School of the University of Pennsylvania.

Kathryn McNamara Corley is our Executive Vice President, General Counsel and Secretary. She has held this role since February 2008. Previously, she served as Senior Vice President, General Counsel and Secretary (1999 to 2008). Prior to becoming General Counsel, Ms. Corley was Managing Director for our former parent company Morgan Stanley's global government and regulatory relations. Ms. Corley holds a Bachelor's degree in Political Science from

the University of Southern California and a J.D. from Antonin Scalia Law School at George Mason University.
Brian D. Hughes is our Executive Vice President, Chief Risk Officer. He has held this role since December 2016 and been Chief Risk Officer since May 2016. Mr. Hughes is responsible for Corporate Risk Management, Model Risk Management, Enterprise Security and Intelligence Management, and Compliance, including the AML/BSA compliance program. Mr. Hughes joined Discover in 2012 as Senior Vice President and held leadership positions in Credit Risk Management, Deposit Products and Cardmember Marketing. Prior to joining us, Mr. Hughes held leadership roles at HSBC North America (2004-2012) and Booz & Co. (1993-2004). He holds a Bachelor’s degree in Electrical Engineering from the University of Illinois and an M.B.A. from the Booth School of Business at The University of Chicago.

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Julie A. Loeger is our Executive Vice President, Chief Marketing Officer. She has held this role since December 2015. From April 2015 to December 2015, she served as Senior Vice President, Chief Marketing Officer. Ms. Loeger joined Discover in 1991 and has held leadership positions in many areas, including Rewards, Portfolio Marketing, Acquisition, Brand Management and Product Development. Prior to joining Discover, she held various marketing positions at Anheuser Busch, Inc. She holds a Bachelor’s of Business Administration degree in Finance from The University of Texas at San Antonio, an M.B.A. from Loyola University Chicago and attended the executive program at The Amos Tuck School at Dartmouth College.

Carlos M. Minetti is our Executive Vice President, President of Consumer Banking. He has held this role since February 2014. Previously, he served as Executive Vice President, President - Consumer Banking and Operations (2010 to 2014), Executive Vice President, Cardmember Services and Consumer Banking (2007 to 2010), and Executive Vice President for Cardmember Services, and Chief Risk Officer (2001 to 2007). Prior to joining us, Mr. Minetti worked in card operations and risk management for American Express from 1987 to 2000, most recently as Senior Vice President. Mr. Minetti holds a Bachelor’s degree in Industrial Engineering from Texas A & M University and an M.B.A. from the Booth School of Business at The University of Chicago.

Diane E. Offereins is our Executive Vice President, President - Payment Services. She has held this role since April 2010. Previously, she served as Executive Vice President, Payment Services (2008 to 2010) and Executive Vice President and Chief Technology Officer (1998 to 2008). In 2006, she assumed leadership of the PULSE network. Prior to joining us, Ms. Offereins worked at MBNA America Bank from 1993 to 1998, most recently as Senior Executive Vice President. Ms. Offereins holds a Bachelor’s degree in Accounting from Loyola University New Orleans.

Glenn P. Schneider is our Executive Vice President and Chief Information Officer. He has held this role since January 2015. Previously, he served as Senior Vice President and Chief Information Officer (2008 to 2015), Senior Vice President, Application Development (2003 to 2008), and Vice President, Marketing Applications (1998 to 2003). Prior to joining us in 1993, Mr. Schneider worked for Kemper Financial Services as a Programmer. He holds a Bachelor’s degree in Economics/Computer Science with a minor in Statistics from Northern Illinois University.

Daniel P. Capozzi is our Senior Vice President, Credit and Decision Management. He has held this role since June 2017 and is responsible for Credit Risk Management, Loss Forecasting, Analytics, Decision Science and related functions. Since joining Discover in 2007, Mr. Capozzi has held leadership positions in the Deposits business and Corporate Finance. Prior to joining Discover, he held various leadership positions in Finance at Citi and Bank of America. Mr. Capozzi holds a Bachelor’s degree in Business Administration from Northeastern University.

R. Douglas Rose is our Senior Vice President and Chief Human Resources Officer. He has held this role since April 2013. Prior to joining us, he served as Vice President, Human Resources at United Airlines from 2009 to 2013. He was also Senior Vice President, Human Resources at Capital One and a Human Resources consultant for Hewitt Associates. Mr. Rose holds a Bachelor’s degree in Communications from the University of Pennsylvania and a Master’s degree from the University of Michigan.

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Item 1A. Risk Factors
You should carefully consider each of the following risks described below and all of the other information in this annual report on Form 10-K in evaluating us. Our business, financial condition, cash flows and/or results of operations could be materially adversely affected by any of these risks. The trading price of our common stock could decline due to any of these risks. This annual report on Form 10-K also contains forward-looking statements that involve risks and uncertainties. Our actual results could differ materially from those anticipated in these forward-looking statements as a result of certain factors, including the risks faced by us described below and elsewhere in this annual report on Form 10-K. See "Special Note Regarding Forward-Looking Statements," which immediately follows the risks below.
Current Economic and Regulatory Environment
Economic conditions could have a material adverse effect on our business, results of operations and financial condition.
As a provider of consumer financial services, our business, results of operations and financial condition are subject to the United States and global economic environment. While the economy appears to be strong, we are experiencing the normalization of delinquency and charge-off rates as we exit a period of historic lows in these rates and enter a period where the market is moving toward historic trends as the supply of consumer credit grows. A customer's ability and willingness to repay us can be negatively impacted by not only economic conditions but also a customer's other payment obligations.

Economic conditions also can reduce the usage of credit cards in general and the average purchase amount of transactions industry-wide, including our cards, which reduces interest income and transaction fees. We rely heavily on interest income from our credit card business to generate earnings. Our interest income from credit card loans was $7.9 billion for the year ended December 31, 2017, which was 80% of net revenues (defined as net interest income plus other income), compared to $7.2 billion for the year ended December 31, 2016, which was 79% of net revenues. Economic conditions combined with a competitive marketplace could result in slow loan growth, resulting in reduced revenue from our core direct banking business.
Financial regulatory developments have and will continue to significantly impact the environment for the financial services industry, which could adversely impact our business, results of operations and financial condition.
The Dodd-Frank Act contains comprehensive provisions governing the practices and oversight of financial institutions and other participants in the financial markets. The Dodd-Frank Act regulates financial firms, including Discover, through a variety of measures, including increased capital and liquidity requirements, limits on leverage and enhanced supervisory authority. Federal banking regulators have issued and may continue to propose new regulations and supervisory guidance under the Dodd-Frank Act and otherwise, and have increased their examination and enforcement activities in prior years. Regulators may continue addressing concerns through public enforcement actions against financial institutions or non-public supervisory actions or findings.

While the President, the current congressional majorities in the U.S. Senate and House of Representatives and regulatory agency leadership support reducing the regulatory burden on large financial institutions, including Discover, the prospects for significant modifications remain uncertain. Additionally, it is possible that regulatory reform measures may disproportionately benefit our competitors or not benefit Discover at all because of our size, structure, or product offerings, among other things.

The impact of the evolving regulatory environment on our business and operations depends upon a number of factors including the supervisory priorities and actions of the Federal Reserve, the FDIC and the CFPB, the actions of our competitors and other marketplace participants, and the behavior of consumers. Regulatory developments, findings and ratings have and could continue to negatively impact our business strategies or require us to: limit, exit or change our business practices, restructure our products in ways that we may not currently anticipate, limit our product offerings, invest more management time and resources in compliance efforts, limit the fees we can charge for services, or limit our ability to pursue certain business opportunities and obtain related required regulatory approvals. For example, the Federal Reserve and the FDIC enforcement actions related to our anti-money laundering program have caused us to change our processes and incur significant expenses. For additional information regarding bank regulatory limitations on acquisitions and investments, see “Business — Supervision and Regulation — Acquisitions and Investments.” See also Note 19: Litigation and Regulatory Matters to our consolidated financial statements for more information on recent

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matters affecting Discover. Regulatory developments could also impact our strategies, the value of our assets, or otherwise adversely affect our businesses.

Compliance expectations and expenditures have increased significantly for Discover and other financial services firms, and could continue to increase as regulators remain focused on controls and operational processes and we introduce new products or features or enter into new business arrangements. We may face additional compliance and regulatory risk to the extent that we enter into new business arrangements with third-party service providers, alternative payment providers or other industry participants. The additional expense, time and resources needed to comply with ongoing or additional regulatory requirements may adversely impact our business and results of operations.

For more information regarding the regulatory environment and developments potentially impacting Discover, see "Management's Discussion and Analysis of Financial Condition and Results of Operations — Regulatory Environment and Developments."

Strategic Business Risk

We face competition in the credit card market from other consumer financial services providers, and we may not be able to compete effectively, which could result in fewer customers and lower account balances and could materially adversely affect our financial condition, cash flows and results of operations.

The consumer financial services business is highly competitive. We compete with other consumer financial services providers, including non-traditional providers such as financial technology firms, on the basis of a number of factors, including brand, reputation, customer service, product offerings, incentives, pricing, e-wallet participation and other terms. Competition in credit cards is also based on merchant acceptance and the value provided to the customer by rewards programs. Many credit card issuers have instituted rewards programs that are similar to ours, and, in some cases, could be viewed as more attractive to customers than our programs. These competitive factors affect our ability to attract and retain customers, increase usage of our products and maximize the revenue generated by our products. In addition, because most domestically-issued credit cards, other than those issued by American Express, are issued on the Visa and MasterCard networks, most other card issuers benefit from the dominant position and marketing and pricing power of Visa and MasterCard. The competitive marketplace could result in slower loan growth, resulting in reduced revenue from our core direct banking business. If we are unable to compete successfully, or if competing successfully requires us to take aggressive actions in response to competitors' actions, our financial condition, cash flows and results of operations could be materially adversely affected.

We incur considerable cost in competing with other consumer financial services providers, and many of our competitors have greater financial resources than we do, which may place us at a competitive disadvantage and negatively affect our financial results.

We incur considerable cost in competing with other consumer financial services providers to attract and retain customers and increase usage of our products. A substantial portion of this cost relates to marketing expenditures and rewards programs. Since 2013 our rewards rate, which represents rewards cost divided by Discover Card sales volume, has increased from less than 1% to 1.24% in 2017. We expect the competitive intensity in the rewards space to continue, which could result in a continued increase in the rewards rate. Our consumer financial services products compete primarily on the basis of pricing, terms and service. Because of the highly competitive nature of the credit card-issuing business, a primary method of competition among credit card issuers, including us, has been to offer rewards programs, low introductory interest rates, attractive standard purchase rates and balance transfer programs that offer a favorable annual percentage rate or other financial incentives for a specified length of time on account balances transferred from another credit card.

Competition is intense in the credit card industry, and customers may frequently switch credit cards or transfer their balances to another card. We expect to continue to invest in initiatives to remain competitive in the consumer financial services industry, including the launch of new cards and features, brand awareness initiatives, targeted marketing, online and mobile enhancements, e-wallet participation, customer service improvements, credit risk management and operations enhancements, and infrastructure efficiencies. There can be no assurance that any of the cost we incur or incentives we offer to attempt to acquire and maintain accounts and increase usage of our products will be effective. In addition, to the extent that we offer new products, features or services to remain competitive, we may be subject to increased operational or other risks.

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Furthermore, many of our competitors are larger than we are, have greater financial resources than we do, have more breadth in consumer banking products, and/or have lower funding and operating costs than we have and expect to have, and have assets such as branch locations and co-brand relationships, that may be appealing to certain customers. For example, larger credit card issuers, which have greater resources than we do, may be better positioned to fund appealing rewards, marketing and advertising programs. We may be at a competitive disadvantage as a result of the greater financial resources, diversification and scale of many of our competitors.

Our cost directly affects our earnings results. Many factors can influence the amount of our cost, as well as how quickly it may increase. Our ongoing investments in infrastructure, which may be necessary to maintain a competitive business, integrate newly-acquired businesses, and establish scalable operations, increase our cost. In addition, as our business develops, changes or expands, additional cost can arise as a result of a reevaluation of business strategies, management of outsourced services, asset purchases, structural reorganization, compliance with new laws or regulations or the acquisition of new businesses. If we are unable to successfully manage our cost, our financial results will be negatively affected.

We face competition from other operators of payment networks and alternative payment providers, and we may not be able to compete effectively, which could result in reduced transaction volume, limited merchant acceptance of our cards, limited issuance of cards on our networks by third parties and materially reduced earnings from our payment services business.

We face substantial and increasingly intense competition in the payments industry, both from traditional players and new, emerging alternative payment providers. For example, we compete with other payment networks to attract network partners to issue credit and debit cards and other card products on the Discover, PULSE and Diners Club networks. Competition with other operators of payment networks is generally based on issuer fees, fees paid to networks (including switch fees), merchant acceptance, network functionality and other economic terms. Competition is also based on customer perception of service quality, brand image, reputation and market share. Further, we are facing increased competition from alternative payment providers, who may create innovative network or other arrangements with our primary competitors or other industry participants, which could adversely impact our costs, transaction volume and ability to grow our business.

Many of our competitors are well established, larger than we are and/or have greater financial resources or scale than we do. These competitors have provided financial incentives to card issuers, such as large cash signing bonuses for new programs, funding for and sponsorship of marketing programs and other bonuses. Visa and MasterCard each enjoy greater merchant acceptance and broader global brand recognition than we do. Although we have made progress in merchant acceptance, we have not achieved global market parity with Visa and MasterCard. In addition, Visa and MasterCard have entered into long-term arrangements with many financial institutions that may have the effect of discouraging those institutions from issuing cards on the Discover Network or issuing debit cards on the PULSE network. Some of these arrangements are exclusive, or nearly exclusive, which further limits our ability to conduct material amounts of business with these institutions. If we are unable to remain competitive on issuer fees and other incentives, we may be unable to offer adequate pricing to network partners while maintaining sufficient net revenues.

We also face competition as merchants put pressure on transaction fees. Increasing merchant fees or acquirer fees could adversely affect our effort to increase merchant acceptance of credit cards issued on the Discover Network and may cause merchant acceptance to decrease. This, in turn, could adversely affect our ability to attract network partners and our ability to maintain or grow revenues from our proprietary network. In addition, competitors' settlements with merchants and related actions, including pricing pressures and/or surcharging, could negatively impact our business practices. In response to the Dodd-Frank Act, competitor actions related to the structure of merchant and acquirer fees and merchant and acquirer transaction routing strategies have adversely affected and are expected to continue to adversely affect our PULSE network's business practices, network transaction volume, revenue and prospects for future growth, and entry into new product markets. Visa has entered into arrangements with some merchants and acquirers that has, and is expected to continue to have, the effect of discouraging those merchants and acquirers from routing debit transactions to PULSE. In addition, the Dodd-Frank Act's network participation requirements and competitor actions negatively impact PULSE's ability to enter into exclusivity arrangements, which affects PULSE's business practices and may materially adversely affect its network transaction volume and revenue. PULSE filed a lawsuit against Visa in late 2014 with respect to these competitive concerns, which will significantly impact expenses for the payment services segment. PULSE’s transaction processing revenue was $167 million and $155 million for the years ended December 31, 2017 and 2016, respectively.

American Express is also a strong competitor, with international acceptance, high transaction fees and an upscale brand image. Internationally, American Express competes in the same market segments as Diners Club. We may face challenges in increasing international acceptance on our networks, particularly if third parties that we rely on to issue Diners Club cards, increase card acceptance and market our brands do not perform to our expectations.

In addition, if we are unable to maintain sufficient network functionality to be competitive with other networks, or if our competitors develop better data security solutions or more innovative products and services than we do, our ability to retain and attract network partners and maintain or increase the revenues generated by our proprietary card-issuing business or our PULSE business may be materially adversely affected. Additionally, competitors may develop data security solutions which, as a consequence of the competitors' market power, we may be forced to use. In which case, our business may be adversely affected as they may be better positioned to absorb the development costs over higher volumes or a larger customer base.

Our business depends upon relationships with issuers, merchant acquirers and licensees, which are generally financial institutions. The economic and regulatory environment and increased consolidation in the financial services industry decrease our opportunities for new business and may result in the termination of existing business relationships if a business partner is acquired or goes out of business. In addition, as a result of this environment, financial institutions may have decreased interest in engaging in new card issuance opportunities or expanding existing card issuance relationships, which would inhibit our ability to grow our payment services business. We continue to face substantial and intense competition in the payments industry, which impacts our revenue margins, transaction volume and business strategies.

If we are unsuccessful in maintaining our international network business and achieving meaningful global card acceptance, we may be unable to grow our international network business.

We continue to make progress toward, but have not completed, achieving global card acceptance across the Diners Club network, the Discover Network and PULSE since we acquired the Diners Club network and related assets in 2008. This would allow Discover customers to use their cards at merchant and ATM locations that accept Diners Club cards around the world and would allow Diners Club customers to use their cards on the Discover Network in North America and on the PULSE network both domestically and internationally.

Our international network business depends upon the cooperation, support and continuous operation of the network licensees that issue Diners Club cards and that maintain a merchant acceptance network. As is the case for other card payment networks, our Diners Club network does not issue cards or determine the terms and conditions of cards issued by the network licensees. If we are unable to continue our relationships with network licensees or if the network licensees are unable to continue their relationships with merchants, our ability to maintain or increase revenues and to remain competitive would be adversely affected due to the potential deterioration in customer relationships and related demand that could result. If one or more licensees were to experience a significant impairment of their business or were to cease doing business for economic, regulatory or other reasons, we would face the adverse effects of business interruption in a particular market, including loss of volume, acceptance and revenue, and exposure to potential reputational risk. If similar conditions arise in the future, we may deploy resources and incur expenses in order to sustain network acceptance. Such conditions previously resulted in our acquisition of Diners Club Italy (which we have since sold) and financial assistance to our Slovenian licensee. Additionally, interruption of network licensee relationships could have an adverse effect on the acceptance of Discover cards when they are used on the Diners Club network outside of North America.

Also, as we have non-amortizable intangible assets that resulted from the purchase of Diners Club, if we are unable to maintain or increase revenues due to the reasons described above, we may be exposed to an impairment loss on the Diners Club acquisition that, when recognized, could have a material adverse impact on our consolidated financial condition and results of operations. The long-term success of our international network business depends upon achieving meaningful global card acceptance, which has included and may continue to include higher overall costs or longer timeframes than anticipated.

The success of our student loan strategy depends upon our ability to manage the risks of our student loan portfolio and the student lending environment. If we fail to do so, we may be unable to sustain and grow our student loan portfolio.

Our private student loan portfolio has grown from $1.0 billion at November 30, 2010 to $9.2 billion at December 31, 2017. The long-term success of our student loan strategy depends upon our ability to manage the credit

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risk, pricing, funding, operations and expenses of our student loan portfolio, as well as grow student loan originations. Our student loan strategy is also impacted by external factors such as the overall economic environment, a competitive marketplace and a challenging regulatory environment for private student loans and student loans generally. For more information on the regulatory environment, see “Management’s Discussion and Analysis of Financial Condition and Results of Operations — Regulatory Environment and Developments — Consumer Financial Services” and Note 19: Litigation and Regulatory Matters to our consolidated financial statements. Economic weakness, government and regulatory focus on higher education costs, student lending and student loan servicing, as well as competitive factors, such as the need to offer fixed interest rates and competition from non-traditional lenders such as financial technology firms, may present challenges to managing and growing our private student loan business in the future, and could cause us to restructure our private student loan products in ways that we may not currently anticipate. In addition, changes that adversely affect the private student loan market generally may negatively impact the profitability and growth of our student loan portfolio.

Acquisitions or strategic investments that we pursue may not be successful and could disrupt our business, harm our financial condition or reduce our earnings.

We may consider or undertake strategic acquisitions of, or material investments in, businesses, products, portfolios of loans or technologies in the future. We may not be able to identify suitable acquisition or investment candidates, or even if we do identify suitable candidates, they may be difficult to finance, expensive to fund and there is no guarantee that we can obtain any necessary regulatory approvals or complete the transactions on terms that are favorable to us. We generally must receive federal regulatory approvals before we can acquire a bank, bank holding company, deposits or certain assets or businesses. For additional information regarding bank regulatory limitations on acquisitions and investments, see “Business — Supervision and Regulation — Acquisitions and Investments.”

To the extent we pay the purchase price of any strategic acquisition of or investment in cash, it may have an adverse effect on our financial condition; similarly, if the purchase price is paid with our stock, it may be dilutive to our stockholders. In addition, we may assume liabilities associated with a business acquisition or investment, including unrecorded liabilities that are not discovered at the time of the transaction, and the repayment or settlement of those liabilities may have an adverse effect on our financial condition.

We may not be able to successfully integrate the personnel, operations, businesses, products, or technologies of an acquisition or investment. Integration may be particularly challenging if we enter into a line of business in which we have limited experience and the business operates in a difficult legal, regulatory or competitive environment. We may find that we do not have adequate operations or expertise to manage the new business. The integration of any acquisition or investment may divert management’s time and resources from our core business, which could impair our relationships with our current employees, customers and strategic partners and disrupt our operations. Acquisition and Investments also may not perform to our expectations for various reasons, including the loss of key personnel, customers or vendors. If we fail to integrate acquisitions or investments or realize the expected benefits, we may lose the return on these acquisitions or investments or incur additional transaction costs, and our business, reputation and financial condition may be harmed as a result.

Credit, Market and Liquidity Risk

Our business depends on our ability to manage our credit risk, and failing to manage this risk successfully may result in high charge-off rates, which would materially adversely affect our business, profitability and financial condition.

We seek to grow our loan receivables while maintaining quality credit performance. Our success depends on our ability to manage our credit risk while attracting new customers with profitable usage patterns. We select our customers, manage their accounts and establish terms and credit limits using proprietary scoring models and other analytical techniques that are designed to set terms and credit limits to appropriately compensate us for the credit risk we accept, while encouraging customers to use their available credit. The models and approaches we use may not accurately predict future charge-offs due to, among other things, inaccurate assumptions. While we continually seek to improve our assumptions and models, we may make modifications that unintentionally cause them to be less predictive or we may incorrectly interpret the data produced by these models in setting our credit policies.

Our ability to manage credit risk and avoid high charge-off rates may be adversely affected by economic conditions that may be difficult to predict. At December 31, 2017 and 2016, $987 million, or 1.17%, and $813 million, or 1.05%, of our loan receivables were non-performing (defined as loans over 90 days delinquent and

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accruing interest plus loans not accruing interest). While the economy appears to be strong, we are experiencing the normalization of delinquency and charge-off rates as we exit a period of historic lows in these rates and enter a period where the market is moving toward historic trends as the supply of consumer credit grows. There can be no assurance that our underwriting and portfolio management strategies will permit us to avoid high charge-off levels, or that our allowance for loan losses will be sufficient to cover actual losses.

A customer’s ability and willingness to repay us can be negatively impacted by increases in their payment obligations to other lenders and by restricted availability of credit to consumers generally. Our collection operations may not compete effectively to secure more of customers’ diminished cash flow than our competitors. In addition, we may fail to quickly identify customers who are likely to default on their payment obligations and reduce our exposure by closing credit lines and restricting authorizations, which could adversely impact our financial condition and results of operations. Our ability to manage credit risk also may be adversely affected by legal or regulatory changes (such as restrictions on collections, bankruptcy laws, minimum payment regulations and re-age guidance), competitors’ actions and consumer behavior, as well as inadequate collections staffing, techniques and models.

