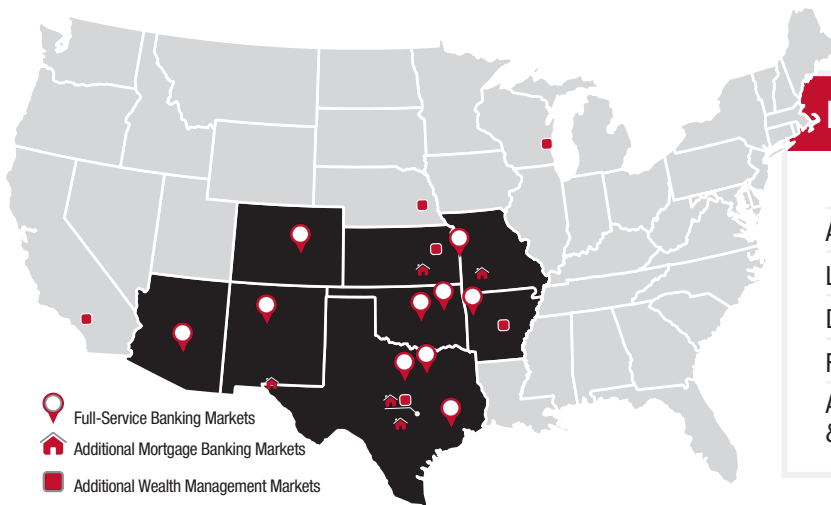


An abstract sculpture made of polished, reflective metal bands that intersect to form a series of diamond and hexagonal shapes. The sculpture is positioned on the left side of the page, with its reflective surfaces mirroring the background and each other.

# ANNUAL REPORT 2016

# A Diversified Regional Bank



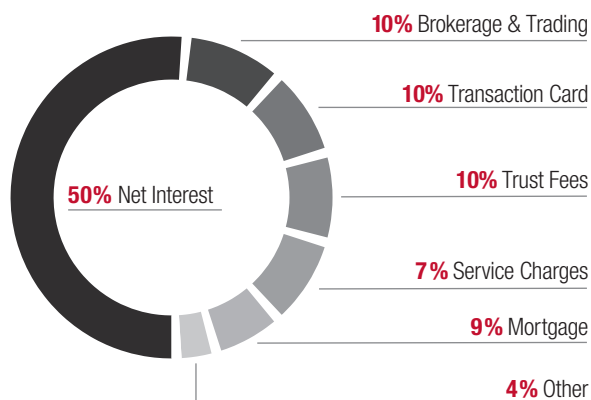
## KEY STATISTICS:

December 31, 2016

Assets	\$33 billion
Loans	\$17 billion
Deposits	\$23 billion
Fiduciary Assets	\$42 billion
Assets Under Management & Custody	\$75 billion

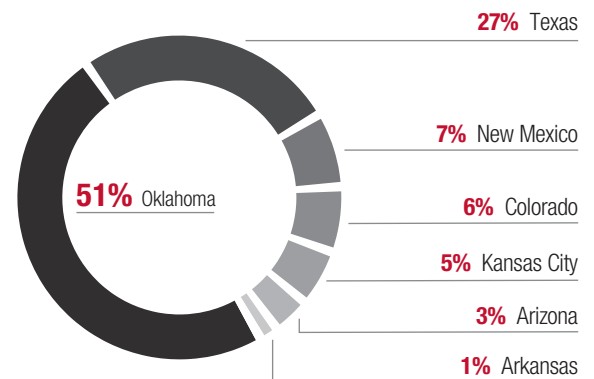
## DIVERSE REVENUE SOURCES:

Percent of total revenue 12 Months Ended 12/31/16



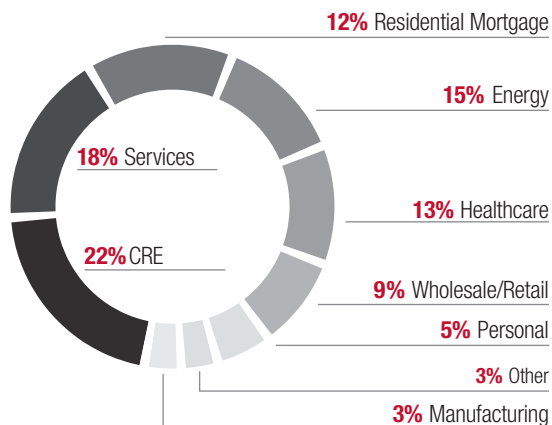
## DEPOSITS BY PRINCIPAL MARKET:

At 12/31/16



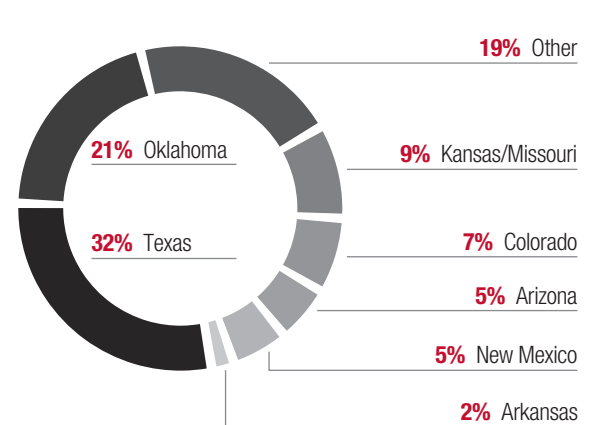
## LOAN PORTFOLIO SEGMENTATION:

At 12/31/16



## LOANS BY COLLATERAL LOCATION:

At 12/31/16



# Dear Shareholders,

2016 was a dramatic and volatile year. The oil and gas downturn that began in mid-2014 continued, with commodity prices fluctuating erratically throughout the year before stabilizing in the third and fourth quarter. A contentious national election culminated in what will seemingly be a major change of direction in Washington, D.C. as well as state capitals across the country. And a persistent low interest rate environment continued for yet another year, with long-term rates dipping to a new multi-year low during the first quarter, only to rebound sharply once the election results rolled in during November. Most of our core businesses were impacted in some way by the market uncertainty.

**Despite these challenges, we earned \$233 million for the full year, or \$3.53 per diluted share. I believe this was an excellent performance from our employees in what was a trying year. We grew our loan portfolio, our fee-generating businesses delivered record revenue, and our results were consistently and solidly profitable.**

BOK Financial is built to deliver strong performance regardless of the economic backdrop. I believe we will look back on 2016 as a valid and relevant example of the benefits of our business model, and that we are positioned to grow profitability and increase our competitive capabilities in 2017.

Steven G. Bradshaw  
President and Chief Executive Officer



## LOAN GROWTH

Loan balances were up seven percent in 2016 despite a significant decrease in our energy portfolio, where we saw borrowers pay down debt to shore up their balance sheets and manage through the extended downturn. But our commercial real estate, healthcare, regional, and private banking businesses generated strong growth and offset this decrease.

We expect continued mid-single-digit loan growth in 2017. Our healthcare business continues to expand geographically, and demographic trends indicate this business has plenty of potential for strong ongoing growth. In regional banking and private banking, we continue to take share from large national banks by competing with our local presence and stability along with our broad product offerings. Additionally, we expect growth to resume in the energy portfolio in the second half of the year. These favorable trends are expected to be offset in part by a reduction in commercial real estate growth, as we are approaching internal concentration limits and will manage further growth in this business by focusing on developers that have a strong track record with us over multiple cycles.

## FEE INCOME GROWTH

Our revenue diversity remains a critical component of our business strategy. We use this diversity to serve the broader needs of our consumer and commercial clients, and it helps to mitigate fluctuations in credit costs and other business slowdowns in our traditional banking activities.

We delivered record fee income growth in 2016, with three of our five main fee income businesses delivering record results for the year. In brokerage and trading, the volatile interest rate environment during the year drove increased revenue for our institutional brokerage team. Wealth management continued to be a strong component of our growth, posting an impressive six percent increase in assets under management while posting 26 percent growth in net interest revenue and six percent growth in other operating revenue. Transaction processing continued its track record of steady growth with revenues up 5.5 percent during the year.

Our mortgage business had a solid 2016 based on the very active refinancing market when rates were at historic lows in the early part of the year. Mid-year we made the decision to

exit the correspondent mortgage business where intense competition had significantly reduced profitability. Looking forward into 2017, we expect lower refinancing volume as interest rates increased considerably after the election, and of course the correspondent revenue from 2016 will not recur; however, we will continue to grow our Home Direct Mortgage channel, which now represents 25 percent of our mortgage processing volume and continues to expand its footprint nationally.

## ENERGY

The energy industry is important to our company, both in terms of direct credit exposure as well as the impact it has on our footprint. We take a long view of energy lending, informed by a management team and board of directors who have experienced many downturns. Because of this, our performance in energy lending has been remarkable: We incurred minimal losses considering the size of our portfolio, because we were as disciplined in the heady days when oil prices were in the triple digits as we are today. Our investment in an in-house petroleum engineering team enabled us to have an early view of changes in collateral value and protect against losses.

Not only is our energy portfolio in great shape as we exit the downturn, but our lending team is also better for it. Although we have a number of key executives who were with the bank and experienced the downturn of the 1980s (our chairman and our chief credit officer are relevant examples), few of our energy bankers had been through an extended commodities downturn. Now, every single one of them has experienced the extreme downturn of 2014–2016 and learned firsthand how our disciplined approach to this specialty lending business serves us well in good times and bad.

Also because of this discipline, we never left the industry. While many peer banks either stopped lending to oil and gas companies, we never lost our resolve or our belief that energy lending is a great business. All through the downturn, we continued to support customers, make new loans, build our portfolio and build relationships. We even invested further in the business with our 2016 acquisition of E-Spectrum Advisors, an energy acquisition and divestiture advisory firm that is poised to drive significant new revenue streams as properties begin to change hands again. We are in the energy banking business to stay and look forward to building this business even further in the coming years.

## RISK MANAGEMENT, COMPLIANCE AND TECHNOLOGY

Our three-year focus on building an effective and centralized compliance unit with a stronger third line of defense within our internal audit group is complete. We continue to seek efficiencies and will work to scale these resources as workload expands with overall growth, but at a pace that does not adversely impede earnings growth.

We also substantially upgraded our technology infrastructure platform, including additional investment in cyber security resources and capabilities, and will now focus more heavily on competitive product and service capabilities, in particular within web and mobile delivery platforms.

During 2016, we achieved equilibrium on balance sheet interest rate risk. We have done this in a slow and intentional manner the past three years to effectively balance current income and long-term return for shareholders.

## EXPENSES

We did see elevated expenses in 2016 from a variety of sources. Some have been the result of a very deep dive in our mortgage business profitability and outlook, especially in the context of higher capital requirements related to that business. This led us to change how we hedge our mortgage

servicing rights and accrue for costs associated with foreclosure and loss mitigation. We believe we now have those items at a stable run rate, and we also believe that those changes will increase the effectiveness of our MSR hedging efforts in 2017.

Additionally, we settled two litigation issues, one in wealth management and one in consumer banking. Although litigation is an ongoing risk for financial institutions, we do not expect these expenses to repeat in 2017.

Finally, as would be expected, we saw elevated - although manageable - credit costs associated with our energy portfolio. This is expected to moderate materially in 2017 as the energy industry continues to emerge from the two-year commodities cycle. A related expense has been increased FDIC insurance costs which is driven by higher non-performing energy loans. We likewise expect this to begin to decrease in the latter part of 2017.

We have tactically reduced expense and headcount the past few years by materially reducing our in-store banking channel, closing certain traditional branches, rationalizing our broker-dealer trading staff and the aforementioned exit from correspondent mortgage. Additionally, in October 2016 we announced that we would reduce contract labor, not backfill open positions and reduce our workforce for total annual savings in excess of \$20 million beginning in 2017.

# mobank

In the fourth quarter, we completed our first whole-bank acquisition since 2007 with the acquisition of MBT Bancshares, or Mobank, in Kansas City. Mobank operates four banking centers in the Kansas City area and is regularly named one of the strongest midsized banks in Kansas City.

Mobank is a great fit for us and significantly strengthens our market presence in Kansas City. We will now have six banking centers in the market, more than \$1.6 billion in assets and will vault into the top 10 in terms of market share. This is not a typical “big bank acquires small bank” scenario. We have adopted the Mobank brand and will tap into the best of both banks to build BOK Financial’s combined operations in the Kansas City market. Mobank also has deep roots in the Kansas City market and brings extensive relationships with customers, prospects and business partners that we believe will accelerate our growth. Mobank and its clients will likewise benefit from our expertise in commercial banking and private banking as well as fee-generating businesses, such as mortgage and wealth management.

The transaction is expected to contribute four to six cents to BOK Financial’s 2017 earnings per share after integration costs — a considerable increase from the three cents per share we forecasted when we announced the acquisition in late 2015 as Mobank is already well ahead of its plan for the year.



## 2017 PLAN AND ONGOING STRATEGY

Our plan for 2017 is built to achieve a 2:1 ratio of revenue growth to expense growth, which should result in materially improved EPS growth over the coming years. This will create operating leverage in today's environment, without reliance on rate increases or a reduction in regulatory costs.

It is our intention to continue to focus on competing effectively for new business with large national banks and investment firms. We do this via a mix of competitive products, technologies and services delivered by a workforce that has been trained and developed for many years to work extremely collaboratively on behalf of customers—delivering an experience that cannot be easily duplicated by larger competitors.

At BOK Financial, we believe how you achieve results is as important as the results you achieve. Accordingly, we have added expectations on the integrity of our business relationships with customers and how we conduct business within the company, as well as updated and strengthened our core values as a company. These values are fully integrated with our strategic plan and the core competencies we expect from every one of our employees.

In 2016, we launched a company-wide purpose statement: achieving more together. This is our overarching business model. Our fee-generating businesses work hand in hand with our lending and deposit-taking businesses to provide more benefit for customers and to improve financial returns for the company across the economic cycle. Our differentiated energy, healthcare and commercial real estate specialty lending businesses work together with our business banking, middle market and private banking businesses to serve a wide range of customers. And we are a diverse collection of people with unique skills, talents and areas of expertise. When we work together, across lines of business, geographies and areas of responsibility, we achieve more and fully realize our potential. It's what makes us great. And it creates and sustains a culture that is inherently difficult for our competitors to match.

We work together to achieve more for shareholders. Although we have faced some challenges, I want to assure you that we are well positioned heading into 2017. Credit costs are expected to moderate meaningfully and expense reductions taken in 2016 should enable us to grow revenue faster than expenses. Other unique 2016 expense items, such as litigation settlement expenses, are not expected to reoccur.

Despite the ups and downs of 2016, our loyal shareholders were rewarded handsomely, and as of this writing our stock is trading near its all-time high. During the year we also returned over \$181 million of capital to shareholders: We increased our dividend for the 11th consecutive year in November, with total dividends paid of \$114 million in the year, and we repurchased over \$67 million of our common stock.

Market sentiment changed for the better in the fourth quarter with expectations for a change in tone toward the financial services industry in Washington, D.C.; a more favorable interest rate environment; and stronger economic growth in the United States. BOK Financial is poised to benefit as we believe we occupy the sweet spot in the financial services industry, with the breadth of services to compete effectively with large national banks and the local presence and personal touch that customers demand. Our investment in risk, compliance and technology platforms is largely behind us; we've taken decisive action to right-size our expense base; and the credit environment is largely benign as we enter 2017. All of that supports my belief that we are well-positioned for strong earnings growth in the coming years.

I look forward to keeping you apprised of our progress.

Best regards,



Steven G. Bradshaw

**UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
Washington, D.C. 20549**

**FORM 10-K**

(Mark One)

- ☒ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**  
For the quarterly period ended December 31, 2016
- OR**
- ☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**  
For the transition period from \_\_\_\_\_ to \_\_\_\_\_

**Commission File No. 0-19341**

**BOK FINANCIAL CORPORATION**  
(Exact name of registrant as specified in its charter)

Oklahoma  
(State or other jurisdiction  
of Incorporation or Organization)

73-1373454  
(IRS Employer  
Identification No.)

Bank of Oklahoma Tower  
Boston Avenue at Second Street  
Tulsa, Oklahoma  
(Address of Principal Executive Offices)

74172  
(Zip Code)

(918) 588-6000  
(Registrant's telephone number, including area code)

Securities registered pursuant to Section 12 (b) of the Act: None

Securities registered pursuant to Section 12 (g) of the Act:  
Common stock, \$0.00006 par value

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☒ No ☐

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15 (d) of the Act. Yes ☐ No ☒

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 ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Website, 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 ☒ No ☐

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K 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. ☐

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 definitions of "larger accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act. (Check one):  
Large accelerated filer ☒ Accelerated filer ☐ Non-accelerated filer ☐ Smaller reporting company ☐

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

The aggregate market value of the registrant's common stock ("Common Stock") held by non-affiliates is approximately \$1.6 billion (based on the June 30, 2016 closing price of Common Stock of \$62.70 per share). As of January 31, 2017, there were 65,489,810 shares of Common Stock outstanding.

**DOCUMENTS INCORPORATED BY REFERENCE**

Part III incorporates certain information by reference from the Registrant's Proxy Statement for the 2017 Annual Meeting of Shareholders.

**BOK Financial Corporation**  
**Form 10-K**  
**Year Ended December 31, 2016**

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## **PART I**

### **ITEM 1. BUSINESS**

#### **General**

Developments relating to individual aspects of the business of BOK Financial Corporation (“BOK Financial” or “the Company”) are described below. Additional discussion of the Company’s activities during the current year appears within Item 7 “Management’s Discussion and Analysis of Financial Condition and Results of Operations.”

#### **Description of Business**

BOK Financial is a financial holding company incorporated in the state of Oklahoma in 1990 whose activities are governed by the Bank Holding Company Act of 1956 (“BHCA”), as amended by the Financial Services Modernization Act or Gramm-Leach-Bliley Act and the Dodd-Frank Wall Street Reform and Consumer Protection Act (the “Dodd-Frank Act”). BOK Financial offers full service banking in Oklahoma, Texas, New Mexico, Northwest Arkansas, Colorado, Arizona, and Kansas/Missouri. At December 31, 2016, the Company reported total consolidated assets of \$33 billion and ranked as the 55th largest bank holding company based on asset size.

BOKF, NA is a wholly owned subsidiary bank of BOK Financial. BOKF, NA operates TransFund, Cavanal Hill Investment Management, BOK Financial Asset Management, Inc. and seven banking divisions: Bank of Albuquerque, Bank of Arizona, Bank of Arkansas, Bank of Kansas City, Bank of Oklahoma, Bank of Texas and Colorado State Bank and Trust. On December 1, 2016, BOK Financial acquired Missouri Bank and Trust Company Kansas City dba Mobank as a wholly owned subsidiary bank of BOK Financial, more than doubling our market share in the Kansas City area. Mobank was merged into BOKF, NA on February 17, 2017. The Bank of Kansas City banking centers were converted to the Mobank brand. BOKF, NA and Mobank are collectively referred to as (“the subsidiary banks”) in the discussion following. Other wholly owned subsidiaries of BOK Financial include BOK Financial Securities, Inc., a broker/dealer that primarily engages in retail and institutional securities sales and municipal bond underwriting and The Milestone Group, Inc., an investment adviser to high net worth clients. Other non-bank subsidiary operations do not have a significant effect on the Company’s financial statements.

Our overall strategic objective is to emphasize growth in long-term value by building on our leadership position in Oklahoma through expansion into other high-growth markets in contiguous states. We operate primarily in the metropolitan areas of Tulsa and Oklahoma City, Oklahoma; Dallas, Fort Worth and Houston, Texas; Albuquerque, New Mexico; Denver, Colorado; Phoenix, Arizona, and Kansas City, Kansas/Missouri. Our acquisition strategy targets fairly priced quality organizations with demonstrated solid growth that would supplement our principal lines of business. We provide additional growth opportunities by hiring talent to enhance competitiveness, adding locations and broadening product offerings. Our operating philosophy embraces local decision-making in each of our geographic markets while adhering to common Company standards.

Our primary focus is to provide a comprehensive range of nationally competitive financial products and services in a personalized and responsive manner. Products and services include loans and deposits, cash management services, fiduciary services, mortgage banking and brokerage and trading services to middle-market businesses, financial institutions and consumers. Commercial banking represents a significant part of our business. Our credit culture emphasizes building relationships by making high quality loans and providing a full range of financial products and services to our customers. Our energy financing expertise enables us to offer commodity derivatives for customers to use in their risk management. We also offer derivative products for customers to use in managing their interest rate and foreign exchange risk. Our diversified base of revenue sources is designed to generate returns in a range of economic situations. Historically, fees and commissions provide 43% to 49% of our total revenue. Approximately 48% of our revenue came from fees and commissions in 2016.

BOK Financial’s corporate headquarters is located at Bank of Oklahoma Tower, Boston Avenue at Second Street, Tulsa, Oklahoma 74172.

The Company’s Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and amendments to those reports are available on the Company’s website at [www.bokf.com](http://www.bokf.com) as soon as reasonably practicable after the Company electronically files such material with or furnishes it to the Securities and Exchange Commission.

## **Operating Segments**

BOK Financial operates three principal lines of business: Commercial Banking, Consumer Banking and Wealth Management. Commercial Banking includes lending, treasury and cash management services and customer risk management products for small businesses, middle market and larger commercial customers. Commercial Banking also includes the TransFund electronic funds network. Consumer Banking includes retail lending and deposit services, lending and deposit services to small business customers served through the retail branch network and all mortgage banking activities. Wealth Management provides fiduciary services, private bank services and investment advisory services in all markets. Wealth Management also underwrites state and municipal securities and engages in brokerage and trading activities. Discussion of these principal lines of business appears within the Lines of Business section of “Management's Discussion and Analysis of Financial Condition and Results of Operations”.

## **Competition**

BOK Financial and its operating segments face competition from other banks, thrifts, credit unions and other non-bank financial institutions, such as investment banking firms, investment advisory firms, brokerage firms, investment companies, government agencies, mortgage brokers and insurance companies. The Company competes largely on the basis of customer services, interest rates on loans and deposits, lending limits and customer convenience. Some operating segments face competition from institutions that are not as closely regulated as banks, and therefore are not limited by the same capital requirements and other restrictions. All market share information presented below is based upon share of deposits in specified areas according to SNL DataSource as of June 30, 2016.

We are the largest financial institution in the state of Oklahoma with 14% of the state's total deposits. Bank of Oklahoma has 30% and 12% of the market share in the Tulsa and Oklahoma City areas, respectively. We compete with two banks that have operations nationwide and have greater access to funds at lower costs, higher lending limits, and greater access to technology resources. We also compete with regional and locally-owned banks in both the Tulsa and Oklahoma City areas, as well as in every other community in which we do business throughout the state.

Bank of Texas competes against numerous financial institutions, including some of the largest in the United States, and has a market share of approximately 2% in the Dallas, Fort Worth area and less than 1% in the Houston area. Bank of Albuquerque has a 9% market share in the Albuquerque area and competes with four large national banks, some regional banks and several locally-owned smaller community banks. Colorado State Bank and Trust has a market share of approximately 2% in the Denver area. Bank of Arkansas serves Benton and Washington counties in Arkansas with a market share of approximately 3%. Bank of Arizona operates as a community bank with locations in Phoenix, Mesa and Scottsdale with less than 1% market share. Bank of Kansas City and Mobank collectively have a 1% market share in the Kansas City, Kansas/Missouri market. The Company's ability to expand into additional states remains subject to various federal and state laws.

## **Employees**

As of December 31, 2016, BOK Financial and its subsidiaries employed 4,884 full-time equivalent employees. None of the Company's employees are represented by collective bargaining agreements. Management considers its employee relations to be good.

## **Supervision and Regulation**

BOK Financial and its subsidiaries are subject to extensive regulations under federal and state laws. These regulations are designed to promote safety and soundness, protect consumers and ensure the stability of the banking system as a whole. The purpose of these regulations is not necessarily to protect shareholders and creditors. As detailed below, these regulations require the Company and its subsidiaries to maintain certain capital balances and require the Company to provide financial support to its subsidiaries. These regulations may restrict the Company's ability to diversify, to acquire other institutions and to pay dividends on its capital stock. These regulations also include requirements on certain programs and services offered to our customers, including restrictions on fees charged for certain services.