We continue to expand our marketing of our non-credit card consumer lending products. A customer’s ability and willingness to repay personal loans, private student loans and home equity loans may be more significantly impacted than other consumer loans by other debts or increases in their payment obligations to other lenders and by restricted availability of credit to consumers generally. There can be no assurance that we will be able to grow these products in accordance with our strategies, manage our credit and other risks associated with these products, or generate sufficient revenue to cover our expenses in these markets. Our failure to manage our credit and other risks may materially adversely affect our profitability and our ability to grow these products, limiting our ability to further diversify our business.

Adverse market conditions or an inability to effectively manage our liquidity risk could negatively impact our ability to meet our liquidity and funding needs, which could materially adversely impact our business operations and overall financial condition.

We must effectively manage the liquidity risk to which we are exposed. We require liquidity in order to meet cash requirements such as day-to-day operating expenses, extensions of credit on our consumer loans and required payments of principal and interest on our borrowings. Our primary sources of liquidity and funding are payments on our loan receivables, deposits, and proceeds from securitization transactions and securities offerings. We may maintain too much liquidity, which can be costly and limit financial flexibility, or we may be too illiquid, which could result in financial distress during a liquidity stress event. Our liquidity portfolio had a balance of approximately $13.6 billion as of December 31, 2017, compared to $12.6 billion as of December 31, 2016. Our total contingent liquidity sources amounted to $48.7 billion as of December 31, 2017, compared to $42.8 billion as of December 31, 2016. As of December 31, 2017, our total contingent liquidity sources consisted of $13.6 billion in our liquidity portfolio, $29.2 billion in incremental Federal Reserve discount window capacity, and $6.0 billion of undrawn capacity in private securitizations.

In the event that our current sources of liquidity do not satisfy our needs, we would be required to seek additional financing. The availability of additional financing will depend on a variety of factors such as market conditions, the general availability of credit to the financial services industry, new regulatory restrictions and requirements, and our credit ratings. Disruptions, uncertainty or volatility in the capital, credit or deposit markets, such as the volatility experienced in the capital and credit markets during the financial crisis of 2007, may limit our ability to repay or replace maturing liabilities in a timely manner. As such, we may be forced to delay raising funding or be forced to issue or raise funding at undesirable terms and/or costs, which could decrease profitability and significantly reduce financial flexibility. Regulations such as the liquidity coverage ratio, which requires firms to hold a minimum level of high-quality assets, may increase the cost of funding and impact funding availability and are described more fully in “Management’s Discussion and Analysis of Financial Condition and Results of Operations — Regulatory Environment and Developments.” Further, in disorderly financial markets or for other reasons, it may be difficult or impossible to liquidate some of our investments to meet our liquidity needs.

There can be no assurance that significant disruption and volatility in the financial markets will not occur in the future. Likewise, adverse developments with respect to financial institutions and other third parties with whom we maintain important financial relationships could negatively impact our funding and liquidity. If we are unable to continue to fund our assets through deposits or access capital markets on favorable terms, or if we experience an increase in our borrowing costs or otherwise fail to manage our liquidity effectively, our liquidity, operating results, financial results and condition may be materially adversely affected.

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An inability to accept or maintain deposits in the future could materially adversely affect our liquidity position and our ability to fund our business.

We obtain deposits from consumers either directly or through affinity relationships and through third-party securities brokerage firms that offer our deposits to their customers. We had $39.4 billion in deposits acquired directly or through affinity relationships and $19.4 billion in deposits originated through securities brokerage firms as of December 31, 2017, compared to $36.0 billion and $16.0 billion, respectively, as of December 31, 2016. Competition from other financial services firms that use deposit funding, the rates and services we offer on our deposit products, and our ability to maintain a high level of customer experience may affect deposit renewal rates, costs or availability. Changes we make to the rates offered on our deposit products may affect our profitability (through funding costs) and our liquidity (through volumes raised). In addition, our ability to maintain existing or obtain additional deposits may be impacted by factors, including factors beyond our control, such as: perceptions about our financial strength or quality of deposit servicing or online banking generally, which could reduce the number of consumers choosing to place deposits with us; third parties continuing or entering into affinity relationships with us; disruptions in technology services or the internet, generally; or third-party securities brokerage firms continuing to offer our deposit products. Our ability to obtain deposit funding and offer competitive interest rates on deposits is also dependent on capital levels of our bank subsidiaries. The FDIA in certain circumstances prohibits insured banks, such as our subsidiary Discover Bank, from accepting brokered deposits (as defined in the FDIA) and applies other restrictions, such as a cap on interest rates we may pay. See "Business — Supervision and Regulation" and Note 17: Capital Adequacy to our consolidated financial statements for more information. While Discover Bank met the FDIC's definition of "well-capitalized" as of December 31, 2017, and has no restrictions regarding acceptance of brokered deposits or setting of interest rates, there can be no assurance that it will continue to meet this definition. Additionally, our regulators can adjust the requirements to be "well-capitalized" at any time and have authority to place limitations on our deposit businesses, including the interest rate we pay on deposits.

If we are unable to securitize our receivables, it may have a material adverse effect on our liquidity, cost of funds and overall financial condition.

We use the securitization of credit card receivables, which involves the transfer of receivables to a trust and the issuance by the trust of beneficial interests to third-party investors, as a significant source of funding as well as for contingent liquidity. Our average level of credit card securitized borrowings from third parties was $16.1 billion and $15.8 billion for the years ended December 31, 2017 and 2016, respectively. There can be no assurance that there will not be future disruptions in the credit card securitization market similar to those experienced during the financial crisis. Our ability to raise funding through the securitization market also depends, in part, on the credit ratings of the securities we issue from our securitization trusts. If we are not able to satisfy rating agency requirements to maintain the ratings of asset-backed securities issued by our trusts, it could limit our ability to access the securitization markets. Additional factors affecting the extent to which we may securitize our credit card receivables in the future include the overall credit quality of our receivables, the costs of securitizing our receivables, the demand for credit card asset-backed securities, and the legal, regulatory, accounting and tax requirements governing securitization transactions and asset-backed securities, generally. For example, the implementation of the Basel Committee on Banking Supervision's revised securitization framework for banks by the member countries by the beginning of 2019 could negatively impact the pricing and/or volume of our asset-backed securities issuances. A prolonged inability to securitize our credit card receivables, or an increase in the costs of such issuances, may have a material adverse effect on our liquidity, cost of funds and overall financial condition.

The occurrence of events that result in the early amortization of our existing credit card securitization transactions or an inability to delay the accumulation of principal collections in our credit card securitization trusts would materially adversely affect our liquidity.

Our liquidity would be materially adversely affected by the occurrence of events that could result in the early amortization of our existing credit card securitization transactions. Our credit card securitizations are structured as "revolving transactions" that do not distribute to securitization investors their share of monthly principal payments received on the underlying receivables during the revolving period, and instead use those principal payments to fund the purchase of new receivables. The occurrence of an "early amortization event" may result in termination of the revolving periods of our securitization transactions, which would require us to repay the affected outstanding securitized borrowings out of principal collections without regard to the original payment schedule. Early amortization events include, for example, insufficient cash flows in the securitized pool of receivables to meet contractual requirements (i.e. excess spread less than zero) and certain breaches of representations, warranties or covenants in the agreements relating to the securitization. For more information on excess spread, see Note 5: Credit Card and Student Loan Securitization Activities to our consolidated financial statements. An early amortization event would negatively impact our liquidity, and require us to rely on alternative funding sources, which may or may not be available at the time. An early amortization event also could impact our ability to access the undrawn conduit facilities that we maintain for contingent liquidity purposes.

Our credit card securitization structure includes a requirement that we accumulate principal collections into a restricted account in the amount of scheduled maturities on a pro rata basis over the 12 months prior to a security's maturity date. We have the option under our credit card securitization documents to shorten this accumulation period, subject to the satisfaction of certain conditions. Historically, we have exercised this option to shorten the accumulation period to one month prior to maturity. If we were to determine that the payment rate on the underlying receivables would not support a one-month accumulation period, we would need to begin accumulating principal cash flows earlier than we have historically. A lengthening of the accumulation period would negatively impact our liquidity, requiring management to implement mitigating measures. During periods of significant maturity levels, absent management actions, the lengthening of the accumulation period could materially adversely affect our financial condition.

A downgrade in the credit ratings of our securities could materially adversely affect our business and financial condition.

We, along with Discover Bank, are regularly evaluated by the ratings agencies, and their ratings for our long-term debt and other securities, including asset-backed securities issued by our securitization trusts, are based on a number of factors that may change from time to time, including our financial strength as well as factors that may not be within our control. Factors that affect our unsecured credit ratings include, but are not limited to, the macroeconomic environment in which we operate and the credit ratings of the U.S. government, the credit quality and performance of our assets, the amount and quality of our capital, the level and stability of our earnings, and the structure and amount of our liquidity. In addition to these factors, the ratings of our asset-backed securities are also based on the quality of the underlying receivables and the credit enhancement structure of the trusts. Downgrades in our ratings or those of Discover Bank or our trusts could materially adversely affect our cost of funds, access to capital and funding, and overall financial condition. There can be no assurance that we will be able to maintain our current credit ratings or that our credit ratings will not be lowered or withdrawn.

We may not be successful in managing the investments in our liquidity investment portfolio and investment performance may deteriorate due to market fluctuations, which would adversely affect our business and financial condition.

We must effectively manage the risks of the investments in our liquidity investment portfolio, which is comprised of cash and cash equivalents and high-quality liquid investments. The value of our investments may be adversely affected by market fluctuations including changes in interest rates, prices, prepayment rates, credit risk premiums and overall market liquidity. Also, investments backed by collateral could be adversely impacted by changes in the value of the underlying collateral. In addition, economic conditions may cause certain of the obligors, counterparties and underlying collateral on our investments to incur losses of their own or default on their obligations to us due to bankruptcy, lack of liquidity, operational failure or other reasons, thereby increasing our credit risk exposure to these investments. These risks could result in a decrease in the value of our investments, which could negatively impact our financial condition. These risks could also restrict our access to funding. While the securities in our investment portfolio are currently limited to obligations of high-quality sovereign and government-sponsored issuers, we may choose to expand the range our investments over time, which may result in greater fluctuations in market value. While we expect these investments to be readily convertible into cash and do not believe they present a material increase to our risk profile or will have a material impact on our risk-based capital ratios, they are subject to certain market fluctuations that may reduce the ability to fully convert them into cash.

Changes in the level of interest rates could materially adversely affect our earnings.

Changes in interest rates cause our net interest income to increase or decrease, as certain of our assets and liabilities carry interest rates that fluctuate with market benchmarks. External factors may cause interest rates to increase. Tighter Federal Reserve monetary policy and rising interest rates would increase the cost of borrowing for consumers, businesses and governments. Higher interest rates could negatively impact Discover’s customers as total debt service payments would increase, impede Discover’s ability to grow its consumer lending businesses, and increase the cost of our funding, which would put Discover at a disadvantage as compared to competitors that have less expensive funding sources.

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Some of our consumer loan receivables bear interest at a fixed rate or do not earn interest, and we are not able to increase the rate on those loans to offset any higher cost of funds, which could materially reduce earnings. At the same time, our variable rate loan receivables, which are based on the prime rate, may not change at the same rate as our floating-rate borrowings or may be subject to a cap, subjecting us to basis risk. The majority of our floating-rate borrowings and interest rate derivatives are generally based on the one-month LIBOR rate. If the one-month LIBOR rate were to increase without a corresponding increase in the prime rate, our earnings would be negatively impacted. Additionally, on July 27, 2017 the UK Financial Conduct Authority announced that it would no longer encourage or compel banks to continue to contribute quotes and maintain LIBOR after 2021. Potential replacements for LIBOR appear to be emerging; however, the transition process is still in its infancy and the outcome is still uncertain. While the majority of our existing certificates of deposit bear interest at fixed rates that do not fluctuate with market benchmarks, we have used derivative instruments to hedge the fixed rates associated with some of these certificates of deposit. However, the costs of new deposits fluctuate with interest rates. Moreover, although certificates of deposit we issue directly to consumers are subject to early withdrawal penalties, these penalties may not fully mitigate early withdrawal behavior in a rising interest rate environment.

Interest rates may also adversely impact our delinquency and charge-off rates. Many consumer lending products bear interest rates that fluctuate with certain base lending rates published in the market, such as the prime rate and LIBOR. As a result, higher interest rates often lead to higher payment requirements by consumers under obligations to us and other lenders, which may reduce their ability to remain current on their obligations to us and thereby lead to loan delinquencies and additions to our loan loss provision, which could materially adversely affect our earnings.

We continually monitor interest rates and have a number of tools, including the composition of our investments, liability terms and interest rate derivatives, to manage our interest rate risk exposure. Changes in market assumptions regarding future interest rates could significantly impact our interest rate risk strategy, our financial position and results of operations. If our interest rate risk management strategies are not appropriately monitored or executed, these activities may not effectively mitigate our interest rate sensitivity or have the desired impact on our results of operations or financial condition. For information related to interest rate risk sensitivities, see “Quantitative and Qualitative Disclosures About Market Risk.”

We may be limited in our ability to pay dividends on and repurchase our stock.

In the year ended December 31, 2017, we increased our quarterly common stock dividend to $0.35 per share and repurchased approximately 8% of our outstanding common stock under our share repurchase program. The declaration and payment of future dividends, as well as the amount thereof, are subject to the discretion of our Board of Directors. The amount and size of any future dividends and share repurchases will depend upon the Federal Reserve’s non-objection to our annual capital plan, and our results of operations, financial condition, capital levels, cash requirements, future prospects, regulatory review and other factors as further described in “Business — Supervision and Regulation — Capital, Dividends and Share Repurchases.” Holders of our shares of common stock are subject to the prior dividend rights of holders of our preferred stock or the depositary shares representing such preferred stock outstanding, and if full dividends have not been declared and paid on all outstanding shares of our preferred stock in any dividend period, no dividend may be declared or paid on or set aside for payment on our common stock. Banking laws and regulations and our banking regulators may limit or prohibit our payment of dividends on or our repurchase of our stock at any time. There can be no assurance that we will declare and pay any dividends on or repurchase our stock in the future.

We are a holding company and depend on payments from our subsidiaries.

Discover Financial Services, our parent holding company, depends on dividends, distributions and other payments from its subsidiaries, particularly Discover Bank, to fund dividend payments, share repurchases, payments on its obligations, including debt obligations, and to provide funding and capital as needed to its operating subsidiaries. Banking laws and regulations and our banking regulators may limit or prohibit our transfer of funds freely, either to or from our subsidiaries, at any time. These laws, regulations and rules may hinder our ability to access funds that we may need to make payments on our obligations or otherwise achieve strategic objectives. For more information, see “Business — Supervision and Regulation — Capital, Dividends and Share Repurchases.”

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Operational and Other Risk

Our risk management framework and models for managing risks may not be effective in mitigating our risk of loss.

Our risk management framework seeks to identify and mitigate risk and appropriately balance risk and return. We have established processes and procedures intended to identify, measure, manage, monitor and report the types of risk to which we are subject, including credit risk, market risk, liquidity risk, operational risk, compliance and legal risk, and strategic risk. We seek to monitor and control our risk exposure through a framework of policies, procedures, limits and reporting requirements.

Management of our risks in some cases depends upon the use of analytical and/or forecasting models. We use a variety of models to manage and inform decision-making with respect to customers, and for the measurement of risk including credit, market and operational risks and for our finance and treasury functions. Models used by Discover can vary in their complexity and are designed to identify, measure and mitigate risks at various levels such as loan-level, portfolio segments, entire portfolios and products. These models use a set of computational rules to generate numerical estimates of uncertain values to be used for assessment of price, financial forecasts, and estimates of credit, interest rate, market and operational risk. All models carry some level of uncertainty that introduces risks in the estimates.

If the models that we use to mitigate risks are inadequate, we may incur increased losses. In addition, there may be risks that exist, or that develop in the future, that we have not appropriately anticipated, identified or mitigated. If our risk management framework and models do not effectively identify or mitigate our risks, we could suffer unexpected losses and our financial condition and results of operations could be materially adversely affected.

If our security systems, or those of third parties, containing information about us, our customers or third parties with which we do business, are compromised, our business could be disrupted and we may be subject to significant financial exposure, liability and damage to our reputation.

Our direct banking and network operations rely heavily on the secure processing, storage and transmission of confidential or sensitive information about us, our customers and third parties with which we do business. Information security risks for financial institutions have increased and continue to increase in part because of the proliferation of new technologies, the use of the internet, mobile and telecommunications technologies to conduct financial transactions, and the increased sophistication and activities of organized crime, activists, hackers, terrorist organizations, nation state actors and other external parties. Those parties may also attempt to fraudulently induce employees, customers or other users of our systems (including third parties) to disclose confidential or sensitive information in order to gain access to our data or that of our customers.

Our technologies, systems, networks and software, those of other financial institutions and other firms that handle or maintain confidential or sensitive information (including customer information), have been, and are likely to continue to be, the target of increasingly frequent cyber-attacks, malicious code, computer viruses, denial of service attacks, phishing and social engineering, other remote access attacks, and physical attacks that could result in unauthorized access, misuse, loss, unavailability or destruction of data (including confidential customer information), account takeovers, identity theft and fraud, unavailability of service or other events. These types of threats may derive from human error, fraud or malice on the part of external or internal parties, or may result from technological failure or otherwise.

Despite our efforts to ensure the integrity of our systems through our information security and business continuity programs, we may not be able to anticipate or to implement effective preventive measures against all known and unknown security threats or breaches or events of these types, especially because the techniques used change frequently and are becoming increasingly more sophisticated or are not recognized until launched or vulnerabilities in software or hardware are unknown or are unable to be entirely addressed even after becoming known, and because:

- Security attacks can originate from a wide variety of sources and geographic locations and may be undetected for a period of time.
- We rely on many third-party service providers and network participants, including merchants, and, as such, a security breach or cyber-attack affecting one of these third parties could impact us. For example, the financial services industry continues to see attacks against the environments where personal and identifiable information is handled. For additional information see the risk factor "— We rely on third parties to deliver services. If we face difficulties managing

our relationships with third-party service providers, our revenue or results of operations could be materially adversely affected."

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- To access our products and services, our customers may use computers and mobile devices that are beyond our security control systems.

We are subject to increasingly more risk related to security systems as we increase acceptance of the Discover card internationally, expand our suite of online direct banking products, enhance our mobile payment technologies, acquire new or outsource some of our business operations, expand our internal usage of web-based products and applications, and otherwise attempt to keep pace with rapid technological changes in the financial services industry. Our efforts to mitigate this risk increase our expenses. While we continue to invest in our information security defenses (including cybersecurity defenses), if our security systems or those of third parties are penetrated or circumvented such that the confidentiality, integrity or availability of information about us, our customers, transactions processed on our networks or third parties with which we do business is compromised, we could be subject to significant liability that may not be covered by insurance, including significant legal and financial exposure, actions by our regulators, damage to our reputation, or a loss of confidence in the security of our systems, products and services that could materially adversely affect our business. For additional information on risks in this area, see the risk factors below regarding fraudulent activity, the introduction of new products and services, the use of third parties for outsourcing, technology generally, and laws and regulations addressing consumer privacy and data use and security.

If we cannot remain organizationally effective, we will be unable to address the opportunities and challenges presented by our strategy and the increasingly dynamic and competitive economic and regulatory environment.

To remain organizationally effective, we must effectively empower, integrate and deploy our management and operational resources and incorporate global and local business, regulatory and consumer perspectives into our decisions and processes. In order to execute on our objective to be the leading direct bank and payments partner, we must develop and implement innovative and efficient technology solutions and marketing initiatives while effectively managing legal, regulatory, compliance, security, operational and other risks as well as expenses. Examples include the implementation of a broader rollout of our checking product and a structure for a more competitive global network business. If we fail to develop and implement these solutions, we may be unable to expand quickly and the results of our expansion may be unsatisfactory. In addition, if we are unable to make decisions quickly, assess our opportunities and risks, execute our strategy, and implement new governance, managerial and organizational processes as needed in this increasingly dynamic and competitive economic and regulatory environment, our financial condition, results of operations, relationships with our business partners, banking regulators, customers and shareholders, and ultimately our prospects for achieving our long-term strategies, may be negatively impacted.

We may be unable to increase or sustain Discover card usage, which could impair growth in, or lead to diminishing, average balances and total revenue.

A key element of our business strategy is to increase the usage of the Discover card by our customers, including making it their primary card, and thereby increase our revenue from transaction and service fees and interest income. However, our customers' use and payment patterns may change because of social, legal and economic factors, and customers may decide to use debit cards or other payment products instead of credit cards, not increase card usage, or pay their balances within the grace period to avoid finance charges. We face challenges from competing card products in our attempts to increase credit card usage by our existing customers. Our ability to increase card usage also is dependent on customer satisfaction, which may be adversely affected by factors outside of our control, including competitors' actions and legislative/regulatory changes. Existing legal and regulatory restrictions limit pricing changes that may impact an account throughout its lifecycle, which may reduce our capability to offer lower price promotions to drive account usage and customer engagement. As part of our strategy to increase usage, we have been increasing the number of merchants who accept cards issued on the Discover Network. If we are unable to continue increasing merchant acceptance or fail to improve awareness of existing merchant acceptance of our cards, our ability to grow usage of Discover cards may be hampered. As a result of these factors, we may be unable to increase or sustain credit card usage, which could impair growth in or lead to diminishing average balances and total revenue.

Our transaction volume is concentrated among large merchants, and a reduction in the number of large merchants that accept cards on the Discover Network or PULSE network or the rates they pay could materially adversely affect our business, financial condition, results of operations and cash flows.

Discover card transaction volume was concentrated among our top 100 merchants in 2017, with our largest merchant accounting for approximately 6% of that transaction volume. Transaction volume on the PULSE network was also concentrated among the top 100 merchants in 2017, with our largest merchant accounting for approximately 18% of PULSE transaction volume. These merchants could seek to negotiate better pricing or other financial incentives by

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conditioning their continued participation in the Discover Network and/or PULSE network on a change in the terms of their economic participation. Loss of acceptance at our largest merchants would decrease transaction volume, negatively impact our brand, and could cause customer attrition. In addition, some of our merchants, primarily our remaining small- and mid-size merchants, are not contractually committed to us for any period of time and may cease to participate in the Discover Network at any time on short notice.

Actual or perceived limitations on acceptance of credit cards issued on the Discover Network or debit cards issued on the PULSE network could adversely affect the use of Discover cards by existing customers and the attractiveness of the Discover card to prospective customers. Also, we may have difficulty attracting and retaining network partners if we are unable to add or retain acquirers or merchants who accept cards issued on the Discover or PULSE networks. As a result of these factors, a reduction in the number of our merchants or the rates they pay could materially adversely affect our business, financial condition, results of operations and cash flows.

Our business, financial condition and results of operations may be adversely affected by merchants' increasing focus on the fees charged by credit card and debit card networks.

Merchant acceptance and fees are critical to the success of both our card-issuing and payment processing businesses. Merchants are concerned with the fees charged by credit card and debit card networks. They seek to negotiate better pricing or other financial incentives as a condition of continued participation in the Discover Network and PULSE network. During the past few years, merchants and their trade groups have filed numerous lawsuits against Visa, MasterCard, American Express and their card-issuing banks, claiming that their practices toward merchants, including issuer fees, violate federal antitrust laws. There can be no assurance that they will not in the future bring legal proceedings against other credit card and debit card issuers and networks, including us. Merchants also may promote forms of payment with lower fees, such as ACH-based payments, or seek to impose surcharges at the point of sale for use of credit or debit cards. Merchant groups have also promoted federal and state legislation that would restrict issuer practices or enhance the ability of merchants, individually or collectively, to negotiate more favorable fees. The heightened focus by merchants on the fees charged by credit card and debit card networks, together with the Dodd-Frank Act and recent industry litigation, which would allow merchants to encourage customers to use other payment methods or cards and may increase merchant surcharging, could lead to reduced transactions on, or merchant acceptance of, Discover Network or PULSE network cards or reduced fees, any of which could adversely affect our business, financial condition and results of operations.

Political, economic or other instability in a country or geographic region, or other unforeseen or catastrophic events, could adversely affect our international business activities and reduce our revenue.

Natural disasters or other catastrophic events, including terrorist attacks, may have a negative effect on our business and infrastructure, including our information technology systems. Our Diners Club network, concentrated primarily on serving the global travel industry, could be adversely affected by international conditions that may result in a decline in consumer or business travel activity. Armed conflict, public health emergencies, natural disasters, political instability or terrorism may have a significant negative effect on travel activity and related revenue. Although a regionalized event or condition may primarily affect one of our network participants, it may also affect our overall network and card activity and our resulting revenue. Overall network and card transaction activity may decline as a result of concerns about safety or disease or may be limited because of economic conditions that result in spending on travel to decline. The impact of such events and other catastrophes on the overall economy may also adversely affect our financial condition or results of operations.

Fraudulent activity associated with our products or our networks could cause our brands to suffer reputational damage, the use of our products to decrease and our fraud losses to be materially adversely affected.

We are subject to the risk of fraudulent activity associated with merchants, customers and other third parties handling customer information. The risk of fraud continues to increase for the financial services industry in general. We incurred fraud losses and other charges of $89 million and $98 million for the years ended December 31, 2017 and 2016, respectively. Credit and debit card fraud, identity theft and related crimes are prevalent and perpetrators are growing ever more sophisticated. Our resources, customer authentication methods and fraud prevention tools may be insufficient to accurately predict or prevent fraud. Additionally, our risk of fraud continues to increase as third parties that handle confidential consumer information suffer security breaches, acceptance of the Discover card grows internationally and we expand our direct banking business and introduce new products and features. Our financial condition, the level of our fraud charge-offs and other results of operations could be materially adversely affected if fraudulent activity were to significantly increase. High-profile fraudulent activity could negatively impact our brand and

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reputation. In addition, significant increases in fraudulent activity could lead to regulatory intervention (such as mandatory card reissuance) and reputational and financial damage to our brands, which could negatively impact the use of our deposit accounts, cards and networks and thereby have a material adverse effect on our business. Further, fraudulent activity may result in lower license fee revenue from our Diners Club licensees.

The financial services and payment services industries are rapidly evolving, and we may be unsuccessful in introducing new products or services on a large scale in response to these changes.

Technological changes continue to significantly impact the financial services and payment services industries, such as continuing development of technologies in the areas of smart cards, radio frequency and proximity payment devices, electronic wallets, mobile commerce, data analytics, machine learning and artificial intelligence, among others. For example, we may be unsuccessful in deploying new technologies to strengthen our credit underwriting capabilities, marketing efforts, enhance customer service, drive efficiencies in back-office functions or reduce fraud. The increasingly competitive mobile, e-wallet and tokenization spaces are expected to continue to bring risks and opportunities in 2018 to both our card-issuing and payments businesses.

The effect of technological changes on our business is unpredictable. We depend, in part, on third parties for the development of and access to new technologies. We expect that new services and technologies relating to the payments business will continue to appear in the market, and these new services and technologies may be superior to, or render obsolete, the technologies that we currently use in our products and services. Rapidly evolving technologies and new entrants in mobile and emerging payments pose a risk to Discover both as a card issuer and to the payments business. As a result, our future success may be dependent on our ability to identify and adapt to technological changes and evolving industry standards and to provide payment solutions for our customers, merchants and financial institution customers.

Difficulties or delays in the development, production, testing and marketing of new products or services may be caused by a number of factors including, among other things, operational, capital and regulatory constraints. The occurrence of such difficulties may affect the success of our products or services, and developing unsuccessful products and services could result in financial losses as well as decreased capital availability. In addition, the new products and services offered may not be attractive to consumers, merchants or financial institution customers. Also, success of a new product or service may depend upon our ability to deliver it on a large scale, which may require a significant capital investment that we may not be in a position to make. If we are unable to successfully introduce and maintain new income-generating products and services while also managing our expenses, it may impact our ability to compete effectively and materially adversely affect our business and earnings.

We rely on third parties to deliver services. If we face difficulties managing our relationships with third-party service providers, our revenue or results of operations could be materially adversely affected.

We depend on third-party service providers for many aspects of the operation of our business. For example, we depend on third parties for software and systems development, the timely transmission of information across our data transportation network, and for other telecommunications, processing, remittance, technology-related and other services in connection with our direct banking and payment services businesses. If a service provider fails to provide the services that we require or expect, or fails to meet contractual requirements, such as service levels, security requirements or compliance with applicable laws, the failure could negatively impact our business by adversely affecting our ability to process customers' transactions in a timely and accurate manner, otherwise hampering our ability to serve our customers, or subjecting us to litigation and regulatory risk for poor vendor oversight. Such a failure could adversely affect the perception of the reliability of our networks and services, and the quality of our brands, and could have a materially adverse affect on our reputation, revenues and/or our results of operations.

We rely on technology to deliver services. If key technology platforms become obsolete, or if we experience disruptions, including difficulties in our ability to process transactions, our revenue or results of operations could be materially adversely affected.

Our ability to deliver services to our customers and run our business in compliance with applicable laws and regulations may be affected by the functionality of our technology systems. The implementation of technology changes and upgrades to maintain current and integrated systems may result in compliance issues and may, at least temporarily, cause disruptions to our business, including, but not limited to, systems interruptions, transaction processing errors and system conversion delays, all of which could have a negative impact on us. In addition, our transaction processing systems and other operational systems may encounter service interruptions at any time due to system or software failure, natural disaster or other reasons. Such services could be disrupted at any of our primary or back-up facilities or our other owned or leased facilities. Third parties to whom we outsource the maintenance and development of certain technological functionality may experience errors or disruptions that could adversely impact us and over which we may have limited control. In addition, there is no assurance that we will be able to sustain our investment in new technology to avoid obsolescence of critical systems and applications. A failure to maintain current technology, systems and facilities or to control third-party risk, could cause disruptions in the operation of our business, which could materially adversely affect our transaction volumes, revenues, reputation and/or our results of operations.

Merchant defaults may adversely affect our business, financial condition, cash flows and results of operations.

As an issuer and merchant acquirer in the United States on the Discover Network, and as a holder of certain merchant agreements internationally for the Diners Club network, we may be contingently liable for certain disputed credit card sales transactions that arise between customers and merchants. If a dispute is resolved in the customer's favor, we will cause a credit or refund of the amount to be issued to the customer and charge back the transaction to the merchant or merchant acquirer. If we are unable to collect this amount from the merchant or merchant acquirer, we will bear the loss for the amount credited or refunded to the customer. Where the purchased product or service is not provided until some later date following the purchase, such as an airline ticket, the likelihood of potential liability increases. For the years ended December 31, 2017 and 2016 losses related to merchant chargebacks were not material.

Our success is dependent, in part, upon our executive officers and other key employees. If we are unable to recruit, retain and motivate key officers and employees to manage our business well, our business could be materially adversely affected.

Our success depends, in large part, on our ability to recruit, retain and motivate key officers and employees to manage our business. Our senior management team has significant industry experience and would be difficult to replace. We believe we are in a critical period of competition in the financial services and payments industry. The market for qualified individuals is highly competitive, and we may not be able to attract and retain qualified personnel or candidates to replace or succeed members of our senior management team or other key personnel or it may be expensive to do so. We may be subject to restrictions under future legislation or regulation limiting executive compensation. For example, the federal banking agencies have previously issued proposed rulemaking on incentive compensation practices for certain employees at banking organizations, including executives, and may issue additional rules relating to such activities in the future. These requirements could negatively impact our ability to compete with other companies in attracting, hiring and retaining key personnel and offer incentives that motivate our key personnel to perform and may require us to extensively restructure certain of our existing incentive compensation practices. If we are unable to recruit, retain and motivate key personnel to manage our business well, our business could be materially adversely affected.

Damage to our reputation could damage our business.

In recent years, financial services companies have experienced increased reputational risk as consumers protest and regulators scrutinize business and compliance practices of such companies. Maintaining a positive reputation is critical to attracting and retaining customers, investors and employees. Damage to our reputation can therefore cause significant harm to our business and prospects. Harm to our reputation can arise from numerous sources, including, among others, employee misconduct, a breach of our or our service providers' cybersecurity defenses, litigation or regulatory outcomes, failing to deliver minimum standards of service and quality, compliance failures, and the activities of customers, business partners and counterparties. Social media also can cause harm to our reputation. By its very nature, social media can reach a wide audience in a very short amount of time, which presents unique corporate communications challenges. Negative or 'wrong' type of publicity generated through unexpected social media coverage can damage Discover's reputation and brand. Negative publicity regarding us, whether or not true, may result in customer attrition and other harm to our business prospects.

We may be unsuccessful in promoting and protecting our brands or protecting our other intellectual property, or third parties may allege that we are infringing their intellectual property rights.

The Discover, PULSE and Diners Club brands have substantial economic and goodwill value. Our success is dependent on our ability to promote and protect these brands and our other intellectual property. Our ability to attract and retain customers is highly dependent upon the external perception of our company and brands. Our brands are licensed for use to business partners and network participants, some of whom have contractual obligations to promote and develop our brands. For example, the Discover card brand is now being issued by certain Diners Club licensees in their local markets. If our business partners do not adhere to contractual standards, engage in improper business practices, or otherwise misappropriate, use or diminish the value of our brands or our other intellectual property, we may suffer reputational and financial damage. If we will not be able to adequately protect our brands, our proprietary information and other intellectual property, our business success may be adversely affected. In addition, third parties may allege that our marketing, processes or systems may infringe their intellectual property rights. Given the potential risks and uncertainties of such claims, our business could be adversely affected by having to pay significant monetary damages, technology development expenses or licensing fees, and we may have to alter our business practices or be prevented from competing effectively.

Laws, regulations, and supervisory guidance and practices, or the application thereof, may adversely affect our business, financial condition and results of operations.

We must comply with an array of banking, consumer lending and payment services laws and regulations in all of the jurisdictions in which we operate as described more fully in "Business — Supervision and Regulation" and "Management's Discussion and Analysis of Financial Condition and Results of Operations — Regulatory Environment and Developments." Regulatory developments, findings and ratings could negatively impact our business strategies or require us to: limit or change our business practices, restructure our products in ways that we may not currently anticipate, limit our product offerings, invest more management time and resources in compliance efforts, limit the fees we can charge for services, or limit our ability to pursue certain business opportunities and obtain related required regulatory approvals. For additional information regarding bank regulatory limitations on acquisitions and investments, see "Business — Supervision and Regulation — Acquisitions and Investments." See Note 19: Litigation and Regulatory Matters to our consolidated financial statements for more information on recent matters affecting Discover and the second risk factor in this section regarding the regulatory environment for the businesses in which we engage.

In addition, we are subject to inquiries and enforcement actions from state attorney general offices and regulation by the Federal Trade Commission, state banking regulators and the U.S. Department of Justice, as well as the SEC and New York Stock Exchange in our capacity as a public company. We also are subject to the requirements of entities that set and interpret the accounting standards (such as the FASB, the SEC, banking regulators and our independent registered public accounting firm) who may add new requirements or change their interpretations on how standards should be applied. A specific example of this is the proposed accounting standards update related to estimation of loan loss reserves. In June 2016, the FASB issued new guidance that will require lenders to adopt the current expected credit loss ("CECL") approach to evaluate impairment of loans and financial instruments. The CECL approach requires evaluation of credit impairment based on an estimate of life of loan losses whereas rules currently in effect require utilization of incurred losses. The Company is required to put the CECL standard in place for the 2020 fiscal year. See Note 1: Background and Basis of Presentation — Recently Issued Accounting Pronouncements to our consolidated financial statements for more information on the new standard and its potential impact on our financial condition and results of operations. This and other guidance not yet issued could potentially materially impact how we record and report our financial condition and results of operations, and could have an impact on regulatory capital.

Failure to comply with laws, regulations and standards could lead to adverse consequences such as financial, structural, reputational and operational penalties, including receivership, litigation exposure and fines (as described further below). Failure to comply with anti-corruption and other laws can expose us and/or individual employees to potentially severe criminal and civil penalties. Specifically, we are subject to anti-corruption laws and regulations, including the U.S. Foreign Corrupt Practices Act and other laws, that prohibit the making or offering of improper payments.

Legislative, regulatory and tax code changes could impact the profitability of our business activities, alter consumer behavior in ways we did not anticipate, require us to limit or change our business practices or our product offerings, or expose us to additional costs (including increased compliance costs). For example, the Tax Cuts and Jobs Act ("TCJA") signed into law on December 22, 2017 contains broad and sweeping changes to the U.S. tax code that may affect our business activities and our results of operations in ways we may not currently anticipate. Certain variables, including potential technical corrections and anticipated activity undertaken by the Internal Revenue Service to issue administrative guidance on the implementation of the TCJA could affect our business, how we compensate employees, and incentives we offer our customers in the future. Additionally, the elimination of net operating loss carrybacks in the TCJA could have a negative impact on regulatory capital calculations in times of extreme economic stress. Significant changes in laws and regulations may have a more adverse effect on our results of operations than on the results of our competitors.

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Current and proposed laws and regulations addressing consumer privacy and data use and security could affect the competitiveness of our products and increase our costs.

Legal or regulatory pronouncements relating to consumer privacy, data use and security affect our business. We are subject to a number of laws concerning consumer privacy and data use and security. Due to recent consumer data compromise events in the United States, which resulted in unauthorized access to millions of customers' data, these areas continue to be a focus of the executive administration, Congress, state legislators and attorneys general and other regulators. Developments in this area, such as new laws, regulations, regulatory guidance, litigation or enforcement actions, could result in new or different requirements on Discover and other card issuers or networks that could increase costs or adversely affect the competitiveness of our credit card or debit card products. See the discussion on recent security developments in "Management's Discussion and Analysis of Financial Condition and Results of Operations — Regulatory Environment and Developments" for more information. In addition, failure to comply with the privacy and data use and security laws and regulations to which we are subject, including by reason of inadvertent disclosure of confidential information or the failure to provide timely notification of a disclosure, could result in litigation, fines, sanctions, penalties or other adverse consequences and loss of consumer confidence, which could materially adversely affect our results of operations, overall business and reputation.

Litigation and regulatory actions could subject us to significant fines, penalties and/or requirements resulting in increased expenses.

Businesses in the consumer banking and payment services industries have historically been subject to significant legal actions, including class action lawsuits and commercial, shareholder and patent litigation. Many of these actions have included claims for substantial compensatory, statutory or punitive damages. We have historically offered customers an arbitration clause in agreements to quickly and economically resolve disputes. The arbitration clause has, in some cases, also limited our exposure to consumer class action litigation, however, there can be no assurance that we will be able to continue to offer arbitration clauses in the future or that we will be successful in enforcing the arbitration clause. Legal challenges to the enforceability of these clauses have led most card issuers, and may cause us, to discontinue their use. There have previously been bills pending in Congress to directly or indirectly prohibit the use of pre-dispute arbitration clauses in some or all consumer banking products. Further, from time to time, we are involved in legal actions challenging the use of our arbitration clause. In addition, we have been and may again be involved in various actions or proceedings brought by governmental regulatory and enforcement agencies, which could harm our reputation, require us to change our business activities and product offerings, or subject us to significant fines, penalties, customer restitution or other requirements, resulting in increased expenses. For example, complying with our agreements with the Federal Reserve and the FDIC consent order related to our anti-money laundering program have caused us to incur significant expenses. See Note 19: Litigation and Regulatory Matters to our consolidated financial statements for more information on current matters affecting Discover.

Special Note Regarding Forward-Looking Statements

This annual report on Form 10-K and materials we have filed or will file with the SEC (as well as information included in our other written or oral statements) contain or will contain certain statements that are forward-looking within the meaning of the Private Securities Litigation Reform Act of 1995. These statements are not guarantees of future performance and involve certain risks, uncertainties and assumptions that are difficult to predict. Actual outcomes and results may differ materially from those expressed in, or implied by, our forward-looking statements. Words such as "expects," "anticipates," "believes," "estimates" and other similar expressions or future or conditional verbs such as "will," "should," "would" and "could" are intended to identify such forward-looking statements. You should not rely solely on the forward-looking statements and should consider all uncertainties and risks throughout this annual report on Form 10-K, including those described under "Risk Factors." The statements are only as of the date they are made, and we undertake no obligation to update any forward-looking statement.

Possible events or factors that could cause results or performance to differ materially from those expressed in our forward-looking statements include the following:

- changes in economic variables, such as the availability of consumer credit, the housing market, energy costs, the number and size of personal bankruptcy filings, the rate of unemployment, the levels of consumer confidence and consumer debt, and investor sentiment;

- the impact of current, pending and future legislation, regulation, supervisory guidance, and regulatory and legal actions, including, but not limited to, those related to tax reform, financial regulatory reform, consumer financial services practices, anti-corruption and funding, capital and liquidity;

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- the actions and initiatives of current and potential competitors;
- our ability to manage our expenses;
- our ability to successfully achieve card acceptance across our networks and maintain relationships with network participants and merchants;
- our ability to sustain and grow our card, private student loan and personal loan products;
- our ability to increase or sustain Discover card usage or attract new customers;
- difficulty obtaining regulatory approval for, financing, closing, transitioning, integrating or managing the expenses of acquisitions of or investments in new businesses, products or technologies;
- our ability to manage our credit risk, market risk, liquidity risk, operational risk, compliance and legal risk, and strategic risk;
- the availability and cost of funding and capital;
- access to deposit, securitization, equity, debt and credit markets;
- the impact of rating agency actions;
- the level and volatility of equity prices, commodity prices and interest rates, currency values, investments, other market fluctuations and other market indices;
- losses in our investment portfolio;
- limits on our ability to pay dividends and repurchase our common stock;
- limits on our ability to receive payments from our subsidiaries;
- fraudulent activities or material security breaches of our or others' key systems;
- our ability to remain organizationally effective;
- the effect of political, economic and market conditions, geopolitical events and unforeseen or catastrophic events;
- our ability to introduce new products or services;
- our ability to manage our relationships with third-party vendors;
- our ability to maintain current technology and integrate new and acquired systems and technology;
- our ability to collect amounts for disputed transactions from merchants and merchant acquirers;
- our ability to attract and retain employees;
- our ability to protect our reputation and our intellectual property; and
- new lawsuits, investigations or similar matters or unanticipated developments related to current matters.

We routinely evaluate and may pursue acquisitions of or investments in businesses, products, technologies, loan portfolios or deposits, which may involve payment in cash or our debt or equity securities.

The foregoing review of important factors should not be construed as exclusive and should be read in conjunction with the other cautionary statements that are included in this annual report on Form 10-K. These factors expressly qualify all subsequent oral and written forward-looking statements attributable to us or persons acting on our behalf. Except for any ongoing obligations to disclose material information as required under U.S. federal securities laws, we do not have any intention or obligation to update forward-looking statements after we distribute this annual report on Form 10-K, whether as a result of new information, future developments or otherwise.

Item 1B. Unresolved Staff Comments

None.

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Item 2. Properties
We have eight principal properties located in seven states in the United States. As of January 31, 2018, we owned four principal properties, which included our corporate headquarters, two call centers and a processing center, and we leased four principal properties, which included two call centers, our PULSE headquarters and a Student Loan Corporation office. The call centers, processing center and Student Loan Corporation offices largely support our Direct Banking segment; the PULSE headquarters is used by our Payment Services segment; and our corporate headquarters is used by both our Direct Banking and Payment Services segments. Each of our call centers and our processing center are operating at and being utilized to a reasonable capacity. We believe our principal facilities are both suitable and adequate to meet our current and projected needs. We also have eleven leased offices located outside the United States, nine of which are used to support our Diners Club operations, part of our Payment Services segment, and two leased offices in China that support our Direct Banking segment.

Item 3. Legal Proceedings
For a description of legal proceedings, see Note 19: Litigation and Regulatory Matters to our consolidated financial statements.

Item 4. Mine Safety Disclosures
None.

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Part II.

Part II | Item 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities

Common Stock Market Prices and Dividends

Our common stock is traded on the New York Stock Exchange ("NYSE") (ticker symbol DFS). The approximate number of record holders of our common stock as of February 16, 2018 was 49,014.

The following table sets forth the quarterly high and low sales prices of a share of our common stock as reported by the NYSE and the cash dividends we declared per share of our common stock during the quarter indicated:

	2017			2016		
	Stock Price		Cash Dividends	Stock Price		Cash Dividends
	High	Low	Declared	High	Low	Declared
Quarter Ended:						
March 31	$74.33	$65.54	$ 0.30	$53.09	$42.86	$ 0.28
June 30	$68.54	$57.82	$ 0.30	$58.10	$49.98	$ 0.28
September 30	$64.73	$57.50	$ 0.35	$60.29	$51.67	$ 0.30
December 31	$77.79	$63.31	$ 0.35	$73.62	$53.91	$ 0.30

In the third quarter of 2017, we increased our quarterly common stock dividend from $0.30 per share to $0.35 per share and maintained a $0.35 per share dividend for the fourth quarter of 2017. Although we expect to continue our policy of paying regular cash dividends, we cannot assure that we will do so in the future. For more information, including conditions and limits on our ability to pay dividends, see "Business — Supervision and Regulation — Capital, Dividends and Share Repurchases," "Risk Factors — Credit, Market and Liquidity Risk — We may be limited in our ability to pay dividends on and repurchase our stock" and "— We are a holding company and depend on payments from our subsidiaries," "Management's Discussion and Analysis of Financial Condition and Results of Operations — Liquidity and Capital Resources — Capital" and Note 17: Capital Adequacy to our consolidated financial statements.

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Issuer Purchases of Equity Securities

The table below sets forth information regarding purchases of our common stock related to our share repurchase program and employee transactions that were made by us or on our behalf during the most recent quarter:

Period	Total Number of Shares Purchased	Average Price Paid Per Share	Total Number of Shares Purchased as Part of Publicly Announced Plan or Program(1)	Maximum Dollar Value of Shares that may yet be purchased under the Plans or Programs(1)
October 1-31, 2017				
Repurchase program(1)	2,966,664	$ 65.41	2,966,664	$ 2,142,306,984
Employee transactions(2)	2,414	$ 58.50	N/A	N/A
November 1-30, 2017				
Repurchase program(1)	2,772,690	$ 65.79	2,772,690	$ 1,959,894,666
Employee transactions(2)	1,690	$ 66.87	N/A	N/A
December 1-31, 2017				
Repurchase program(1)	2,401,238	$ 74.35	2,401,238	$ 1,781,369,730
Employee transactions(2)	—	$ —	N/A	N/A
Total				
Repurchase program(1)	8,140,592	$ 68.18	8,140,592	$ 1,781,369,730
Employee transactions(2)	4,104	$ 61.95	N/A	N/A

(1) On July 25, 2017, our Board of Directors approved a share repurchase program authorizing the repurchase of up to $2.8 billion of our outstanding shares of common stock. This program expires on October 31, 2018 and may be terminated at any time.