The following information summarizes certain existing laws and regulations that affect the Company's operations. It does not summarize all provisions of these laws and regulations and does not include all laws and regulations that affect the Company presently or in the future.

## *General*

As a financial holding company, BOK Financial is regulated under the BHCA and is subject to regular inspection, examination and supervision by the Board of Governors of the Federal Reserve System (the “Federal Reserve Board”). Under the BHCA, BOK Financial files quarterly reports and other information with the Federal Reserve Board.

BOKF, NA is organized as a national banking association under the National Banking Act, and is subject to regulation, supervision and examination by the Office of the Comptroller of the Currency (the “OCC”), the Federal Deposit Insurance Corporation (the “FDIC”), the Federal Reserve Board, the Consumer Financial Protection Bureau and other federal and state regulatory agencies. The OCC has primary supervisory responsibility for national banks and must approve certain corporate or structural changes, including changes in capitalization, payment of dividends, change of place of business, and establishment of a branch or operating subsidiary. The OCC performs examinations concerning safety and soundness, the quality of management and directors, information technology and compliance with applicable regulations. The National Banking Act authorizes the OCC to examine every national bank as often as necessary.

A financial holding company, and the companies under its control, are permitted to engage in activities considered “financial in nature” as defined by the BHCA, Gramm-Leach-Bliley Act and Federal Reserve Board interpretations. Activities that are “financial in nature” include securities underwriting and dealing, insurance underwriting, merchant banking, operating a mortgage company, performing certain data processing operations, servicing loans and other extensions of credit, providing investment and financial advice, owning and operating savings and loan associations, and leasing personal property on a full pay-out, non-operating basis. A financial holding company is required to notify the Federal Reserve Board within thirty days of engaging in new activities determined to be “financial in nature.” BOK Financial is engaged in some of these activities and has notified the Federal Reserve Board.

In order for a financial holding company to commence any new activity permitted by the BHCA, each insured depository institution subsidiary of the financial holding company must be “well capitalized” and “well managed” and have received a rating of at least “satisfactory” in its most recent examination under the Community Reinvestment Act. A financial holding company and its depository institution subsidiaries are considered to be “well capitalized” if they meet the requirements discussed in the section captioned “Capital Adequacy and Prompt Corrective Action” which follows. A financial holding company and its depository institution subsidiaries are considered to be “well managed” if they receive a composite rating and management rating of at least “satisfactory” in their most recent examinations. If a financial holding company fails to meet these requirements, the Federal Reserve Board may impose limitations or conditions on the conduct of its activities and the company may not commence any new financial activities without prior approval.

The BHCA requires the Federal Reserve Board’s prior approval for the direct or indirect acquisition of more than five percent of any class of voting stock of any non-affiliated bank. Under the Federal Bank Merger Act, the prior approval of the OCC is required for a national bank to merge with another bank or purchase the assets or assume the deposits of another bank. In reviewing applications seeking approval of merger and acquisition transactions, the bank regulatory authorities consider, among other things, the competitive effect and public benefits of the transactions, the capital position of the combined organization, the applicant’s performance record under the Community Reinvestment Act and fair housing laws and the effectiveness of the subject organizations in combating money laundering activities.

A financial holding company and its subsidiaries are prohibited under the BHCA from engaging in certain tie-in arrangements in connection with the provision of any credit, property or services. Thus, a subsidiary of a financial holding company may not extend credit, lease or sell property, furnish any services or fix or vary the consideration for these activities on the condition that (1) the customer obtain or provide additional credit, property or services from or to the financial holding company or any subsidiary thereof, or (2) the customer may not obtain some other credit, property or services from a competitor, except to the extent reasonable conditions are imposed to insure the soundness of credit extended.

The subsidiary banks and other non-bank subsidiaries are also subject to other federal and state laws and regulations. For example, BOK Financial Securities, Inc. is regulated by the Securities and Exchange Commission (“SEC”), the Financial Industry Regulatory Authority (“FINRA”), the Federal Reserve Board, and state securities regulators. Such regulations generally include licensing of certain personnel, customer interactions, and trading operations.

On July 21, 2010, the Dodd-Frank Act was signed into law, giving federal banking agencies authority to increase regulatory capital requirements, impose additional rules and regulations over consumer financial products and services and limit the amount of interchange fees that may be charged in an electronic debit transaction. In addition, the Dodd-Frank Act made permanent the \$250,000 limit for federal deposit insurance. It also repealed prohibitions on payment of interest on demand deposits, which could impact how interest is paid on business transaction and other accounts. Further, the Dodd-Frank Act prohibits banking entities from engaging in proprietary trading and restricts banking entities' sponsorship of or investment in private equity funds and hedge funds. Final rules required to implement the Dodd-Frank Act have largely been issued. Many of these rules have extended phase-in periods and the full impact of this legislation on the banking industry, including the Company, has not been fully realized.

The Durbin Amendment to the Dodd-Frank Act required that interchange fees on electronic debit transactions paid by merchants must be "reasonable and proportional to the cost incurred by the issuer" and prohibited card network rules that have limited price competition among networks. Effective October 1, 2011, the Federal Reserve issued its final ruling to implement the Durbin Amendment. This ruling established a cap on interchange fees banks with more than \$10 billion in total assets can charge merchants for certain debit card transactions. The Durbin Amendment also required all banks to comply with the prohibition on network exclusivity and routing requirements. Debit card issuers are required to make at least two unaffiliated networks available to merchants.

The Dodd-Frank Act established the Consumer Financial Protection Bureau ("CFPB") with powers to supervise and enforce consumer protection laws. The CFPB has broad rule-making authority for a wide range of consumer protection laws that apply to all banks and savings institutions, including the authority to prohibit "unfair, deceptive or abusive" acts and practices. Established July 21, 2011, the CFPB has examination and enforcement authority over all banks and savings institutions with more than \$10 billion in assets for certain designated consumer laws and regulations. The CFPB issued mortgage servicing standards and mortgage lending rules, including "qualified mortgage" rules that are designed to protect consumers and ensure the reliability of mortgages. Mortgage lenders are required to make a reasonable and good faith determination based on verified and documented information that a consumer applying for a mortgage loan has a reasonable ability to repay the loan according to its terms. Qualified mortgages that meet this requirement and other specified criteria are given a safe harbor of compliance. Rules affecting mortgage lenders and servicers became effective on January 10, 2014.

Title VI of the Dodd-Frank Act, commonly known as the Volcker Rule, prohibits banking entities from engaging in proprietary trading as defined by the Dodd-Frank Act and restricts sponsorship of, or investment in, private equity funds and hedge funds, subject to limited exceptions and exclusions. In December 2013, Federal banking agencies approved regulations that implement the Volcker Rule. In July 2016, the Federal Reserve extended the conformance period to July 2017 for key elements of the Rule relating to certain relationships and investments in legacy funds. On December 12, 2016, the Federal Reserve issued guidance regarding how banking entities may apply for an additional extension of up to five years from July 2017 to conform investment in "illiquid fund." The Company's private equity investment activities may be curtailed. The Company's trading activity remains largely unaffected, as most of our trading activity is exempted or excluded from the Volcker Rule trading prohibitions.

Title VII of the Dodd-Frank Act subjects nearly all derivative transactions to the regulations of the Commodity Futures Trading Commission ("CFTC") or SEC. This includes registration, recordkeeping, reporting, capital, margin and business conduct requirements on swap dealers and major swap participants. The CFTC and SEC both approved interim final rules on the definition "swap" and "swap dealer" which were effective October 2012. Under these rules, entities transacting in less than \$8 billion in notional value of swaps over any 12 month period during the phase-in period will be exempt from the definition of "swap dealer." The phase-in period is set to expire on December 31, 2017, after which the \$8 billion threshold will be reduced to \$3 billion unless the CFTC takes further action affecting the threshold. The Company currently estimates that the nature and volume of swap activity will not require it to register as a swap dealer any time prior to December 2018. Although the ultimate impact of Title VII remains uncertain, we currently believe its full implementation is not likely to impose significantly higher compliance costs on the Company.

## *Capital Adequacy and Prompt Corrective Action*

The Federal Reserve Board, the OCC and the FDIC have issued substantially similar risk-based and leverage capital guidelines applicable to United States banking organizations to ensure capital adequacy based upon the risk levels of assets and off-balance sheet financial instruments. In addition, these regulatory agencies may from time to time require that a banking organization maintain capital above the minimum levels, whether because of its financial condition or actual or anticipated growth. Capital adequacy guidelines and prompt corrective action regulations involve quantitative measures of assets, liabilities, and certain off-balance sheet items calculated under regulatory accounting practices. Capital amounts and classifications are also subject to qualitative judgments by regulators regarding components, risk weighting and other factors.

Federal Reserve Board risk-based guidelines define a four-tier capital framework. Common equity Tier 1 capital (CET1) includes common shareholders' equity, less goodwill, most intangible assets and other adjustments. Tier 1 capital consists of CET1 capital plus certain additional capital instruments and related surplus. Supplementary capital (Tier 2) consists of preferred stock not qualifying as Tier 1 capital, qualifying mandatory convertible debt securities, limited amounts of subordinated debt, other qualifying term debt and allowances for credit losses, subject to limitations. Assets and off-balance sheet exposures are assigned to categories of risk-weights, based primarily upon relative credit risk. Risk-based capital ratios are calculated by dividing CET1, Tier 1 and total capital by risk-weighted assets.

New capital rules were effective for banks and bank holding companies, including BOK Financial on January 1, 2015 as part of a package of regulatory reforms developed by the Basel Committee on Banking Supervision ("BCBS") to strengthen the regulation, supervision and risk management of the banking sector, commonly referred to as the Basel III framework. Components of these rules will phase in through January 1, 2019. The new capital rules established a 7% threshold for common equity Tier 1 ratio consisting of a minimum level plus a capital conservation buffer. The rules also changed both the Tier 1 risk based capital requirements and the total risk based requirements to a minimum of 6% and 8%, respectively, plus a capital conservation buffer of 2.5% totaling 8.5% and 10.5%, respectively. The Company elected to exclude unrealized gains and losses from available for sale securities from its calculation of Tier 1 capital, consistent with the treatment under previous capital rules.

As of December 31, 2016, BOK Financial's common equity Tier 1 ratio was 11.21%. BOK Financial's Tier 1 and total capital ratios were 11.21% and 12.81%, respectively.

The leverage ratio is determined by dividing Tier 1 capital by adjusted average total assets. Banking organizations are required to maintain a ratio of at least 4%. A bank which falls below these levels, including the capital conservation buffer, would be subject to regulatory restrictions on capital distributions (including but not limited to dividends and share repurchases) and executive bonus payments. BOK Financial's leverage ratio at December 31, 2016 was 8.72%.

The Federal Deposit Insurance Corporation Improvement Act of 1991 (the "FDICIA"), among other things, identifies five capital categories for insured depository institutions from well capitalized to critically under-capitalized and requires the respective federal regulatory agencies to implement systems for prompt corrective action for institutions failing to meet minimum capital requirements within such categories. FDICIA imposes progressively more restrictive covenants on operations, management and capital distributions, depending upon the category in which an institution is classified. The various regulatory agencies have adopted substantially similar regulations that define the five capital categories identified by FDICIA, using the total risk-based capital, Tier 1 risk-based capital and leverage capital ratios as the relevant capital measures. Such regulations establish various degrees of corrective action to be taken when an institution is considered under-capitalized. Under these guidelines, the subsidiary banks were considered well capitalized as of December 31, 2016.

## *Liquidity Requirements*

The Basel III framework also requires bank holding companies and banks to measure their liquidity against specific liquidity tests. One test, referred to as the liquidity coverage ratio, is designed to ensure that the banking entity maintains a prescribed minimum level of unencumbered high-quality liquid assets equal to expected net cash outflows as defined. The other test, referred to as the net stable funding ratio, is designed to promote greater reliance on medium and long term funding sources.



On September 3, 2014, U.S. federal banking agencies published the final rule covering Liquidity Risk Management Standards that would standardize minimum liquidity requirements for internationally active banking organizations as defined (generally those with total consolidated assets in excess of \$250 billion) as well as modified liquidity requirements for other banking organizations with total consolidated assets in excess of \$50 billion that are not internationally active. Although the final rule does not apply to banking organizations with total assets less than \$50 billion, including the Company, if growth in the balance sheet of the Company were to approach the \$50 billion threshold, the costs of such liquidity regulations would begin to be realized.

### *Stress Testing*

As required by the Dodd-Frank Act, the Federal Reserve published regulations that require bank holding companies with \$10 billion to \$50 billion in assets to perform annual capital stress tests. The requirements for annual capital stress testing became effective for the Company in the fourth quarter of 2013. The Dodd-Frank Act Stress Test ("DFAST") is a forward-looking exercise under which the Company and its banking subsidiary estimate the impact of a hypothetical severely adverse macroeconomic scenario provided by the Federal Reserve and the Office of the Comptroller of the Currency on its financial condition and regulatory capital ratios over a nine-quarter time horizon. Under the scenario provided by the regulatory agencies for the Company's most recently completed stress test, all capital ratio measures remain above the minimum regulatory thresholds. Additional information concerning the annual stress test may be found on the Company's Investor Relations page at [www.bokf.com](http://www.bokf.com) under the "Presentations" tab. The results of future capital stress tests may place constraints on capital distributions or increases in required regulatory capital under certain circumstances.

Further discussion of regulatory capital, including regulatory capital amounts and ratios, is set forth under the heading "Liquidity and Capital" within "Management's Discussion and Analysis of Financial Condition and Results of Operations" and in Note 15 of the Company's Notes to Consolidated Financial Statements, both of which appear elsewhere herein.

### *Executive and Incentive Compensation*

Guidelines adopted by federal banking agencies prohibit excessive compensation as an unsafe and unsound practice and describe compensation as excessive when the amounts paid are unreasonable or disproportionate to the services performed by an executive officer, employee, director or principal shareholder. The Federal Reserve Board has issued comprehensive guidance on incentive compensation intended to ensure that the incentive compensation policies do not undermine safety and soundness by encouraging excessive risk taking. This guidance covers all employees that have the ability to materially affect the risk profile of an organization, either individually or as part of a group, based on key principles that (i) incentives do not encourage risk-taking beyond the organization's ability to identify and manage risk, (ii) compensation arrangements are compatible with effective internal controls and risk management, and (iii) compensation arrangements are supported by strong corporate governance, including active and effective board oversight. Deficiencies in compensation practices may affect supervisory ratings and enforcement actions may be taken if incentive compensation arrangements pose a risk to safety and soundness.

### *Deposit Insurance*

Substantially all of the deposits held by the subsidiary banks are insured up to applicable limits by the Deposit Insurance Fund ("DIF") of the FDIC and are subject to deposit insurance assessments to maintain the DIF. In 2011, the FDIC released a final rule to implement provisions of the Dodd-Frank Act that affect deposit insurance assessments. Among other things, the Dodd-Frank Act raised the minimum designated reserve ratio from 1.15% to 1.35% of estimated insured deposits, removed the upper limit of the designated reserve ratio, required that the designated reserve ratio reach 1.35% by September 30, 2020, and required that the FDIC offset the effect of increasing the minimum designated reserve ratio on depository institutions with total assets of less than \$10 billion. The Dodd-Frank Act provided the FDIC flexibility in implementation of the increase in the designated reserve ratio, but it will ultimately result in increased deposit insurance costs to the Company. The Dodd-Frank Act also required that the FDIC redefine the assessment base to average consolidated assets minus average tangible equity.

On June 30, 2016, the DIF rose above the 1.15%, resulting in a reduction of the initial assessment rate for all banks and implementing a 4.5% surcharge on insured depository institutions with total consolidated assets of \$10 billion or more. The assessment base for the surcharge will be the regular assessment base reduced by \$10 billion. If the DIF reserve ratio does not reach 1.35% by December 31, 2018, the FDIC will impose a shortfall assessment on banks with total consolidated assets of \$10 billion or more in the first quarter of 2019.

## *Dividends*

A key source of liquidity for BOK Financial is dividends from BOKF, NA, which is limited by various banking regulations to net profits, as defined, for the year plus retained profits for the preceding two years. Dividends are further restricted by minimum capital requirements and the Company's internal capital policy. BOKF, NA's dividend limitations are discussed under the heading "Liquidity and Capital" within "Management's Discussion and Analysis of Financial Condition and Results of Operations".

## *Source of Strength Doctrine*

According to Federal Reserve Board policy, a bank holding company is expected to act as a source of financial strength to each subsidiary bank and to commit resources to support each such subsidiary. This support may be required at times when a bank holding company may not be able to provide such support.

## *Transactions with Affiliates*

The Federal Reserve Board regulates transactions between the Company and its subsidiaries. Generally, the Federal Reserve Act and Regulation W, as amended by the Dodd-Frank Act, limit the Company's banking subsidiary and its subsidiaries, to lending and other "covered transactions" with affiliates. The aggregate amount of covered transactions a banking subsidiary or its subsidiaries may enter into with an affiliate may not exceed 10% of the capital stock and surplus of the banking subsidiary. The aggregate amount of covered transactions with all affiliates may not exceed 20% of the capital stock and surplus of the banking subsidiary.

Covered transactions with affiliates are also subject to collateral requirements and must be conducted on arm's length terms. Covered transactions include (a) a loan or extension of credit by the banking subsidiary, including derivative contracts, (b) a purchase of securities issued to a banking subsidiary, (c) a purchase of assets by the banking subsidiary unless otherwise exempted by the Federal Reserve, (d) acceptance of securities issued by an affiliate to the banking subsidiary as collateral for a loan, and (e) the issuance of a guarantee, acceptance or letter of credit by the banking subsidiary on behalf of an affiliate.

## *Bank Secrecy Act and USA PATRIOT Act*

The Bank Secrecy Act ("BSA") and The USA PATRIOT Act of 2001 ("PATRIOT Act") imposes many requirements on financial institutions in the interest of national security and law enforcement. BSA requires banks to maintain records and file suspicious activity reports that are of use to law enforcement and regulators in combating money laundering and other financial crimes. The PATRIOT Act is intended to deny terrorists and criminals the ability to access the U.S. financial services system and places significantly greater requirements on financial institutions. Financial institutions, such as the Company and its subsidiaries, must have a designated BSA Officer, internal controls, independent testing and training programs commensurate with their size and risk profile. As part of its internal control program, a financial institution is expected to have effective customer due diligence and enhanced due diligence requirements for high-risk customers, as well as processes to prohibit transactions with entities subject to Office of Foreign Asset Control sanctions. Documentation and recordkeeping requirements, as well as system requirements, aimed at identifying and reporting suspicious activity reporting, must increase with the institution's size and complexity. Failure to implement or maintain adequate programs and controls to combat terrorist financing and money laundering may have serious legal, financial, and reputational consequences.

## **Governmental Policies and Economic Factors**

The operations of BOK Financial and its subsidiaries are affected by legislative changes and by the policies of various regulatory authorities and, in particular, the policies of the Federal Reserve Board. The Federal Reserve Board has statutory objectives to maximize employment and maintain price stability. Among the instruments of monetary policy used by the Federal Reserve Board to implement these objectives are: open-market operations in U.S. Government securities, changes in the discount rate and federal funds rate on bank borrowings, and changes in reserve requirements on bank deposits. The effect of future changes in such policies on the business and earnings of BOK Financial and its subsidiaries is uncertain.

In response to the significant recession in business activity which began in 2007, the Federal Reserve took aggressive actions to reduce interest rates and provide liquidity. While many of the crisis-related programs have expired or been closed, government legislation and policies continue to be accommodative, including increases in government spending, reduction of certain taxes and promotion of home affordability programs.

The Federal Reserve completed its bond purchase program designed to reduce longer-term rates in October of 2014. Although it continues to maintain an accommodative policy of reinvesting principal payments from its holdings of agency debt and agency mortgage-backed securities and rolling over maturing Treasury securities, it could either curtail reinvestment in or begin selling those securities at any time.

As a result of signs of an improving economy, the Federal Reserve increased its target rate by 25 basis points in December of 2016, the second such increase since the end of 2008. In addition, it has signaled its expectations for a gradual tightening cycle as the economy improves. The short-term effectiveness and long-term impact of these programs on the economy in general and on BOK Financial in particular are uncertain.

## **Foreign Operations**

BOK Financial does not engage in operations in foreign countries, nor does it lend to foreign governments.

## ITEM 1A. RISK FACTORS

BOK Financial Corporation and its subsidiaries could be adversely affected by risks and uncertainties that could have a material impact on its financial condition and results of operations, as well as on its common stock and other financial instruments. Risk factors which are significant to the Company include, but are not limited to:

### **General and Regulatory Risk Factors**

#### ***Adverse factors could impact BOK Financial's ability to implement its operating strategy.***

Although BOK Financial has developed an operating strategy which it expects to result in continuing improved financial performance, BOK Financial cannot ensure that it will be successful in fulfilling this strategy or that this operating strategy will be successful. Achieving success is dependent upon a number of factors, many of which are beyond BOK Financial's direct control. Factors that may adversely affect BOK Financial's ability to implement its operating strategy include:

- deterioration of BOK Financial's asset quality;
- deterioration in general economic conditions, especially in BOK Financial's core markets;
- inability to control BOK Financial's non-interest expenses;
- inability to increase non-interest income;
- inability to access capital;
- decreases in net interest margins;
- increases in competition;
- adverse regulatory developments.

#### ***Substantial competition could adversely affect BOK Financial.***

Banking is a competitive business. BOK Financial competes actively for loan, deposit and other financial services business in the southwest region of the United States. BOK Financial's competitors include a large number of small and large local and national banks, savings and loan associations, credit unions, trust companies, broker-dealers and underwriters, as well as many financial and non-financial firms that offer services similar to those of BOK Financial. Large national financial institutions have substantial capital, technology and marketing resources. Such large financial institutions may have greater access to capital at a lower cost than BOK Financial does, which may adversely affect BOK Financial's ability to compete effectively.

BOK Financial has expanded into markets outside of Oklahoma, where it competes with a large number of financial institutions that have an established customer base and greater market share than BOK Financial. BOK Financial may not be able to continue to compete successfully in these markets outside of Oklahoma. With respect to some of its services, BOK Financial competes with non-bank companies that are not subject to regulation. The absence of regulatory requirements may give non-banks a competitive advantage.

#### ***Government regulations could adversely affect BOK Financial.***

BOK Financial and BOKF, NA are subject to banking laws and regulations that limit the type of acquisitions and investments that we may make. In addition, certain permitted acquisitions and investments are subject to prior review and approval by banking regulators, including the Federal Reserve, OCC and FDIC. Banking regulators have broad discretion on whether to approve proposed acquisitions and investments. In deciding whether to approve a proposed acquisition, federal banking regulators will consider, among other things, the effect of the acquisition on competition; 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. They will also consider our financial condition and our future prospects, including projected capital ratios and levels; the competence, experience, and integrity of our management; and our record of compliance with laws and regulations.

The last several years have seen an increase in regulatory costs borne by the banking industry. Laws, regulations or policies currently affecting BOK Financial and its subsidiaries may change. The implementation of the Dodd-Frank Act has and will continue to affect BOK Financial's businesses, including interchange revenue, mortgage banking, derivative and trading activities on behalf of customers, consumer products and funds management.

Regulatory authorities may change their interpretation of these statutes and regulations, including the OCC, our primary regulator, and the CFPB, our regulator for certain designated consumer laws and regulations. Violations of laws and regulations could limit the growth potential of BOK Financial's businesses. We have made extensive investments in human and technological resources to address enhanced regulatory expectations, including investments in the areas of risk management, compliance, and capital planning. Recent political developments, including the change in administration in the United States, have added additional uncertainty to the implementation, scope and timing of changes in the regulatory environment for the banking industry and for the broader economy.

Tax reform is a known priority of the new President along with the Ways and Means Committee, which introduced the Republican Blueprint for Tax Reform and is currently drafting proposed legislation. Both the Blueprint and the President's tax reform proposal have similar provisions. This alignment along with the Republican majority in Congress has significantly increased the likelihood of tax reform. Key proposals that may impact banks include lowering the corporate tax rate, full expensing of intangible assets, interest expense deductibility limited to interest income, and elimination of net operating loss carrybacks, most tax credits and special deductions. The impact to BOKF will depend on the final legislation, including the phase in provisions, which at this point is uncertain.