(2) Reflects shares withheld (under the terms of grants under employee stock compensation plans) to offset tax withholding obligations that occur upon the delivery of outstanding shares underlying restricted stock units or upon the exercise of stock options.

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Stock Performance Graph

The following graph compares the cumulative total stockholder return (rounded to the nearest whole dollar) of our common stock, the S&P 500 Stock Index and the S&P 500 Financials Index for the period from December 31, 2012 through December 31, 2017. The graph assumes an initial investment of $100 on December 31, 2012. The cumulative returns include stock price appreciation and assume full reinvestment of dividends. This graph does not forecast future performance of our common stock.

	December 31,					
	2012	2013	2014	2015	2016	2017
Discover Financial Services	$100.00	$145.49	$170.84	$138.88	$190.07	$204.11
S&P 500 Index	$100.00	$129.60	$144.36	$143.31	$156.98	$187.47
S&P 500 Financials Index	$100.00	$133.21	$150.66	$145.42	$174.71	$209.70

Item 6. Selected Financial Data

The following table presents our selected financial data and operating statistics. The statement of income data for the years ended December 31, 2017, 2016 and 2015, and the statement of financial condition data as of December 31, 2017 and 2016 have been derived from our audited consolidated financial statements included elsewhere in this annual report on Form 10-K. The statement of income data for the years ended December 31, 2014 and 2013, and the statement of financial condition data as of December 31, 2015, 2014, and 2013 have been derived from audited consolidated financial statements not included elsewhere in this annual report on Form 10-K.

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Discover Financial Services
Selected Financial Data

	For the Years Ended December 31,				
	2017	2016	2015	2014	2013
	(dollars in millions, except per share amounts)				
Statement of Income Data:					
Interest income	$9,648	$8,616	$7,945	$7,596	$7,064
Interest expense	1,648	1,398	1,263	1,134	1,146
Net interest income	8,000	7,218	6,682	6,462	5,918
Other income	1,897	1,881	2,057	2,015	2,306
Revenue net of interest expense	9,897	9,099	8,739	8,477	8,224
Provision for loan losses	2,579	1,859	1,512	1,443	1,086
Other expense	3,781	3,584	3,615	3,340	3,194
Income before income tax expense	3,537	3,656	3,612	3,694	3,944
Income tax expense	1,438	1,263	1,315	1,371	1,474
Net income	$2,099	$2,393	$2,297	$2,323	$2,470
Net income allocated to common stockholders	$2,031	$2,339	$2,246	$2,270	$2,414
Statement of Financial Condition Data (as of):					
Loan receivables	$84,248	$77,254	$72,385	$69,969	$65,771
Total assets	$100,087	$92,308	$86,799	$82,998	$79,340
Total stockholders' equity	$10,892	$11,323	$11,275	$11,134	$10,809
Allowance for loan losses	$2,621	$2,167	$1,869	$1,746	$1,648
Long-term borrowings	$26,326	$25,443	$24,650	$22,477	$20,474
Per Share of Common Stock:					
Basic EPS from continuing operations	$5.43	$5.77	$5.14	$4.91	$4.97
Diluted EPS from continuing operations	$5.42	$5.77	$5.13	$4.90	$4.96
Weighted-average shares outstanding (000's)	374,116	405,301	436,855	462,115	485,492
Weighted-average shares outstanding (fully diluted) (000's)	374,426	405,687	437,498	463,412	486,861
Dividends declared per share of common stock	$1.30	$1.16	$1.08	$0.92	$0.60
Common stock dividend payout ratio	23.94 %	20.10 %	21.01 %	18.73 %	12.07 %
Ratios:					
Return on average total equity	19 %	21 %	21 %	21 %	24 %
Return on average assets	2 %	3 %	3 %	3 %	3 %
Average stockholders' equity to average total assets	12 %	13 %	14 %	14 %	14 %

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Selected Financial Data (continued)

	For the Years Ended December 31,				
	2017	2016	2015	2014	2013
	(dollars in millions)				
Selected Statistics:					
Total Loan Receivables					
Loan receivables	$84,248	$77,254	$72,385	$69,969	$65,771
Average loan receivables	$78,525	$72,280	$69,061	$65,853	$61,820
Interest yield	12.06 %	11.78 %	11.40 %	11.40 %	11.28 %
Net principal charge-off rate	2.70 %	2.16 %	2.01 %	2.04 %	1.98 %
Delinquency rate (over 30 days)	2.20 %	1.97 %	1.67 %	1.66 %	1.64 %
Delinquency rate (over 90 days)	0.99 %	0.87 %	0.76 %	0.78 %	0.77 %
Credit Card Loans					
Credit card loan receivables	$67,291	$61,522	$57,896	$56,128	$53,150
Average credit card loan receivables	$62,079	$57,238	$54,846	$52,600	$49,816
Interest yield	12.74 %	12.50 %	12.08 %	12.09 %	12.00 %
Net principal charge-off rate	2.91 %	2.34 %	2.22 %	2.27 %	2.21 %
Delinquency rate (over 30 days)	2.28 %	2.04 %	1.72 %	1.73 %	1.72 %
Delinquency rate (over 90 days)	1.12 %	0.97 %	0.85 %	0.85 %	0.84 %
Personal Loans					
Personal loan receivables	$7,374	$6,481	$5,490	$5,007	$4,191
Average personal loan receivables	$7,020	$5,895	$5,245	$4,592	$3,706
Interest yield	12.25 %	12.19 %	12.04 %	12.36 %	12.52 %
Net principal charge-off rate	3.30 %	2.55 %	2.15 %	2.04 %	2.13 %
Delinquency rate (over 30 days)	1.40 %	1.12 %	0.89 %	0.79 %	0.70 %
Delinquency rate (over 90 days)	0.41 %	0.29 %	0.27 %	0.22 %	0.21 %
Private Student Loans (excluding PCI)					
Private student loan receivables	$7,076	$6,393	$5,647	$4,850	$3,969
Average private student loan receivables	$6,764	$6,042	$5,272	$4,450	$3,561
Interest yield	7.72 %	7.35 %	7.16 %	7.02 %	7.07 %
Net principal charge-off rate	1.21 %	1.10 %	1.07 %	1.29 %	1.30 %
Delinquency rate (over 30 days)	2.35 %	2.22 %	1.91 %	1.80 %	1.66 %
Delinquency rate (over 90 days)	0.47 %	0.55 %	0.43 %	0.52 %	0.46 %

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Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with our audited consolidated financial statements and related notes included elsewhere in this annual report on Form 10-K. Some of the information contained in this discussion and analysis constitutes forward-looking statements that involve risks and uncertainties. Actual results could differ materially from those discussed in these forward-looking statements. Factors that could cause or contribute to these differences include, but are not limited to, those discussed below and elsewhere in this annual report on Form 10-K particularly under "Risk Factors" and "Special Note Regarding Forward-Looking Statements," which immediately follows "Risk Factors." Unless otherwise specified, references to Notes to our consolidated financial statements are to the Notes to our audited consolidated financial statements as of December 31, 2017 and 2016 and for years ended December 31, 2017, 2016 and 2015.

Introduction and Overview

Discover Financial Services ("DFS") is a direct banking and payment services company. We provide direct banking products and services and payment services through our subsidiaries. We offer our customers credit card loans, private student loans, personal loans, home equity loans and deposit products. We also operate the Discover Network, the PULSE network ("PULSE") and Diners Club International ("Diners Club"). The Discover Network processes transactions for Discover-branded credit cards and provides payment transaction processing and settlement services. PULSE operates an electronic funds transfer network, providing financial institutions issuing debit cards on the PULSE network with access to ATMs domestically and internationally, as well as point-of-sale ("POS") terminals at retail locations throughout the U.S. for debit card transactions. Diners Club is a global payments network of licensees, which are generally financial institutions, that issue Diners Club branded charge cards and/or provide card acceptance services.

Our primary revenues consist of interest income earned on loan receivables and fees earned from customers, financial institutions, merchants and issuers. The primary expenses required to operate our business include funding costs (interest expense), loan loss provisions, customer rewards and expenses incurred to grow, manage and service our loan receivables and networks. Our business activities are funded primarily through consumer deposits, securitization of loan receivables and the issuance of unsecured debt.

2017 Highlights

- Net income was $2.1 billion, or $5.42 per diluted share, compared to $2.4 billion, or $5.77 per diluted share, in the prior year.
- Net interest income increased 10.8% compared to the prior year.
- Total loans grew $7.0 billion, or 9.1%, from the prior year to $84.2 billion.
- Net charge-off rate for total loans increased 54 basis points from the prior year to 2.70% and the total loans delinquency rate for loans over 30 days past due increased 23 basis points to 2.20%.
- Credit card loans grew $5.8 billion, or 9.4%, to $67.3 billion and Discover card sales volume increased 6.1% from the prior year.
- Net charge-off rate for credit card loans increased 57 basis points from the prior year to 2.91% and the credit card delinquency rate for loans over 30 days past due increased 24 basis points to 2.28%.
- Payment Services transaction dollar volume for the segment was $202.9 billion, up 12% from the prior year.
- We repurchased approximately 32 million shares, or 8%, of our outstanding common stock for $2.1 billion.
- The effective tax rate increased 6.2%, primarily driven by a one-time adjustment of $179 million as a result of the Tax Cuts and Jobs Act.

2016 and 2015 Highlights

- Net income was $2.4 billion and $2.3 billion, or $5.77 and $5.13, respectively, per diluted share in 2016 and 2015. Return on equity was 21% in both 2016 and 2015.
- During 2016, our net interest income increased 8.0% compared to 2015.
- Total loans grew $4.9 billion in 2016, or 6.7%, from 2015 to $77.3 billion.

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- Net charge-off rate for our total loans increased 15 basis points in 2016 from 2015 to 2.16% and the total loans delinquency rate for loans over 30 days past due increased 30 basis points to 1.97%.
- During 2016, our credit card loans grew $3.6 billion, or 6.3%, to $61.5 billion and Discover card sales volume increased 2.5% from 2015.
- Net charge-off rate for our credit card loans increased 12 basis points in 2016 from 2015 to 2.34% and the credit card delinquency rate for loans over 30 days past due increased 32 basis points to 2.04%.
- During 2016, our Payment Services transaction dollar volume for the segment was $180.4 billion, down 5% from 2015.
- We repurchased approximately 34 million shares, or 8%, of our outstanding common stock for $1.9 billion in 2016.
- We repurchased approximately 29 million shares, or 6%, of our outstanding common stock for $1.7 billion during the year ended December 31, 2015.

Outlook

We continue to focus on deploying capital through disciplined and profitable organic loan growth as well as through our quarterly dividends and share repurchase program as permitted by bank holding company regulation. New card accounts and wallet share gains with existing customers remain priorities as we invest in marketing and rewards to achieve continued loan growth. We expect a slightly higher rewards rate in 2018 as we leverage enhanced rewards programs to support growth.

The Tax Cuts and Jobs Act (“TCJA”) will reduce our federal statutory tax rate from 35% to 21%. While a few deductions will be lost and some technical corrections and clarifications of the law are anticipated, the overall impact will result in a meaningful reduction to income tax expense. We expect to make additional investments in business growth initiatives, technology, analytical capabilities, our employees and the community, resulting in higher operating expenses year over year.

The total charge-off rate in 2018 is expected to be modestly higher and we expect to continue to add to the loan loss reserve due to seasoning of continued loan growth and increasing consumer leverage. We expect net interest margin to increase slightly in 2018 as a result of the impact of recent and anticipated prime rate increases on our asset-sensitive balance sheet. These increases may be partially offset by higher deposit rates, promotional card balances and interest charge-offs.

In our payments segment, we will continue to pursue new ways to drive volume growth in 2018. We continue to leverage our network to support our card-issuing business and we expect the payments industry to remain competitive.

Regulatory Environment and Developments

Over the past several years, regulators have proposed and implemented new regulations and supervisory guidance, including under the Dodd-Frank Wall Street Reform and Consumer Protection Act (the "Dodd-Frank Act"), and increased their examination and enforcement activities. On February 3, 2017, President Trump signed an executive order which identified seven principles by which his administration would regulate the U.S. financial system. Those principles include making regulation appropriately tailored and efficient. The executive order also directed the Treasury Secretary to issue reports to identify any laws, regulations, guidance and other government policies, among other things, that are inconsistent with those principles. In June and October 2017, the Treasury Department issued reports that recommended significant changes to many of the rules and regulations implemented in response to the financial crisis of 2007. While Congress, the President, and regulatory agency leadership have expressed support for regulatory reforms that could reduce regulatory burdens through executive action, rulemaking and legislation, the prospect and timing of regulatory reforms remain uncertain. Many of the changes proposed in the Treasury Department’s report would require Federal banking regulators to revise rules and guidance, however certain agency leadership is not yet appointed or has only recently been appointed and there are numerous vacancies within the agencies that have yet to be filled.

In addition, Congress is working on regulatory reform measures, however prospects for reform via legislation are still uncertain. On December 5, 2017, the Senate Banking Committee approved bipartisan legislation that would among other things amend certain provisions of the Dodd-Frank Act to ease certain regulatory requirements for banking organizations under $250 billion in assets, such as Discover. This legislation must still be approved by the

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Senate and the House of Representatives before it can be signed into law by the President. The prospects, timing and substance of any final legislation are uncertain at this time.

Despite a growing focus on regulatory reform, banking regulators and policymakers at the federal and state levels are increasingly focused on measures to enhance data security and incident response capabilities as a result of the growing cybersecurity threats and the number of incidents involving unauthorized access to consumer information, including the September 2017 disclosure of a large data breach at a national credit reporting agency. Regulations at various levels of government have been proposed to address security breach notification and data security standards. For example, several states have recently issued cybersecurity regulations for certain firms operating within their jurisdiction. While it is too early to know their impact, these developments could ultimately result in the imposition of requirements on Discover and other card issuers or networks that could increase costs or adversely affect the competitiveness of our credit card or debit card products. In addition, the size and scope of the 2017 national credit reporting agency breach may result in the financial services industry shifting to new means of identifying and authenticating consumers.

The impact of the evolving regulatory environment on our business and operations depends upon a number of factors, including supervisory priorities and actions, our actions, actions of our competitors and other marketplace participants, and the behavior of consumers. For more information on how the regulatory environment, enforcement actions, findings and ratings could also have an impact on our strategies, the value of our assets, or otherwise adversely affect our business see “Risk Factors — Economic and Regulatory Environment”. For more information on recent matters affecting Discover, see Note 19: Litigation and Regulatory Matters to our consolidated financial statements.

Consumer Financial Services

The Consumer Financial Protection Bureau (the “CFPB”) regulates consumer financial products and services, as well as certain financial services providers, including Discover. The CFPB has rulemaking and interpretive authority under the Dodd-Frank Act and other federal consumer financial services laws, as well as broad supervisory, examination and enforcement authority over designated financial services providers, including Discover. The CFPB’s regulatory authority includes the exercise of rulemaking, supervision and enforcement powers with respect to “unfair, deceptive or abusive acts or practices” and consumer access to fair, transparent and competitive financial products and services. Historically, the CFPB's policy priorities focused on several financial products of the type we offer (e.g. credit cards and student loans). The interim director of the CFPB has recently revised the CFPB’s mission and announced a set of priorities that include reviewing the CFPB’s approach to enforcement and rulemaking. It is unclear when a new director will be nominated and confirmed and whether the new director will continue the interim director’s priorities. Notwithstanding any changes in the CFPB’s leadership, the CFPB is required by statute to undertake certain actions. For example, pursuant to the Credit Card Accountability Responsibility and Disclosure Act of 2009, the CFPB recently completed its bi-annual review of the consumer credit card market. The review may result in additional guidance for credit card issuers, regulatory changes or legislative recommendations to Congress.

Notwithstanding the leadership changes at the CFPB and other federal regulators, there continues to be legislative and regulatory focus on the private student loan market, including by some state legislatures and state attorneys general. Recent areas of regulatory attention include servicing, payments and collection practices, and other matters. This regulatory focus has resulted in an increase in supervisory examinations of Discover related to private student loans. At the legislative level, the focus on student loans has resulted in the enactment of student loan servicing laws in several states, and similar legislation is being considered in other states that could impose new licensing, servicing, reporting and regulatory oversight requirements on student loan servicers. The enactment of new legislation or the adoption of new regulations or guidance may increase the complexity and expense of servicing student loans and impact the entire student loan market, which could cause us to change our private student loan products or servicing practices in ways that we may not currently anticipate.

Payment Networks

The Dodd-Frank Act contains several provisions impacting the debit card market, including network participation requirements and interchange fee limitations. The changing debit card environment, including competitor actions related to merchant and acquirer pricing and transaction routing strategies, has adversely affected, and is expected to continue to adversely affect, our PULSE network's business practices, network transaction volume, revenue and prospects for future growth. We continue to closely monitor competitor pricing and technology development strategies in order to assess their impact on our business and on competition in the marketplace. The U.S. Department of Justice is examining

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some of these competitor pricing strategies. In addition, PULSE filed a lawsuit against Visa in late 2014 with respect to these competitive concerns, which may impact expenses for the payment services segment. In addition, the Dodd-Frank Act's network participation requirements impact PULSE's ability to enter into exclusivity arrangements, which affects PULSE's current business practices and may materially adversely affect its network transaction volume and revenue.

There are initiatives in Europe that may have an impact on our business, including revisions to the Payment Services Directive ("PSD2") and the new General Data Protection Regulation ("GDPR"). The PSD2 was published in the Official Journal of the EU in December 2015 and may impact our Diners Club business. Each European Union member state was required to transpose the PSD2 into its national law by January 13, 2018. Among other terms, the PSD2 includes provisions that once transposed into local law will regulate surcharging and network access requirements, which may result in differential surcharging of Diners Club cards and may impact Diners Club licensing arrangements in Europe. The final draft of the GDPR was published in the Official Journal of the European Union in May 2016 and comes into force on May 25, 2018. The GDPR includes, among other things, a requirement for prompt notice of data breaches and requires companies processing personal data of individuals residing in the EU, regardless of the location of the company, to comply with EU privacy and data protection rules. We expect the GDPR to have an impact on how we process the personal data of EU individuals and are we have a program underway to address GDPR requirements.

Banking

Capital

Discover is subject to the Federal Reserve’s Comprehensive Capital Analysis and Review (“CCAR”) program which requires a company to submit its capital plan to the Federal Reserve for approval each year, including planned dividends and share repurchases. Federal Reserve senior leadership had indicated that there may be changes in the approach to capital stress testing, however, the approach for 2018 CCAR, including the instructions around the supervisory severely adverse scenario, is largely consistent with prior years. Our 2018 CCAR submission will include the impact of the TCJA. The TCJA has the effect of lowering the corporate tax rate; however, there are numerous other changes in the law that may impact our business, operations and financial results. For example, the TCJA has the effect of increasing the negative financial impact in capital stress testing scenarios due to larger disallowed deferred tax assets as net operating losses can now only be carried forward. This could reduce the amount of capital available to return to shareholders in such scenarios. For additional information, see "Business — Supervision and Regulation — Capital, Dividends and Share Repurchases."

Discover Financial Services and Discover Bank are subject to regulatory capital requirements that became effective January 2015 under final rules issued by the Federal Reserve and the FDIC to implement the provisions under the Basel Committee’s December 2010 framework (referred to as “Basel III”). The final capital rules ("Basel III rules") require minimum risk-based capital and leverage ratios and define what constitutes capital for purposes of calculating those ratios. In addition, the Basel III rules establish a capital conservation buffer above the regulatory minimum capital requirements, which must consist entirely of Common Equity Tier 1 ("CET1") capital and result in higher required minimum ratios by up to 2.5%. The new capital conservation buffer requirement became effective January 2016; however, the buffer threshold amounts are subject to a gradual phase-in period. In 2017, the highest capital conservation buffer threshold was 1.25%, which will rise to 1.875% for the 2018 calendar year. The full 2.5% buffer requirement will not be fully phased-in until January 2019. A banking organization is subject to limitations on paying dividends, engaging in share repurchases and paying discretionary bonuses if its capital level falls below any of the minimum capital requirements, taking into account the applicable capital conservation buffer thresholds. Based on our current capital composition and levels and business plans, we are and expect to continue to be in compliance with the requirements for the foreseeable future. For additional information, see "— Liquidity and Capital Resources — Capital."

Federal banking regulators jointly issued a proposed rule on September 27, 2017 that would simplify the treatment of certain assets and deductions for institutions that are not subject to the advanced approaches capital rule. Among other things, the proposed rule would increase or adjust the deduction thresholds for certain mortgage servicing assets, deferred tax assets, investments in the capital of unconsolidated financial institutions, and minority interests. As proposed, the new rules would apply to Discover Financial Services and its subsidiary banks. While the banking agencies consider comments on the proposed rule, the agencies adopted a rule on November 21, 2017, that provides interim relief to non-advanced approaches banking organizations, such as Discover, by extending the regulatory capital transition periods effective in 2017 for certain items, including regulatory capital deductions, risk weights, and certain minority interest limitations.

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On December 7, 2017, the Basel Committee adopted various standards meant to finalize remaining elements of the Basel III reforms first introduced in 2010. Among the new standards are revisions to the standardized approach for credit risk, which establishes standardized risk weightings used to measure credit risk for purposes of calculating regulatory capital requirements. The new revisions include a provision that would, for the first time, require banking organizations to include a percentage of “unconditionally cancellable commitments” in risk-weighted asset calculations. If this change were to be adopted in the United States by the domestic federal banking agencies and made applicable to all "Standardized Approach" banking organizations such as Discover, it could require credit card issuers to substantially increase the amount of capital they hold against unused credit card lines. The federal banking agencies have publicly indicated support for the new Basel standards but stated that the standards were “designed for internationally active banks” and that any changes to the regulatory capital rules in the United States “will be made through the standard notice-and-comment rulemaking process.”

Liquidity

We are subject to the U.S. liquidity coverage ratio rule issued by federal banking regulators. This quantitative requirement is designed to promote the short-term resilience of the liquidity risk profile of large and internationally active banking organizations in the United States. The rule requires covered banks to maintain an amount of high-quality liquid assets sufficient to cover projected net cash outflows during a prospective 30-day calendar period under an acute, hypothetical liquidity stress scenario. Given our current asset size, we are subject to a modified liquidity coverage ratio requirement which requires a lower level of high-quality liquid assets to meet the minimum ratio requirement due to adjustments to the net cash outflow amount. Under the rule's transition period, we were required to maintain a liquidity ratio of 100% in 2017. As of December 31, 2017, our liquidity coverage ratio was in excess of the applicable regulatory requirement. Pursuant to the final rule issued by the Federal Reserve, we will be required to publish quarterly public disclosures regarding our liquidity risk profile and components of our liquidity coverage ratio beginning the fourth quarter of 2018.

Funding

On December 8, 2017, the Federal Reserve Board announced final plans for the production of three new reference rates based on overnight repurchase agreement transactions secured by Treasury securities that will be produced by the Federal Reserve Bank of New York, in cooperation with the U.S. Office of Financial Research. It is expected that these new reference rates may be used in future transactions as a replacement for LIBOR, which will no longer be maintained after 2021, in certain contracts.

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Results of Operations

The discussion below provides a summary of our results of operations for the year ended December 31, 2017 compared to our results of operations for the year ended December 31, 2016 and year ended December 31, 2015. The discussion also provides information about our loan receivables as of December 31, 2017 compared to December 31, 2016 and December 31, 2015.

Segments

We manage our business activities in two segments, Direct Banking and Payment Services, based on the products and services provided. For a detailed description of the operations of each segment, as well as the allocation conventions used in our business segment reporting, see Note 22: Segment Disclosures to our consolidated financial statements.

The following table presents segment data (dollars in millions):

	For the Years Ended December 31,		
	2017	2016	2015
Direct Banking			
Interest income			
Credit card	$7,907	$7,155	$6,626
Private student loans	523	444	378
PCI student loans	159	185	220
Personal loans	860	719	631
Other	199	113	90
Total interest income	9,648	8,616	7,945
Interest expense	1,648	1,398	1,263
Net interest income	8,000	7,218	6,682
Provision for loan losses	2,586	1,858	1,512
Other income	1,607	1,611	1,779
Other expense	3,629	3,422	3,437
Income before income tax expense	3,392	3,549	3,512
Payment Services			
Provision for loan losses	(7)	1	—
Other income	290	270	278
Other expense	152	162	178
Income before income tax expense	145	107	100
Total income before income tax expense	$3,537	$3,656	$3,612

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The following table presents information on transaction volume (in millions):

	For the Years Ended December 31,		
	2017	2016	2015
Network Transaction Volume			
PULSE Network	$157,128	$138,003	$150,145
Network Partners	14,213	13,833	12,965
Diners Club[(1)]	31,544	28,601	26,567
Total Payment Services	202,885	180,437	189,677
Discover Network—Proprietary[(2)]	133,044	126,144	122,726
Total Volume	$335,929	$306,581	$312,403
Transactions Processed on Networks			
Discover Network	2,240	2,125	2,033
PULSE Network	3,856	3,456	3,890
Total	6,096	5,581	5,923
Credit Card Volume			
Discover Card Volume[(3)]	$141,858	$132,324	$127,825
Discover Card Sales Volume[(4)]	$128,806	$121,423	$118,442

(1) Diners Club volume is derived from data provided by licensees for Diners Club branded cards issued outside North America and is subject to subsequent revision or amendment.
(2) Represents gross proprietary sales volume on the Discover Network.
(3) Represents Discover card activity related to net sales, balance transfers, cash advances and other activity.
(4) Represents Discover card activity related to net sales.

Direct Banking

For the Year Ended December 31, 2017 compared to the Year Ended December 31, 2016

Our Direct Banking segment reported pretax income of $3.4 billion for the year ended December 31, 2017 as compared to pretax income of $3.5 billion for the year ended December 31, 2016.

Net interest income increased for the year ended December 31, 2017 as compared to the year ended December 31, 2016 primarily driven by loan growth and higher yields on credit card loans, partially offset by higher funding costs. The increase in credit card yields was primarily due to prime rate increases and a higher portion of revolving card receivables, partially offset by the portfolio mix and higher interest charge-offs. Interest income increased over the prior year due to loan growth and higher yields. Interest expense increased during the year primarily due to increased borrowings to fund asset growth, higher market rates and a change in funding mix.

For the year ended December 31, 2017, the provision for loan loss dollars increased as compared to the year ended December 31, 2016 due to higher levels of net charge-offs combined with a larger build of the allowance for loan losses as compared to the prior year. For a detailed discussion on provision for loan losses, see "— Loan Quality — Provision and Allowance for Loan Losses."

Total other income remained relatively flat for the year ended December 31, 2017 as compared to the year ended December 31, 2016.

Total other expense increased for the year ended December 31, 2017 as compared to the year ended December 31, 2016 primarily due to an increase in employee compensation and benefits, professional fees, marketing and business development costs, offset by a decrease in information processing and communications. The increase in employee compensation and benefits was driven by the impact of additional headcount for regulatory and compliance needs and business growth, higher average salaries and a one-time special bonus for eligible employees in response to the recent TCJA in 2017. The increase in professional fees was driven primarily by investments in technology and infrastructure, offset by the completion of a look back project related to anti-money laundering remediation in 2016. The increase in marketing and business development was primarily the result of higher brand advertising and loan acquisition costs that contributed to loan growth. The decrease in information processing and communications was primarily the result of infrastructure efficiencies.

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Discover card sales volume was $128.8 billion for the year ended December 31, 2017, which was an increase of 6.1% as compared to the year ended December 31, 2016. This volume growth was driven primarily by an increase in active cardmembers.

For the Year Ended December 31, 2016 compared to the Year Ended December 31, 2015

Our Direct Banking segment reported pretax income of $3.5 billion for the years ended December 31, 2016 and 2015. Net interest income increased for the year ended December 31, 2016 as compared to the year ended December 31, 2015 primarily driven by loan growth and higher net interest margin. Net interest margin increased due to higher yields on total loan receivables. The increase in total loan receivables yields was primarily driven by higher credit card yields resulting from the portfolio mix and the prime rate increase. Interest income increased over the prior year due to loan growth and higher yields. Interest expense increased during the year ended December 31, 2016 as compared to the year ended December 31, 2015 primarily due to higher market rates and funding mix.

For the year ended December 31, 2016, the provision for loan loss dollars increased as compared to the year ended December 31, 2015 due to higher levels of net charge-offs and higher loan balances. For a detailed discussion on provision for loan losses, see "— Loan Quality — Provision and Allowance for Loan Losses."

Total other income decreased for the year ended December 31, 2016 as compared to the year ended December 31, 2015 primarily due to the cessation of our mortgage banking operations in 2015 and a decrease in discount and interchange revenue driven by higher rewards, partially offset by higher transaction volume. A reduction in protection products revenue, which reflects the impact of our no longer selling these products and eliminating related retention efforts, also contributed to the decline in total other income.

Total other expense decreased for the year ended December 31, 2016 as compared to the year ended December 31, 2015. The decrease was primarily driven by completion of look back related anti-money laundering remediation expenses in the second quarter of 2016 and a decrease in other expenses and marketing and business development costs, offset by an increase in compliance activities costs and employee compensation and benefits. The decrease in other expense was primarily driven by exit charges related to the closure of our mortgage origination business in 2015, lower fraud losses and increased fraud recoveries. The increase in employee compensation and benefits costs was primarily due to higher salaries as well as growth in overall headcount driven in part by regulatory and compliance needs.

Discover card sales volume was $121.4 billion for the year ended December 31, 2016, which was an increase of 2.5% as compared to the year ended December 31, 2015. This volume growth was driven primarily by an increase in discretionary spending partially offset by the impact of lower gas prices.

Payment Services

For the Year Ended December 31, 2017 compared to the Year Ended December 31, 2016

Our Payment Services segment reported pretax income of $145 million for the year ended December 31, 2017 as compared to pretax income of $107 million for the year ended December 31, 2016. The increase in segment pretax income was primarily driven by an increase in transaction processing revenue due to higher POS transactions and lower expense.

Downturns in the global economy or negative impacts in foreign currency may adversely affect our financial condition or results of operations in our Payment Services segment. We continue to work with our Diners Club licensees with regard to their ability to maintain financing sufficient to support business operations. We may continue to provide additional support in the future, including loans, facilitating transfer of ownership, or acquiring assets or licensees, which may cause us to incur losses. The licensees that we currently consider to be of concern accounted for approximately 4% of Diners Club revenue for the years ended December 31, 2017 and 2016.

For the Year Ended December 31, 2016 compared to the Year Ended December 31, 2015

Our Payment Services segment reported pretax income of $107 million for the year ended December 31, 2016 as compared to pretax income of $100 million the year ended December 31, 2015, primarily due to a decrease in other expense partially offset by a decrease in other income. The decrease in other expense was primarily driven by

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lower expenses in 2016 related to the sale of Diners Club Italy in 2015. The decrease in other income was due to a reduction in transaction processing revenue from lower POS transactions.

Critical Accounting Estimates

In preparing our consolidated financial statements in conformity with accounting principles generally accepted in the United States ("GAAP"), management must make judgments and use estimates and assumptions about the effects of matters that are uncertain. For estimates that involve a high degree of judgment and subjectivity, it is possible that different estimates could reasonably be derived for the same period. For estimates that are particularly sensitive to changes in economic or market conditions, significant changes to the estimated amount from period to period are also possible. Management believes the current assumptions and other considerations used to estimate amounts reflected in our consolidated financial statements are appropriate. However, if actual experience differs from the assumptions and other considerations used in estimating amounts in our consolidated financial statements, the resulting changes could have a material effect on our consolidated results of operations and, in certain cases, could have a material effect on our consolidated financial condition. Management has identified the estimates related to our allowance for loan losses, the evaluation of goodwill and other non-amortizable intangible assets for potential impairment and the accrual of income taxes.

Allowance for Loan Losses

We base our allowance for loan losses on several analyses that help us estimate incurred losses as of the balance sheet date. In deriving this estimate, we consider the collectibility of principal, interest and fees associated with our loan receivables. While our estimation process includes historical data and analysis, there is a significant amount of judgment applied in selecting inputs and analyzing the results produced to determine the allowance. We use a migration analysis to estimate the likelihood that a loan will progress through the various stages of delinquency. Management also estimates loss emergence by using other analyses to estimate losses incurred from non-delinquent accounts. The considerations in these analyses include past and current loan performance, loan seasoning and growth, current risk management practices, account collection strategies, economic conditions, bankruptcy filings, policy changes and forecasting uncertainties. Given the same information, others may reach different reasonable estimates.

If management used different assumptions in estimating incurred net loan losses, the impact to the allowance for loan losses could have a material effect on our consolidated financial condition and results of operations. For example, a 10% change in management's estimate of incurred net loan losses could have resulted in a change of approximately $262 million in the allowance for loan losses at December 31, 2017, with a corresponding change in the provision for loan losses. See "— Loan Quality" and Note 2: Summary of Significant Accounting Policies to our consolidated financial statements for further details about our allowance for loan losses.

Goodwill

We recognize goodwill when the purchase price of an acquired business exceeds the total of the fair values of the acquired net assets. As required by GAAP, we test goodwill for impairment annually, or more often if indicators of impairment exist. In evaluating goodwill for impairment, management must estimate the fair value of the reporting unit(s) to which the goodwill relates. Because market data concerning acquisitions of comparable businesses typically are not readily obtainable, other valuation techniques such as earnings multiples and cash flow models are used in estimating the fair values of these reporting units. In applying these techniques, management considers historical results, business forecasts, market and industry conditions and other factors. We may also consult independent valuation experts where needed in applying these valuation techniques. The valuation methodologies we use involve assumptions about business performance, revenue and expense growth, capital expenditures, discount rates and other assumptions that are judgmental in nature.

At December 31, 2017, we reported goodwill of $255 million associated with our PULSE network. The estimated fair value of the PULSE reporting unit was more than three times its carrying value as of October 1, 2017, and there are no present conditions that we believe would cause the fair value of this reporting unit to fall below its carrying value. However, competitive pressures leading to significant declines in revenue, significant increases in the cost of equity, deteriorating economic conditions, or other events adversely impacting the assumptions used by management in the valuation, could cause the fair value of the reporting unit or the associated goodwill to decline in the future which could result in an impairment loss. At December 31, 2017, based on the annual impairment testing performed, there was no impairment identified. See Note 7: Goodwill and Intangible Assets to our consolidated financial statements for further details about goodwill and the related impairment testing.

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Income Taxes

We are subject to the income tax laws of the jurisdictions where we have business operations, primarily the United States, its states and municipalities. We must make judgments and interpretations about the application of these inherently complex tax laws when determining the provision for income taxes and must also make estimates about when in the future certain items will affect taxable income in the various taxing jurisdictions. Disputes over interpretations of the tax laws may be settled with the taxing authority upon examination or audit. We regularly evaluate the likelihood of assessments in each of the taxing jurisdictions resulting from current and subsequent years' examinations, and tax reserves are established as appropriate.

Changes in the estimate of income taxes can occur due to tax rate changes, interpretations of tax laws, the status and resolution of examinations by the taxing authorities, and newly enacted laws and regulations that impact the relative merits of tax positions taken. When such changes occur, such as the recent rate change enacted with the TCJA, the effect on our consolidated financial condition and results of operations can be significant. See Note 15: Income Taxes to our consolidated financial statements for additional information about income taxes.

Earnings Summary

The following table outlines changes in our consolidated statements of income (dollars in millions):

	For the Years Ended December 31,			2017 vs. 2016 Increase (Decrease)		2016 vs. 2015 Increase (Decrease)	
	2017	2016	2015	$	%	$	%
Interest income	$9,648	$8,616	$7,945	$1,032	12 %	$671	8 %
Interest expense	1,648	1,398	1,263	250	18 %	135	11 %
Net interest income	8,000	7,218	6,682	782	11 %	536	8 %
Provision for loan losses	2,579	1,859	1,512	720	39 %	347	23 %
Net interest income after provision for loan losses	5,421	5,359	5,170	62	1 %	189	4 %
Other income	1,897	1,881	2,057	16	1 %	(176)	(9)%
Other expense	3,781	3,584	3,615	197	5 %	(31)	(1)%
Income before income tax expense	3,537	3,656	3,612	(119)	(3)%	44	1 %
Income tax expense	1,438	1,263	1,315	175	14 %	(52)	(4)%
Net income	$2,099	$2,393	$2,297	$(294)	(12)%	$96	4 %

Net Interest Income

The tables that follow this section have been provided to supplement the discussion below and provide further analysis of net interest income, net interest margin and the impact of rate and volume changes on net interest income. Net interest income represents the difference between interest income earned on our interest-earning assets and the interest expense incurred to finance those assets. We analyze net interest income in total by calculating net interest margin (net interest income as a percentage of average total loan receivables) and net yield on interest-bearing assets (net interest income as a percentage of average total interest-earning assets). We also separately consider the impact of the level of loan receivables and the related interest yield and the impact of the cost of funds related to each of our funding sources, along with the income generated by our liquidity portfolio, on net interest income.

Our interest-earning assets consist of: (i) cash and cash equivalents, primarily related to amounts on deposit with the Federal Reserve Bank of Philadelphia, (ii) restricted cash, (iii) other short-term investments, (iv) investment securities and (v) loan receivables. Our interest-bearing liabilities consist primarily of deposits, both direct-to-consumer and brokered, and long-term borrowings, including amounts owed to securitization investors. Net interest income is influenced by the following:

- The level and composition of loan receivables, including the proportion of credit card loans to other loans, the proportion of credit card customers who revolve their balances, as well as the proportion of loan receivables bearing interest at promotional rates as compared to standard rates;

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- The credit performance of our loans, particularly with regard to charge-offs of finance charges, which reduce interest income;
- The terms of long-term borrowings and certificates of deposit upon initial offering, including maturity and interest rate;
- The level and composition of other interest-bearing assets and liabilities, including our liquidity portfolio;
- Changes in the interest rate environment, including the levels of interest rates and the relationships among interest rate indices, such as the prime rate, the Federal Funds rate and LIBOR;
- The effectiveness of interest rate swaps in our interest rate risk management program; and
- The difference between the carrying amount and future cash flows expected to be collected on PCI loans.

For the Year Ended December 31, 2017 compared to the Year Ended December 31, 2016

Net interest income increased for the year ended December 31, 2017 as compared to the year ended December 31, 2016 primarily driven by loan growth and higher yields on credit card loans, partially offset by higher funding costs. The increase in credit card yields was primarily due to prime rate increases and a higher portion of revolving card receivables, partially offset by the portfolio mix and higher interest charge-offs. Interest income increased over the prior year due to loan growth and higher yields. Interest expense increased during the year primarily due to increased borrowings to fund asset growth, higher market rates and a change in funding mix.

For the Year Ended December 31, 2016 compared to the Year Ended December 31, 2015

Net interest income increased for the year ended December 31, 2016 as compared to the year ended December 31, 2015 primarily driven by loan growth and higher net interest margin. Net interest margin increased due to higher yields on total loan receivables. The increase in total loan receivables yields was primarily driven by higher credit card yields resulting from the portfolio mix and the prime rate increase. Interest income increased over the prior year due to loan growth and higher yields. Interest expense increased during the year ended December 31, 2016 as compared to the year ended December 31, 2015 primarily due to higher market rates and funding mix.

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Average Balance Sheet Analysis
(dollars in millions)

	For the Years Ended December 31,								
	2017			2016			2015		
	Average Balance	Rate	Interest	Average Balance	Rate	Interest	Average Balance(1)	Rate(1)	Interest
Assets									
Interest-earning assets									
Cash and cash equivalents	$13,300	1.11 %	$148	$10,806	0.52 %	$56	$9,840	0.26 %	$26
Restricted cash	625	0.97 %	6	540	0.37 %	2	631	0.14 %	1
Other short-term investments	—	— %	—	518	0.86 %	4	—	— %	—
Investment securities	1,667	1.60 %	27	2,445	1.55 %	38	2,876	1.71 %	49
Loan receivables(2)									
Credit card(3)	62,079	12.74 %	7,907	57,238	12.50 %	7,155	54,846	12.08 %	6,626
Personal loans	7,020	12.25 %	860	5,895	12.19 %	719	5,245	12.04 %	631
Private student loans	6,764	7.72 %	522	6,042	7.35 %	444	5,272	7.16 %	378
PCI student loans	2,326	6.84 %	159	2,841	6.51 %	185	3,385	6.51 %	220
Mortgage loans held for sale	—	— %	—	—	— %	—	93	3.63 %	3
Other	336	5.56 %	19	264	5.01 %	13	220	4.90 %	11
Total loan receivables	78,525	12.06 %	9,467	72,280	11.78 %	8,516	69,061	11.40 %	7,869
Total interest-earning assets	94,117	10.25 %	9,648	86,589	9.95 %	8,616	82,408	9.64 %	7,945
Allowance for loan losses	(2,335)			(1,938)			(1,782)		
Other assets	4,189			4,349			4,332		
Total assets	$95,971			$89,000			$84,958		
Liabilities and Stockholders' Equity									
Interest-bearing liabilities									
Interest-bearing deposits									
Time deposits(4)	$27,123	1.91 %	519	$24,833	1.77 %	439	$26,415	1.62 %	427
Money market deposits(5)	6,799	1.29 %	88	6,939	1.08 %	75	7,280	0.98 %	71
Other interest-bearing savings deposits	20,155	1.18 %	239	16,725	1.04 %	173	12,538	1.00 %	125
Total interest-bearing deposits(6)	54,077	1.56 %	846	48,497	1.42 %	687	46,233	1.35 %	623
Borrowings									
Short-term borrowings	2	1.10 %	—	2	0.63 %	—	84	1.41 %	1
Securitized borrowings(4)(5)	16,746	2.26 %	379	16,784	2.06 %	346	16,893	1.95 %	329
Other long-term borrowings(4)	9,767	4.33 %	423	8,430	4.32 %	365	6,650	4.65 %	310
Total borrowings	26,515	3.02 %	802	25,216	2.82 %	711	23,627	2.71 %	640
Total interest-bearing liabilities	80,592	2.04 %	1,648	73,713	1.90 %	1,398	69,860	1.81 %	1,263
Other liabilities and stockholders' equity	15,379			15,287			15,098		
Total liabilities and stockholders' equity	$95,971			$89,000			$84,958		
Net interest income			$8,000			$7,218			$6,682
Net interest margin(7)		10.19 %			9.99 %			9.68 %	
Net yield on interest-bearing assets(8)		8.50 %			8.34 %			8.11 %	
Interest rate spread(9)		8.21 %			8.05 %			7.83 %	

(1)

Upon adoption of ASU 2015-03, Interest—Imputation of Interest (Subtopic 835-30): Simplifying the Presentation of Debt Issuance Costs, certain balances as of December 31, 2015 have been restated to reflect the classification of debt issuance costs as a direct deduction of the related liability.

(2) Average balances of loan receivables include non-accruing loans, which are included in the yield calculations. If the non-accruing loan balances were excluded, there would not be a material impact on the amounts reported above.

(3) Interest income on credit card loans includes $218 million, $193 million and $192 million of amortization of balance transfer fees for the years ended December 31, 2017, 2016 and 2015, respectively.

(4) Includes the impact of interest rate swap agreements used to change a portion of fixed-rate funding to floating-rate funding.

(5) Includes the impact of interest rate swap agreements used to change a portion of floating-rate funding to fixed-rate funding.

(6) Includes the impact of FDIC insurance premiums and Large Institution Surcharge.

(7) Net interest margin represents net interest income as a percentage of average total loan receivables.

(8) Net yield on interest-bearing assets represents net interest income as a percentage of average total interest-earning assets.

(9) Interest rate spread represents the difference between the rate on total interest-earning assets and the rate on total interest-bearing liabilities.

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Rate/Volume Variance Analysis[1]
(dollars in millions)

	Year Ended December 31, 2017 vs. Year Ended December 31, 2016			Year Ended December 31, 2016 vs. Year Ended December 31, 2015		
	Volume	Rate	Total	Volume	Rate	Total
Increase/(decrease) in net interest income due to changes in:						
Interest-earning assets						
Cash and cash equivalents	$16	$76	$92	$3	$27	$30
Restricted cash	—	4	4	—	1	1
Other short-term investments	(2)	(2)	(4)	4	—	4
Investment securities	(12)	1	(11)	(7)	(4)	(11)
Loan receivables:						
Credit card	613	139	752	294	235	529
Personal loans	138	3	141	80	8	88
Private student loans	55	23	78	56	10	66
PCI student loans	(35)	9	(26)	(35)	—	(35)
Mortgage loans held for sale	—	—	—	(2)	(1)	(3)
Other	4	2	6	2	—	2
Total loan receivables	775	176	951	395	252	647
Total interest income	777	255	1,032	395	276	671
Interest-bearing liabilities						
Interest-bearing deposits						
Time deposits	43	37	80	(27)	39	12
Money market deposits	(1)	14	13	(3)	7	4
Other interest-bearing savings deposits	40	26	66	43	5	48
Total interest-bearing deposits	82	77	159	13	51	64
Borrowings						
Short-term borrowings	—	—	—	(1)	—	(1)
Securitized borrowings	—	33	33	(2)	19	17
Other long-term borrowings	58	—	58	78	(23)	55
Total borrowings	58	33	91	75	(4)	71
Total interest expense	140	110	250	88	47	135
Net interest income	$637	$145	$782	$307	$229	$536

(1) The rate/volume variance for each category has been allocated on a consistent basis between rate and volume variances between the years ended December 31, 2017, 2016 and 2015 based on the percentage of the rate or volume variance to the sum of the two absolute variances.