***Political environment could negatively impact BOK Financial's business.***

As a result of the financial crisis and related government intervention to stabilize the banking system, there have been a series of laws and related regulations proposed or enacted in an attempt to ensure the crisis is not repeated. Many of the proposed new regulations are far-reaching. The intervention by the government also impacted populist sentiment with a negative view of financial institutions. High profile mistakes by the very largest banks in the country have continued to fuel negative sentiment towards the banking industry. This sentiment may increase litigation risk to the Company or have an adverse impact on BOK Financial's future operations.

**Credit Risk Factors**

***Adverse regional economic developments could negatively affect BOK Financial's business.***

At December 31, 2016, loans to businesses and individuals with collateral primarily located in Texas represented approximately 32% of the total loan portfolio and loans to businesses and individuals with collateral primarily located in Oklahoma represented approximately 21% of our total loan portfolio. These geographic concentrations subject the loan portfolio to the general economic conditions within these areas. Poor economic conditions in Oklahoma, Texas or other markets in the southwest region may cause BOK Financial to incur losses associated with higher default rates and decreased collateral values in BOK Financial's loan portfolio. A regional economic downturn could also adversely affect revenue from brokerage and trading activities, mortgage loan originations and other sources of fee-based revenue.

***Extended oil and gas commodity price downturns could negatively affect BOK Financial customers.***

At December 31, 2016, 15% of BOK Financial's total loan portfolio is comprised of loans to borrowers in the energy industry. The energy industry is historically cyclical and prolonged periods of low oil and gas commodity prices could negatively impact borrowers' ability to pay. In addition, the Company does business in several major oil and natural gas producing states including Oklahoma, Texas and Colorado. The economies of these states could be negatively impacted by prolonged periods of low oil and gas commodity prices resulting in increased credit migration to classified and nonaccruing categories, higher loan loss provisions and risk of credit losses from both energy borrowers and businesses and individuals in those regional economies.

***Other adverse economic factors affecting particular industries could have a negative effect on BOK Financial customers and their ability to make payments to BOK Financial.***

Certain industry-specific economic factors also affect BOK Financial. For example, BOK Financial's loan portfolio includes commercial real estate loans. A downturn in the real estate industry in general or in certain segments of the commercial real estate industry in the southwest region could also have an adverse effect on BOK Financial's operations. Regulatory changes in healthcare may negatively affect our customers, which to date primarily has been focused in senior housing. A U.S. House proposal that provides states more flexibility in using Medicare/Medicaid funds may reduce healthcare reimbursement rates.



***Adverse global economic factors could have a negative effect on BOK Financial customers and counterparties.***

Economic conditions globally, including those of the European Union and China, could impact BOK Financial's customers and counterparties with which we do business. We have no direct exposure to European sovereign debt and our aggregate gross exposure to European financial institutions totaled \$6.9 million at December 31, 2016. Our exposure to Chinese financial institutions is limited. In addition, we have an aggregate gross exposure to internationally active domestic financial institutions of approximately \$206 million at December 31, 2016 composed of \$195 million of cash and securities positions and \$11 million of gross derivative positions. The financial condition of these institutions is monitored on an on-going basis. We have not identified any significant customer exposures to European sovereign debt, European financial institutions or Chinese financial institutions.

**Liquidity and Interest Rate Risk Factors**

***Fluctuations in interest rates could adversely affect BOK Financial's business.***

BOK Financial's business is highly sensitive to:

- the monetary policies implemented by the Federal Reserve Board, including the discount rate on bank borrowings and changes in reserve requirements, which affect BOK Financial's ability to make loans and the interest rates we may charge;
- changes in prevailing interest rates, due to the dependency of the subsidiary banks on interest income;
- open market operations in U.S. Government securities.

A significant increase in market interest rates, or the perception that an increase may occur, could adversely affect both BOK Financial's ability to originate new loans and BOK Financial's ability to grow. Conversely, a decrease in interest rates could result in acceleration in the payment of loans, including loans underlying BOK Financial's holdings of residential mortgage-backed securities and termination of BOK Financial's mortgage servicing rights. In addition, changes in market interest rates, changes in the relationships between short-term and long-term market interest rates or changes in the relationships between different interest rate indices, could affect the interest rates charged on interest-earning assets differently than the interest rates paid on interest-bearing liabilities. This difference could result in an increase in interest expense relative to interest income, which would reduce the Company's net interest revenue. In a rising interest rate environment, the composition of the deposit portfolio could shift resulting in a mix that is more sensitive to changes in interest rates than is the current mix. An increase in market interest rates also could adversely affect the ability of BOK Financial's floating-rate borrowers to meet their higher payment obligations. If this occurred, it could cause an increase in nonperforming assets and net charge-offs, which could adversely affect BOK Financial's business.

***Changes in mortgage interest rates could adversely affect mortgage banking operations as well as BOK Financial's substantial holdings of residential mortgage-backed securities and mortgage servicing rights, and brokerage and trading revenue.***

Our available for sale residential mortgage-backed security portfolio represents investment interests in pools of residential mortgages, composing \$5.6 billion or 17% of total assets of the Company at December 31, 2016. The fair value of residential mortgage-backed securities is highly sensitive to changes in interest rates. BOK Financial mitigates this risk somewhat by investing principally in shorter duration mortgage products, which are less sensitive to changes in interest rates. A significant decrease in interest rates may lead mortgage holders to refinance the mortgages constituting the pool backing the securities, subjecting BOK Financial to a risk of prepayment and decreased return on investment due to subsequent reinvestment at lower interest rates. A significant decrease in interest rates may also accelerate premium amortization. Conversely, a significant increase in interest rates may cause mortgage holders to extend the term over which they repay their loans, which delays the Company's opportunity to reinvest funds at higher rates.

Residential mortgage-backed securities are also subject to credit risk from delinquency or default of the underlying loans. BOK Financial mitigates this risk somewhat by investing in securities issued by U.S. government agencies. Principal and interest payments on the loans underlying these securities are guaranteed by these agencies.

BOK Financial derives a substantial amount of revenue from mortgage loan activities, including \$70 million from the production and sale of mortgage loans, \$64 million from the servicing of mortgage loans, \$46 million from the trading of U.S. agency residential mortgage backed securities and related financial instruments and \$39 million from sales of financial instruments to other mortgage lenders in 2016. These activities, as well our substantial holdings of residential mortgage backed securities and mortgage servicing rights may be adversely affected by changes in government policies and programs.

In addition, as part of BOK Financial's mortgage banking business, BOK Financial has substantial holdings of mortgage servicing rights, totaling \$247 million or 0.75% of total assets at December 31, 2016. The fair value of these rights is also very sensitive to changes in interest rates. Falling interest rates tend to increase loan prepayments, which may lead to a decrease in the value of related servicing rights. BOK Financial attempts to manage this risk by maintaining an active hedging program for its mortgage servicing rights. The Company's hedging program focuses on partially hedging the risk of changes in fair value, primarily related to changes mortgage interest rates. Other factors, such as short-term interest rates, which also impact the value of mortgage servicing rights, may not be hedged. The value of mortgage servicing rights may also decrease due to rising delinquency or default of the loans serviced, which are not hedged. This risk is mitigated somewhat by adherence to underwriting standards on loans originated for sale.

***Market disruptions could impact BOK Financial's funding sources.***

BOK Financial's subsidiary bank may rely on other financial institutions and the Federal Home Loan Bank of Topeka as a significant source of funds. Our ability to fund loans, manage our interest rate risk and meet other obligations depends on funds borrowed from these sources. The inability to borrow funds at market interest rates could have a material adverse effect on our operations.

**Operating Risk Factors**

***Dependence on technology increases cybersecurity risk.***

As a financial institution, we process a significant number of customer transactions and possess a significant amount of sensitive customer information. As technology advances, the ability to initiate transactions and access data has become more widely distributed among mobile phones, personal computers, automated teller machines, remote deposit capture sites and similar access points. These technological advances increase cybersecurity risk. While the Company maintains programs intended to prevent or limit the effects of cybersecurity risk, there is no assurance that unauthorized transactions or unauthorized access to customer information will not occur. The financial, reputational and regulatory impact of unauthorized transactions or unauthorized access to customer information could be significant.

***We depend on third parties for critical components of our infrastructure.***

We outsource a significant portion of our information systems, communications, data management and transaction processing to third parties. These third parties are sources of risk associated with operational errors, system interruptions or breaches, unauthorized disclosure of confidential information and misuse of intellectual property. If the service providers encounter any of these issues, we could be exposed to disruption of service, reputation damages, and litigation risk that could be material to our business.

**Risks Related to an Investment in Our Stock**

***Although publicly traded, BOK Financial's common stock has substantially less liquidity than the average trading market for a stock quoted on the NASDAQ National Market System.***

A relatively small fraction of BOK Financial's outstanding common stock is actively traded. The risks of low liquidity include increased volatility of the price of BOK Financial's common stock. Low liquidity may also limit holders of BOK Financial's common stock in their ability to sell or transfer BOK Financial's shares at the price, time and quantity desired.

***BOK Financial's principal shareholder controls a majority of BOK Financial's common stock.***

Mr. George B. Kaiser owns approximately 61% of the outstanding shares of BOK Financial's common stock at December 31, 2016. Mr. Kaiser is able to elect all of BOK Financial's directors and effectively control the vote on all matters submitted to a vote of BOK Financial's common shareholders. Mr. Kaiser's ability to prevent an unsolicited bid for BOK Financial or any other change in control could have an adverse effect on the market price for BOK Financial's common stock. A substantial majority of BOK Financial's directors are not officers or employees of BOK Financial or any of its affiliates. However, because of Mr. Kaiser's control over the election of BOK Financial's directors, he could change the composition of BOK Financial's Board of Directors so that it would not have a majority of outside directors.

***Possible future sales of shares by BOK Financial's principal shareholder could adversely affect the market price of BOK Financial's common stock.***

Mr. Kaiser has the right to sell shares of BOK Financial's common stock in compliance with the federal securities laws at any time, or from time to time. The federal securities laws will be the only restrictions on Mr. Kaiser's ability to sell. Because of his current control of BOK Financial, Mr. Kaiser could sell large amounts of his shares of BOK Financial's common stock by causing BOK Financial to file a registration statement that would allow him to sell shares more easily. In addition, Mr. Kaiser could sell his shares of BOK Financial's common stock without registration under Rule 144 of the Securities Act. Although BOK Financial can make no predictions as to the effect, if any, that such sales would have on the market price of BOK Financial's common stock, sales of substantial amounts of BOK Financial's common stock, or the perception that such sales could occur, could adversely affect market prices. If Mr. Kaiser sells or transfers his shares of BOK Financial's common stock as a block, another person or entity could become BOK Financial's controlling shareholder.

***Statutory restrictions on subsidiary dividends and other distributions and debts of BOK Financial's subsidiaries could limit amounts BOK Financial's subsidiaries may pay to BOK Financial.***

A substantial portion of BOK Financial's cash flow typically comes from dividends paid by BOKF, NA. Statutory provisions and regulations restrict the amount of dividends BOKF, NA may pay to BOK Financial without regulatory approval. Management also developed, and the BOK Financial board of directors approved, an internal capital policy that is more restrictive than the regulatory capital standards. In the event of liquidation, creditors of the subsidiary banks and other non-bank subsidiaries of BOK Financial are entitled to receive distributions from the assets of that subsidiary before BOK Financial, as holder of an equity interest in the subsidiaries, is entitled to receive any distributions.

## **ITEM 1B. UNRESOLVED STAFF COMMENTS**

None.

## **ITEM 2. PROPERTIES**

BOK Financial and its subsidiaries own and lease improved real estate that is carried at \$191 million, net of depreciation and amortization. The Company's principal offices are located in leased premises in the Bank of Oklahoma Tower in Tulsa, Oklahoma. Banking offices are primarily located in Tulsa and Oklahoma City, Oklahoma; Dallas, Fort Worth and Houston, Texas; Albuquerque, New Mexico; Denver, Colorado; Phoenix, Arizona; and Kansas City, Kansas/Missouri. Primary operations facilities are located in Tulsa and Oklahoma City, Oklahoma; Dallas, Texas and Albuquerque, New Mexico. The Company's facilities are suitable for their respective uses and present needs.

The information set forth in Notes 5 and 14 of the Company's Notes to Consolidated Financial Statements, which appear elsewhere herein, provides further discussion related to properties.

## **ITEM 3. LEGAL PROCEEDINGS**

The information set forth in Note 14 of the Company's Notes to Consolidated Financial Statements, which appear elsewhere herein, provides discussion related to legal proceedings.

## **ITEM 4. MINE SAFETY DISCLOSURES**

Not applicable.

## PART II

### ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

BOK Financial's \$0.00006 par value common stock is traded on the NASDAQ Stock Market under the symbol BOKF. As of January 31, 2017, common shareholders of record numbered 755 with 65,489,810 shares outstanding.

The highest and lowest quarterly closing bid price for shares and cash dividends declared per share of BOK Financial common stock follows:

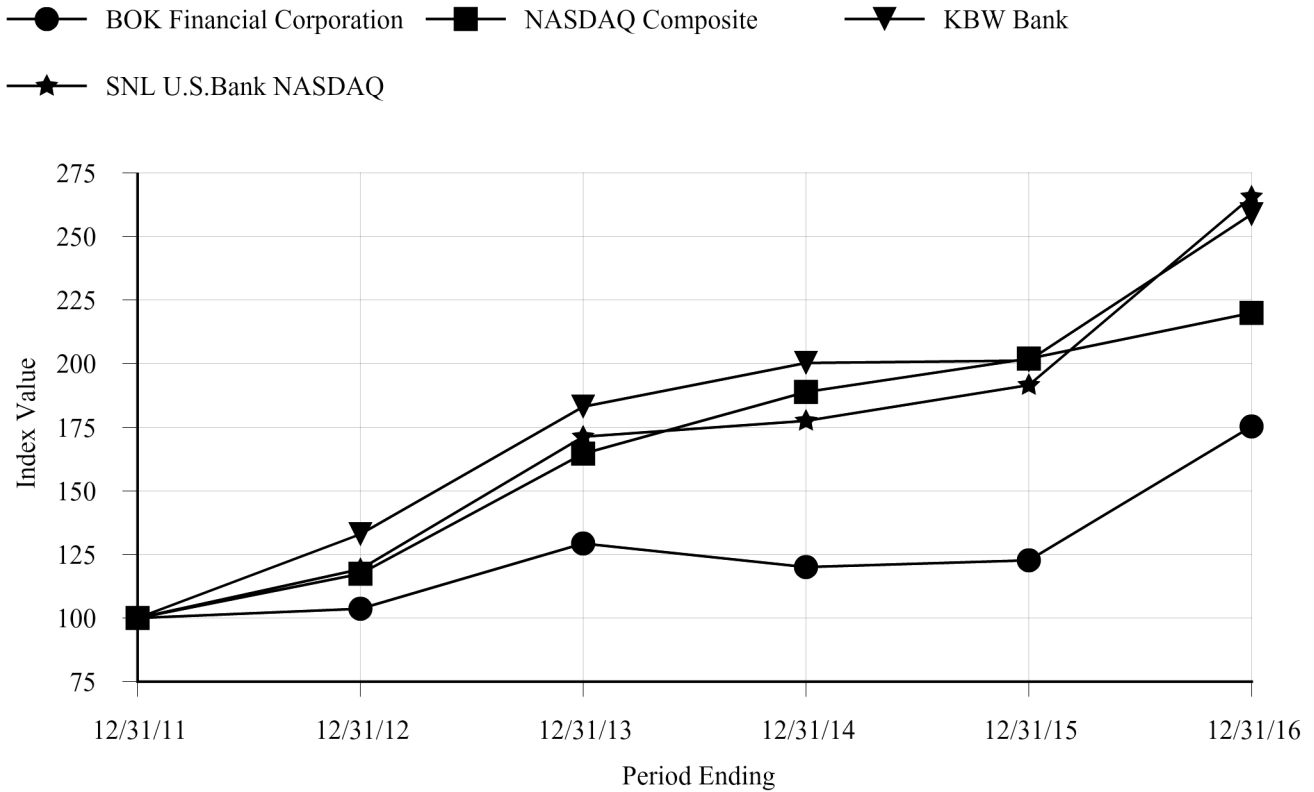
	<b>First</b>	<b>Second</b>	<b>Third</b>	<b>Fourth</b>
2016:				
Low	\$ 44.72	\$ 51.36	\$ 58.49	\$ 67.72
High	58.60	64.61	69.31	84.13
Cash dividends declared	0.43	0.43	0.43	0.44
2015:				
Low	\$ 53.37	\$ 60.18	\$ 57.09	\$ 58.92
High	61.67	70.72	70.15	72.44
Cash dividends declared	0.42	0.42	0.42	0.43



## Shareholder Return Performance Graph

Set forth below is a line graph comparing the change in cumulative shareholder return of the NASDAQ Index, the NASDAQ Bank Index, the KBW 50 Bank Index and the SNL U.S. Bank NASDAQ for the period commencing December 31, 2011 and ending December 31, 2016.\*

### Total Return Performance



Index	Period Ending December 31,					
	2011	2012	2013	2014	2015	2016
BOK Financial Corporation	100.00	103.63	129.32	120.00	122.66	175.30
NASDAQ Composite	100.00	117.45	164.57	188.84	201.98	219.89
SNL U.S. Bank NASDAQ	100.00	119.19	171.31	177.42	191.53	265.56
KBW 50	100.00	132.91	183.08	200.24	201.22	258.59

\* Graph assumes value of an investment in the Company's Common Stock for each index was \$100 on December 31, 2011. The KBW 50 Bank index is the Keefe, Bruyette & Woods, Inc. index, which is available only for calendar quarter end periods. Cash dividends on Common Stock are assumed to have been reinvested in BOK Financial Common Stock.

The following table provides information with respect to purchases made by or on behalf of the Company or any “affiliated purchaser” (as defined in Rule 10b-18(a)(3) under the Securities Exchange Act of 1934), of the Company’s common stock during the three months ended December 31, 2016.

<b>Period</b>	<b>Total Number of Shares Purchased <sup>2</sup></b>	<b>Average Price Paid per Share</b>	<b>Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs <sup>1</sup></b>	<b>Maximum Number of Shares that May Yet Be Purchased Under the Plans</b>
October 1, 2016 to October 31, 2016	—	\$ —	—	2,820,757
November 1, 2016 to November 30, 2016	700,000	\$ 70.03	700,000	2,120,757
December 1, 2016 to December 31, 2016	—	\$ —	—	2,120,757
<b>Total</b>	<b>700,000</b>		<b>700,000</b>	

<sup>1</sup> On October 1, 2015, the Company's board of directors authorized the Company to repurchase up to five million shares of the Company's common stock. As of December 31, 2016, the Company had repurchased 2,879,243 shares under this plan. Future repurchases of the Company's common stock will vary based on market conditions, regulatory limitations and other factors.

<sup>2</sup> The Company may repurchase shares from employees to cover the exercise price and taxes in connection with employee shared-based compensation.

## ITEM 6. SELECTED FINANCIAL DATA

The selected financial data is set forth within Table 1 of Item 7, “Management’s Discussion and Analysis of Financial Condition and Results of Operations.”

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

**Table 1 -- Consolidated Selected Financial Data**

(Dollars in thousands, except per share data)

	December 31,				
	2016	2015	2014	2013	2012
<b>Selected Financial Data</b>					
For the year:					
Interest revenue	\$ 829,117	\$ 766,828	\$ 732,239	\$ 745,371	\$ 794,871
Interest expense	81,889	63,474	67,045	70,894	87,322
Net interest revenue	747,228	703,354	665,194	674,477	707,549
Provision for credit losses	65,000	34,000	—	(27,900)	(22,000)
Fees and commissions revenue	686,748	650,646	621,319	603,844	628,880
Net income attributable to BOK Financial Corporation shareholders	232,668	288,565	292,435	316,609	351,191
Period-end:					
Loans	16,989,660	15,941,154	14,208,037	12,792,264	12,311,456
Assets	32,772,281	31,476,128	29,089,698	27,015,432	28,148,631
Deposits	22,748,095	21,088,158	21,140,859	20,269,327	21,179,060
Subordinated debentures	144,640	226,350	347,983	347,802	347,633
Shareholders’ equity	3,274,854	3,230,556	3,302,179	3,020,049	2,957,860
Nonperforming assets <sup>1</sup>	356,641	251,908	256,617	247,743	276,716
<b>Profitability Statistics</b>					
Earnings per share (based on average equivalent shares):					
Basic	\$ 3.53	\$ 4.22	\$ 4.23	\$ 4.61	\$ 5.15
Diluted	3.53	4.21	4.22	4.59	5.13
Percentages (based on daily averages):					
Return on average assets	0.72%	0.94%	1.04%	1.16%	1.34%
Return on average shareholders' equity	7.02%	8.65%	9.21%	10.64%	12.24%
Average total equity to average assets	10.38%	11.03%	11.47%	11.00%	11.05%
<b>Common Stock Performance</b>					
Per Share:					
Book value per common share	\$ 50.12	\$ 49.03	\$ 47.78	\$ 43.88	\$ 43.29
Market price: December 31 close	83.04	59.79	60.04	66.32	54.46
Market range – High close bid price	84.13	72.44	70.18	69.36	59.77
Market range – Low close bid price	44.72	53.37	57.87	55.05	52.56
Cash dividends declared	1.73	1.69	1.62	1.54	2.47 <sup>4</sup>
Dividend payout ratio	48.81%	40.03%	38.35%	33.43%	48.01% <sup>4</sup>

**Table 1 -- Consolidated Selected Financial Data**

(Dollars in thousands, except per share data)

	December 31,				
	2016	2015	2014	2013	2012
<b>Selected Balance Sheet Statistics</b>					
Period-end:					
Common equity Tier 1 ratio <sup>2</sup>	11.21%	12.13%	N/A	N/A	N/A
Tier 1 capital ratio <sup>2</sup>	11.21%	12.13%	13.33%	13.77%	12.78%
Total capital ratio <sup>2</sup>	12.81%	13.30%	14.66%	15.56%	15.13%
Leverage ratio <sup>2</sup>	8.72%	9.25%	9.96%	10.05%	9.01%
Allowance for loan losses to nonaccruing loans <sup>5</sup>	112.33%	180.09%	245.34%	184.71%	160.92%
Allowance for loan losses to loans	1.45%	1.41%	1.33%	1.45%	1.75%
Combined allowances for credit losses to loans <sup>3</sup>	1.52%	1.43%	1.34%	1.47%	1.77%
<b>Miscellaneous (at December 31)</b>					
Number of employees (full-time equivalent)	4,884	4,789	4,743	4,632	4,704
Number of TransFund locations	2,021	1,972	2,080	1,998	1,970
Fiduciary assets	\$41,781,564	\$38,333,638	\$35,997,877	\$30,137,092	\$ 25,829,038
Mortgage loans serviced for others	21,997,568	19,678,226	16,162,887	13,718,942	11,981,624

<sup>1</sup> Includes nonaccruing loans, renegotiated loans and assets acquired in satisfaction of loans. Excludes loans past due 90 days or more and still accruing.<sup>2</sup> Risk-based capital ratios for 2016 and 2015 calculated under revised regulatory capital rules issued July 2013 and effective for the Company on January 1, 2015. Previous risk-based ratios presented are calculated in accordance with then current regulatory capital rules.<sup>3</sup> Includes allowance for loan losses and accrual for off-balance sheet credit risk.<sup>4</sup> Includes \$1.00 per share special dividend.<sup>5</sup> Excludes residential mortgage loans guaranteed by agencies of the U.S. government.

## Management's Assessment of Operations and Financial Condition

### Overview

The following discussion is management's analysis to assist in the understanding and evaluation of the financial condition and results of operations of BOK Financial Corporation ("BOK Financial" or "the Company"). This discussion should be read in conjunction with the consolidated financial statements and footnotes and selected financial data presented elsewhere in this report.

The first quarter of 2016 began with a continued decline in energy prices that started in June of 2014. West Texas Intermediate crude oil fell to a low of \$26 per barrel in February of 2016, rebounded and then stabilized in a range between \$40 and \$50 a barrel by June. In November, the Organization of Petroleum Exporting Countries ("OPEC") announced production cuts of 1.2 million barrels per day in 2017 further supporting improvement in the supply and demand imbalance. The prolonged low price environment significantly impacted oil and gas producers and service companies supporting those industries. During the year, these companies reduced capital expenditure spending, cut headcount and focused on paying down debt and strengthening their balance sheets. These actions slowed growth within our geographical footprint, but to date have not had a significant direct impact. Moving into 2017, the industry remains cautious, but is poised for continued improvement as the supply and demand imbalance tightens.

For 2016, overall U.S. economic activity continued at a moderate pace and unemployment improved. National unemployment rates declined to 4.7% in December of 2016 from 5.0% in December of 2015. The minutes of the Federal Open Market Committee ("FOMC") of the Federal Reserve for December indicated continued strengthening of labor market and a moderate rise in household spending. However, business investment has remained soft. While inflation has increased, it is still below the Federal Reserve's 2% long-run objective. The Federal Reserve policies remain accommodative in order to foster maximum employment and price stability.

Investment returns were strong for 2016. The S&P 500 index was up 12% for the year, with 5% of that gain coming after the November election. This represents the 8th year in a row of positive returns for the S&P 500 index. Small cap stock also performed very well, up over 21% for 2016.

Short term interest rates, the rates most influenced by the Federal Reserve, moved up slightly during the year. As expected, the FOMC voted to raise the target range for the federal funds rate by  $\frac{1}{4}$  percentage point in December of 2016, bringing it from  $\frac{1}{2}$  to  $\frac{3}{4}$  percent. With the federal funds rate increase in December of 2015, the Federal Reserve ended an extraordinary seven-year period during which the federal funds rate was held near zero to support the recovery of the economy from the worst financial crisis and recession since the Great Depression. Long-term rates saw more volatility during 2016. The 10-year U.S. Treasury note started 2016 with a yield of 2.27%, dropped to a low of 1.36% in early July and then rose to 2.45% at year-end. We expect rates to continue to increase during 2017. The yield curve is also expected to steepen, with long-term interest rates up more than short-term interest rates through the end of 2017.

The markets have reacted positively to the outcome of the presidential election on the expectation of tax reform, decreased regulation, support of the fossil fuel industry and focus on the return of capital stranded offshore. But uncertainty exists as to the ability to deliver on these promised economic reforms. Potential missteps in trade negotiations, the impact of a strong dollar and budget deficits also remain as concerns.



## *Performance Summary*

Net income for the year ended December 31, 2016 totaled \$232.7 million or \$3.53 per diluted share compared with net income of \$288.6 million or \$4.21 per diluted share for the year ended December 31, 2015.

Highlights of 2016 included:

- Net interest revenue totaled \$747.2 million for 2016, up from \$703.4 million for 2015 primarily due to growth in average loans. The benefit of an increase in short-term interest rates on the loan portfolio and interest-bearing cash and cash equivalent yields was offset by higher borrowing costs. Net interest margin was 2.66% for 2016 compared to 2.60% for 2015.
- Fees and commissions revenue increased \$36.1 million or 6% over 2015 to \$686.7 million for 2016 with growth in most revenue categories. Fiduciary and asset management revenue grew by \$9.3 million due to decreased fee waivers and asset growth from acquisitions. Brokerage and trading revenue was up primarily due to increased customer hedging revenue. Mortgage banking revenue increased \$7.9 million primarily related to increased servicing revenue. Transaction card revenue grew \$7.1 million over the prior year due to transaction growth.
- The change in the fair value of mortgage servicing rights, net of economic hedges, decreased other operating revenue by \$28.4 million in 2016 and by \$7.9 million in 2015. An unexpected 85 basis point increase in the 10-year U.S. Treasury interest rate and related interest rates due to the market's reaction to the outcome of the U.S. presidential election increased the fair value of our servicing rights \$39.8 million. The fair value of our economic hedges decreased \$56.8 million.
- Operating expenses totaled \$1.0 billion, an increase of \$121.4 million or 14% over the prior year, including \$9.1 million of litigation and settlement expenses, \$7.5 million of integration costs related to the Mobank acquisition and \$5.0 million of severance costs related to the previously announced reduction of workforce to better align expenses with expected revenue growth. Excluding these items, personnel costs increased \$31.3 million or 6%, primarily due to increased incentive compensation expense. Non-personnel expenses increased \$68.5 million or 18%, primarily due to increased mortgage banking expense related to the effect of increased prepayments on our mortgage servicing rights, higher deposit insurance expense related to elevated criticized and classified asset levels and a new surcharge on banks over \$10 billion in total assets and continued upgrades of our information technology infrastructure and cybersecurity.
- After evaluating all credit factors, the Company determined that a \$65.0 million provision for credit losses was necessary in 2016, primarily due to credit migration in the energy portfolio. A \$34.0 million provision for credit losses was necessary in 2015. The Company had net charge-offs of \$34.8 million or 0.21% of average loans for 2016 compared to a net recovery of \$2.9 million or (0.02)% of average loans for 2015. Gross charge-offs increased to \$42.6 million in 2016 from \$15.2 million in 2015, primarily due to energy loans.
- The combined allowance for credit losses totaled \$257 million or 1.52% of outstanding loans at December 31, 2016 compared to \$227 million or 1.43% of outstanding loans at December 31, 2015.
- Nonperforming assets not guaranteed by U.S. government agencies totaled \$263 million or 1.56% of outstanding loans and repossessed assets (excluding those guaranteed by U.S. government agencies) at December 31, 2016 and \$156 million or 0.99% of outstanding loans and repossessed assets (excluding those guaranteed by U.S. government agencies) at December 31, 2015. Excluding assets guaranteed by U.S. government agencies, nonaccruing loans increased \$94 million and repossessed assets increased \$14 million during 2016.
- Period-end outstanding loan balances were \$17.0 billion at December 31, 2016, an increase of \$1.0 billion over the prior year. The acquisition of Mobank added \$485 million of loans, including \$289 million of commercial loans and \$87 million of commercial real estate balances. Commercial loan balances grew by \$138 million or 1% and commercial real estate loans increased \$550 million or 17%. Residential mortgage loans increased \$73 million. Personal loans increased \$287 million.
- Period-end deposits totaled \$22.7 billion at December 31, 2016, up \$1.7 billion over December 31, 2015. The Mobank acquisition added \$624 million in deposits. Demand deposit accounts increased by \$939 million and interest-bearing transaction deposits increased \$866 million, partially offset by a \$184 million decrease in time deposit balances.
- The Company's common equity Tier 1 capital ratio was 11.21% at December 31, 2016. In addition, the Company's Tier 1 capital ratio was 11.21%, total capital ratio was 12.81% and leverage ratio was 8.72% at December 31, 2016. At December 31, 2015, the Company's Tier 1 capital ratio was 12.13% at December 31, 2015, the total capital ratio was 13.30% and the leverage ratio was 9.25%.

- The Company repurchased 1,005,169 shares at an average price of \$66.45 per share during 2016. The Company repurchased 3,634,578 shares at an average price of \$63.15 during 2015.
- The Company paid cash dividends of \$1.73 per common share during 2016 and \$1.69 per common share in 2015.

Net income for the fourth quarter of 2016 totaled \$50.0 million or \$0.76 per diluted share compared to \$59.6 million or \$0.89 per diluted share for the fourth quarter of 2015.

Highlights of the fourth quarter of 2016 included:

- Net interest revenue totaled \$194.2 million for the fourth quarter of 2016, up \$12.9 million over the fourth quarter of 2015. Net interest margin was 2.69% for the fourth quarter of 2016, up from 2.64% for the fourth quarter of 2015. Net interest revenue increased primarily due to the growth in average loan balances and improving loan yields. Trading securities balances also increased and yields improved, partially offset by lower yields on the fair value option securities portfolio and increased funding costs.
- Other operating revenue was \$143.8 million for the fourth quarter of 2016, a decrease of \$15.2 million compared to the fourth quarter of 2015. Fees and commissions revenue was up \$8.3 million over the fourth quarter of 2015. The fourth quarter of 2016 included a \$17.0 million decrease in the fair value of mortgage servicing rights, net of economic hedges and a \$5.0 million decrease in the net fair value of trading portfolio positions related to an unexpected 85 basis point increase in the 10-year U.S. Treasury interest rate and related interest rates primarily due to the market's reaction to the outcome of the U.S. presidential election. Mortgage banking revenue increased \$5.5 million over the fourth quarter of 2015. Fiduciary and asset management revenue and transaction card revenue were both up over the fourth quarter of 2015.
- Operating expenses totaled \$265.5 million, an increase of \$35.1 million over the prior year. Excluding the impact of \$5.0 million of severance and other expenses related to the workforce reductions and \$4.7 million of integration costs related to the Mobank acquisition in the fourth quarter of 2016, other operating expense increased \$25.4 million over the fourth quarter of 2015. Personnel expense increased \$3.5 million primarily due to cash-based incentive compensation. Non-personnel expense was up \$21.9 million primarily due to mortgage banking, deposit insurance, professional fees and services and occupancy and equipment expenses. We also made a \$2.0 million cash contribution to the BOK Charitable Foundation in 2016.
- No provision for credit losses was recorded in the fourth quarter of 2016 due to improving credit metrics, largely driven by energy price stability. A \$22.5 million provision for credit losses was recorded in the fourth quarter of 2015. The Company had a net recovery of \$1.2 million in the fourth quarter of 2016 compared to net charge-offs of \$3.0 million in the fourth quarter of 2015. Gross charge-offs were down to \$1.7 million compared to \$4.9 million in the prior year.

## Critical Accounting Policies & Estimates

The Consolidated Financial Statements and accompanying notes are prepared in accordance with generally accepted accounting principles in the United States of America (“GAAP”). The Company's accounting policies are more fully described in Note 1 of the Consolidated Financial Statements. Management makes significant assumptions and estimates in the preparation of the Consolidated Financial Statements and accompanying notes in conformity with GAAP that may be highly subjective, complex and subject to variability. Actual results could differ significantly from these assumptions and estimates. The following discussion addresses the most critical areas where these assumptions and estimates could affect the financial condition, results of operations and cash flows of the Company. These critical accounting policies and estimates have been discussed with the appropriate committees of the Board of Directors.

### *Allowance for Loan Losses and Accrual for Off-Balance Sheet Credit Risk*

The appropriateness of the allowance for loan losses and accrual for off-balance sheet credit risk is assessed quarterly by management based on an ongoing evaluation of the probable estimated losses inherent in the loan portfolio and probable estimated losses on unused commitments to provide financing. A consistent, well-documented methodology has been developed and is applied by an independent Credit Administration department to ensure consistency across the Company. The allowance for loan losses consists of specific allowances attributed to certain impaired loans that have not yet been charged down to amounts we expect to recover, general allowances for unimpaired loans that are based on estimated loss rates by loan class and nonspecific allowances for risks beyond factors specific to a particular portfolio segment or loan class. There have been no material changes in the approach or techniques utilized in developing the allowance for loan losses and accrual for off-balance sheet credit risk during 2016.

Loans are considered impaired when it is probable that we will not collect all amounts due according to the contractual terms of the loan agreements, including loans modified in a troubled debt restructuring. Internally risk graded loans are evaluated individually for impairment. Substantially all commercial and commercial real estate loans and certain residential mortgage and personal loans are risk graded through a quarterly evaluation of the borrower's ability to repay.

Specific allowances for impaired loans that have not yet been charged down to amounts we expect to recover are measured by an evaluation of estimated future cash flows discounted at the loan's initial effective interest rate or the fair value of collateral for certain collateral dependent loans. Collateral value of real property is generally based on third party appraisals that conform to Uniform Standards of Professional Appraisal Practice, less estimated selling costs. Appraised values are on an “as-is” basis and generally are not adjusted by the Company. Updated appraisals are obtained at least annually or more frequently if market conditions indicate collateral values may have declined. Collateral value of mineral rights is determined by our internal staff of engineers based on projected cash flows under current market conditions. The value of other collateral is generally determined by our special assets staff based on liquidation cash flows under current market conditions. Collateral values and available cash resources that support impaired loans are evaluated quarterly. Historical statistics may be used as a practical way to estimate impairment in limited situations, such as when a collateral dependent loan is identified as impaired near the end of a reporting period until an updated appraisal of collateral value is received or a full assessment of future cash flows is completed. Estimates of future cash flows and collateral values require significant judgments and may be volatile.

General allowances for unimpaired loans are based on estimated loss rates by loan class. The appropriate historical gross loss rate for each loan class is determined by the greater of the current loss rate based on the most recent twelve months or a ten-year average gross loss rate. Recoveries are not directly considered in the estimation of historical loss rates. Recoveries generally do not follow predictable patterns and are not received until well-after the charge-off date as a result of protracted legal proceedings. For risk graded loans, historical loss rates are adjusted for changes in risk rating. For each loan class, the weighted average current risk grade is compared to the weighted average long-term risk grade. This comparison determines whether the risk in each loan class is increasing or decreasing. Historical loss rates are adjusted upward or downward in proportion to changes in weighted average risk grading. General allowances for unimpaired loans also consider inherent risks identified for a given loan class. Inherent risks include consideration of the loss rates that most appropriately represent the current credit cycle and other factors attributable to a specific loan class which have not yet been represented in the historical gross loss rates or risk grading. Examples of these factors include changes in commodity prices or engineering imprecision, which may affect the value of reserves that secure our energy loan portfolio, construction risk that may affect commercial real estate loans, changes in regulations and public policy that may disproportionately impact health care loans and changes in loan product types.

Nonspecific allowances are maintained for risks beyond factors specific to a particular portfolio segment or loan class. These factors include trends in the economy in our primary lending areas, concentrations in loans with large balances and other relevant factors.

## *Fair Value Measurement*

Certain assets and liabilities are recorded at fair value in the Consolidated Financial Statements. Fair value is defined by applicable accounting guidance as the price to sell an asset or transfer a liability in an orderly transaction between market participants in the principal markets for the given asset or liability at the measurement date based on market conditions at that date. An orderly transaction assumes exposure to the market for a customary period for marketing activities prior to the measurement date and not a forced liquidation or distressed sale.

A hierarchy for fair value has been established that prioritizes the inputs of valuation techniques used to measure fair value into three broad categories: unadjusted quoted prices in active markets for identical assets or liabilities (Level 1), other observable inputs that can be observed either directly or indirectly (Level 2) and unobservable inputs for assets or liabilities (Level 3). Fair value may be recorded for certain assets and liabilities every reporting period on a recurring basis or under certain circumstances on a non-recurring basis.

The following represents significant fair value measurements included in the Consolidated Financial Statements based on estimates. See Note 18 of the Consolidated Financial Statements for additional discussion of fair value measurement and disclosure included in the Consolidated Financial Statements.

### *Mortgage Servicing Rights*

We have a significant investment in mortgage servicing rights. Our mortgage servicing rights are primarily retained from sales in the secondary market of residential mortgage loans we have originated or purchased from correspondent lenders. Occasionally, mortgage servicing rights may be purchased from other lenders. Both originated and purchased mortgage servicing rights are initially recognized at fair value. We carry all mortgage servicing rights at fair value. Changes in fair value are recognized in earnings as they occur.

There is no active market for mortgage servicing rights after origination. The fair value of mortgage servicing rights is determined by discounting the projected cash flows. Certain significant assumptions and estimates used in valuing mortgage servicing rights are based on current market sources including projected prepayment speeds, assumed servicing costs, earnings on escrow deposits, ancillary income and discount rates. Assumptions used to value our mortgage servicing rights are considered significant unobservable inputs and represent our best estimate of assumptions that market participants would use to value this asset. A separate third party model is used to estimate prepayment speeds based on interest rates, housing turnover rates, estimated loan curtailment, anticipated defaults and other relevant factors. The prepayment model is updated periodically for changes in market conditions and adjusted to better correlate with actual performance of our servicing portfolio. The discount rate is based on benchmark rates for mortgage loans plus a market spread expected by investors in servicing rights. Significant assumptions used to determine the fair value of our mortgage servicing rights are presented in Note 7 to the Consolidated Financial Statements. At least annually, we request estimates of fair value from outside sources to corroborate the results of the valuation model.

The assumptions used in this model are primarily based on mortgage interest rates. Evaluation of the effect of a change in one assumption without considering the effect of that change on other assumptions is not meaningful. Considering all related assumptions, we expect a 50 basis point increase in primary mortgage interest rates to increase the fair value of our servicing rights by \$25 million. We expect a \$29 million decrease in the fair value of our mortgage servicing rights from a 50 basis point decrease in primary mortgage interest rates.

### *Valuation of Derivative Instruments*

We use interest rate derivative instruments to manage our interest rate risk. We also offer interest rate, commodity, foreign exchange and equity derivative contracts to our customers. All derivative instruments are carried on the balance sheet at fair value. Fair values for exchange-traded contracts are based on quoted prices in an active market for identical instruments. Fair values for over-the-counter interest rate contracts used to manage our interest rate risk are generated internally using third-party valuation models. Inputs used in third-party valuation models to determine fair values are considered significant other observable inputs. Fair values for interest rate, commodity, foreign exchange and equity contracts used in our customer hedging programs are based on valuations generated internally by third-party provided pricing models. These models use significant other observable market inputs to estimate fair values. Changes in assumptions used in these pricing models could significantly affect the reported fair values of derivative assets and liabilities, though the net effect of these changes should not significantly affect earnings.

Credit risk is considered in determining the fair value of derivative instruments. Deterioration in the credit rating of customers or dealers reduces the fair value of asset contracts. The reduction in fair value is recognized in earnings during the current period. Fair value adjustments are based on various risk factors including but not limited to counterparty credit rating or equivalent loan grading, derivative contract notional size, price volatility of the underlying commodity, duration of the derivative contracts and expected loss severity. Expected loss severity is based on historical losses for similarly risk-graded commercial loan customers. Deterioration in our credit rating below investment grade would affect the fair value of our derivative liabilities. In the event of a credit down-grade, the fair value of our derivative liabilities would decrease. The reduction in fair value would be recognized in earnings in the current period. The impact of credit valuation adjustments on the total valuation of derivative contracts was not significant.

#### *Valuation of Securities*

The fair value of our securities portfolio is generally based on a single price for each financial instrument provided to us by a third-party pricing service determined by one or more of the following:

- Quoted prices for similar, but not identical, assets or liabilities in active markets;
- Quoted prices for identical or similar assets or liabilities in inactive markets;
- Inputs other than quoted prices that are observable, such as interest rate and yield curves, volatilities, prepayment speeds, loss severities, credit risks and default rates;
- Other inputs derived from or corroborated by observable market inputs.

The underlying methods used by the third-party pricing services are considered in determining the primary inputs used to determine fair values. We evaluate the methodologies employed by the third-party pricing services by comparing the price provided by the pricing service with other sources, including brokers' quotes, sales or purchases of similar instruments and discounted cash flows to establish a basis for reliance on the pricing service values. Significant differences between the pricing service provided value and other sources are discussed with the pricing service to understand the basis for their values. Based on all observable inputs, management may adjust prices obtained from third-party pricing services to more appropriately reflect the prices that would be received to sell assets or paid to transfer liabilities in orderly transactions in the current market. No significant adjustments were made to prices provided by third-party pricing services at December 31, 2016 or December 31, 2015.

#### *Valuation of Impaired Loans and Real Estate and Other Repossessed Assets*

The fair value of collateral for certain impaired loans and real estate and other repossessed assets is measured on a non-recurring basis. The fair value of real estate is generally based on unadjusted third-party appraisals derived principally from or corroborated by observable market data. Fair value measurements based on these appraisals are considered to be based on Level 2 inputs. Fair value measurements based on appraisals that are not based on observable inputs or that require significant adjustments by us or fair value measurements that are not based on third-party appraisals are considered to be based on Level 3 inputs. Significant unobservable inputs include listing prices for comparable assets, uncorroborated expert opinions or management's knowledge of the collateral or industry.

The fair value of mineral rights is generally determined by our internal staff of engineers based on projected cash flows from proven oil and gas reserves under existing economic and operating conditions. Proven oil and gas reserves are estimated quantities that geological and engineering data demonstrate, with reasonable certainty, to be recoverable in future years from known reservoirs using existing prices and costs. Projected cash flows incorporate assumptions related to a number of factors including production, sales prices, operating expenses, severance, ad valorem taxes, capital costs and appropriate discount rate. Fair values determined through this process are considered to be based on Level 3 inputs.

#### *Income Taxes*

Determination of income tax expense and related assets and liabilities is complex and requires estimates and judgments when applying tax laws, rules, regulations and interpretations. It also requires judgments as to future earnings and the timing of future events. Accrued income taxes represent an estimate of net amounts due to or from taxing jurisdictions based upon these estimates, interpretations and judgments.

Management evaluates the Company's current tax expense or benefit based upon estimates of taxable income, tax credits and statutory tax rates. Annually, we file tax returns with each jurisdiction where we conduct business and adjust recognized income tax expense or benefit to filed tax returns.

We recognize deferred tax assets and liabilities based upon the differences between the values of assets and liabilities as recognized in the financial statements and their related tax basis using enacted tax rates in effect for the year in which the differences are expected to be recovered or settled. A valuation allowance is provided when it is more likely than not that some portion of the entire deferred tax asset may not be realized based on taxes previously paid in net loss carry-back periods and other factors.

We also recognize the benefit of uncertain income tax positions when based upon all relevant evidence, it is more-likely-than-not that our position would prevail upon examination, including resolution of related appeals or litigation, based upon the technical merits of the position. Unrecognized tax benefits, including estimated interest and penalties, are part of our current accrued income tax liability. Estimated penalties and interest are recognized in income tax expense. Income tax expense in future periods may decrease if an uncertain tax position is favorably resolved, generally upon completion of an examination by the taxing authorities, expiration of a statute of limitations, or changes in facts and circumstances.



## ***Results of Operations***

### **Net Interest Revenue and Net Interest Margin**

Net interest revenue is the interest earned on debt securities, loans and other interest-earning assets less interest paid for interest-bearing deposits and other borrowings. The net interest margin is calculated by dividing tax-equivalent net interest revenue by average interest-earning assets. Net interest spread is the difference between the average rate earned on interest-earning assets and the average rate paid on interest-bearing liabilities. Net interest margin is typically greater than net interest spread due to interest income earned on assets funded by non-interest bearing liabilities such as demand deposits and equity.

Tax-equivalent net interest revenue totaled \$764.8 million for 2016, up from \$715.8 million for 2015. Net interest margin was 2.66% for 2016 and 2.60% for 2015. Tax-equivalent net interest revenue increased \$49.0 million over the prior year. Net interest revenue increased \$47.2 million from growth in earning assets and increased \$1.8 million due to rates. The benefit of an increase in short-term interest rates on the loan portfolio and interest-bearing cash and cash equivalent yields was offset by higher borrowing costs. Table 2 shows the effects on net interest revenue of changes in average balances and interest rates for the various types of earning assets and interest-bearing liabilities. In addition, see the Annual and Quarterly Financial Summary of consolidated daily average balances, yields and rates following the Consolidated Financial Statements.

The tax-equivalent yield on earning assets was 2.95% for 2016 compared to 2.84% in 2015. Loan yields increased 5 basis points compared to the prior year primarily due to growth in variable rate loans and an increase in short-term interest rates. The yield on trading securities increased 94 basis points to 3.43% due to a change in mix toward more higher-yielding U.S. agency residential mortgage-backed securities. The yield on interest-bearing cash and cash equivalents increased 26 basis points to 0.53%. The available for sale securities portfolio yield increased 4 basis points to 2.03%. The benefit from improved yields on investment securities was offset by lower yields on restricted equity securities and fair value option securities. Funding costs increased 7 basis points over 2015. The cost of interest-bearing deposits decreased 1 basis point, while the cost of other borrowed funds increased 25 basis points, primarily due to increases in federal funds rates by the Federal Reserve in the fourth quarters of 2016 and 2015. The cost of subordinated debentures increased 98 basis points as lower variable rate debt outstanding during 2015 was replaced by higher fixed rate debt. The Company issued \$150 million of 40 year, 5.375% fixed rate subordinated debt during the second quarter that replaced \$227 million of floating rate subordinated debt based on three-month LIBOR plus 0.69%. The benefit to net interest margin from earning assets funded by non-interest bearing liabilities was 13 basis points for 2016, compared to 11 basis points for 2015.