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Loan Quality

Loan receivables consist of the following (dollars in millions):

	December 31,				
	2017	2016	2015	2014	2013
Loan portfolio					
Credit card loans	$67,291	$61,522	$57,896	$56,128	$53,150
Other loans:					
Personal loans	7,374	6,481	5,490	5,007	4,191
Private student loans	7,076	6,393	5,647	4,850	3,969
Mortgage loans held for sale(1)	—	—	—	122	148
Other	423	274	236	202	135
Total other loans	14,873	13,148	11,373	10,181	8,443
PCI loans(2)	2,084	2,584	3,116	3,660	4,178
Total loan receivables	84,248	77,254	72,385	69,969	65,771
Allowance for loan losses	(2,621)	(2,167)	(1,869)	(1,746)	(1,648)
Net loan receivables	$81,627	$75,087	$70,516	$68,223	$64,123

(1) On June 16, 2015, we announced the closing of our mortgage origination business. Pursuant to that announcement, we sold all mortgage loans held for sale in our portfolio and ceased originating new mortgages.

(2) Represents PCI private student loans. See Note 4: Loan Receivables to our consolidated financial statements for more information regarding PCI loans.

Provision and Allowance for Loan Losses

Provision for loan losses is the expense related to maintaining the allowance for loan losses at an appropriate level to absorb the estimated probable losses in the loan portfolio at each period end date. While establishing the estimate for probable losses requires significant management judgment, the factors that influence the provision for loan losses include:

- The impact of general economic conditions on the consumer, including national and regional conditions, unemployment levels, bankruptcy trends and interest rate movements;
- Changes in consumer spending and payment behaviors;
- Changes in our loan portfolio, including the overall mix of accounts, products and loan balances within the portfolio and maturation of the loan portfolio;
- The level and direction of historical and anticipated loan delinquencies and charge-offs;
- The credit quality of the loan portfolio, which reflects, among other factors, our credit granting practices and effectiveness of collection efforts; and
- Regulatory changes or new regulatory guidance.

In determining the allowance for loan losses, we estimate probable losses separately for segments of the loan portfolio that have similar risk characteristics. We use a migration analysis to estimate the likelihood that a loan will progress through the various stages of delinquency. We use other analyses to estimate losses incurred from non-delinquent accounts which adds to the identification of loss emergence. We use these analyses together as a basis for determining our allowance for loan losses.

The provision for loan losses is the amount of expense realized after considering the level of net charge-offs in the period and the required amount of allowance for loan losses at the balance sheet date. For the year ended December 31, 2017, the provision for loan losses increased by $720 million, or 39%, as compared to the year ended December 31, 2016. For the year ended December 31, 2016, the provision for loan losses increased by $347 million, or 23%, as compared to the year ended December 31, 2015. The increase for both years was primarily due to higher levels of net charge-offs combined with a larger build of the allowance for loan losses as compared to the prior year.

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The allowance for loan losses was $2.6 billion at December 31, 2017, which reflects a $454 million reserve build over the amount of the allowance for loan losses at December 31, 2016. The reserve build, which related primarily to credit card loans along with builds in personal and student loan reserves, was due to seasoning of continued loan growth and increasing consumer leverage.

The allowance for loan losses was $2.2 billion at December 31, 2016, which reflected a $298 million reserve build over the amount of the allowance for loan losses at December 31, 2015. The reserve build, which related primarily to credit card loans along with builds in personal and student loan reserves, was due to loan growth and seasoning of the portfolio.

The following tables provide changes in our allowance for loan losses for the periods presented (dollars in millions):

	For the Year Ended December 31, 2017				
	Credit Card	Personal Loans	Student Loans[1]	Other	Total
Balance at beginning of period	$1,790	$ 200	$ 158	$ 19	$2,167
Additions					
Provision for loan losses	2,159	332	93	(5)	2,579
Deductions					
Charge-offs	(2,263)	(258)	(94)	(3)	(2,618)
Recoveries	461	27	11	—	499
Net charge-offs	(1,802)	(231)	(83)	(3)	(2,119)
Other[2]	—	—	(6)	—	(6)
Balance at end of period	$2,147	$ 301	$ 162	$ 11	$2,621

	For the Year Ended December 31, 2016				
	Credit Card	Personal Loans	Student Loans[1]	Other	Total
Balance at beginning of period	$1,554	$ 155	$ 143	$ 17	$1,869
Additions					
Provision for loan losses	1,579	196	82	2	1,859
Deductions					
Charge-offs	(1,786)	(172)	(76)	—	(2,034)
Recoveries	443	21	9	—	473
Net charge-offs	(1,343)	(151)	(67)	—	(1,561)
Balance at end of period	$1,790	$ 200	$ 158	$ 19	$2,167

(1) Includes both PCI and non-PCI private student loans.
(2) Net change in reserves on PCI pools having no remaining non-accretable difference.

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The following tables provide changes in our allowance for loan losses for the periods presented (dollars in millions):

	For the Year Ended December 31, 2015				
	Credit Card	Personal Loans	Student Loans[(1)]	Other	Total
Balance at beginning of period	$1,474	$ 120	$ 135	$17	$1,746
Additions					
Provision for loan losses	1,300	147	64	1	1,512
Deductions					
Charge-offs	(1,660)	(129)	(65)	(1)	(1,855)
Recoveries	440	17	9	—	466
Net charge-offs	(1,220)	(112)	(56)	(1)	(1,389)
Balance at end of period	$1,554	$ 155	$ 143	$17	$1,869

	For the Year Ended December 31, 2014				
	Credit Card	Personal Loans	Student Loans[(1)]	Other	Total
Balance at beginning of period	$1,406	$ 112	$ 113	$17	$1,648
Additions					
Provision for loan losses	1,259	102	79	3	1,443
Deductions					
Charge-offs	(1,636)	(105)	(62)	(3)	(1,806)
Recoveries	445	11	5	—	461
Net charge-offs	(1,191)	(94)	(57)	(3)	(1,345)
Balance at end of period	$1,474	$ 120	$ 135	$17	$1,746

	For the Year Ended December 31, 2013				
	Credit Card	Personal Loans	Student Loans[(1)]	Other	Total
Balance at beginning of period	$1,613	$ 99	$ 75	$1	$1,788
Additions					
Provision for loan losses	893	92	84	17	1,086
Deductions					
Charge-offs	(1,604)	(86)	(48)	(1)	(1,739)
Recoveries	504	7	2	—	513
Net charge-offs	(1,100)	(79)	(46)	(1)	(1,226)
Balance at end of period	$1,406	$ 112	$ 113	$17	$1,648

(1) Includes both PCI and non-PCI private student loans.

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Net Charge-offs

Our net charge-offs include the principal amount of losses charged off less principal recoveries and exclude charged-off and recovered interest and fees and fraud losses. Charged-off and recovered interest and fees are recorded in interest income and loan fee income, respectively, which is effectively a reclassification of the provision for loan losses, while fraud losses are recorded in other expense. Credit card loan receivables are charged off at the end of the month during which an account becomes 180 days contractually past due. Personal loans and private student loans, which are closed-end consumer loan receivables, are generally charged off at the end of the month during which an account becomes 120 days contractually past due. Generally, customer bankruptcies and probate accounts are charged off at the end of the month 60 days following the receipt of notification of the bankruptcy or death but not later than the 180-day or 120-day contractual time frame.

The following table presents amounts and rates of net charge-offs of key loan products (dollars in millions):

	For the Years Ended December 31,									
	2017		2016		2015		2014		2013	
	$	%	$	%	$	%	$	%	$	%
Credit card loans	$1,802	2.91%	$1,343	2.34%	$1,220	2.22%	$1,191	2.27%	$1,100	2.21%
Personal loans	$231	3.30%	$151	2.55%	$112	2.15%	$94	2.04%	$79	2.13%
Private student loans (excluding PCI[1])	$83	1.21%	$67	1.10%	$56	1.07%	$57	1.29%	$46	1.30%

(1) Charge-offs for PCI loans did not result in a charge to earnings during any of the years presented and are therefore excluded from the calculation. See Note 4: Loan Receivables to our consolidated financial statements for more information regarding the accounting for charge-offs on PCI loans.

The net charge-off rate on our credit card loans, personal loans and private student loans increased by 57 basis points, 75 basis points and 11 basis points, respectively, for the year ended December 31, 2017 as compared to the year ended December 31, 2016 as a result of seasoning of continued loan growth and increasing consumer leverage.

The net charge-off rate on our credit card loans, personal loans and private student loans increased by 12 basis points, 40 basis points and 3 basis points for the year ended December 31, 2016 as compared to the year ended December 31, 2015 as a result of seasoning of the portfolio and continued loan growth.

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Delinquencies

Delinquencies are an indicator of credit quality at a point in time. A loan balance is considered delinquent when contractual payments on the loan become 30 days past due.

The following table presents the amounts and delinquency rates of key loan products that are 30 and 90 days or more delinquent, loan receivables that are not accruing interest, regardless of delinquency and restructured loans (dollars in millions):

	Years Ended December 31,									
	2017		2016		2015		2014		2013	
	$	%	$	%	$	%	$	%	$	%
Loans 30 or more days delinquent										
Credit card loans	$1,532	2.28%	$1,252	2.04%	$995	1.72%	$971	1.73%	$912	1.72%
Personal loans	$103	1.40%	$74	1.12%	$49	0.89%	$40	0.79%	$29	0.70%
Private student loans (excluding PCI loans[1])	$167	2.35%	$141	2.22%	$108	1.91%	$87	1.80%	$66	1.66%
Loans 90 or more days delinquent										
Credit card loans	$751	1.12%	$597	0.97%	$490	0.85%	$480	0.85%	$447	0.84%
Personal loans	$30	0.41%	$19	0.29%	$15	0.27%	$11	0.22%	$8	0.21%
Private student loans (excluding PCI loans[1])	$33	0.47%	$35	0.55%	$24	0.43%	$25	0.52%	$18	0.46%
Loans not accruing interest	$233	0.28%	$216	0.29%	$224	0.32%	$183	0.28%	$200	0.33%
Restructured loans										
Credit card loans[2]	$1,316	1.96%	$1,085	1.76%	$1,019	1.76%	$1,037	1.85%	$1,123	2.11%
Personal loans[3]	$111	1.51%	$81	1.25%	$68	1.24%	$55	1.10%	$31	0.74%
Private student loans (excluding PCI loans[1])[4]	$137	1.94%	$86	1.35%	$48	0.85%	$38	0.78%	$28	0.71%

(1) Excludes PCI loans which are accounted for on a pooled basis. Since a pool is accounted for as a single asset with a single composite interest rate and aggregate expectation of cash flows, the past-due status of a pool, or that of the individual loans within a pool, is not meaningful. Because we are recognizing interest income on a pool of loans, it is all considered to be performing.

(2) Restructured credit card loans include $74 million, $60 million, $44 million, $44 million and $43 million at December 31, 2017, 2016, 2015, 2014 and 2013, respectively, that are also included in loans over 90 days delinquent or more.

(3) Restructured personal loans include $5 million, $2 million, $4 million, $3 million and $2 million at December 31, 2017, 2016, 2015, 2014 and 2013, respectively, that are also included in loans over 90 days delinquent or more.

(4) Restructured private student loans include $5 million, $3 million, $3 million, $5 million and $3 million at December 31, 2017, 2016, 2015, 2014 and 2013, respectively, that are also included in loans over 90 days delinquent or more.

The 30-day delinquency rates for credit card loans, personal loans and private student loans along with the 90-day delinquency rates for credit card loans and personal loans at December 31, 2017 increased as compared to December 31, 2016 primarily due to seasoning of continued loan growth and increasing consumer leverage. The amount of private student loans that were 90 or more days delinquent was relatively flat in December 31, 2017 as compared to December 31, 2016.

The 30-day and 90-day delinquency rates for credit card loans, personal loans and private student loans at December 31, 2016 increased as compared to December 31, 2015 primarily due to seasoning of the portfolio and continued loan growth.

The restructured credit card and personal loan balances increased at December 31, 2017 as compared to December 31, 2016 due to loan growth and seasoning. The restructured private student loan balance increased at December 31, 2017 as compared to December 31, 2016 as a result of greater utilization of programs available as more loans have entered into repayment.

The restructured credit card and personal loan balances increased at December 31, 2016 as compared to December 31, 2015 due to continued loan growth. The restructured private student loan balance increased at

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December 31, 2016 as compared to December 31, 2015 as a result of enhanced analysis beginning in the third quarter of 2016 to determine whether certain student loans should be accounted for as troubled debt restructurings.

Maturities and Sensitivities of Loan Receivables to Changes in Interest Rates

Our loan portfolio had the following maturity distribution[1] (dollars in millions):

	Due One Year or Less	Due After One Year Through Five Years	Due After Five Years	Total
At December 31, 2017				
Credit card loans	$19,873	$35,724	$11,694	$67,291
Personal loans	2,040	5,002	332	7,374
Private student loans (excluding PCI)	180	1,429	5,467	7,076
PCI loans	224	737	1,123	2,084
Other loans	18	106	299	423
Total loan portfolio	$22,335	$42,998	$18,915	$84,248

(1) Because of the uncertainty regarding loan repayment patterns, the above amounts have been calculated using contractually required minimum payments. Historically, actual loan repayments have been higher than such minimum payments and, therefore, the above amounts may not necessarily be indicative of our actual loan repayments.

At December 31, 2017, approximately $38.3 billion of our loan portfolio due after one year had interest rates tied to an index and approximately $23.6 billion were fixed-rate loans.

Modified and Restructured Loans

We have loan modification programs that provide for temporary or permanent hardship relief for our credit card loans to borrowers experiencing financial difficulties. We offer temporary hardship programs consisting of an interest rate reduction and in some cases a reduced minimum payment, both lasting for a period no longer than 12 months. The permanent modification program involves changing the structure of the loan to a fixed payment loan with a maturity no longer than 60 months and reducing the interest rate on the loan. The permanent modification program does not normally provide for the forgiveness of unpaid principal, but may allow for the reversal of certain unpaid interest or fee assessments. We also make permanent loan modifications for customers who request financial assistance through external sources, such as a consumer credit counseling agency program. These loans continue to be subject to the original minimum payment terms and do not normally include waiver of unpaid principal, interest or fees. Modified credit card loans that are deemed to meet the definition of troubled debt restructurings include loans in both temporary and permanent programs.

For personal loan customers, in certain situations we offer various payment programs, including temporary and permanent programs. The temporary programs normally consist of a reduction of the minimum payment for a period of no longer than 12 months with the option of a final balloon payment required at the end of the loan term or an extension of the maturity date with the total term not exceeding nine years. Further, in certain circumstances, the interest rate on the loan is reduced. The permanent programs involve changing the terms of the loan in order to pay off the outstanding balance over a longer term and also in certain circumstances reducing the interest rate on the loan. Similar to the temporary programs, the total term may not exceed nine years. We also allow permanent loan modifications for customers who request financial assistance through external sources, similar to our credit card customers discussed above. Payments are modified based on the new terms agreed upon with the credit counseling agency. Personal loans included in temporary and permanent programs are accounted for as troubled debt restructurings.

At December 31, 2017, there was $5.7 billion of private student loans in repayment, which includes both PCI and non-PCI loans to students who are not in deferment. To assist student loan borrowers who are experiencing temporary financial difficulties but are willing to resume making payments, we may offer hardship forbearance or programs that include payment deferral, temporary payment reduction, temporary interest rate reduction or extended terms. A non-PCI modified loan typically meets the definition of a troubled debt restructuring based on the cumulative length of the concession period and an evaluation of the credit quality of the borrower based on FICO scores. Prior to the third quarter of 2016, only a second forbearance when the borrower was 30 days or greater delinquent was considered a troubled debt restructuring. The balance of student loans being accounted for as troubled debt

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restructurings has increased since then, although it has not led to significant changes in the balance of overall allowance for loan losses.

Borrower performance after using payment programs or forbearance is monitored and we believe the programs help to prevent defaults and are useful in assisting customers experiencing financial difficulties. We plan to continue to use payment programs and forbearance and, as a result, we expect to have additional loans classified as troubled debt restructurings in the future.

For additional information regarding the accounting treatment for these loans as well as amounts recorded in the financial statements related to these loans, see Note 4: Loan Receivables to our consolidated financial statements.

Other Income

The following table presents the components of other income for the periods presented (dollars in millions):

	For the Years Ended December 31,			2017 vs 2016 (Decrease) Increase		2016 vs 2015 (Decrease) Increase	
	2017	2016	2015	$	%	$	%
Discount and interchange revenue[1]	$1,052	$1,055	$1,117	$(3)	— %	$(62)	(6)%
Protection products	223	239	261	(16)	(7)%	(22)	(8)%
Loan fee income	363	343	335	20	6 %	8	2 %
Transaction processing revenue	167	155	159	12	8 %	(4)	(3)%
Gain on investments	3	—	9	3	100 %	(9)	(100)%
Gain on origination and sale of mortgage loans	—	—	68	—	— %	(68)	(100)%
Other income	89	89	108	—	— %	(19)	(18)%
Total other income	$1,897	$1,881	$2,057	$16	1 %	$(176)	(9)%

(1) Net of rewards, including Cashback Bonus rewards, of $1.6 billion, $1.4 billion and $1.3 billion for the years ended December 31, 2017, 2016 and 2015, respectively.

Discount and Interchange Revenue

Discount and interchange revenue includes discount revenue and acquirer interchange net of interchange paid to network partners. We earn discount revenue from fees charged to merchants with whom we have entered into card acceptance agreements for processing credit card purchase transactions. We earn acquirer interchange revenue primarily from merchant acquirers on all Discover Network card transactions and certain Diners Club transactions made by credit card customers at merchants with whom merchant acquirers have entered into card acceptance agreements for processing credit card purchase transactions. We incur an interchange cost to card-issuing entities that have entered into contractual arrangements to issue cards on the Discover Network and on certain transactions on the Diners Club network. This cost is contractually established and is based on the card-issuing organization’s transaction volume and is reported as a reduction to discount and interchange revenue. We offer our customers various reward programs, including the Cashback Bonus reward program, pursuant to which we pay certain customers a percentage of their purchase amounts based on the type and volume of the customer’s purchases. Reward costs are recorded as a reduction to discount and interchange revenue. Discount and interchange revenue remained flat for year ended December 31, 2017 as compared to the year ended December 31, 2016 with offsetting increases in gross discount and interchange revenue and rewards, both of which were primarily the result of higher sales volume. Discount and interchange revenue decreased for the year ended December 31, 2016 as compared to the year ended December 31, 2015, primarily driven by higher rewards partially offset by higher transaction volume.

Protection Products

We earn revenue related to fees received for providing ancillary products and services, including payment protection and identity theft protection services, to customers. The amount of revenue recorded is generally based on either a percentage of a customer’s outstanding balance or a flat fee and is recognized as earned. Protection product revenue decreased for the years ended December 31, 2017 and 2016 as compared to the previous year, reflecting the impact of our no longer selling these products and eliminating related retention efforts.

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Loan Fee Income

Loan fee income consists primarily of fees on credit card loans and includes late, cash advance and other miscellaneous fees. Loan fee income increased for the year ended December 31, 2017 as compared to the year ended December 31, 2016 primarily due an increase in late fees. Loan fee income remained relatively flat for the year ended December 31, 2016 as compared to the year ended December 31, 2015.

Transaction Processing Revenue

Transaction processing revenue represents switch fees charged to financial institutions and merchants for processing ATM, debit and POS transactions over the PULSE network, as well as various participation and membership fees. Switch fees are charged on a per transaction basis. Transaction processing revenue increased for the year ended December 31, 2017 as compared to the year ended December 31, 2016 due to higher POS transactions. Transaction processing revenue decreased for the year ended December 31, 2016 as compared to the year ended December 31, 2015 due to lower POS transactions.

Gain on Origination and Sale of Mortgage Loans

Gain on sale of mortgage loans consists of the net gain on the origination and sale of loans as well as the net gain on the related interest rate lock commitments and the net gain or loss on forward delivery contracts. There was no revenue related to mortgage banking operations for the years ended December 31, 2017 and 2016 due to the closure of our mortgage origination business in 2015.

Other Income

Other income includes royalty revenues earned by Diners Club, merchant fees, revenue from merchants related to reward programs, revenues from network partners and other miscellaneous revenue items. Other income remained flat for the year ended December 31, 2017 as compared to the year ended December 31, 2016. Other income decreased for the year ended December 31, 2016 as compared to the year ended December 31, 2015 primarily due to a gain on sale of securities in 2015.

Other Expense

The following table represents the components of other expense for the periods presented (dollars in millions):

	For the Years Ended December 31,			2017 vs. 2016 Increase (Decrease)		2016 vs. 2015 Increase (Decrease)	
	2017	2016	2015	$	%	$	%
Employee compensation and benefits	$1,512	$1,379	$1,327	$133	10 %	$52	4 %
Marketing and business development	776	731	745	45	6 %	(14)	(2)%
Information processing and communications	315	339	349	(24)	(7)%	(10)	(3)%
Professional fees	655	605	610	50	8 %	(5)	(1)%
Premises and equipment	99	95	95	4	4 %	—	— %
Other expense	424	435	489	(11)	(3)%	(54)	(11)%
Total other expense	$3,781	$3,584	$3,615	$197	5 %	$(31)	(1)%

Total other expense increased $197 million for the year ended December 31, 2017 as compared to the year ended December 31, 2016. The increase was primarily driven by an increase in employee compensation and benefits, professional fees, marketing and business development costs, offset by a decrease in information processing and communications. The increase in employee compensation and benefits was driven by the impact of additional headcount for regulatory and compliance needs and business growth, higher average salaries and a one-time special bonus for eligible employees in response to the recent TCJA in 2017. The increase in professional fees was driven primarily by investments in technology and infrastructure, offset by the completion of a look back project related to anti-money laundering remediation in 2016. The increase in marketing and business development was primarily the result of higher brand advertising and loan acquisition costs that contributed to loan growth. The decrease in information processing and communications was primarily the result of infrastructure efficiencies.

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Total other expense decreased $31 million for the year ended December 31, 2016 as compared to the year ended December 31, 2015. The decrease was primarily driven by completion of look back related anti-money laundering remediation expenses in the second quarter of 2016 and a decrease in other expenses and marketing and business development costs, offset by an increase in compliance activities costs and employee compensation and benefits. The decrease in other expense was primarily driven by exit charges related to the closure of our mortgage origination business in 2015, lower fraud losses and increased fraud recoveries. The increase in employee compensation and benefits costs was primarily due to higher salaries as well as growth in overall headcount driven in part by regulatory and compliance needs.

Income Tax Expense

The following table reconciles our effective tax rate to the U.S. federal statutory income tax rate:

	For the Years Ended December 31,		
	2017	2016	2015
U.S. federal statutory income tax rate	35.0 %	35.0 %	35.0 %
U.S. state, local and other income taxes, net of U.S. federal income tax benefits	3.1	2.7	2.5
Revaluation of net deferred tax assets and other investments due to tax reform[1]	5.1	—	—
Tax credits	(1.3)	(1.8)	(1.0)
Other	(1.2)	(1.4)	(0.1)
Effective income tax rate	40.7 %	34.5 %	36.4 %
Income tax expense	$1,438	$1,263	$1,315

(1) See Note 3: Investments — Other Investments to our consolidated financial statements for a description of these investments.

For the year ended December 31, 2017, income tax expense increased $175 million, or 13.9%, and the effective income tax rate increased 6.2% as compared to the year ended December 31, 2016. The increase in both the effective tax rate and income tax expense is primarily due to the revaluation of net deferred tax assets and certain investments as a result of a reduction in the U.S. federal statutory income tax rate from 35% to 21% under the TCJA. Potential technical corrections and administrative guidance from the Internal Revenue Service related to the new legislation could result in future adjustments.

Income tax expense decreased $52 million, or 4.0%, and the effective income tax rate decreased 1.9% for the year ended December 31, 2016 as compared to the year ended December 31, 2015. The decrease in rates is primarily due certain tax credits, a settlement with the United States Congress Joint Committee on Taxation and the resolution of certain federal and state tax matters in 2016.

Liquidity and Capital Resources

Funding and Liquidity

We seek to maintain stable, diversified and cost-effective funding sources and a strong liquidity profile in order to fund our business and repay or refinance our maturing obligations under both normal operating conditions and periods of economic or financial stress. In managing our liquidity risk, we seek to maintain a prudent liability maturity profile and ready access to an ample store of primary and contingent liquidity sources. Our primary funding sources include direct-to-consumer and brokered deposits, public term asset-backed securitizations and other short-term and long-term borrowings. Our primary liquidity sources include a liquidity portfolio comprised of highly liquid, unencumbered assets, including cash and cash equivalents and investment securities, and borrowing capacity through private term asset-backed securitizations. In addition, we have unused capacity with the Federal Reserve discount window, which provides another source of contingent liquidity.

Funding Sources

Deposits

We offer deposit products to customers through two channels: (i) through direct marketing, internet origination and affinity relationships ("direct-to-consumer deposits"); and (ii) indirectly through contractual arrangements with

securities brokerage firms ("brokered deposits"). Direct-to-consumer deposits include certificates of deposit, money market accounts, online savings and checking accounts and IRA certificates of deposit, while brokered deposits include certificates of deposit and sweep accounts. At December 31, 2017, we had $39.4 billion of direct-to-consumer deposits and $19.4 billion of brokered and other deposits.

Credit Card Securitization Financing

We use the securitization of credit card receivables as a source of funding. We access the asset-backed securitization market using the Discover Card Master Trust I ("DCMT") and the Discover Card Execution Note Trust ("DCENT"), through which we issue DCENT DiscoverSeries notes in both public and private transactions. From time to time, we may add credit card receivables to these trusts to create sufficient funding capacity for future securitizations while managing seller's interest. We retain significant exposure to the performance of trust assets through holdings of the seller's interest and subordinated security classes of DCENT.

The securitization structures include certain features designed to protect investors. The primary feature relates to the availability and adequacy of cash flows in the securitized pool of receivables to meet contractual requirements, the insufficiency of which triggers early repayment of the securities. We refer to this as "economic early amortization", which is based on excess spread levels. Excess spread is the amount by which income received by a trust during a collection period, including interest collections, fees and interchange, exceeds the fees and expenses of the trust during such collection period, including interest expense, servicing fees and charged-off receivables. In the event of an economic early amortization, which would occur if the excess spread fell below 0% on a three-month rolling average basis, we would be required to repay the affected outstanding securitized borrowings using available collections received by the trust; the period of ultimate repayment would be determined by the amount and timing of collections received. An early amortization event would impair our liquidity, and may require us to utilize our available non-securitization related contingent liquidity or rely on alternative funding sources, which may or may not be available at the time. As of December 31, 2017, the DiscoverSeries three-month rolling average excess spread was 13.51%.

We may elect to add receivables to the restricted pool of receivables, subject to certain requirements. Through our wholly-owned indirect subsidiary, Discover Funding LLC, we are required to maintain a contractual minimum level of receivables in the trust in excess of the face value of outstanding investors' interests. This excess is referred to as the minimum seller's interest. The required minimum seller's interest in the pool of trust receivables, which is included in credit card loan receivables restricted for securitization investors, is set at approximately 7% in excess of the total investors' interests (which includes interests held by third parties as well as those interests held by us). If the level of receivables in the trust were to fall below the required minimum, we would be required to add receivables from the unrestricted pool of receivables, which would increase the amount of credit card loan receivables restricted for securitization investors. A decline in the amount of the excess seller's interest could occur if balance repayments and charge-offs exceeded new lending on the securitized accounts or as a result of changes in total outstanding investors' interests. Seller's interest is impacted by seasonality as higher balance repayments tend to occur in the first calendar year quarter. If we could not add enough receivables to satisfy the minimum seller's interest requirement, an early amortization (or repayment) of investors' interests would be triggered. No accounts were added to those restricted for securitization investors during the year ended December 31, 2017.

At December 31, 2017, we had $16.0 billion of outstanding public asset-backed securities and $5.1 billion of outstanding subordinated asset-backed securities that had been issued to our wholly-owned subsidiaries.

The following table summarizes expected contractual maturities of the investors' interests in credit card securitizations, excluding those that have been issued to our wholly-owned subsidiaries (dollars in millions):

At December 31, 2017	Total	Less Than One Year	One Year Through Three Years	Four Years Through Five Years	After Five Years
Scheduled maturities of long-term borrowings - owed to credit card securitization investors	$15,926	$3,524	$ 8,682	$ 2,400	$1,320

The triple-A rating of DCENT Class A Notes issued to date has been based, in part, on an FDIC rule, which created a safe harbor that provides that the FDIC, as conservator or receiver, will not, using its power to disaffirm or repudiate contracts, seek to reclaim or recover assets transferred in connection with a securitization, or recharacterize them as assets of the insured depository institution, provided such transfer satisfies the conditions for sale accounting treatment under previous GAAP. Although the implementation of the Financial Accounting Standards Board Accounting

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Standards Codification Topic 860, Transfers and Servicing, no longer qualified certain transfers of assets for sale accounting treatment, the FDIC approved a final rule that preserved the safe-harbor treatment applicable to revolving trusts and master trusts, including DCMT, so long as those trusts would have satisfied the original FDIC safe harbor if evaluated under GAAP pertaining to transfers of financial assets in effect prior to December 1, 2009. Other legislative and regulatory developments may, however, impact our ability and/or desire to issue asset-backed securities in the future.

Other Long-Term Borrowings—Student Loans

At December 31, 2017, we had $620 million of remaining principal balance outstanding on securitized debt assumed as part of the acquisition of The Student Loan Corporation. Principal and interest payments on the underlying student loans will reduce the balance of these secured borrowings over time.

Other Long-Term Borrowings—Corporate and Bank Debt

The following table provides a summary of Discover Financial Services (Parent Company) and Discover Bank outstanding fixed-rate debt (dollars in millions):

	Principal Amount Outstanding
At December 31, 2017	
Discover Financial Services (Parent Company) fixed-rate senior notes, maturing 2019-2027	$ 2,900
Discover Financial Services (Parent Company) fixed-rate retail notes maturing 2018-2031	$ 308
Discover Bank fixed-rate senior bank notes, maturing 2018-2026	$ 6,150
Discover Bank fixed-rate subordinated bank notes, maturing 2019-2020	$ 700

Certain Discover Financial Services senior notes require us to offer to repurchase the notes at a price equal to 101% of their aggregate principal amount plus accrued and unpaid interest in the event of a change of control involving us and a corresponding ratings downgrade to below investment grade.

Short-Term Borrowings

As part of our regular funding strategy, we may from time to time borrow short-term funds in the federal funds market or the repurchase (“repo”) market through repurchase agreements. Federal funds are short-term, unsecured loans between banks or other financial entities with a Federal Reserve account. Funds borrowed in the repo market are short-term, collateralized loans usually secured with highly-rated investment securities such as U.S. Treasury bills or notes, or federal agency mortgage bonds or debentures. At December 31, 2017, there were no outstanding balances in the federal funds market or repurchase agreements.

Additional Funding Sources

Private Asset-Backed Securitizations

We have access to committed undrawn borrowing capacity through privately placed asset-backed securitizations. At December 31, 2017, we had total committed capacity of $6.0 billion, none of which was drawn. While we may utilize funding from these private securitizations from time to time for normal business operations, their committed nature also makes them a reliable contingency funding source. Therefore, we reserve some undrawn capacity, informed by our liquidity stress testing results, for potential contingency funding needs. We also seek to ensure the stability and reliability of these securitizations by staggering their maturity dates, renewing them approximately one year prior to their scheduled maturity dates and periodically drawing them for operational testing purposes.

Federal Reserve

Discover Bank has access to the Federal Reserve Bank of Philadelphia’s discount window. As of December 31, 2017, Discover Bank had $29.2 billion of available borrowing capacity through the discount window based on the amount and type of assets pledged, primarily consumer loans. We have no borrowings outstanding under the discount window and reserve this capacity as a source of contingent liquidity.

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Funding Uses

Our primary uses of funds include the extensions of loans and credit, primarily through Discover Bank, the purchase of investment securities for our liquidity portfolio, working capital, and debt and capital service. We assess funding uses and liquidity needs under stressed and normal operating conditions, considering primary uses of funding, such as on-balance sheet loans, and contingent uses of funding, such as the need to post additional collateral for derivatives positions. In order to anticipate funding needs under stress, we conduct liquidity stress testing to assess the impact of idiosyncratic, systemic, and hybrid (idiosyncratic and systemic) scenarios with varying levels of liquidity risk reflecting a range of stress severity.

Credit Ratings

Our borrowing costs and capacity in certain funding markets, including those for securitizations and unsecured senior and subordinated debt, may be affected by the credit ratings of DFS, Discover Bank and the securitization trusts. Downgrades in these credit ratings could result in higher interest expense on our unsecured debt and asset securitizations, as well as higher collateral enhancement requirements for both our public and private asset securitizations. In addition to increased funding costs, deterioration in credit ratings could reduce our borrowing capacity in the unsecured debt and asset securitization capital markets.

We also maintain agreements with certain of our derivative counterparties that contain provisions that require DFS and Discover Bank to maintain an investment grade credit rating from specified major credit rating agencies. At December 31, 2017, Discover Bank's credit rating met specified thresholds set by its counterparties. However, if Discover Bank's credit ratings were reduced below investment grade, Discover Bank would be required to post additional collateral, which, as of December 31, 2017, would have been $33 million. DFS (Parent Company) had no outstanding derivatives as of December 31, 2017, therefore, no collateral was required.

A credit rating is not a recommendation to buy, sell or hold securities, may be subject to revision or withdrawal at any time by the assigning rating organization, and each rating should be evaluated independently of any other rating. Our credit ratings are summarized in the following table:

	Moody's Investors Service	Standard & Poor's	Fitch Ratings
Discover Financial Services			
Senior unsecured debt	Ba1	BBB-	BBB+
Outlook for Discover Financial Services senior unsecured debt	Positive	Stable	Stable
Discover Bank			
Senior unsecured debt	Baa3	BBB	BBB+
Outlook for Discover Bank senior unsecured debt	Positive	Stable	Stable
Subordinated debt	Ba1	BBB-	BBB
Discover Card Execution Note Trust			
Class A[(1)]	Aaa(sf)	AAA(sf)	AAA(sf)

(1) An "sf" in the rating denotes rating agency identification for structured finance product ratings.

Liquidity

We seek to ensure that we have adequate liquidity to sustain business operations, fund asset growth and satisfy debt obligations under stressed and normal operating conditions. In addition to the funding sources discussed in the previous section, we also maintain highly liquid, unencumbered assets in our liquidity portfolio that we expect to be able to convert to cash quickly and with little loss of value using either the repo market or outright sales.

We maintain a liquidity risk and funding management policy, which outlines the overall framework and general principles we follow in managing liquidity risk across our business. The policy is approved by the Board of Directors with the implementation responsibilities delegated to the Asset and Liability Management Committee (the "ALCO"). Additionally, we maintain a liquidity management framework document, which outlines the general strategies, objectives and principles we utilize to manage our liquidity position and the various liquidity risks inherent in our business model. We seek to balance the trade-offs between maintaining too much liquidity, which may be costly, with having too little liquidity, which could cause financial distress. Liquidity risk is centrally managed by the ALCO, which is

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chaired by our Treasurer and has cross-functional membership. The ALCO monitors the liquidity risk profiles of DFS and Discover Bank and oversees any actions Corporate Treasury may take to ensure that we maintain ready access to our funding sources and sufficient liquidity to meet current and projected needs. In addition, the ALCO and our Board of Directors regularly review our compliance with our liquidity limits at DFS and Discover Bank, which are established in accordance with the liquidity risk appetite set by our Board of Directors.

We employ a variety of metrics to monitor and manage liquidity. We utilize early warning indicators (“EWIs”) to detect the initial phases of liquidity stress events and a reporting and escalation process that is designed to be consistent with regulatory guidance. The EWIs include both idiosyncratic and systemic measures, and are monitored on a daily basis and reported to the ALCO regularly. A warning from one or more of these indicators triggers prompt review and decision-making by our senior management team, and in certain instances may lead to the convening of a senior-level response team and activation of our contingency funding plan.

In addition, we conduct liquidity stress testing regularly and ensure contingency funding is in place to address potential liquidity shortfalls. We evaluate a range of stress scenarios that are designed in accordance with regulatory requirements, including idiosyncratic, systemic and a combination of such events that could impact funding sources and our ability to meet liquidity needs. These scenarios measure the projected liquidity position at DFS and Discover Bank across a range of time horizons by comparing estimated contingency funding needs to available contingent liquidity.

Our primary contingent liquidity sources include our liquidity portfolio and private securitizations with unused borrowing capacity. In addition, we have unused capacity with the Federal Reserve discount window, which provides an additional source of contingent liquidity. We seek to maintain sufficient liquidity to be able to satisfy all maturing obligations and fund business operations for at least 12 months in a severe stress environment. In such an environment, we may also take actions to curtail the size of our balance sheet, which would reduce the need for funding and liquidity.

At December 31, 2017, our liquidity portfolio is comprised of highly liquid, unencumbered assets, including cash and cash equivalents and investment securities. Cash and cash equivalents were primarily in the form of deposits with the Federal Reserve. Investment securities primarily included debt obligations of the U.S. Treasury and residential mortgage-backed securities issued by U.S. government housing agencies or Government Sponsored Enterprises. These investments are considered highly liquid, and we expect to have the ability to raise cash by selling them, utilizing repurchase agreements or pledging certain of these investments to access secured funding. The size and composition of our liquidity portfolio may fluctuate based upon the size of our Statement of Financial Condition as well as operational requirements and market conditions.

At December 31, 2017, our liquidity portfolio and undrawn credit facilities were $48.7 billion, which was $5.9 billion higher than the balance at December 31, 2016. During the year ended December 31, 2017, the average balance of our liquidity portfolio was $15.2 billion.

	December 31,	
	2017	2016
	(dollars in millions)	
Liquidity portfolio		
Cash and cash equivalents[1]	$ 12,213	$ 11,103
Investment securities[2]	1,347	1,532
Total liquidity portfolio	13,560	12,635
Private asset-backed securitizations[3]	6,000	6,000
Primary liquidity sources	19,560	18,635
Federal Reserve discount window[3]	29,153	24,194
Total liquidity portfolio and undrawn credit facilities	$ 48,713	$ 42,829

(1) Cash in the process of settlement and restricted cash are excluded from cash and cash equivalents for liquidity purposes.

(2)

Excludes $48 million and $73 million of U.S. Treasury securities that have been pledged as swap collateral in lieu of cash as of December 31, 2017 and 2016, respectively.

(3) See "— Additional Funding Sources" for additional information.

Bank Holding Company Liquidity

The primary uses of funds at the unconsolidated DFS level include debt service obligations (interest payments and return of principal) and capital service and management activities, which include dividend payments on capital instruments and the periodic repurchase of shares of our common stock. Our primary sources of funds at the bank holding company level include the proceeds from the issuance of unsecured debt and capital securities, as well as dividends from our subsidiaries, particularly Discover Bank. Under periods of idiosyncratic or systemic stress, the bank holding company could lose or experience impaired access to the capital markets. In addition, our regulators have the discretion to restrict dividend payments from Discover Bank to the bank holding company.

We utilize a measure referred to as Number of Months of Pre-Funding to determine the length of time Discover Financial Services can meet upcoming funding obligations including common and preferred stock dividend payments and debt service obligations using existing cash resources. At December 31, 2017, Discover Financial Services had sufficient cash resources to fund the dividend and debt service payments for more than 18 months.

We structure our debt maturity schedule to minimize the amount of debt maturing at the bank holding company within a short period of time. See Note 9: Long-Term Borrowings to our consolidated financial statements for further information regarding our debt. Our ALCO and Board of Directors regularly review our compliance with our liquidity limits as a bank holding company, which are established in accordance with the liquidity risk appetite articulated by our Board.

Capital

Our primary sources of capital are the earnings generated by our businesses and the proceeds from issuances of capital securities. We seek to manage capital to a level and composition sufficient to support the growth and risks of our businesses and to meet regulatory requirements, rating agency targets and debt investor expectations. Within these constraints, we are focused on deploying capital in a manner that provides attractive returns to our stockholders. The level, composition and utilization of capital are influenced by changes in the economic environment, strategic initiatives, and legislative and regulatory developments.

Under regulatory capital requirements adopted by the Federal Reserve and the FDIC, DFS, along with Discover Bank, must maintain minimum levels of capital. Failure to meet minimum capital requirements can result in the initiation of certain mandatory and possibly additional discretionary actions by regulators that, if undertaken, could limit our business activities and have a direct material effect on our financial position and results. We must meet specific capital requirements that involve quantitative measures of assets, liabilities and certain off-balance sheet items, as calculated under regulatory guidance and regulations. Current or future legislative or regulatory initiatives may require us to hold more capital in the future.

In 2013, the Federal Reserve, the Office of the Comptroller of the Currency and the FDIC issued the Basel III rules applicable to DFS and Discover Bank. Under those rules, DFS and Discover Bank are classified as “Standardized Approach” entities, defined as U.S. banking organizations with consolidated total assets over $50 billion but not exceeding $250 billion and consolidated total on-balance sheet foreign exposures less than $10 billion. Additional phase-in requirements related to components of the final capital rules will become effective through 2019. The Basel III rules include new minimum and “well-capitalized” risk-based capital and leverage ratios, effective January 1, 2015, and refine the definition of what constitutes “capital” for purposes of calculating those ratios of which certain requirements are subject to phase-in periods through the end of 2018 (the “transition period”). During the transition period, the effects of the changes to capital (i.e., certain deductions and adjustments) are recognized in 20% increments from 2015 through 2018. For example, one of the deductions from CET1 capital, goodwill and intangibles, was subject to a 40% of total deduction in 2015 that increased to 60% in 2016 and so on, until reaching 100% deduction of total in 2018. For additional information regarding the risk-based capital and leverage ratios, see Note 17: Capital Adequacy to our consolidated financial statements.

The Basel III rules also introduced a capital conservation buffer on top of the minimum risk-weighted asset ratios. The buffer is designed to absorb losses during periods of economic stress. The calculation of the buffer started to phase in beginning on January 1, 2016 at the rate of 0.625% and increases by 0.625% on each subsequent January 1 until it reaches the maximum 2.5% on January 1, 2019. When the capital conservation buffer is fully phased-in on January 1, 2019, this will effectively result in minimum ratios of (i) CET1 to risk-weighted assets of at least 7.0%, (ii) Tier 1 capital to risk-weighted assets of at least 8.5% and (iii) Total capital to risk-weighted assets of at least 10.5%. Banking institutions with a capital ratio below the required amount will face constraints on dividends, equity repurchases and compensation based on the amount of the shortfall.

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Another main component of the Basel III rules is a prescribed standardized approach for calculating risk-weighted assets that expands the risk-weight range from 0% to 100% (under Basel I) to 0% to 1,250% (under Basel III). The new range is intended to be more risk-sensitive and the risk-weight assigned depends on the nature of the asset in question.

The Basel III rules provide for a number of the deductions from and adjustments to CET1, to the extent that any one such category exceeds 10% of CET1 or all such categories in the aggregate exceed 15%. In September 2017, federal banking regulators issued a notice of proposed rulemaking that would, among other things, revise certain capital requirements for Standardized Approach banks by raising the 10% of CET1 deduction threshold for certain items to 25% and eliminating the 15% combined deduction threshold applying to these items. These proposed changes are open for public comment and have not yet been implemented.

Basel III also requires disclosures relating to market discipline. This series of disclosures is commonly referred to as "Pillar 3." The objective is to increase transparency of capital requirements for banking organizations. We are required to make prescribed regulatory disclosures on a quarterly basis regarding our capital structure, capital adequacy, risk exposures and risk-weighted assets. The Pillar 3 disclosures are made publicly available on our website in a report called "Basel III Regulatory Capital Disclosures."

At December 31, 2017, DFS and Discover Bank met the requirements for "well-capitalized" status under Regulation Y and the prompt corrective action rules, respectively, exceeding the regulatory minimums to which they were subject under the applicable rules.

As discussed in Note 17: Capital Adequacy to our consolidated financial statements, we are subject to a CET1 capital ratio requirement under the Basel III rules. We believe that providing an estimate of our capital position based on the Basel III fully phased-in rules is important to complement the existing capital ratios and for comparability to other financial institutions. In addition, we disclose tangible common equity, which represents common equity less goodwill and intangibles. Management believes that common stockholders' equity excluding goodwill and intangibles is a more meaningful measure to investors of our true net asset value. As of December 31, 2017, the CET1 capital ratio calculated under Basel III fully phased-in rules and tangible common equity are not formally defined by U.S. GAAP or codified in the federal banking regulations and, as such, they are considered to be non-GAAP financial measures. Other financial services companies may also disclose this ratio and metric and definitions may vary, so we advise users of this information to exercise caution in comparing this ratio and metric for different companies.

The following table provides a reconciliation of total common stockholders' equity (a U.S. GAAP financial measure) to tangible common equity (dollars in millions):

	December 31,	
	2017	2016
Total common stockholders' equity[(1)]	$10,329	$10,763
Less: Goodwill	(255)	(255)
Less: Intangible assets, net	(163)	(166)
Tangible common equity	$9,911	$10,342

(1) Total common stockholders' equity is calculated as total stockholders' equity less preferred stock.

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The following table provides a reconciliation of CET1 capital calculated under Basel III transition rules to CET1 capital and risk-weighted assets calculated under fully phased-in Basel III rules (dollars in millions):

	December 31, 2017
Common equity Tier 1 capital (Basel III transition)	$ 10,114
Adjustments related to capital components during transition[1]	(27)
Common equity Tier 1 capital (Basel III fully phased-in)	$ 10,087
Risk-weighted assets (Basel III fully phased-in)[2]	$ 86,795
Common equity Tier 1 capital ratio (Basel III fully phased-in)	11.6 %

(1) Adjustments related to capital components for fully phased-in Basel III include the phase-in of the intangible asset exclusion.

(2) Key differences under fully phased-in Basel III rules in the calculation of risk-weighted assets include higher risk weighting for past-due loans and unfunded commitments.

Additionally, we are required to submit an annual capital plan to the Federal Reserve that includes an assessment of our expected uses and sources of capital over a nine quarter planning horizon. We submitted our annual capital plan to the Federal Reserve under the Federal Reserve's CCAR program and received notice in June 2017 that the Federal Reserve does not object to our proposed capital plan, including planned quarterly capital distributions through June 30, 2018. Our ability to make capital distributions, including our ability to pay dividends on or repurchase shares of our common stock, will continue to be subject to the Federal Reserve's review and non-objection of the actions that we propose each year in our annual capital plan.