Average earning assets for 2016 increased \$1.2 billion or 4% over 2015. Average loans, net of allowance for loan losses, increased \$1.3 billion due primarily to growth in average commercial and commercial real estate loans. Average trading securities balances increased \$168 million primarily related to the addition of a new group trading in U.S. mortgage-backed securities during 2016. The average balance of available for sale securities, which consists largely of residential and commercial mortgage-backed securities guaranteed by U.S. government agencies, decreased \$152 million. We purchase securities to supplement earnings and to manage interest rate risk. We have reduced the size of our bond portfolio during 2014, 2015 and 2016 through normal monthly runoff to better position the balance sheet for an environment of rising longer-term rates. Our outlook for earning assets is for continued growth in loan balances, partially offset by a reduction in the securities portfolio balance. We expect mid single digit annualized loan growth for 2017. We expect stable to rising net interest margin and increasing net interest revenue.

Growth in average assets was funded by increased borrowings from the Federal Home Loan Banks and demand deposit growth, partially offset by lower interest-bearing deposits and subordinated debt balances. Total average deposits were largely unchanged compared to the prior year. Average demand deposit balances grew by \$426 million over the prior year. This growth was offset by a \$328 million decrease in average time deposits and a \$175 million decrease in average interest-bearing transaction account balances. Average borrowed funds increased \$1.6 billion over the prior year. Borrowings from the Federal Home Loan Banks increased \$1.1 billion, partially offset by decreased funds purchased, repurchase agreements and subordinated debenture balances compared to the prior year.

Our overall objective is to manage the Company's balance sheet to be relatively neutral to changes in interest rates as is further described in the Market Risk section of this report. As shown in Table 20, approximately 81% of our commercial and commercial real estate loan portfolios are either variable rate loans or fixed rate loans that will re-price within one year. These loans are funded primarily by deposit accounts that are either non-interest bearing, or that re-price more slowly than the loans. The result is a balance sheet that would be asset sensitive, which means that assets generally re-price more quickly than liabilities. Among the strategies that we use to manage toward a relatively rate-neutral position, we purchase fixed rate residential mortgage-backed securities issued primarily by U.S. government agencies and fund them with market rate sensitive liabilities. The liability-sensitive nature of this strategy provides an offset to the asset-sensitive characteristics of our loan portfolio. We also may use derivative instruments to manage our interest rate risk.

The effectiveness of these strategies is reflected in the overall change in net interest revenue due to changes in interest rates as shown in Table 2 and in the interest rate sensitivity projections as shown in the Market Risk section of this report.

#### *Fourth Quarter 2016 Net Interest Revenue*

Tax-equivalent net interest revenue totaled \$198.6 million for the fourth quarter of 2016, an increase of \$14.1 million over the fourth quarter of 2015. Net interest margin was 2.69% for the fourth quarter of 2016 compared to 2.64% for the fourth quarter of 2015. Net interest revenue increased \$14.2 million primarily due to the growth in average loan balances and increased trading securities balances.

The tax-equivalent yield on earning assets was 2.98% for the fourth quarter of 2016, up 12 basis points over the fourth quarter of 2015. Loan yields increased 12 basis points to 3.67% due primarily to growth in variable rate loans and an increase in short-term interest rates. The yield on interest-bearing cash and cash equivalents increased 26 basis points to 0.55%. The available for sale securities portfolio yield decreased 4 basis points to 2.00%. Funding costs were up 10 basis points from the fourth quarter of 2015. The cost of interest-bearing deposits was unchanged compared to the fourth quarter of 2015. The cost of other borrowed funds increased 22 basis points, primarily due to the increase in the federal funds rate by the Federal Reserve. The cost of subordinated debt was up 438 basis points as lower variable rate debt outstanding in the fourth quarter of 2015 was replaced with higher fixed rate debt. The benefit to net interest margin from earning assets funded by non-interest bearing liabilities was 15 basis points in the fourth quarter of 2016, compared to 12 basis points in the fourth quarter of 2015.

Average earning assets for the fourth quarter of 2016 increased \$1.1 billion over the fourth quarter of 2015, including \$244 million related to the acquisition of Mobank. Average loans, net of allowance for loan losses, increased \$1.1 billion due primarily to growth in commercial and commercial real estate loan balances and included \$162 million related to the Mobank acquisition. Growth in the average balance of the trading securities portfolio was offset by decreased available for sale securities and fair value option securities held as an economic hedge of mortgage servicing rights.

Average deposits increased \$998 million over the fourth quarter of 2015, including \$206 million related to the Mobank acquisition. Average demand deposit balances increased \$812 million and average interest-bearing transaction accounts increased \$453 million. Average time deposits decreased \$306 million. Average borrowed funds increased \$1.0 billion over the fourth quarter of 2015, primarily due to increased Federal Home Loan Bank borrowings. The average subordinated debt balance decreased \$82 million as the size of the borrowing was reduced when it was refinanced during 2016.

#### *2015 Net Interest Revenue*

Tax-equivalent net interest revenue for 2015 was \$715.8 million, up from \$676.1 million for 2014. Net interest margin was 2.60% for 2015 compared to 2.68% for 2014. The \$39.7 million increase in net interest margin was due primarily to growth in earning assets, partially offset by a narrowing loan yields during the year. The yield on the available for sale securities portfolio increased and funding costs were lower compared to 2014.

The tax-equivalent yield on average earning assets decreased 11 basis points from 2014. Loan yields decreased 23 basis points primarily due to market pricing pressure and lower interest rates for the majority of 2015. The available for sale securities portfolio yield increased 4 basis points. Yields on restricted equity securities, fair value option securities and interest-bearing cash and cash equivalents all improved over 2014. The cost of interest-bearing liabilities decreased 6 basis points. The cost of interest-bearing deposits was down 6 basis points and the cost of other borrowed funds increased 5 basis points largely due to the mix of funding sources. The cost of subordinated debentures decreased 66 basis points as \$122 million of fixed-rate subordinated debt matured on June 1, 2015. The cost of this subordinated debt was 5.56%. The benefit to net interest margin from earning assets funded by non-interest bearing liabilities was 11 basis points for 2015, compared to 14 basis points for 2014.

Average earning assets increased \$2.4 billion or 9% during 2015. Average loans, net of allowance for loan losses, increased \$1.6 billion. The average balance of interest-bearing cash and cash equivalents grew by \$904 million over 2014 as borrowings from the Federal Home Loan Bank were deposited in the Federal Reserve to earn a spread. The average balance of the available for sale securities portfolio decreased \$620 million. We reduced the size of our securities portfolio during 2014 and 2015 through normal monthly runoff to better position the balance sheet for an environment of rising longer-term rates. Growth in average assets was funded by a \$518 million increase in average deposit balances. Average demand deposit account balances grew by \$361 million and average interest-bearing transaction account balances were up \$182 million, partially offset by a \$57 million decrease in average time deposit balances. Average borrowed funds balances increased \$1.7 billion over 2014. Borrowings from the Federal Home Loan Banks increased \$3.0 billion, partially offset by decreased funds purchased, repurchase agreements and subordinated debt balances.

**Table 2 – Volume/Rate Analysis**

(In thousands)

	Year Ended December 31, 2016 / 2015			Year Ended December 31, 2015 / 2014		
	Change Due To <sup>1</sup>			Change Due To <sup>1</sup>		
	Change	Volume	Yield / Rate	Change	Volume	Yield / Rate
Tax-equivalent interest revenue:						
Interest-bearing cash and cash equivalents	\$ 5,146	\$ (58)	\$ 5,204	\$ 2,831	\$ 2,331	\$ 500
Trading securities	6,158	4,318	1,840	535	625	(90)
Investment securities:						
Taxable securities	(664)	(528)	(136)	(251)	172	(423)
Tax-exempt securities	1,596	(961)	2,557	(814)	(579)	(235)
Total investment securities	932	(1,489)	2,421	(1,065)	(407)	(658)
Available for sale securities:						
Taxable securities	690	(2,617)	3,307	(10,341)	(13,401)	3,060
Tax-exempt securities	12	(655)	667	20	(417)	437
Total available for sale securities	702	(3,272)	3,974	(10,321)	(13,818)	3,497
Fair value option securities	(2,541)	(1,290)	(1,251)	5,653	5,025	628
Restricted equity securities	3,706	5,490	(1,784)	6,492	5,659	833
Residential mortgage loans held for sale	(944)	(416)	(528)	3,459	4,540	(1,081)
Loans	54,274	46,549	7,725	28,510	61,236	(32,726)
Total tax-equivalent interest revenue	67,433	49,832	17,601	36,094	65,191	(29,097)
Interest expense:						
Transaction deposits	5,085	(16)	5,101	(936)	110	(1,046)
Savings deposits	3	39	(36)	(18)	45	(63)
Time deposits	(8,764)	(4,139)	(4,625)	(5,559)	(839)	(4,720)
Funds purchased	121	13	108	(276)	(336)	60
Repurchase agreements	(34)	(52)	18	(301)	(106)	(195)
Other borrowings	21,045	8,239	12,806	7,109	7,744	(635)
Subordinated debentures	959	(1,445)	2,404	(3,590)	(1,537)	(2,053)
Total interest expense	18,415	2,639	15,776	(3,571)	5,081	(8,652)
Tax-equivalent net interest revenue	49,018	47,193	1,825	39,665	60,110	(20,445)
Change in tax-equivalent adjustment	5,144			1,505		
<b>Net interest revenue</b>	<b>\$ 43,874</b>			<b>\$ 38,160</b>		

<sup>1</sup> Changes attributable to both volume and yield/rate are allocated to both volume and yield/rate on an equal basis.

**Table 2 – Volume/Rate Analysis (continued)**

(In thousands)

	Three Months Ended December 31, 2016 / 2015		
	Change Due To <sup>1</sup>		Yield / Rate
	Change	Volume	
Tax-equivalent interest revenue:			
Interest-bearing cash and cash equivalents	\$ 1,334	\$ 28	\$ 1,306
Trading securities	3,714	2,957	757
Investment securities:			
Taxable securities	(120)	(110)	(10)
Tax-exempt securities	441	(247)	688
Total investment securities	321	(357)	678
Available for sale securities:			
Taxable securities	(1,167)	(224)	(943)
Tax-exempt securities	(38)	(211)	173
Total available for sale securities	(1,205)	(435)	(770)
Fair value option securities	(1,920)	(848)	(1,072)
Restricted equity securities	649	1,054	(405)
Residential mortgage loans held for sale	(133)	310	(443)
Loans	17,362	11,401	5,961
Total tax-equivalent interest revenue	20,122	14,110	6,012
Interest expense:			
Transaction deposits	1,814	120	1,694
Savings deposits	2	5	(3)
Time deposits	(1,741)	(918)	(823)
Funds purchased	23	(6)	29
Repurchase agreements	(34)	(4)	(30)
Other borrowings	4,595	1,397	3,198
Subordinated debentures	1,359	(682)	2,041
Total interest expense	6,018	(88)	6,106
Tax-equivalent net interest revenue	14,104	14,198	(94)
Change in tax-equivalent adjustment	1,167		
Net interest revenue	\$ 12,937		

<sup>1</sup> Changes attributable to both volume and yield/rate are allocated to both volume and yield/rate on an equal basis.

## Other Operating Revenue

Other operating revenue was \$674.0 million for 2016, up \$15.5 million or 2% over 2015. Fees and commissions revenue grew by \$36.1 million or 6% over 2015. The change in the fair value of mortgage servicing rights, net of economic hedges, decreased other operating revenue by \$28.4 million in 2016 and \$7.9 million in 2015.

**Table 3 – Other Operating Revenue**  
(In thousands)

	Year Ended December 31,				
	2016	2015	2014	2013	2012
Brokerage and trading revenue	\$ 138,377	\$ 129,556	\$ 134,437	\$ 125,478	\$ 126,930
Transaction card revenue	135,758	128,621	123,689	116,823	107,985
Fiduciary and asset management revenue	135,477	126,153	115,652	96,082	80,053
Deposit service charges and fees	92,193	90,431	90,911	95,110	98,917
Mortgage banking revenue	133,914	126,002	109,093	121,934	169,302
Other revenue	51,029	49,883	47,537	48,417	45,693
Total fees and commissions revenue	686,748	650,646	621,319	603,844	628,880
Other gains, net	4,030	5,702	2,953	4,875	2,397
Gain (loss) on derivatives, net	(15,685)	430	2,776	(4,367)	(301)
Gain (loss) on fair value option securities, net	(10,555)	(3,684)	10,189	(15,212)	9,230
Change in fair value of mortgage servicing rights	(2,193)	(4,853)	(16,445)	22,720	(9,210)
Gain on available for sale securities, net	11,675	12,058	1,539	10,720	33,845
Total other-than-temporary impairment	—	(2,443)	(373)	(2,574)	(1,144)
Portion of loss recognized in (reclassified from) other comprehensive income	—	624	—	266	(6,207)
Net impairment losses recognized in earnings	—	(1,819)	(373)	(2,308)	(7,351)
Total other operating revenue	\$ 674,020	\$ 658,480	\$ 621,958	\$ 620,272	\$ 657,490

### *Fees and commissions revenue*

Diversified sources of fees and commissions revenue are a significant part of our business strategy and represented 48% of total revenue for 2016, excluding provision for credit losses and gains and losses on asset sales, securities and derivatives and the change in the fair value of mortgage servicing rights. We believe that a variety of fee revenue sources provide an offset to changes in interest rates, values in the equity markets, commodity prices and consumer spending, all of which can be volatile. As an example of this strength, many of the economic factors that cause net interest revenue compression such as falling interest rates may also drive growth in our mortgage banking revenue. We expect growth in other operating revenue to come through offering new products and services and by further development of our presence in other markets. However, current and future economic conditions, regulatory constraints, increased competition and saturation in our existing markets could affect the rate of future increases.

Brokerage and trading revenue, which includes revenues from trading, customer hedging, retail brokerage and investment banking, increased \$8.8 million or 7% over the prior year.

Trading revenue includes net realized and unrealized gains primarily related to sales of U.S. government securities, residential mortgage-backed securities guaranteed by U.S. government agencies and municipal securities to institutional customers and related derivative instruments. Trading revenue totaled \$43.0 million for 2016, compared to \$44.7 million for 2015. Trading revenue was negatively impacted by an unexpected 85 basis point increase in the 10-year U.S. Treasury rate primarily due to the market's reaction to the outcome of the presidential election. This increase in interest rates decreased the fair value of our trading securities portfolio by approximately \$5.0 million. Excluding this estimated impact, trading revenue was up \$3.3 million or 7% over the prior year.



The Company added a new group trading in U.S. government agency residential mortgage-backed securities and related to-be-announced derivatives in the third quarter of 2016. This new trading group added \$6.6 million of net interest revenue and \$2.3 million of trading revenue in the latter half of 2016, excluding the impact of the unexpected increase in long-term interest rates. This new group also increased our trading securities portfolio by \$300 million and receivables for unsettled trades by \$405 million at December 31, 2016.

Customer hedging revenue is based primarily on realized and unrealized changes in the fair value of derivative contracts held for customer risk management programs. As more fully discussed under Customer Derivative Programs in Note 3 of the Consolidated Financial Statements, we offer commodity, interest rate, foreign exchange and equity derivatives to our customers. Derivative contracts executed with customers are offset with contracts between selected counterparties and exchanges to minimize market risk from changes in commodity prices, interest rates or foreign exchange rates. Customer hedging revenue totaled \$47.2 million for 2016, an increase of \$6.3 million or 15% over 2015. The volume of derivative contracts sold to our mortgage banking customers used to hedge their pipelines of mortgage loan originations increased as average mortgage rates trended down during 2016. Volumes of derivative contracts sold to energy customers increased as energy prices stabilized during 2016 and volumes of interest rate contracts increased in anticipation of rising interest rates.

Revenue earned from retail brokerage transactions totaled \$26.0 million for 2016, an increase of \$1.5 million or 6% over the the prior year. Retail brokerage revenue is primarily based on fees and commissions earned on sales of fixed income securities, annuities, mutual funds and other financial instruments to retail customers. Revenue is primarily based on the volume of customer transactions and applicable commission rate for each type of product. The increase in revenue due to transaction volume growth was partially offset by a change in product mix to products that pay a lower commission rate. In addition, volume shifted from sales of products that pay us a one-time transaction fee to accounts that pay us an on-going management fee.

Investment banking, which includes fees earned upon completion of underwriting, financial advisory services and loan syndication fees totaled \$22.2 million for 2016, an increase of \$2.7 million or 14% over 2015, related to the timing and volume of completed transactions.

Transaction card revenue depends largely on the volume and amount of transactions processed, the number of TransFund automated teller machine ("ATM") locations and the number of merchants served. Transaction card revenue totaled \$135.8 million for 2016, a \$7.1 million or 6% increase over 2015. Revenues from the processing of transactions on behalf of the members of our TransFund electronic funds transfer ("EFT") network totaled \$70.6 million, up \$5.4 million or 8% over 2015, due primarily to increased transaction volumes. The number of TransFund ATM locations totaled 2,021 at December 31, 2016 compared to 1,972 at December 31, 2015. Merchant services fees paid by customers for account management and electronic processing of card transactions totaled \$45.9 million, an increase of \$1.5 million or 3% over the prior year. The increase was primarily due to higher transaction processing volume throughout our geographical footprint. Revenue from interchange fees paid by merchants for transactions processed from debit cards issued by the Company totaled \$19.3 million, an increase of \$265 thousand or 1% over 2015 due to increased transaction volume.

Fiduciary and asset management revenue grew \$9.3 million or 7% over 2015, primarily due to decreased fee waivers and growth in assets under management. We earn fees as administrator to and investment adviser for the Cavanal Hill Funds, a diversified, open-ended investment company established as a business trust under the Investment Company Act of 1940 (the "1940 Act"). BOKF, NA is custodian and BOK Financial Securities, Inc. is distributor for the Cavanal Hill Funds. Products of the Cavanal Hill Funds are offered to customers, employee benefit plans, trusts and the general public in the ordinary course of business. We have voluntarily waived administration fees on the Cavanal Hill money market funds in order to maintain positive yields on these funds in the current low short-term interest rate environment. Waived fees totaled \$6.8 million for 2016 compared to \$12.5 million for 2015. The decrease in fee waivers was primarily related to increased interest rates as a result of the Federal Reserve's federal funds rate increase in the fourth quarter of 2015. The remaining increase in fiduciary and asset management revenue was largely due to growth in assets under management from the acquisition of Weaver and Tidwell Financial Advisors LTD dba Weaver Wealth Management, a registered investment advisor, in the first quarter of 2016.

The fair value of fiduciary assets administered by the Company totaled \$41.8 billion at December 31, 2016 and \$38.3 billion at December 31, 2015. Fiduciary assets are assets for which the Company possesses investment discretion on behalf of another, or any other similar capacity.

Deposit service charges and fees increased \$1.8 million or 2% over 2015. Commercial account service charge revenue totaled \$44.9 million, an increase of \$2.9 million or 7% over the prior year. Overdraft fees totaled \$40.5 million for 2016, a decrease of \$774 thousand or 2% compared to last year. Service charges on deposit accounts with a standard monthly fee were \$6.7 million, a decrease of \$334 thousand or 5% compared to the prior year.



Mortgage banking revenue totaled \$133.9 million for 2016, a \$7.9 million or 6% increase over 2015.

Mortgage production revenue totaled \$69.6 million, largely unchanged compared to the prior year. A \$512 million or 8% decrease in mortgage loan production volume from the record level achieved in 2015 was largely offset by improved gain on sale margins. The decrease in mortgage loan production volume was due primarily to a strategic decision to exit the corresponding lending channel during the third quarter of 2016 based on careful consideration of continued pressure on margin due to the competitive landscape and regulatory costs.

Gain on sale margins increased 9 basis points compared to the previous year. The margin increase was primarily due to exiting the correspondent lending channel, the lowest margin of our three sales channels.

Mortgage servicing revenue was \$64.3 million, a \$7.9 million or 14% increase over the prior year. The outstanding principal balance of mortgage loans serviced for others totaled \$22.0 billion at December 31, 2016, a \$2.3 billion increase over December 31, 2015.

**Table 4 – Mortgage Banking Revenue**

(In thousands)

	Year Ended December 31,				
	2016	2015	2014	2013	2012
Mortgage production revenue	\$ 69,628	\$ 69,587	\$ 61,061	\$ 79,545	\$ 129,117
Mortgage loans funded for sale	\$ 6,117,417	\$ 6,372,956	\$ 4,484,394	\$ 4,081,390	\$ 3,708,350
Add: Current year end outstanding commitments	318,359	601,147	627,505	258,873	356,634
Less: Prior year end outstanding commitments	601,147	627,505	258,873	356,634	189,770
Total mortgage production volume	5,834,629	6,346,598	4,853,026	3,983,629	3,875,214
Gain on sale margin	1.19%	1.10%	1.26%	2.00%	3.33%
Primary mortgage interest rates:					
Average	3.83%	3.89%	4.17%	3.99%	3.66%
Period end	4.32%	3.96%	3.83%	4.48%	3.35%
Mortgage servicing revenue	\$ 64,286	\$ 56,415	\$ 48,032	\$ 42,389	\$ 40,185
Average outstanding principal balance of mortgage loans serviced for others	20,837,897	17,920,557	14,940,915	12,850,283	11,641,305
Average mortgage servicing fee rates	0.31%	0.31%	0.32%	0.33%	0.35%

Primary rates disclosed in Table 4 above represent rates generally available to borrowers on 30 year conforming mortgage loans.

#### *Net gains on securities, derivatives and other assets*

We recognized \$11.7 million of net gains from sales of \$0.9 billion of available for sale securities in 2016. We recognized \$12.1 million of net gains from sales of \$1.6 billion of available for sale securities in 2015. Securities were sold either because they had reached their expected maximum potential or to move into securities that are expected to perform better in the current rate environment.

As discussed in the Market Risk section of this report, the fair value of our portfolio of mortgage servicing rights ("MSRs") changes in response to changes in primary mortgage loan rates and other assumptions. We attempt to mitigate the earnings volatility caused by changes in the fair value of MSRs within Board-approved limits by designating certain financial instruments as an economic hedge. Changes in the fair value of these instruments generally are expected to partially offset changes in the fair value of the MSRs.

Since mid-year 2016, the economic hedge was largely positioned to offset the impact of a 50 basis point decrease in primary mortgage interest rates and related interest rates, including 10-year U.S. Treasury rates. During the fourth quarter, the 10-year U.S. Treasury interest rate increased 85 basis points primarily due to the market's reaction to the outcome of the U.S. presidential election. This unexpected increase in rates resulted in a \$39.8 million increase in the fair value of our MSRs, offset by a \$56.8 million loss on our economic hedges.

**Table 5 – Gain (Loss) on Mortgage Servicing Rights, Net of Economic Hedge**  
(In thousands)

	Year Ended December 31,				
	2016	2015	2014	2013	2012
Gain (loss) on mortgage hedge derivative contracts, net	\$ (15,696)	\$ 634	\$ 2,776	\$ (5,080)	\$ 116
Gain (loss) on fair value option securities, net	(10,555)	(3,684)	10,003	(15,436)	7,793
Gain (loss) on economic hedge of mortgage servicing rights	(26,251)	(3,050)	12,779	(20,516)	7,909
Gain (loss) on change in fair value of mortgage servicing rights	(2,193)	(4,853)	(16,445)	22,720	(9,210)
Gain (loss) on changes in fair value of mortgage servicing rights, net of economic hedges included in other operating revenue	(28,444)	(7,903)	(3,666)	2,204	(1,301)
Net interest revenue on fair value option securities <sup>1</sup>	4,356	8,001	3,253	3,290	7,811
Total economic benefit (cost) of changes in the fair value of mortgage servicing rights, net of economic hedges	\$ (24,088)	\$ 98	\$ (413)	\$ 5,494	\$ 6,510

<sup>1</sup> Actual interest earned on fair value option securities less internal transfer-priced cost of funds.

Net gains on other assets totaled \$4.0 million for 2016. The Company recognized \$2.0 million related to the mutual termination of a rent guarantee between the Company and the City of Tulsa for office space in a building immediately adjacent to the Company's main office rented by third party tenants. The Company also recognized a \$2.1 million gain on the sale of a merchant banking investment during the year. Net gains on other assets totaled \$5.7 million for 2015. The Company recognized a \$1.7 million gain on the sale of bank premises and a \$2.8 million gain on underlying investments held by two consolidated private equity funds. Private equity gains are largely attributed to non-controlling interests.

#### *Fourth Quarter 2016 Other Operating Revenue*

Other operating revenue was \$143.8 million for the fourth quarter of 2016, a decrease of \$15.2 million compared to the fourth quarter of 2015. The fourth quarter of 2016 included a \$5.0 million decrease in the net fair value of trading portfolio positions and a \$17.0 million decrease in the fair value of mortgage servicing rights, net of economic hedges. The change in the fair value of mortgage servicing rights, net of economic hedges, increased other operating revenue \$2.6 million for the fourth quarter of 2015.

Fees and commissions revenue was up \$8.3 million over the fourth quarter of 2015. Excluding the estimated impact of the unexpected increase in long-term interest rates, brokerage and trading revenue increased \$3.2 million. Trading revenue totaled \$5.7 million for the fourth quarter of 2016, a \$996 thousand decrease. Customer hedging revenue totaled \$11.1 million, an increase of \$1.4 million. Revenue earned from retail brokerage transactions was \$5.9 million, largely unchanged compared to the fourth quarter of 2015. Investment banking revenue totaled \$5.8 million, a \$2.7 million increase over the fourth quarter of 2015 related to the timing and volume of completed transactions.

Transaction card revenue was \$34.5 million for the fourth quarter of 2016, a \$2.2 million or 7% increase over the fourth quarter of 2015, primarily due to a \$1.6 million increase in revenues from the processing of transactions on behalf of members of our TransFund EFT network. Revenues from the processing of transactions on behalf of the members of our TransFund EFT network totaled \$18.1 million and merchant services fees totaled \$11.6 million. Interchange fees paid by merchants for transactions processed from debit cards issued by the Company totaled \$4.8 million.

Fiduciary and asset management revenue increased \$3.4 million over the fourth quarter of 2015 to \$34.5 million primarily due to a decrease in waived administrative fees and growth in assets under management, including the addition of assets from the Weaver Wealth Management acquisition in the first quarter of 2016. Waived administration fees on the Cavanal Hill money market funds totaled \$1.4 million for the fourth quarter of 2016, compared to \$3.5 million for the fourth quarter of 2015.

Deposit service charges and fees were \$23.4 million for the fourth quarter of 2016, up \$552 thousand over the fourth quarter of 2015. Overdraft fees totaled \$10.4 million, largely unchanged compared to the fourth quarter of 2015. Commercial account service charge revenue totaled \$11.2 million, an increase of \$794 thousand. Service charges on deposit accounts with a standard monthly fee were \$1.7 million, also largely unchanged compared to the fourth quarter of 2015.

Mortgage banking revenue was \$28.4 million for the fourth quarter of 2016, up \$5.5 million over the fourth quarter of 2015. The Company's exit of the correspondent lending channel in the third quarter of 2016 improved gain on sale margins, partially offset by a decrease in mortgage loan production volume. Mortgage loan production volumes were \$878 million for the fourth quarter of 2016 compared to \$1.2 billion in the fourth quarter of 2015. Mortgage loan refinances, which have higher gains on sale margins, represented 63% of total loans funded during the fourth quarter of 2016, compared to 41% in the fourth quarter of 2015.

#### *2015 Other Operating Revenue*

Other operating revenue totaled \$658.5 million for 2015, up \$36.5 million or 6% over 2014. Fees and commissions revenue increased \$29.3 million. The change in the fair value of mortgage servicing rights, net of economic hedges, decreased operating revenue in 2015 by \$7.9 million and decreased operating revenue \$3.7 million in 2014. Net gains on sales of available for sale securities were \$12.1 million for 2015 compared to \$1.5 million for 2014. Other-than-temporary impairment charges recognized in earnings were \$1.4 million more than charges recognized in 2014.

Brokerage and trading revenue for 2015 decreased \$4.9 million compared to 2014. Decreased retail brokerage fees and lower investment banking revenue were partially offset by increased trading revenue and customer hedging revenue. Transaction card revenue grew by \$4.9 million over 2014 primarily due to growth in merchant services and TransFund EFT transaction volumes. Fiduciary and asset management fees increased \$10.5 million related to a full year of revenue from the GTRUST Financial Corporation and MBM Advisors acquisitions in 2014 which added \$4.0 million of revenue. The remaining increase was primarily due to growth in the fair value of fiduciary assets. Deposit service charges and fees decreased \$480 thousand. Increased commercial account service charges were offset by lower overdraft fees and service charges on deposit accounts with a standard monthly fee. Mortgage banking revenue grew by \$16.9 million over 2014. A record \$6.3 billion of mortgage loans were produced in 2015 due to the expansion of our correspondent and HomeDirect online mortgage channel and a decrease in average primary mortgage interest rates. The correspondent and HomeDirect online lending channels have lower margins than the retail lending channel.

Net gains on other assets totaled \$5.7 million for 2015. We recognized a \$1.7 gain on the sale of bank premises and a \$2.8 million gain on underlying investments held by two consolidated private equity funds. Private equity gains are largely attributed to non-controlling interests.

## Other Operating Expense

Other operating expense for 2016 totaled \$1.0 billion, a \$121.4 million or 14% increase over the prior year. Personnel expense increased \$37.8 million or 7%. Non-personnel expenses increased \$83.6 million or 22% over the prior year. Other operating expense for 2016 included \$9.1 million of litigation and settlement expenses as discussed further in Note 14 to the consolidated financial statements, \$7.5 million of integration costs related to the Mobank acquisition and \$5.0 million of severance costs related to the previously announced reduction of workforce to better align expenses with expected revenue growth. These items have been excluded from the discussion following.

**Table 6 – Other Operating Expense**

(In thousands)

	Year Ended December 31,				
	2016	2015	2014	2013	2012
Regular compensation	\$ 332,740	\$ 313,403	\$ 298,420	\$ 279,493	\$ 262,736
Incentive compensation:					
Cash-based compensation	128,077	114,305	111,748	110,871	116,718
Share-based compensation	10,464	12,358	10,875	8,189	9,668
Deferred compensation	1,687	361	(13,692)	32,083	27,502
Total incentive compensation	140,228	127,024	108,931	151,143	153,888
Employee benefits	80,151	74,871	69,580	74,589	74,409
Total personnel expense	553,119	515,298	476,931	505,225	491,033
Business promotion	26,582	27,851	26,649	22,598	23,338
Charitable contributions to BOKF Foundation	2,000	796	4,267	2,062	2,062
Professional fees and services	56,783	40,123	44,440	32,552	34,015
Net occupancy and equipment	80,024	76,016	77,232	69,773	66,726
Insurance	32,489	20,375	18,578	16,122	15,356
Data processing & communications	131,841	122,383	115,225	105,967	98,904
Printing, postage and supplies	15,584	13,498	13,518	13,885	14,228
Net losses & operating expenses of repossessed assets	3,359	1,446	6,019	5,160	20,528
Amortization of intangible assets	6,862	4,359	3,965	3,428	2,927
Mortgage banking costs	61,387	38,813	31,705	31,196	44,334
Other expense	47,560	35,233	28,993	32,652	26,912
Total other operating expense	\$ 1,017,590	\$ 896,191	\$ 847,522	\$ 840,620	\$ 840,363
Average number of employees (full-time equivalent)	4,872	4,797	4,679	4,683	4,614

### Personnel expense

Regular compensation expense, which consists of salaries and wages, overtime pay and temporary personnel costs, increased \$12.8 million or 4% over 2015. The average number of employees grew by 2% over the prior year. Recent additions have been in mortgage, wealth management and technology. In addition, standard annual merit increases in regular compensation were effective for the majority of our staff March 1.

Incentive compensation increased \$13.2 million or 10% over 2015. Cash-based incentive compensation plans are either intended to provide current rewards to employees who generate long-term business opportunities for the Company based on growth in loans, deposits, customer relationships and other measurable metrics or intended to compensate employees with commissions on completed transactions. Total cash-based incentive compensation increased \$13.8 million or 12% over 2015. As discussed further in Management's Discussion and Analysis – Lines of Business following, growth in incentive compensation expense was primarily related to revenue growth in the Wealth Management segment during the year.

Share-based compensation expense represents expense for equity awards based on the grant-date fair value. Share-based compensation expense for equity awards decreased \$1.9 million or 15% over 2015 primarily due to the decrease in the vesting probability of certain performance-based share awards.

The Company currently offers a deferred compensation plan for certain executive and senior officers. Deferred compensation expense totaled \$1.7 million for 2016, a \$1.3 million increase over the prior year. Deferred compensation expense is largely offset by changes in the fair value of assets held in rabbi trusts for the benefit of participants included other income in the consolidated statements of earnings.

Employee benefit expense increased \$5.3 million or 7% compared to 2015 primarily due to increased employee medical costs. The Company self-insures a portion of its employee health care coverage, up to a stop-loss of \$750 thousand per employee, and these costs may be volatile.

#### *Non-personnel operating expense*

Non-personnel expense increased \$68.5 million or 18% over the prior year.

Mortgage banking expense increased \$22.6 million or 58%. Mortgage banking expense increased \$12.7 million due to the effect of actual residential mortgage loan prepayments on the fair value of mortgage servicing rights. As mortgage interest rates fall, actual prepayments increase due to borrowers refinancing loans. As mortgage interest rates increase, actual prepayment speeds slow. Mortgage banking expenses also increased \$8.1 million over the prior year primarily due to default servicing and loss mitigation costs related to loans serviced for others.

Insurance expense was up \$12.1 million or 59%, primarily due to higher deposit insurance expense related to increased criticized and classified asset levels, an input to the deposit insurance assessment, overall growth in bank assets and a new surcharge for banks with more than \$10 billion in assets, that was effective in the third quarter of 2016. Criticized and classified asset levels were elevated during the year primarily due to credit migration of energy loans as a result of low energy prices.

Professional fees and services expense increased \$10.9 million or 27%, data processing and communications expense increased \$9.5 million or 8% and premises and equipment expense increased \$4.0 million or 5%. These increases were primarily related to continued upgrades of our information technology infrastructure and cybersecurity.

All other non-personnel operating expenses were up \$9.6 million, net.

#### *Fourth Quarter 2016 Operating Expenses*

Other operating expense for the fourth quarter of 2016 totaled \$265.5 million. Excluding the impact of \$5.0 million of severance and other expenses related to the workforce reductions and \$4.7 million of integration costs related to the Mobank acquisition in the fourth quarter of 2016, other operating expense increased \$25.4 million over the fourth quarter of 2015.

Excluding the impact of the workforce reduction and Mobank integration costs, personnel expense increased \$3.5 million over the fourth quarter of 2015. Regular compensation expense increased \$1.1 million over the fourth quarter of 2015. Incentive compensation increased \$2.8 million over the fourth quarter of 2015. Cash-based compensation was up \$4.5 million, partially offset by a \$1.4 million decrease in share-based compensation expense.

Excluding the impact of Mobank integration costs, non-personnel expense was up \$21.9 million over the fourth quarter of 2015. Mortgage banking costs were up \$5.9 million primarily due to the effect of actual residential mortgage loan prepayments on the fair value of mortgage servicing rights. Insurance expense increased \$3.3 million primarily due to a new surcharge for banks over \$10 billion effective in the third quarter of 2016. Professional fees and services expense increased \$3.1 million and data processing and communications costs were up \$2.4 million, primarily related to information technology infrastructure and cybersecurity project costs. Occupancy and equipment expense increased \$2.1 million primarily due to property lease termination costs and software costs. We also made a \$2.0 million cash contribution to the BOKF Foundation during the fourth quarter of 2016. All other expense categories were up \$3.1 on a net basis.

## *2015 Operating Expenses*

Other operating expense totaled \$896.2 million for 2015, a \$48.7 million or 6% increase over 2014.

Personnel expense for 2014 included a \$12.6 million net reduction in the accrual for amounts payable to certain executive officers under the 2011 True-Up Plan. Approved by shareholders on April 26, 2011, the True-Up Plan was designed to adjust annual and long-term performance-based incentive compensation for certain senior executives for 2006 through 2013. The 2011 True-Up Plan ended on December 31, 2013 and amounts accrued were paid in May 2014. Excluding the impact of the 2011 True-Up Plan adjustment, personnel expense increased \$25.7 million or 5%. Regular compensation expense totaled \$313.4 million, up \$15.0 million primarily due to the investment in higher-costing wealth management, compliance and risk management positions. Regular compensation expense for 2014 also included \$800 thousand related to retail branch closure costs. Excluding the impact of the 2011 True-Up plan adjustment in 2014, incentive compensation expense increased \$5.5 million, primarily due to cash-based incentive compensation. Employee benefit expense increased \$5.3 million primarily due to employee medical costs.

Non-personnel expense for 2015 was \$10.3 million or 3% higher than 2014. Mortgage banking expense increased \$7.1 million primarily due to changes in the fair value of mortgage servicing rights related to actual mortgage loan prepayments. Data processing and communications expense increased \$7.2 million primarily related to increased transaction activity costs and completion of risk management and compliance projects. Professional fees and services expense decreased \$4.3 million after risk management and regulatory compliance costs stabilized after growing in 2014. Net losses and operating expenses of repossessed assets decreased \$4.6 million. All other non-personnel operating expenses were up \$4.9 million, net.

### **Income Taxes**

Income tax expense was \$106.4 million or 31.4% of net income before taxes for 2016, \$139.4 million or 32.3% of net income before taxes for 2015 and \$144.2 million or 32.8% of net income before taxes for 2014. Tax expense currently payable totaled \$118 million in 2016, \$130 million in 2015 and \$105 million in 2014.

The statute of limitations expired on uncertain tax positions during 2014, 2015, and 2016. Excluding the statute expiration, income tax expense would have been \$108.3 million or 32.0% of net income before taxes for 2016, \$140.9 million or 32.6% of net income before taxes for 2015 and \$145.8 million or 33.2% of net income before taxes for 2014.

Net deferred tax assets totaled \$29.3 million at December 31, 2016 compared to a net deferred tax liability of \$1.4 million at December 31, 2015. We have evaluated the recoverability of our deferred tax assets based on taxes previously paid in net loss carry-back periods and other factors and determined that no valuation allowance was required in 2016 and 2015.

Unrecognized tax benefits totaled \$15.8 million at December 31, 2016 compared to \$13.2 million at December 31, 2015. BOK Financial operates in numerous jurisdictions, which requires judgment regarding the allocation of income, expense, and earnings under various laws and regulations of each of these taxing jurisdictions. Each jurisdiction may audit our tax returns and may take different positions with respect to these allocations.

Income tax expense was \$22.5 million or 31.1% of net income before taxes for the fourth quarter of 2016 compared to \$26.2 million or 30.1% of net income before taxes for the fourth quarter of 2015. Income tax expense as a percentage of net income before taxes was higher in the fourth quarter of 2016 primarily due to an increase in unrecognized tax benefits related to an income allocation change between taxing jurisdictions.



**Table 7 – Selected Quarterly Financial Data (Unaudited)**

(In thousands, except per share data)

	2016			
	First	Second	Third	Fourth
Interest revenue	\$ 201,796	\$ 202,267	\$ 209,317	\$ 215,737
Interest expense	19,224	19,655	21,471	21,539
Net interest revenue	182,572	182,612	187,846	194,198
Provision for credit losses	35,000	20,000	10,000	—
Net interest revenue after provision for credit losses	147,572	162,612	177,846	194,198
Fees and commissions revenue	163,297	180,147	181,276	162,028
Gain (loss) on financial instruments and other assets, net	22,105	21,678	3,707	(58,025)
Change in fair value of mortgage servicing rights	(27,988)	(16,283)	2,327	39,751
Other-than-temporary impairment losses	—	—	—	—
Other operating revenue	157,414	185,542	187,310	143,754
Personnel expense	133,562	139,213	139,212	141,132
Other non-personnel expense	109,008	112,172	118,876	124,415
Total other operating expense	242,570	251,385	258,088	265,547
Net income before taxes	62,416	96,769	107,068	72,405
Federal and state income taxes	21,428	30,497	31,956	22,496
Net income	40,988	66,272	75,112	49,909
Net income (loss) attributable to non-controlling interests	(1,576)	471	835	(117)
Net income attributable to shareholders of BOK Financial Corp. shareholders	\$ 42,564	\$ 65,801	\$ 74,277	\$ 50,026
Earnings per share:				
Basic	\$ 0.64	\$ 1.00	\$ 1.13	\$ 0.76
Diluted	\$ 0.64	\$ 1.00	\$ 1.13	\$ 0.76
Average shares:				
Basic	65,297	65,246	65,085	64,719
Diluted	65,331	65,303	65,158	64,788

**Table 7 – Selected Quarterly Financial Data (Unaudited) (continued)**

(In thousands, except per share data)

	2015			
	First	Second	Third	Fourth
Interest revenue	\$ 184,569	\$ 191,813	\$ 193,664	\$ 196,782
Interest expense	16,843	16,082	15,028	15,521
Net interest revenue	167,726	175,731	178,636	181,261
Provision for credit losses	—	4,000	7,500	22,500
Net interest revenue after provision for credit losses	167,726	171,731	171,136	158,761
Fees and commissions revenue	163,696	170,295	162,963	153,692
Gain (loss) on financial instruments and other assets, net	8,640	(4,272)	10,536	(398)
Change in fair value of mortgage servicing rights	(8,522)	8,010	(11,757)	7,416
Other-than-temporary impairment losses	(92)	—	—	(1,727)
Other operating revenue	163,722	174,033	161,742	158,983
Personnel expense	126,303	130,493	127,399	131,104
Other non-personnel expense	91,667	94,368	95,535	99,322
Total other operating expense	217,970	224,861	222,934	230,426
Net income before taxes	113,478	120,903	109,944	87,318
Federal and state income taxes	38,384	40,630	34,128	26,242
Net income	\$ 75,094	\$ 80,273	\$ 75,816	\$ 61,076
Net income attributable to non-controlling interests	251	1,043	925	1,475
Net income attributable to shareholders of BOK Financial Corp. shareholders	\$ 74,843	\$ 79,230	74,891	59,601
Earnings per share:				
Basic	\$ 1.08	\$ 1.15	\$ 1.09	\$ 0.89
Diluted	\$ 1.08	\$ 1.15	\$ 1.09	\$ 0.89
Average shares:				
Basic	68,255	68,096	67,668	66,378
Diluted	68,345	68,210	67,762	66,468

## Lines of Business

We operate three principal lines of business: Commercial Banking, Consumer Banking and Wealth Management. Commercial Banking includes lending, treasury and cash management services and customer risk management products for small businesses, middle market and larger commercial customers. Commercial banking also includes the TransFund EFT network. Consumer Banking includes retail lending and deposit services, lending and deposit services to small businesses served through our consumer branch network and all mortgage banking activities. Wealth Management provides fiduciary services, private bank services and investment advisory services in all markets. Wealth Management also underwrites state and municipal securities and engages in brokerage and trading activities.

In addition to our lines of business, we have a Funds Management unit. The primary purpose of this unit is to manage our overall liquidity needs and interest rate risk. Each line of business borrows funds from and provides funds to the Funds Management unit as needed to support their operations. Operating results for Funds Management and other include the effect of interest rate risk positions and risk management activities, securities gains and losses including impairment charges, the provision for credit losses in excess of net loans charged off, tax planning strategies and certain executive compensation costs that are not attributed to the lines of business. The Funds Management unit also initially recognizes accruals for loss contingencies when losses become probable. Actual losses are recognized by the lines of business if the accruals are settled.

We allocate resources and evaluate the performance of our lines of business using the net direct contribution which includes the allocation of funds, actual net credit losses and capital costs. In addition, we measure the performance of our business lines after allocations of certain direct expenses and taxes based on statutory rates.

The cost of funds borrowed from the Funds Management unit by the operating lines of business is transfer priced at rates that approximate market rates for funds with similar interest rate and liquidity risk characteristics. Market rates are generally based on the applicable LIBOR or interest rate swap rates, adjusted for prepayment risk. This method of transfer-pricing funds that support assets of the operating lines of business tends to insulate them from interest rate risk.

The value of funds provided by the operating lines of business to the Funds Management unit is also based on rates which approximate wholesale market rates for funds with similar duration and re-pricing characteristics. Market rates are generally based on LIBOR or interest rate swap rates. The funds credit formula applied to deposit products with indeterminate maturities is established based on their re-pricing characteristics reflected in a combination of the short-term LIBOR rate and a moving average of an intermediate term swap rate, with an appropriate spread applied to both. Shorter duration products are weighted towards the short term LIBOR rate and longer duration products are weighted towards the intermediate swap rates. The expected duration ranges from 30 days for certain rate-sensitive deposits to five years.

Economic capital is assigned to the business units by a capital allocation model that reflects management's assessment of risk. This model assigns capital based upon credit, operating, interest rate and market risk inherent in our business lines and recognizes the diversification benefits among the units. The level of assigned economic capital is a combination of the risk taken by each business line, based on its actual exposures and calibrated to its own loss history where possible. Average invested capital includes economic capital and amounts we have invested in the lines of business.

As shown in Table 8 following, net income attributable to our lines of business decreased \$9.0 million or 4% compared to the prior year. The decrease in net income attributed to our lines of business was due primarily to increased credit losses, litigation settlements, and net changes in the fair value of mortgage servicing rights. Net interest revenue increased \$70.4 million mostly from commercial loan growth and improving yields. Fees and commission revenue increased \$40.2 million from growth in most every revenue category. These increases were offset by increased net loans charged-off, operating expenses and the change in the fair value of mortgage servicing rights, net of economic hedges. Net charge-offs attributed to the lines of business were \$37.1 million in 2016, primarily due to energy loans, compared to a net recovery of \$897 thousand in 2015. Operating expense increased \$82.7 million or 13%, including a \$22.2 million increase in personnel expense and a \$60.4 million increase in non-personnel expense. The decrease in net income provided by Funds Management was largely due lower net interest revenue from our securities portfolio, increased operating expense and provision for credit losses in excess of net charge-offs..

The acquisition of Mobank on December 1, 2016 was not yet allocated to the operating segments at December 31, 2016. Accordingly, the operation, assets and liabilities of Mobank were included in Funds Management and Other for 2016.

**Table 8 – Net Income by Line of Business**  
(In thousands)

	Year Ended December 31,		
	2016	2015	2014
Commercial Banking	\$ 210,927	\$ 199,516	\$ 169,058
Consumer Banking	18	23,131	26,616
Wealth Management	32,174	29,431	18,248
Subtotal	243,119	252,078	213,922
Funds Management and other	(10,451)	36,487	78,513
Total	\$ 232,668	\$ 288,565	\$ 292,435

*Commercial Banking*

Commercial Banking contributed \$210.9 million to consolidated net income in 2016, up \$11.4 million or 5.7% over the prior year. Net interest revenue grew by \$46.7 million as the balance of average commercial loans increased \$1.2 billion or 10%. Net loans charged off were \$33.0 million compared to a net recovery of \$6.7 million in 2015. Fees and commission revenue increased \$16.3 million or 9% over the prior year primarily due to growth in all revenue sources. Other operating expense increased \$13.6 million or 7% compared to 2015.

**Table 9 – Commercial Banking**  
(Dollars in thousands)

	Year Ended December 31,		
	2016	2015	2014
Net interest revenue from external sources	\$ 492,967	\$ 439,751	\$ 382,331
Net interest expense from internal sources	(58,781)	(52,313)	(40,083)
Total net interest revenue	434,186	387,438	342,248
Net loans charged off (recovered)	32,959	(6,748)	(7,447)
Net interest revenue after net loans charged off (recovered)	401,227	394,186	349,695
Fees and commissions revenue	193,508	177,251	170,362
Other gains, net	2,013	478	1,028
Other operating revenue	195,521	177,729	171,390
Personnel expense	112,021	108,661	104,845
Non-personnel expense	104,430	94,143	90,861
Other operating expense	216,451	202,804	195,706
Net direct contribution	380,297	369,111	325,379
Gain on financial instruments, net	10	—	—
Gain (loss) on repossessed assets, net	669	708	(3,187)
Corporate expense allocations	35,760	43,279	45,502
Income before taxes	345,216	326,540	276,690
Federal and state income taxes	134,289	127,024	107,632
Net income	\$ 210,927	\$ 199,516	\$ 169,058
Average assets	\$ 16,998,626	\$ 16,284,527	\$ 15,394,957
Average loans	13,600,221	12,404,064	10,712,559
Average deposits	8,430,507	8,773,512	8,886,549
Average invested capital	1,163,965	1,050,758	946,384

Net interest revenue increased \$46.7 million or 12% over 2015. Growth in net interest revenue was due to a \$1.2 billion increase in average loan balances as discussed further in the Loans section of Management's Discussion and Analysis of Financial Condition. Commercial and commercial real estate loans are primarily attributed to the Commercial Banking segment. Yields on commercial loans also improved primarily due to rising interest rates.