Also in June 2017, the Federal Reserve published the results of its annual supervisory stress tests for bank holding companies with $50 billion or more in total consolidated assets, including DFS. At that same time, we published company-run stress test results for DFS and Discover Bank. DFS is required to publish company-run stress tests results twice each year in accordance with Federal Reserve rules and Discover Bank is required to publish bank-run stress test results under FDIC rules.

We recently declared a quarterly cash dividend on our common stock of $0.35 per share, payable on March 8, 2018 to holders of record on February 22, 2018, which is consistent with the dividend amount that we paid in the third and fourth quarters of 2017. We also pay dividends on our preferred stock. On December 1, 2017, we redeemed all outstanding shares of our Series B 6.50% perpetual preferred stock. Prior to redeeming the Series B preferred shares, we issued on October 31, 2017, new perpetual preferred shares (Series C) in the amount of $570 million. The Series C preferred stock pays semi-annual dividends at a fixed annual rate of 5.50% until October 30, 2027, after which it would pay quarterly dividends at a floating rate of three-month LIBOR plus 3.076%. We recently declared a semi-annual cash dividend on our Series C preferred stock of $2,750 per share, equal to $27.50 per depositary share, payable on April 30, 2018 to holders of record on April 13, 2018.

On July 25, 2017, our Board of Directors approved a share repurchase program authorizing the repurchase of up to $2.8 billion of our outstanding shares of common stock. The program expires on October 31, 2018 and may be terminated at any time. This program replaced the prior $2.5 billion share repurchase program, which had $562 million of remaining authorization. During the year ended December 31, 2017, we repurchased approximately 32 million shares, or 8%, of our outstanding common stock for $2.1 billion. We expect to continue to make share repurchases under our repurchase program from time to time based on market conditions and other factors, subject to legal and regulatory requirements and restrictions, including non-objection from the Federal Reserve as described above. Share repurchases under the program may be made through a variety of methods, including open market purchases, privately negotiated transactions or other purchases, including block trades, accelerated share repurchase transactions, or any combination of such methods.

The amount and size of any future dividends and share repurchases will depend upon our results of operations, financial condition, capital levels, cash requirements, future prospects and other factors. The declaration and payment of future dividends, as well as the amount thereof, are subject to the discretion of our Board of Directors. Holders of our shares of common stock are subject to the prior dividend rights of holders of our preferred stock or the depositary shares representing such preferred stock outstanding, and if full dividends have not been declared and paid on all outstanding shares of preferred stock in any dividend period, no dividend may be declared or paid or set aside for payment on our common stock. In addition, as noted above, banking laws and regulations and our banking regulators may limit our ability to pay dividends and make share repurchases, including limitations on the extent to which our banking subsidiaries can provide funds to us through dividends, loans or otherwise. Further, also noted above, current

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or future regulatory initiatives may require us to hold more capital in the future. There can be no assurance that we will declare and pay any dividends or repurchase any shares of our common stock in the future. For more information, including conditions and limits on our ability to pay dividends and repurchase our stock, see “Business — Supervision and Regulation — Capital, Dividends and Share Repurchases,” “Risk Factors — Credit, Market and Liquidity Risk — We may be limited in our ability to pay dividends on and repurchase our stock” and “— We are a holding company and depend on payments from our subsidiaries” and Note 17: Capital Adequacy to our consolidated financial statements.

Certain Off-Balance Sheet Arrangements

Guarantees

Guarantees are contracts or indemnification agreements that contingently require us to make payments to a guaranteed party based on changes in an underlying asset, liability, or equity security of a guaranteed party, rate or index. Also included in guarantees are contracts that contingently require the guarantor to make payments to a guaranteed party based on another entity’s failure to perform under an agreement. Our guarantees relate to transactions processed on the Discover Network and certain transactions processed by PULSE and Diners Club. See Note 18: Commitments, Contingencies and Guarantees to our consolidated financial statements for further discussion regarding our guarantees.

Contractual Obligations and Contingent Liabilities and Commitments

In the normal course of business, we enter into various contractual obligations that may require future cash payments. Contractual obligations include deposits, long-term borrowings, operating and capital lease obligations, interest payments on fixed-rate debt, purchase obligations and other liabilities. Our future cash payments associated with our contractual obligations are summarized below (dollars in millions):

	Payments Due By Period				
	Total	Less Than One Year	One Year Through Three Years	Four Years Through Five Years	More Than Five Years
At December 31, 2017					
Deposits[1][2]	$58,764	$42,562	$ 9,128	$ 4,368	$2,706
Borrowings[3]	26,326	5,272	10,704	3,815	6,535
Operating leases	94	13	23	17	41
Interest payments on fixed-rate debt	2,404	540	1,046	431	387
Purchase obligations[4]	885	507	349	27	2
Other liabilities[5]	348	147	48	36	117
Total contractual obligations	$88,821	$49,041	$ 21,298	$ 8,694	$9,788

(1) Deposits do not include interest payments because payment amounts and timing cannot be reasonably estimated as certain deposit accounts have early withdrawal rights and the option to roll interest payments into the balance.

(2) Deposits due in less than one year include deposits with indeterminate maturities.

(3) See Note 9: Long-Term Borrowings to our consolidated financial statements for further discussion. Total future payment of interest charges for the floating-rate notes is estimated to be $551 million as of December 31, 2017, utilizing the current interest rates as of that date.

(4) Purchase obligations for goods and services include payments under, among other things, consulting, outsourcing, data, advertising, sponsorship, software license, telecommunications agreements and global acceptance contracts. Purchase obligations also include payments under rewards program agreements with merchants. Purchase obligations at December 31, 2017 reflect the minimum purchase obligation under legally binding contracts with contract terms that are both fixed and determinable. These amounts exclude obligations for goods and services that already have been incurred and are reflected on our consolidated statement of financial condition.

(5)

Other liabilities include our expected future contributions to our pension plan, the contingent liability associated with our other investments accounted for under the equity method and a commitment to purchase certain when-issued mortgage-backed securities under an agreement with the Delaware State Housing Authority as part of our community reinvestment initiatives.

As of December 31, 2017 our consolidated statement of financial condition reflects a liability for unrecognized tax benefits of $123 million and approximately $27 million of accrued interest and penalties. Since the ultimate amount and timing of any future cash settlements cannot be predicted with reasonable certainty, the estimated income tax obligations about which there is uncertainty have been excluded from the contractual obligations table. See Note 15: Income Taxes to our consolidated financial statements for further information concerning our tax obligations.

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We extend credit for consumer loans, primarily arising from agreements with customers for unused lines of credit on certain credit cards, provided there is no violation of conditions established in the related agreement. At December 31, 2017, our unused credit arrangements were approximately $190.2 billion. These arrangements, substantially all of which we can terminate at any time and which do not necessarily represent future cash requirements, are periodically reviewed based on account usage, customer creditworthiness and loan qualification. In addition, in the ordinary course of business, we guarantee payment on behalf of subsidiaries relating to contractual obligations with external parties. The activities of the subsidiaries covered by any such guarantees are included in our consolidated financial statements.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

Market risk refers to the risk that a change in the level of one or more market prices, rates, indices, correlations or other market factors will result in losses for a position or portfolio. We are exposed to market risk primarily from changes in interest rates.

Interest Rate Risk

We borrow money from a variety of depositors and institutions in order to provide loans to our customers, as well as invest in other assets and our business. These loans and other assets earn interest, which we use to pay interest on the money borrowed. Our net interest income and, therefore, earnings, will be reduced if the interest rate earned on assets increases at a slower pace than the interest rate on our borrowings. Changes in interest rates and our competitors' responses to those changes may influence customer payment rates, loan balances or deposit account activity. As a result, we may incur higher funding costs, which has the potential to decrease earnings.

Our interest rate risk management policies are designed to measure and manage the potential volatility of earnings that may arise from changes in interest rates by having a financing portfolio that reflects our mix of variable- and fixed-rate assets. To the extent that the repricing characteristics of the assets and liabilities in a particular portfolio are not sufficiently matched, we may utilize interest rate derivative contracts, such as swap agreements, to achieve our objectives. Interest rate swap agreements effectively convert the underlying asset or liability from fixed- to floating-rate or from floating- to fixed-rate. See Note 21: Derivatives and Hedging Activities to our consolidated financial statements for information on our derivatives activity.

We use an interest rate sensitivity simulation to assess our interest rate risk exposure. For purposes of presenting the possible earnings effect of a hypothetical, adverse change in interest rates over the 12-month period from our reporting date, we assume that all interest rate sensitive assets and liabilities will be impacted by a hypothetical, immediate 100 basis point change in interest rates relative to market consensus expectations as of the beginning of the period. The sensitivity is based upon the hypothetical assumption that all relevant types of interest rates would change instantaneously, simultaneously and to the same degree.

Our interest rate sensitive assets include our variable rate loan receivables and the assets that make up our liquidity portfolio. We have limitations on our ability to mitigate interest rate risk by adjusting rates on existing balances and competitive actions may limit our ability to increase the rates that we charge to customers for new loans. At December 31, 2017, the majority of our credit card and student loans charge variable rates. Assets with rates that are fixed at period end but which will mature, or otherwise contractually reset to a market-based indexed rate or other fixed rate prior to the end of the 12-month period, are considered to be rate sensitive. The latter category includes certain revolving credit card loans that may be offered at below-market rates for an introductory period, such as balance transfers and special promotional programs, after which the loans will contractually reprice in accordance with our normal market-based pricing structure. For purposes of measuring rate sensitivity for such loans, only the effect of the hypothetical 100 basis point increase in the underlying market-based indexed rate has been considered. For assets that have a fixed interest rate but which contractually will, or are assumed to, reset to a market-based indexed rate or other fixed rate during the next 12 months, earnings sensitivity is measured from the expected repricing date. In addition, for all interest rate sensitive assets, earnings sensitivity is calculated net of expected loan losses, which for purposes of this analysis, are assumed to remain unchanged relative to our baseline expectations over the analysis horizon.

Interest rate sensitive liabilities are assumed to be those for which the stated interest rate is not contractually fixed for the next 12-month period. Thus, liabilities that vary with changes in a market-based index, such as federal funds or LIBOR, which will reset before the end of the 12-month period, or liabilities whose rates are fixed at the fiscal period end but which will mature and are assumed to be replaced with a market-based indexed rate prior to the end of the

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12-month period, also are considered to be rate sensitive. For these fixed-rate liabilities, earnings sensitivity is measured from the expected maturity date.

Net interest income sensitivity requires assumptions to be made regarding market conditions, consumer behavior, and the overall growth and composition of the balance sheet. These assumptions are inherently uncertain and, as a result, actual earnings may differ from the simulated earnings presented above. Our actual earnings depend on multiple factors including, but not limited to, the direction and timing of changes in interest rates, the movement of short-term versus long-term rates, balance sheet design, competitor actions affecting pricing decisions in our loans and deposits, and strategic actions undertaken by management.

Assuming an immediate 100 basis point increase in the interest rates affecting all interest rate sensitive assets and liabilities at December 31, 2017, we estimate that net interest income over the following 12-month period would increase by approximately $179 million, or 2%. Assuming an immediate 100 basis point increase in the interest rates affecting all interest rate sensitive assets and liabilities at December 31, 2016, we estimated that net interest income over the following 12-month period would increase by approximately $201 million, or 3%. Assuming an immediate 100 basis point decrease in the interest rates affecting all interest rate sensitive assets and liabilities at December 31, 2017, we estimate that net interest income over the following 12-month period would decrease by approximately $190 million, or 2%. As of December 31, 2016 we had not provided an estimate of any impact on net interest income of a decrease in interest rates as many of our interest rate sensitive assets and liabilities were tied to interest rates that were already at or near their historical minimum levels (i.e., Prime and LIBOR) and, therefore, could not have materially decreased further assuming U.S. market interest rates continued to remain above zero percent.

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Item 8. Financial Statements and Supplementary Data

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Stockholders of
Discover Financial Services
Riverwoods, IL

Opinion on Internal Control over Financial Reporting

We have audited the internal control over financial reporting of Discover Financial Services (the “Company”) as of December 31, 2017, based on the criteria established in Internal Control — Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (“COSO”). In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2017, based on criteria established in Internal Control - Integrated Framework (2013) issued by COSO.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (“PCAOB”), the consolidated statement of financial condition, and the related consolidated statements of income, comprehensive income, changes in stockholders’ equity, and cash flows as of and for the year ended December 31, 2017 of the Company and our report dated February 21, 2018 expressed an unqualified opinion on those financial statements.

Basis for Opinion

The Company’s management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management’s Annual Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on the Company’s internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control over Financial Reporting

A company’s internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company’s internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company’s assets that could have a material effect on the financial statements.

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

Chicago, Illinois
February 21, 2018

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM
To the Board of Directors and Stockholders of
Discover Financial Services
Riverwoods, IL
Opinion on the Financial Statements
We have audited the accompanying consolidated statements of financial condition of Discover Financial Services (the "Company") as of December 31, 2017 and 2016, the related consolidated statements of income, comprehensive income, stockholders' equity, and cash flows, for each of the three years in the period ended December 31, 2017, and the related notes (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2017 and 2016, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2017, in conformity with accounting principles generally accepted in the United States of America.
We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) ("PCAOB"), the Company's internal control over financial reporting as of December 31, 2017, based on the criteria established in Internal Control — Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission and our report dated February 21, 2018 expressed an unqualified opinion on the Company's internal control over financial reporting.
Basis for Opinion
These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.
We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.
Chicago, Illinois
February 21, 2018

We have served as the Company's auditor since the spin-off from its former parent company in 2007 and as Discover Bank's (a wholly-owned subsidiary of the Company) auditor since 1985.

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DISCOVER FINANCIAL SERVICES
Consolidated Statements of Financial Condition

	December 31, 2017	December 31, 2016
	(dollars in millions, except share amounts)	
Assets		
Cash and cash equivalents	$13,306	$11,914
Restricted cash	81	95
Investment securities (includes $1,395 and $1,605 at fair value at December 31, 2017 and 2016, respectively)	1,568	1,757
Loan receivables:		
Loan receivables	84,248	77,254
Allowance for loan losses	(2,621)	(2,167)
Net loan receivables	81,627	75,087
Premises and equipment, net	825	734
Goodwill	255	255
Intangible assets, net	163	166
Other assets	2,262	2,300
Total assets	$100,087	$92,308
Liabilities and Stockholders' Equity		
Deposits:		
Interest-bearing deposit accounts	$58,165	$51,461
Non-interest bearing deposit accounts	599	531
Total deposits	58,764	51,992
Long-term borrowings	26,326	25,443
Accrued expenses and other liabilities	4,105	3,550
Total liabilities	89,195	80,985
Commitments, contingencies and guarantees (Notes 15, 18 and 19)		
Stockholders' Equity:		
Common stock, par value $0.01 per share; 2,000,000,000 shares authorized; 563,497,702 and 562,414,040 shares issued at December 31, 2017 and 2016, respectively	6	5
Preferred stock, par value $0.01 per share; 200,000,000 shares authorized; 5,700 of Series C shares and 575,000 of Series B shares issued and outstanding and aggregate liquidation preference of $570 and $575 at December 31, 2017 and 2016, respectively	563	560
Additional paid-in capital	4,042	3,962
Retained earnings	16,687	15,130
Accumulated other comprehensive loss	(152)	(161)
Treasury stock, at cost; 205,577,507 and 173,648,023 shares at December 31, 2017 and 2016, respectively	(10,254)	(8,173)
Total stockholders' equity	10,892	11,323
Total liabilities and stockholders' equity	$100,087	$92,308

The table below presents the carrying amounts of certain assets and liabilities of Discover Financial Services' consolidated variable interest entities ("VIEs") which are included in the consolidated statements of financial condition above. The assets in the table below include those assets that can only be used to settle obligations of the consolidated VIEs. The liabilities in the table below include third-party liabilities of consolidated VIEs only and exclude intercompany balances that eliminate in consolidation. The liabilities also exclude amounts for which creditors have recourse to the general credit of Discover Financial Services.

	December 31,	
	2017	2016
	(dollars in millions)	
Assets		
Restricted cash	$81	$95
Loan receivables	$31,781	$33,016
Allowance for loan losses allocated to securitized loan receivables	$(998)	$(955)
Other assets	$5	$4
Liabilities		
Long-term borrowings	$16,536	$16,411
Accrued expenses and other liabilities	$16	$15

See Notes to the Consolidated Financial Statements.

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DISCOVER FINANCIAL SERVICES
Consolidated Statements of Income

	For the Years Ended December 31,		
	2017	2016	2015
	(dollars in millions, except per share amounts)		
Interest income:			
Credit card loans	$7,907	$7,155	$6,626
Other loans	1,560	1,361	1,243
Investment securities	27	38	49
Other interest income	154	62	27
Total interest income	9,648	8,616	7,945
Interest expense:			
Deposits	846	687	623
Short-term borrowings	—	—	1
Long-term borrowings	802	711	639
Total interest expense	1,648	1,398	1,263
Net interest income	8,000	7,218	6,682
Provision for loan losses	2,579	1,859	1,512
Net interest income after provision for loan losses	5,421	5,359	5,170
Other income:			
Discount and interchange revenue, net	1,052	1,055	1,117
Protection products revenue	223	239	261
Loan fee income	363	343	335
Transaction processing revenue	167	155	159
Gain on investments	3	—	9
Gain on origination and sale of mortgage loans	—	—	68
Other income	89	89	108
Total other income	1,897	1,881	2,057
Other expense:			
Employee compensation and benefits	1,512	1,379	1,327
Marketing and business development	776	731	745
Information processing and communications	315	339	349
Professional fees	655	605	610
Premises and equipment	99	95	95
Other expense	424	435	489
Total other expense	3,781	3,584	3,615
Income before income tax expense	3,537	3,656	3,612
Income tax expense	1,438	1,263	1,315
Net income	$2,099	$2,393	$2,297
Net income allocated to common stockholders	$2,031	$2,339	$2,246
Basic earnings per common share	$5.43	$5.77	$5.14
Diluted earnings per common share	$5.42	$5.77	$5.13

See Notes to the Consolidated Financial Statements.

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DISCOVER FINANCIAL SERVICES
Consolidated Statements of Comprehensive Income

	For the Years Ended December 31,		
	2017	2016	2015
	(dollars in millions)		
Net income	$2,099	$2,393	$2,297
Other comprehensive income (loss), net of taxes			
Unrealized loss on available-for-sale investment securities, net of tax	(2)	(3)	(23)
Unrealized gain (loss) on cash flow hedges, net of tax	23	7	(13)
Unrealized pension and post-retirement plan (loss) gain, net of tax	(12)	(5)	14
Other comprehensive income (loss)	9	(1)	(22)
Comprehensive income	$2,108	$2,392	$2,275

See Notes to the Consolidated Financial Statements.

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DISCOVER FINANCIAL SERVICES
Consolidated Statements of Changes in Stockholders' Equity

	Preferred Stock		Common Stock						
	Shares	Amount	Shares	Amount	Additional Paid-in Capital	Retained Earnings	Accumulated Other Comprehensive (Loss) Income	Treasury Stock	Total Stockholders' Equity
	(dollars in millions, shares in thousands)								
Balance at December 31, 2014	575	$ 560	558,194	$ 5	$ 3,790	$ 11,467	$ (138)	$ (4,550)	$ 11,134
Net income	—	—	—	—	—	2,297	—	—	2,297
Other comprehensive loss	—	—	—	—	—	—	(22)	—	(22)
Purchases of treasury stock	—	—	—	—	—	—	—	(1,715)	(1,715)
Common stock issued under employee benefit plans	—	—	83	—	4	—	—	—	4
Common stock issued and stock-based compensation expense	—	—	2,402	—	91	—	—	—	91
Dividends — common stock ($1.08 per share)	—	—	—	—	—	(477)	—	—	(477)
Dividends — Series B preferred stock ($65.00 per share)	—	—	—	—	—	(37)	—	—	(37)
Balance at December 31, 2015	575	560	560,679	5	3,885	13,250	(160)	(6,265)	11,275
Net income	—	—	—	—	—	2,393	—	—	2,393
Other comprehensive loss	—	—	—	—	—	—	(1)	—	(1)
Purchases of treasury stock	—	—	—	—	—	—	—	(1,908)	(1,908)
Common stock issued under employee benefit plans	—	—	81	—	4	—	—	—	4
Common stock issued and stock-based compensation expense	—	—	1,654	—	73	—	—	—	73
Dividends — common stock ($1.16 per share)	—	—	—	—	—	(476)	—	—	(476)
Dividends — Series B preferred stock ($65.00 per share)	—	—	—	—	—	(37)	—	—	(37)
Balance at December 31, 2016	575	560	562,414	5	3,962	15,130	(161)	(8,173)	11,323
Net income	—	—	—	—	—	2,099	—	—	2,099
Other comprehensive income	—	—	—	—	—	—	9	—	9
Purchases of treasury stock	—	—	—	—	—	—	—	(2,081)	(2,081)
Common stock issued under employee benefit plans	—	—	79	—	5	—	—	—	5
Common stock issued and stock-based compensation expense	—	—	1,005	1	75	—	—	—	76
Dividends — common stock ($1.30 per share)	—	—	—	—	—	(490)	—	—	(490)
Dividends — Series B preferred stock ($65.00 per share)	—	—	—	—	—	(37)	—	—	(37)
Redemption of Series B preferred stock	(575)	(560)	—	—	—	(15)	—	—	(575)

Issuance of Series C preferred stock, net of issuance costs	6	563	—	—	—	—	—	—	563
Balance at December 31, 2017	6	$ 563	563,498	$ 6	$ 4,042	$ 16,687	$ (152)	$ (10,254)	$ 10,892

See Notes to the Consolidated Financial Statements.

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DISCOVER FINANCIAL SERVICES
Consolidated Statements of Cash Flows

	For the Years Ended December 31,		
	2017	2016	2015
	(dollars in millions)		
Cash flows from operating activities			
Net income	$2,099	$2,393	$2,297
Adjustments to reconcile net income to net cash provided by operating activities:			
Provision for loan losses	2,579	1,859	1,512
Depreciation and amortization	393	351	391
Amortization of deferred revenues and accretion of accretable yield on acquired loans	(399)	(395)	(432)
Net loss (gain) on investments and other assets	55	57	(26)
Proceeds from sale of mortgage loans originated for sale	—	—	2,714
Net principal disbursed on mortgage loans originated for sale	—	—	(2,519)
Other, net	361	113	(8)
Changes in assets and liabilities:			
Increase in other assets	(502)	(187)	(237)
Increase in accrued expenses and other liabilities	622	234	162
Net cash provided by operating activities	5,208	4,425	3,854
Cash flows from investing activities			
Maturities and sales of available-for-sale investment securities	200	1,342	1,517
Purchases of available-for-sale investment securities	—	—	(677)
Maturities of held-to-maturity investment securities	16	24	17
Purchases of held-to-maturity investment securities	(40)	(56)	(37)
Net principal disbursed on loans originated for investment	(8,701)	(5,978)	(3,479)
Proceeds from returns of investment	17	—	—
Purchases of other investments	(65)	(51)	(51)
Decrease in restricted cash	14	4	7
Net purchases of premises and equipment	(218)		