Average deposits attributed to Commercial Banking were \$8.4 billion for 2016, a decrease of \$343 million or 4% compared to 2015. See additional discussion concerning changes in Commercial Banking deposits in the Liquidity and Capital section of Management's Discussion and Analysis following. The net interest impact of this decrease in average deposit balances sold to the Funds Management unit were partially offset by the increase in the federal funds rate in December 2015 and 2016.

Fees and commissions revenue increased \$16 million or 9% over 2015. Transaction card revenue generated by the TransFund EFT network increased \$6.4 million or 6% due to increased customer transaction volume. Brokerage and trading revenue increased \$5.4 million or 63%. Loan syndication fees were up \$2.9 million due to the timing and volume of completed deals. Customer hedging revenue increased \$2.5 million primarily due to energy prices stabilizing during 2016. Commercial deposit service charges and fees increased \$2.6 million or 7% over the prior year. Other revenue increased \$2.5 million or 10% primarily related to merchant banking activity.

Other gains, net of \$2.0 million for 2016 was primarily due to a gain on sale of a merchant banking investment.

Operating expense increased \$13.6 million or 7% over 2015. Personnel costs increased \$3.4 million or 3% primarily due to standard annual merit increases. Non-personnel expense increased \$10.3 million or 11% over the prior year. Intangible asset amortization was \$2.3 million higher due to a consolidated merchant banking investment acquired in 2015. Other expense was up \$6.4 million over the prior year primarily due to \$3.9 million of litigation settlements and \$2.7 million of post-acquisition valuation adjustments to a consolidated merchant banking investment. Corporate expense allocations decreased \$7.5 million compared to the prior year.

## Consumer Banking

Consumer Banking services are provided through four primary distribution channels: traditional branches, the 24-hour ExpressBank call center, Internet banking and mobile banking. Consumer Banking also conducts mortgage banking activities through offices located outside of our consumer banking markets and through HomeDirect Mortgage, an online origination channel.

Net income attributed to Consumer Banking totaled \$18 thousand for 2016, compared to \$23.1 million in the prior year. As previously discussed in Management's Discussion and Analysis – Other Operating Revenue, pre-tax net income attributable to the Consumer Banking segment was negatively impacted by an unexpected 85 basis point increase in the 10-year U.S. Treasury interest rate and related interest rates due to the markets reaction to the outcome of the U.S. presidential election. The change in the fair value of mortgage servicing rights, net of economic hedges, decreased pre-tax net income by \$28.4 million in 2016 and decreased pre-tax net income \$7.9 million in 2015. In addition, other operating expense attributable to the Consumer Banking division included \$11.1 million of litigation and settlement costs in 2016. These items have been excluded from the discussion following.

**Table 10 – Consumer Banking**  
(Dollars in thousands)

	Year Ended December 31,		
	2016	2015	2014
Net interest revenue from external sources	\$ 85,998	\$ 84,848	\$ 81,852
Net interest revenue from internal sources	37,777	28,503	26,813
Total net interest revenue	123,775	113,351	108,665
Net loans charged off	4,927	6,934	5,477
Net interest revenue after net loans charged off	118,848	106,417	103,188
Fees and commissions revenue	224,980	218,859	212,387
Other gains (losses), net	(178)	(764)	2,270
Other operating revenue	224,802	218,095	214,657
Personnel expense	103,034	96,604	96,801
Other non-personnel expense	146,710	106,466	110,330
Total other operating expense	249,744	203,070	207,131
Net direct contribution	93,906	121,442	110,714
Gain (loss) on financial instruments, net	(26,252)	(4,712)	12,406
Change in fair value of mortgage servicing rights	(2,193)	(4,853)	(16,445)
Gain on repossessed assets, net	979	916	1,418
Corporate allocations	66,411	74,936	64,531
Net income before taxes	29	37,857	43,562
Federal and state income taxes	11	14,726	16,946
Net income	\$ 18	\$ 23,131	\$ 26,616
Average assets	\$ 8,722,372	\$ 8,836,327	\$ 8,373,317
Average loans	1,893,375	1,900,768	1,987,668
Average deposits	6,632,687	6,668,520	6,520,835
Average invested capital	270,209	265,775	277,404



Net interest revenue from Consumer Banking activities grew by \$10.4 million or 9% over 2015, primarily related to increased yields on deposit balances sold to the Funds Management unit. Both average deposits and average loan balances were largely unchanged compared to the prior year. Net loans charged off by the Consumer Banking unit decreased \$2.0 million compared to 2015 to \$4.9 million or 0.32% of average loans. Net consumer banking charge-offs include overdrawn deposit accounts and other consumer loans.

Fees and commissions revenue increased \$6.1 million or 2.8% compared to the prior year. Mortgage banking revenue was up \$7.9 million or 6% over the prior year. A decrease in mortgage loan production volumes from the record level achieved in 2015 primarily related to the exit of the correspondent lending channel, was offset by improved gain on sale margins and increased servicing revenue. Revenue from interchange fees paid by merchants for transactions processed from debit cards issued by the Company increased \$580 thousand or 3%. Deposit service charges and fees decreased \$983 thousand or 2% compared to the prior year primarily due to lower overdraft fees. Other revenue decreased \$1.3 million compared to the prior year primarily due to changes in earnings related to low income housing tax credit investments.

Operating expense increased \$35.7 million or 18% over 2015. Personnel expenses were up \$6.4 million or 7%, primarily due to regular merit increases and growth in mortgage banking headcount. Non-personnel expense increased \$29.3 million or 28%. Mortgage banking costs were up \$22.7 million over the prior year. Mortgage banking expense increased \$12.7 million due to the effect of actual residential mortgage loan prepayments on the fair value of mortgage servicing rights. Default servicing and loss mitigation costs were up \$8.1 million. Data processing and communications costs increased \$2.3 million, printing, postage and supplies expense increased \$1.6 million and occupancy and equipment expense was up \$1.2 million.

## Wealth Management

Wealth Management contributed \$32.2 million to consolidated net income in 2016, up \$2.7 million or 9% over the prior year. Net interest revenue increased \$13.0 million or 26% from growth in both average loan and deposit balances and improved yields. Fees and commissions revenue grew by \$15.9 million or 6% over the prior year. Fiduciary revenue was up over the prior year, primarily due to decreased fee waivers and growth in assets under management from acquisitions. Growth in brokerage and trading revenue related to the addition of a new group trading in U.S. government agency residential mortgage-backed securities and related derivatives was offset by \$5.0 million from the impact of the unexpected increase in long-term interest rates related to the market's reaction to the outcome of the U.S. presidential election. Other operating expense increased \$22.3 million or 10%. Corporate expense allocations increased \$2.0 million or 5%.

**Table 11 – Wealth Management**

(Dollars in thousands)

	Year Ended December 31,		
	2016	2015	2014
Net interest revenue from external sources	\$ 33,006	\$ 24,744	\$ 23,817
Net interest revenue from internal sources	29,043	24,043	20,959
Total net interest revenue	62,049	48,787	44,776
Net loans charged off (recovered)	(801)	(1,083)	213
Net interest revenue after net loans charged off (recovered)	62,850	49,870	44,563
Fees and commissions revenue	282,710	266,790	240,926
Other gains, net	512	733	1,342
Other operating revenue	283,222	267,523	242,268
Personnel expense	190,756	178,333	170,869
Other non-personnel expense	60,238	50,331	47,131
Other operating expense	250,994	228,664	218,000
Net direct contribution	95,078	88,729	68,831
Gain (loss) on financial instruments, net	(42)	(204)	(235)
Corporate allocations	42,378	40,357	38,731
Net income before taxes	52,658	48,168	29,865
Federal and state income tax	20,484	18,737	11,617
Net income	\$ 32,174	\$ 29,431	\$ 18,248
Average assets	\$ 6,281,127	\$ 5,444,483	\$ 5,002,515
Average loans	1,132,966	1,068,638	985,659
Average deposits	4,867,293	4,573,710	4,391,935
Average invested capital	240,451	225,968	215,089

Our Wealth Management division serves as custodian to or manages assets of customers. Fees are earned commensurate with the level of service provided. We may have sole or joint investment discretion over the assets of the customer or may be fiduciary for the assets, but investment selection authority remains with the customer or a manager outside of the Company. The Wealth Management division also provides safekeeping services for personal and institutional customers including holding of the customer's assets, processing of income and redemptions and other customer recordkeeping and reporting services. We also provide brokerage services for customers who maintain or delegate investment authority and for which BOK Financial does not have custody of the assets.

A summary of assets under management or in custody follows in Table 12.

**Table 12 – Assets Under Management or In Custody**  
(Dollars in thousands)

	December 31,		
	2016	2015	2014
Fiduciary assets in custody for which BOKF has sole or joint discretionary authority	\$ 14,226,844	\$ 14,012,350	\$ 14,644,494
Fiduciary assets not in custody for which BOKF has sole or joint discretionary authority	3,862,939	3,384,444	3,324,667
Non-managed fiduciary assets in custody	23,691,780	20,936,844	18,028,716
Total fiduciary assets	41,781,563	38,333,638	35,997,877
Assets held in safekeeping	27,633,471	26,897,107	22,952,394
Brokerage accounts under BOKF administration	5,992,828	5,817,028	5,653,095
Assets under management or in custody	\$ 75,407,862	\$ 71,047,773	\$ 64,603,366

Net interest revenue increased \$13 million or 26% over the prior year primarily related to growth in the trading securities portfolio related to the addition of a new trading group, improved yields on deposit balances sold to the Funds Management unit and growth in average deposit balances. Average deposit balances increased \$294 million or 6% over the prior year and average loan balances were up \$64 million or 6%.

Fees and commissions revenue grew by \$15.9 million or 6% over the prior year. Fiduciary and asset management revenue increased \$9.3 million or 7% primarily related to decreased fee waivers, the acquisition of Weaver Wealth Management and changes in market values. Excluding the impact of the unexpected increase in long-term interest rates, brokerage and trading revenue increased \$9.0 million or 7%. The addition of this new trading group added \$139 million to the average balance of the trading securities portfolio in 2016. Retail brokerage fees increased \$949 thousand or 4% over the prior year.

Other operating revenue includes fees earned from state and municipal bond underwriting and financial advisory services, primarily in the Oklahoma and Texas markets. In 2016, the Wealth Management division participated in 417 underwritings that totaled \$17.8 billion. As a participant, the Wealth Management division was responsible for facilitating the sale of approximately \$2.7 billion of these underwritings. The Wealth Management division also participated in 24 corporate debt underwritings during 2016 that totaled \$9.5 billion. Our interest in these underwritings was \$223 million. In 2015, the Wealth Management division participated in 434 underwritings that totaled approximately \$9.3 billion. Our interest in these underwritings totaled approximately \$2.9 billion. The Wealth Management division also participated in 15 corporate debt underwritings during 2015 that totaled \$11.8 billion. Our interest in these underwritings was \$230 million.

Operating expenses increased \$22 million or 10% over the prior year. Personnel expenses increased \$12.4 million or 7%, primarily due to a \$10.2 million increase in incentive compensation expense. Regular compensation expense also increased \$2.1 million primarily due to increased headcount and annual merit increases. Non-personnel expense was up \$9.9 million or 20% over 2015. Non-personnel expense included \$1.6 million of litigation costs and a \$1.6 million increase in legal fees for matters discussed in Note 14 to the consolidated financial statements. Other professional fees related to continued technology upgrades increased \$4.0 million. Data processing and communication expense increased \$1.2 million.

## Financial Condition

### Securities

We maintain a securities portfolio to enhance profitability, manage interest rate risk, provide liquidity and comply with regulatory requirements. Securities are classified as trading, held for investment, or available for sale. See Note 2 to the consolidated financial statements for the composition of the securities portfolio as of December 31, 2016, December 31, 2015 and December 31, 2014.

**Table 13 – Securities**

(In thousands)

	December 31,					
	2016		2015		2014	
	Amortized Cost	Fair Value	Amortized Cost	Fair Value	Amortized Cost	Fair Value
<b>Trading:</b>						
U.S. government agency debentures	\$ 6,238	\$ 6,234	\$ 61,366	\$ 61,295	\$ 85,154	\$ 85,092
U.S. government agency residential mortgage-backed securities	309,432	310,067	10,972	10,989	30,930	31,199
Municipal and other tax-exempt securities	14,377	14,427	31,691	31,901	38,933	38,951
Other trading securities	6,843	6,900	18,235	18,219	33,496	33,458
Total trading securities	\$ 336,890	\$ 337,628	\$ 122,264	\$ 122,404	\$ 188,513	\$ 188,700
<b>Investment:</b>						
Municipal and other tax-exempt securities	\$ 320,364	\$ 321,225	\$ 365,258	\$ 368,910	\$ 405,090	\$ 408,344
U.S. government agency residential mortgage-backed securities	20,777	21,473	26,833	27,874	35,750	37,463
Other debt securities	205,004	222,795	205,745	232,375	211,520	227,819
Total investment securities	\$ 546,145	\$ 565,493	\$ 597,836	\$ 629,159	\$ 652,360	\$ 673,626
<b>Available for sale:</b>						
U.S. Treasury securities	\$ 1,000	\$ 999	\$ 1,000	\$ 995	\$ 1,005	\$ 1,005
Municipal and other tax-exempt securities	41,050	40,993	56,681	56,817	63,018	63,557
<b>Residential mortgage-backed securities:</b>						
U.S. government agencies	5,475,351	5,460,386	5,861,096	5,898,351	6,549,304	6,646,884
Private issue	101,192	115,535	128,111	139,118	154,360	165,957
Total residential mortgage-backed securities	5,576,543	5,575,921	5,989,207	6,037,469	6,703,664	6,812,841
Commercial mortgage-backed securities guaranteed by U.S. government agencies	3,035,750	3,017,933	2,919,044	2,905,796	2,064,091	2,048,609
Other debt securities	4,400	4,152	4,400	4,151	9,438	9,212
Perpetual preferred stock	15,561	18,474	17,171	19,672	22,171	24,277
Equity securities and mutual funds	17,424	18,357	17,121	17,833	18,603	19,444
Total available for sale securities	\$ 8,691,728	\$ 8,676,829	\$ 9,004,624	\$ 9,042,733	\$ 8,881,990	\$ 8,978,945
<b>Fair value option securities:</b>						
U.S. government agency residential mortgage-backed securities	\$ 78,823	\$ 77,046	\$ 446,277	\$ 444,217	\$ 309,973	\$ 311,597

We enter into trading activities both as an intermediary for customers and for our own account. We take positions in securities for resale to customers, which include individuals, corporations, foundations and financial institutions. During 2016, we expanded our trading activities for two principal strategies. We increased the volume of mortgage-backed securities trading. Through this activity, we purchase pools with specific retail mortgage collateral or to-be-announced ("TBA") derivatives with stipulations. These financial instruments are customized to meet requirements of our institutional customers. We also increased the volume of transactions where we serve as market makers by providing liquidity as a buyer and seller of TBA derivative contracts. These transactions accommodate our customers' hedging requirements or meet their needs for investment products or cash. Customers for this trading activity generally include mortgage loan originators, money managers, banks, insurance companies and hedge funds. Expansion of our trading activities resulted in an increase in the reported balances of trading securities and receivables for unsettled trading positions in the Consolidated Balance Sheets. Price risk for our trading activities is incorporated into the limits described in the Market Risk section of this report.

At December 31, 2016, the carrying value of investment (held-to-maturity) securities was \$546 million and the fair value was \$565 million. Investment securities consist primarily of intermediate and long-term, fixed rate Oklahoma and Texas municipal bonds, taxable Texas school construction bonds and residential mortgage-backed securities issued by U.S. government agencies. The investment security portfolio is diversified among issuers. The largest obligation of any single issuer is \$30 million. Substantially all of these bonds are general obligations of the issuers. Approximately \$104 million of the Texas school construction bonds are also guaranteed by the Texas Permanent School Fund Guarantee Program supervised by the State Board of Education for the State of Texas.

Available for sale securities, which may be sold prior to maturity, are carried at fair value. Unrealized gains or losses, net of deferred taxes, are recorded as accumulated other comprehensive income in shareholders' equity. The amortized cost of available for sale securities totaled \$8.7 billion at December 31, 2016, a decrease of \$313 million compared to December 31, 2015. Available for sale securities consist primarily of U.S. government agency residential mortgage-backed securities and U.S. government agency commercial mortgage-backed securities. Commercial mortgage-backed securities have prepayment penalties similar to commercial loans. At December 31, 2016, residential mortgage-backed securities represented 64% of total available for sale securities. The decrease in amortized cost during the year was primarily due to a decrease in U.S. government agency residential mortgage-backed securities.

A primary risk of holding residential mortgage-backed securities comes from extension during periods of rising interest rates or prepayment during periods of falling interest rates. We evaluate this risk through extensive modeling of risk both before making an investment and throughout the life of the security. Our best estimate of the duration of the combined investment and available for sale securities portfolios at December 31, 2016 is 3.1 years. Management estimates the combined portfolios' duration extends to 3.4 years assuming an immediate 200 basis point upward shock. The estimated combined portfolios' duration contracts to 2.9 years assuming a 50 basis point decline in the current low rate environment.

Residential mortgage-backed securities also have credit risk from delinquency or default of the underlying loans. We mitigate this risk by primarily investing in securities issued by U.S. government agencies. Principal and interest payments on the underlying loans are fully guaranteed. At December 31, 2016, approximately \$5.5 billion of the amortized cost of the Company's residential mortgage-backed securities were issued by U.S. government agencies. The fair value of these residential mortgage-backed securities totaled \$5.5 billion at December 31, 2016.

We also hold amortized cost of \$101 million in residential mortgage-backed securities privately issued by publicly-owned financial institutions. The amortized cost of these securities decreased \$27 million from December 31, 2015, due to cash payments received during the year. The fair value of our portfolio of privately issued residential mortgage-backed securities totaled \$116 million at December 31, 2016.

The amortized cost of our portfolio of privately issued residential mortgage-backed securities included \$57 million of Jumbo-A residential mortgage loans and \$44 million of Alt-A residential mortgage loans. Jumbo-A residential mortgage loans generally meet government underwriting standards, but have loan balances that exceed agency maximums. Alt-A mortgage loans generally do not have sufficient documentation to meet government agency underwriting standards. Approximately 90% of our Alt-A mortgage-backed securities represent pools of fixed rate residential mortgage loans. None of the adjustable rate mortgages are payment option adjustable rate mortgages ("ARMs"). Approximately 30% of our Jumbo-A residential mortgage-backed securities represent pools of fixed rate residential mortgage loans and none of the adjustable rate mortgages are payment option ARMs.

The aggregate gross amount of unrealized losses on available for sale securities totaled \$75 million at December 31, 2016, a \$33 million increase compared to December 31, 2015. On a quarterly basis, we perform separate evaluations on debt and equity securities to determine if the unrealized losses are temporary as more fully described in Note 2 of the Consolidated Financial Statements. No other-than-temporary impairment charges were recognized in earnings in 2016.

Certain residential mortgage-backed securities issued by U.S. government agencies and included in fair value option securities on the Consolidated Balance Sheets, have been segregated and designated as economic hedges of changes in the fair value of our mortgage servicing rights. We have elected to carry these securities at fair value with changes in fair value recognized in current period income. These securities are held with the intent that gains or losses will offset changes in the fair value of mortgage servicing rights and related derivative contracts.

We are required to hold stock as members of the Federal Reserve system and the Federal Home Loan Banks ("FHLB"). These restricted equity securities are carried at cost as these securities do not have a readily determined fair value because ownership of these shares are restricted and they lack a market. Federal Reserve Bank stock totaled \$36 million at December 31, 2016, \$36 million at December 31, 2015 and \$35 million at December 31, 2014. Holdings of FHLB stock totaled \$271 million at December 31, 2016, \$237 million at December 31, 2015 and \$106 million at December 31, 2014. We are required to hold FHLB stock in proportion to our borrowings with the FHLB.

### **Bank-Owned Life Insurance**

We have approximately \$308 million of bank-owned life insurance at December 31, 2016. This investment is expected to provide a long-term source of earnings to support existing employee benefit programs. Approximately \$281 million is held in separate accounts. Our separate account holdings are invested in diversified portfolios of investment-grade fixed income securities and cash equivalents, including U.S. Treasury and Agency securities, residential mortgage-backed securities, corporate debt, asset-backed and commercial mortgage-backed securities. The portfolios are managed by unaffiliated professional managers within parameters established in the portfolio's investment guidelines. The cash surrender value of certain life insurance policies is further supported by a stable value wrap, which protects against changes in the fair value of the investments. At December 31, 2016, the fair value of investments held in separate accounts was approximately \$285 million. As the underlying fair value of the investments held in a separate account at December 31, 2016 exceeded the net book value of the investments, no cash surrender value was supported by the stable value wrap. The stable value wrap is provided by a domestic financial institution. The remaining cash surrender value of \$27 million primarily represents the cash surrender value of policies held in general accounts and other amounts due from various insurance companies.



## Loans

The aggregate loan portfolio before allowance for loan losses totaled \$17.0 billion at December 31, 2016, growing \$1.0 billion or 7% over December 31, 2015, including \$485 million from the Mobank acquisition. Commercial loans have grown by \$138 million or 1% due largely to growth in services, healthcare and wholesale/retail sector loans, partially offset by a decrease in energy loan balances compared to the prior year. The Mobank acquisition added \$289 million of commercial loans, primarily in the services sector. Commercial real estate loans increased \$550 million or 17% primarily due to growth in loans secured by industrial facilities, office buildings and multifamily residential properties. The Mobank acquisition added \$87 million in commercial real estate balances. Residential mortgage loans increased \$73 million and personal loans increased \$287 million.

**Table 14 – Loans**

(In thousands)

	December 31,				
	2016	2015	2014	2013	2012
Commercial:					
Services	\$ 3,108,990	\$ 2,784,276	\$ 2,391,530	\$ 2,282,210	\$ 2,164,186
Energy	2,497,868	3,097,328	2,860,428	2,351,760	2,460,659
Healthcare	2,201,916	1,883,380	1,454,969	1,274,246	1,081,406
Wholesale/retail	1,576,818	1,422,064	1,440,015	1,201,364	1,106,439
Manufacturing	514,975	556,729	532,594	391,751	348,484
Other commercial and industrial	490,257	508,754	416,134	441,890	480,738
Total commercial	10,390,824	10,252,531	9,095,670	7,943,221	7,641,912
Commercial real estate:					
Multifamily	903,272	751,085	704,298	576,502	402,896
Industrial	871,749	563,169	428,817	243,877	245,994
Office	798,888	637,707	415,544	411,499	427,872
Retail	761,888	796,499	666,889	586,047	522,786
Residential construction and land development	135,533	160,426	143,591	206,258	253,093
Other commercial real estate	337,716	350,147	369,011	391,170	376,358
Total commercial real estate	3,809,046	3,259,033	2,728,150	2,415,353	2,228,999
Residential mortgage:					
Permanent mortgage	1,006,820	945,336	969,951	1,062,744	1,123,965
Permanent mortgages guaranteed by U.S. government agencies	199,387	196,937	205,950	181,598	160,444
Home equity	743,625	734,620	773,611	807,684	760,631
Total residential mortgage	1,949,832	1,876,893	1,949,512	2,052,026	2,045,040
Personal	839,958	552,697	434,705	381,664	395,505
Total	\$ 16,989,660	\$ 15,941,154	\$ 14,208,037	\$ 12,792,264	\$ 12,311,456

## Commercial

Commercial loans represent loans for working capital, facilities acquisition or expansion, purchases of equipment and other needs of commercial customers primarily located within our geographical footprint. Commercial loans are underwritten individually and represent on-going relationships based on a thorough knowledge of the customer, the customer's industry and market. While commercial loans are generally secured by the customer's assets including real property, inventory, accounts receivable, operating equipment, interests in mineral rights and other property and may also include personal guarantees of the owners and related parties, the primary source of repayment of the loans is the on-going cash flow from operations of the customer's business. Inherent lending risks are centrally monitored on a continuous basis from underwriting throughout the life of the loan for compliance with commercial lending policies.

Service sector loans grew by \$325 million or 12%, healthcare sector loans increased \$319 million or 17% and wholesale/retail sector loans increased \$155 million or 11% over December 31, 2015. This growth was partially offset by a decrease of \$599 million or 19% in energy sector loan balances.

Table 15 presents our commercial loan portfolio distributed primarily by collateral location. Loans for which the collateral location is less relevant, such as unsecured loans and reserve-based energy loans, are distributed by the borrower's primary operating location.

**Table 15 – Commercial Loans by Collateral Location**

(In thousands)

	Oklahoma	Texas	New Mexico	Arkansas	Colorado	Arizona	Kansas/ Missouri	Other	Total
Services	\$ 741,806	\$ 893,893	\$207,966	\$ 12,609	\$ 322,053	\$206,986	\$ 337,772	\$ 385,905	\$ 3,108,990
Energy	510,621	1,243,253	17,557	5,099	229,585	9,526	90,440	391,787	2,497,868
Healthcare	291,834	379,504	136,004	100,187	129,250	123,987	252,334	788,816	2,201,916
Wholesale/retail	382,739	554,069	49,198	71,268	66,878	70,695	99,309	282,662	1,576,818
Manufacturing	109,288	149,525	472	4,790	42,628	62,131	76,305	69,836	514,975
Other commercial and industrial	100,963	125,577	3,666	51,056	21,940	36,983	73,280	76,792	490,257
Total commercial loans	\$2,137,251	\$3,345,821	\$414,863	\$ 245,009	\$ 812,334	\$510,308	\$ 929,440	\$1,995,798	\$10,390,824

The majority of our commercial portfolio is located within our geographic footprint. At December 31, 2016, the Other category is composed primarily of California totaling \$301 million or 2.9% of the commercial portfolio, Louisiana totaling \$158 million or 1.5% of the commercial portfolio, Florida totaling \$116 million or 1.1% of the commercial portfolio and Tennessee totaling \$109 million or 1.1% of the commercial portfolio. All other states individually represent one percent or less of the total commercial loan portfolio.

Supporting the energy industry with loans to producers and other energy-related entities has been a hallmark of the Company since its founding and represents a large portion of our commercial loan portfolio. In addition, energy production and related industries have a significant impact on the economy in our primary markets. Loans collateralized by oil and gas properties are subject to a semi-annual engineering review by our internal staff of petroleum engineers. This review is utilized as the basis for developing the expected cash flows supporting the loan amount. The projected cash flows are discounted according to risk characteristics of the underlying oil and gas properties. Loans are evaluated to demonstrate with reasonable certainty that crude oil, natural gas and natural gas liquids can be recovered from known oil and gas reservoirs under existing economic and operating conditions at current pricing levels and with existing conventional equipment and operating methods and costs. As part of our evaluation of credit quality, we analyze rigorous stress tests over a range of commodity prices and take proactive steps to mitigate risk when appropriate.

Outstanding energy loans totaled \$2.5 billion or 15% of total loans at December 31, 2016. Unfunded energy loan commitments increased by \$320 million during the year to \$2.7 billion at December 31, 2016 primarily due to energy borrowers paying down outstanding balances. Total outstanding loan balances as a percentage of total energy loan commitments decreased to 50% at December 31, 2016, compared to 58% at December 31, 2015. Approximately \$2.0 billion or 80% of energy loans were to oil and gas producers, a \$550 million decrease compared to December 31, 2015. The majority of this portfolio is first lien, senior secured, reserve-based lending, which we believe is the lowest risk form of energy lending. The Company has largely avoided higher-risk energy lending areas including second-lien financing, mezzanine debt and subordinated debt. In addition, the Company has no direct exposure to energy company equity or to borrowers with deepwater offshore exposure. Approximately 57% of the committed production loans are secured by properties primarily producing oil and 43% of the committed production loans are secured by properties primarily producing natural gas. Loans to borrowers in the midstream sector of the industry totaled \$264 million or 10% of energy loans, an increase of \$71 million over the prior year. Loans to borrowers that provide services to the energy industry totaled \$185 million or 7% of energy loans, a decrease of \$94 million during 2016. Loans to other energy borrowers, including those engaged in wholesale or retail energy sales totaled \$60 million or 3% of energy loans, a decrease of \$26 million compared to the prior year.

The services sector of the loan portfolio totaled \$3.1 billion or 18% of total loans and consists of a large number of loans to a variety of businesses, including governmental, financial and insurance, educational, religious and not-for-profit and professional/technical services. Loans to governmental entities totaled \$680 million at December 31, 2016. Approximately \$1.4 billion of the services category is made up of loans with individual balances of less than \$10 million. Service sector loans are generally secured by the assets of the borrower with repayment coming from the cash flows of ongoing operations of the customer's business.

The healthcare sector of the loan portfolio totaled \$2.2 billion or 13% of total loans and consists primarily of loans for the development and operation of senior housing and care facilities, including independent living, assisted living and skilled nursing. Healthcare also includes loans to hospitals and other medical service providers.

We participate in shared national credits when appropriate to obtain or maintain business relationships with local customers. Shared national credits are defined by banking regulators as credits of more than \$20 million and with three or more non-affiliated banks as participants. At December 31, 2016, the outstanding principal balance of these loans totaled \$3.7 billion. Approximately 81% of these loans are to borrowers with local market relationships. We serve as the agent lender in approximately 17% of our shared national credits, based on dollars committed. We hold shared credits to the same standard of analysis and perform the same level of review as internally originated credits. Our lending policies generally avoid loans in which we do not have the opportunity to maintain or achieve other business relationships with the customer. In addition to management's quarterly assessment of credit risk, banking regulators annually review a sample of shared national credits for proper risk grading.

### *Commercial Real Estate*

Commercial real estate represents loans for the construction of buildings or other improvements to real estate and property held by borrowers for investment purposes. The majority of commercial real estate loans are secured by properties within our geographic footprint, with the larger concentrations in Texas and Oklahoma, 30% and 11% at December 31, 2016. We require collateral values in excess of the loan amounts, demonstrated cash flows in excess of expected debt service requirements, equity investment in the project and a portion of the project already sold, leased or permanent financing already secured. The expected cash flows from all significant new or renewed income producing property commitments are stress tested to reflect the risks in varying interest rates, vacancy rates and rental rates. As with commercial loans, inherent lending risks are centrally monitored on a continuous basis from underwriting throughout the life of the loan for compliance with applicable lending policies.

Commercial real estate loans totaled \$3.8 billion or 22% of the loan portfolio at December 31, 2016. The outstanding balance of commercial real estate loans increased \$550 million over 2015, primarily due to growth in loans secured by industrial facilities, office buildings and multifamily residential properties. This growth was partially offset by a decrease in loans secured by retail facilities and residential construction and land development loans. The commercial real estate loan segment is approaching our internal concentration limit. The commercial real estate loan balance as a percentage of our total loan portfolio has ranged from 18% to 23% over the past five years. The commercial real estate segment of our loan portfolio distributed by collateral location follows in Table 16.

**Table 16 – Commercial Real Estate Loans by Collateral Location**  
(In thousands)

	Oklahoma	Texas	New Mexico	Arkansas	Colorado	Arizona	Kansas/ Missouri	Other	Total
Multifamily	95,095	320,982	11,877	25,093	67,770	71,188	120,629	190,638	903,272
Industrial	83,607	254,542	26,869	54	33,319	18,075	81,087	374,196	871,749
Office	86,388	208,124	52,654	1,833	66,043	66,397	76,508	240,941	798,888
Retail	79,363	298,886	108,856	6,712	20,308	32,855	20,255	194,653	761,888
Residential construction and land development	13,206	28,691	18,025	6,038	25,145	8,001	13,560	22,867	135,533
Other commercial real estate	70,841	37,652	15,069	5,440	24,755	42,167	27,499	114,293	337,716
Total commercial real estate loans	\$ 428,500	\$1,148,877	\$ 233,350	\$ 45,170	\$ 237,340	\$238,683	\$ 339,538	\$1,137,588	\$ 3,809,046

The Other category includes California with \$189 million or 5% of total commercial real estate loans and Utah with \$139 million or 4%, of total commercial real estate loans. All other states individually represent less than 3% of the total commercial real estate loan population.

#### *Residential Mortgage and Personal*

Residential mortgage loans provide funds for our customers to purchase or refinance their primary residence or to borrow against the equity in their home. Residential mortgage loans are secured by a first or second-mortgage on the customer's primary residence. Personal loans consist primarily of loans to wealth management clients secured by the cash surrender value of insurance policies and marketable securities. It also includes direct loans secured by and for the purchase of automobiles, recreational and marine equipment as well as unsecured loans. Residential mortgage and personal loans are made in accordance with underwriting policies we believe to be conservative and are fully documented. Credit scoring is assessed based on significant credit characteristics including credit history, residential and employment stability.

Residential mortgage loans totaled \$1.9 billion, a \$73 million or 4% increase compared to December 31, 2015. In general, we sell the majority of our fixed rate loan originations that conform to U.S. government agency standards in the secondary market and retain the majority of our non-conforming and adjustable-rate mortgage loans. We have no concentration in sub-prime residential mortgage loans. Our mortgage loan portfolio does not include payment option adjustable rate mortgage loans or adjustable rate mortgage loans with initial rates that are below market. Collateral for 97% of our residential mortgage portfolio is located within our geographic footprint.

The majority of our permanent mortgage loan portfolio is primarily composed of various non-conforming mortgage programs to support customer relationships including jumbo mortgage loans, non-builder construction loans and special loan programs for high net worth individuals or certain professionals. Jumbo loans may be fixed or variable rate and are fully amortizing. The size of jumbo loans exceed maximums set under government sponsored entity standards, but otherwise generally conform to those standards. These loans generally require a minimum FICO score of 720 and a maximum debt-to-income ratio ("DTI") of 38%. Loan-to-value ratios ("LTV") are tiered from 60% to 100%, depending on the market. Special mortgage programs include fixed and variable rate fully amortizing loans tailored to the needs of certain healthcare professionals. Variable rate loans are fully indexed at origination and may have fixed rates for three to ten years, then adjust annually thereafter.

At December 31, 2016, \$199 million of permanent residential mortgage loans are guaranteed by U.S. government agencies. We have minimal credit exposure on loans guaranteed by the agencies. This amount includes residential mortgage loans previously sold into GNMA mortgage pools that are eligible to be repurchased. We may repurchase these loans when certain defined delinquency criteria are met. Because of this repurchase right, the Company is deemed to have regained effective control over these loans and must include them in the Consolidated Balance Sheets. Permanent residential mortgage loans guaranteed by U.S. government agencies increased \$2.5 million or 1% over December 31, 2015.

Home equity loans totaled \$744 million at December 31, 2016, a \$9.0 million or 1% increase over December 31, 2015. Our home equity portfolio is primarily composed of first-lien, fully amortizing home equity loans. Home equity loans generally require a minimum FICO score of 700 and a maximum DTI of 50%. The maximum loan amount available for our home equity loan products is generally \$400 thousand. Revolving loans have a 10 year revolving period followed by 15 year term of amortizing repayments. Interest-only home equity loans have a 5 year revolving period followed by a 15 year term of amortizing repayments and may not be extended for any additional revolving time. All other home equity loans may be extended at management's discretion for an additional 5 year revolving term subject to an update of certain credit information. A summary of our home equity loan portfolio at December 31, 2016 by lien position and amortizing status follows in Table 17.

**Table 17 – Home Equity Loans**  
(In thousands)

	<b>Revolving</b>	<b>Amortizing</b>	<b>Total</b>
First lien	\$ 70,854	\$ 414,236	\$ 485,090
Junior lien	123,779	134,756	258,535
Total home equity	\$ 194,633	\$ 548,992	\$ 743,625

The distribution of residential mortgage and personal loans at December 31, 2016 is presented in Table 18. Residential mortgage loans are distributed by collateral location. Personal loans are generally distributed by borrower location.

**Table 18 – Residential Mortgage and Personal Loans by Collateral Location**  
(In thousands)

	<b>Oklahoma</b>	<b>Texas</b>	<b>New Mexico</b>	<b>Arkansas</b>	<b>Colorado</b>	<b>Arizona</b>	<b>Kansas/ Missouri</b>	<b>Other</b>	<b>Total</b>
Residential mortgage:									
Permanent mortgage	\$ 187,855	\$407,108	\$ 38,037	\$ 14,032	\$ 159,205	\$ 91,208	\$ 77,928	\$ 31,447	\$ 1,006,820
Permanent mortgages guaranteed by U.S. government agencies	57,192	25,509	60,069	6,870	5,348	1,919	14,071	28,409	199,387
Home equity	406,393	137,288	102,821	5,599	35,324	8,688	47,147	365	743,625
Total residential mortgage	\$ 651,440	\$569,905	\$ 200,927	\$ 26,501	\$ 199,877	\$101,815	\$ 139,146	\$ 60,221	\$ 1,949,832
Personal	\$ 295,047	\$334,710	\$ 11,306	\$ 6,525	\$ 52,679	\$ 48,910	\$ 78,386	\$ 12,395	\$ 839,958

The Company secondarily evaluates loan portfolio performance based on the primary geographical market managing the loan. Loans attributed to a geographical market may not represent the location of the borrower or the collateral. All permanent mortgage loans serviced by our mortgage banking unit and held for investment by BOKF, NA are centrally managed by the Bank of Oklahoma.

**Table 19 – Loans Managed by Primary Geographical Market**

(In thousands)

	December 31,				
	2016	2015	2014	2013	2012
<b>Bank of Oklahoma:</b>					
Commercial	\$ 3,370,259	\$ 3,782,687	\$ 3,142,689	\$ 2,902,140	\$ 3,089,686
Commercial real estate	684,381	739,829	603,610	602,010	580,694
Residential mortgage	1,407,197	1,409,114	1,467,096	1,524,212	1,488,486
Personal	303,823	255,387	206,115	192,283	220,096
Total Bank of Oklahoma	5,765,660	6,187,017	5,419,510	5,220,645	5,378,962
<b>Bank of Texas:</b>					
Commercial	4,022,455	3,908,425	3,549,128	3,052,274	2,726,925
Commercial real estate	1,415,011	1,204,202	1,027,817	816,574	771,796
Residential mortgage	233,981	219,126	235,948	260,544	275,408
Personal	306,748	203,496	154,363	131,297	116,252
Total Bank of Texas	5,978,195	5,535,249	4,967,256	4,260,689	3,890,381
<b>Bank of Albuquerque:</b>					
Commercial	399,256	375,839	383,439	342,336	265,830
Commercial real estate	284,603	313,422	296,358	308,829	326,135
Residential mortgage	108,058	120,507	127,999	133,900	130,337
Personal	11,483	11,557	10,899	13,842	15,456
Total Bank of Albuquerque	803,400	821,325	818,695	798,907	737,758
<b>Bank of Arkansas:</b>					
Commercial	86,577	92,359	95,510	81,556	62,049
Commercial real estate	73,616	69,320	88,301	78,264	90,821
Residential mortgage	7,015	8,169	7,261	7,922	13,046
Personal	6,524	819	5,169	8,023	15,421
Total Bank of Arkansas	173,732	170,667	196,241	175,765	181,337
<b>Colorado State Bank &amp; Trust:</b>					
Commercial	1,018,208	987,076	977,961	735,626	776,610
Commercial real estate	265,264	223,946	194,553	190,355	173,327
Residential mortgage	59,631	53,782	57,119	62,821	59,363
Personal	50,372	23,384	27,918	22,686	19,333
Total Colorado State Bank & Trust	1,393,475	1,288,188	1,257,551	1,011,488	1,028,633
<b>Bank of Arizona:</b>					
Commercial	686,253	606,733	547,524	417,702	313,296
Commercial real estate	747,409	507,523	355,140	257,477	201,760
Residential mortgage	36,265	44,047	35,872	47,111	57,803
Personal	52,553	31,060	12,883	7,887	4,686
Total Bank of Arizona	1,522,480	1,189,363	951,419	730,177	577,545
<b>Bank of Kansas City / Mobank:</b>					
Commercial	807,816	499,412	399,419	411,587	407,516
Commercial real estate	338,762	200,791	162,371	161,844	84,466
Residential mortgage	97,685	22,148	18,217	15,516	20,597
Personal	108,455	26,994	17,358	5,646	4,261
Total Bank of Kansas City / Mobank	1,352,718	749,345	597,365	594,593	516,840
Total BOK Financial loans	\$ 16,989,660	\$ 15,941,154	\$ 14,208,037	\$ 12,792,264	\$ 12,311,456



**Table 20 – Loan Maturity and Interest Rate Sensitivity at December 31, 2016**

(In thousands)

	<b>Total</b>	<b>Remaining Maturities of Selected Loans</b>		
		<b>Within 1 Year</b>	<b>1-5 Years</b>	<b>After 5 Years</b>
Loan maturity:				
Commercial	\$ 10,390,824	\$ 783,534	\$ 5,771,115	\$ 3,836,175
Commercial real estate	3,809,046	351,546	2,438,228	1,019,272
Total	\$ 14,199,870	\$ 1,135,080	\$ 8,209,343	\$ 4,855,447
Interest rate sensitivity for selected loans with:				
Predetermined interest rates	\$ 2,820,073	\$ 120,765	\$ 685,710	\$ 2,013,598
Floating or adjustable interest rates	11,379,797	1,014,315	7,523,633	2,841,849
Total	\$ 14,199,870	\$ 1,135,080	\$ 8,209,343	\$ 4,855,447

**Loan Commitments**

We enter into certain off-balance sheet arrangements in the normal course of business. These arrangements include unfunded loan commitments which totaled \$9.4 billion and standby letters of credit which totaled \$585 million at December 31, 2016. Loan commitments may be unconditional obligations to provide financing or conditional obligations that depend on the borrower's financial condition, collateral value or other factors. Standby letters of credit are unconditional commitments to guarantee the performance of our customer to a third party. Since some of these commitments are expected to expire before being drawn upon, the total commitment amounts do not necessarily represent future cash requirements. Approximately \$390 thousand of the outstanding standby letters of credit were issued on behalf of customers whose loans are nonperforming at December 31, 2016.

**Table 21 – Off-Balance Sheet Credit Commitments**

(In thousands)

	<b>December 31,</b>				
	<b>2016</b>	<b>2015</b>	<b>2014</b>	<b>2013</b>	<b>2012</b>
Loan commitments	\$ 9,404,665	\$ 8,455,037	\$ 8,328,416	7,096,373	6,636,587
Standby letters of credit	585,472	507,988	447,599	444,248	466,477
Mortgage loans sold with recourse	139,486	155,489	179,822	191,299	226,922

We have off-balance sheet commitments related to certain residential mortgage loans originated under community development loan programs that were sold to a U.S. government agency with full recourse. These mortgage loans were underwritten to standards approved by the agencies, including full documentation and originated under programs available only for owner-occupied properties. We no longer sell residential mortgage loans with recourse other than obligations under standard representations and warranties. We are obligated to repurchase these loans for the life of these loans in the event of foreclosure for the unpaid principal and interest at the time of foreclosure. At December 31, 2016, the principal balance of residential mortgage loans sold subject to recourse obligations totaled \$139 million, down from \$155 million at December 31, 2015. Substantially all of these loans are to borrowers in our primary markets including \$88 million to borrowers in Oklahoma, \$15 million to borrowers in Arkansas and \$12 million to borrowers in New Mexico. At December 31, 2016, approximately 3% of these loans were nonperforming and 6% were past due 30 to 89 days. A separate accrual for credit risk of \$4.0 million is available to absorb losses on these loans.

We also have an off-balance sheet obligation to repurchase residential mortgage loans sold to government sponsored entities through our mortgage banking activities due to standard representations and warranties made under contractual agreements as described further in Note 7 to the Consolidated Financial Statements. For the period from 2010 through 2016, approximately 21% of repurchase requests have currently resulted in actual repurchases or indemnification by the Company. The accrual for credit losses related to potential loan repurchases under representations and warranties totaled \$2.8 million at December 31, 2016.

## Customer Derivative Programs

We offer programs that permit our customers to hedge various risks, including fluctuations in energy, cattle and other agricultural product prices, interest rates and foreign exchange rates. Each of these programs work essentially the same way. Derivative contracts are executed between the customers and the Company. Offsetting contracts are executed between the Company and selected counterparties or exchanges to minimize market risk to us from changes in commodity prices, interest rates or foreign exchange rates. The counterparty contracts are identical to the customer contracts, except for a fixed pricing spread or a fee paid to us as compensation for administrative costs, credit risk and profit.

The customer derivative programs create credit risk for potential amounts due to the Company from our customers and from the counterparties. Customer credit risk is monitored through existing credit policies and procedures. The effects of changes in commodity prices, interest rates or foreign exchange rates are evaluated across a range of possible options to determine the maximum exposure we are willing to have individually to any customer. Customers may also be required to provide cash margin or other collateral in conjunction with our credit agreements to further limit our credit risk.

Counterparty credit risk is evaluated through existing policies and procedures. This evaluation considers the total relationship between BOK Financial and each of the counterparties. Individual limits are established by management, approved by Credit Administration and reviewed by the Asset/Liability Committee. Margin collateral is required if the exposure between the Company and any counterparty exceeds established limits. Based on declines in the counterparties' credit ratings, these limits may be reduced and additional margin collateral may be required.

A deterioration of the credit standing of one or more of the customers or counter-parties to these contracts may result in BOK Financial recognizing a loss as the fair value of the affected contracts may no longer move in tandem with the offsetting contracts. This occurs if the credit standing of the customer or counterparty deteriorated such that either the fair value of underlying collateral no longer supports the contract or the customer or counterparty's ability to provide margin collateral was impaired. Credit losses on customer derivatives reduce brokerage and trading revenue in the Consolidated Statements of Earnings.

Derivative contracts are carried at fair value. At December 31, 2016, the net fair values of derivative contracts, before consideration of cash margin, reported as assets under these programs totaled \$690 million compared to \$611 million at December 31, 2015. Derivative contracts carried as assets include foreign exchange contracts with fair values of \$494 million, to-be-announced residential mortgage-backed securities with fair values of \$120 million, energy contracts with fair values of \$36 million, interest rate swaps primarily sold to loan customers with fair values of \$34 million and equity option contracts with fair values of \$4.4 million. Before consideration of cash margin paid to counterparties, the aggregate net fair values of derivative contracts held under these programs reported as liabilities totaled \$687 million.

At December 31, 2016, total derivative assets were reduced by \$11 million of cash collateral received from counterparties and total derivative liabilities were reduced by \$48 million of cash collateral paid to counterparties related to instruments executed with the same counterparty under a master netting agreement.

A table showing the notional and fair value of derivative assets and liabilities on both a gross and net basis is presented in Note 3 to the Consolidated Financial Statements.

The fair value of derivative contracts reported as assets under these programs, net of cash margin held by the Company, by category of debtor at December 31, 2016 follows in Table 22.

**Table 22 – Fair Value of Derivative Contracts**  
(In thousands)

Banks and other financial institutions	\$ 289,356
Customers	285,636
Exchanges and clearing organizations	104,454
Fair value of customer hedge asset derivative contracts, net	\$ 679,446

The largest exposure to a single counterparty was to a clearing organization for to-be-announced mortgage-backed securities which totaled \$97 million at December 31, 2016.

Our customer derivative program also introduces liquidity and capital risk. We are required to provide cash margin to certain counterparties when the net negative fair value of the contracts exceeds established limits. Also, changes in commodity prices affect the amount of regulatory capital we are required to hold as support for the fair value of our derivative assets. These risks are modeled as part of the management of these programs. Based on current prices, a decrease in market prices equivalent to \$29.52 per barrel of oil would decrease the fair value of derivative assets by \$28 million. An increase in prices equivalent to \$82.29 per barrel of oil would increase the fair value of derivative assets by \$258 million. Liquidity requirements of this program are also affected by our credit rating. A decrease in credit rating to below investment grade would increase our obligation to post cash margin on existing contracts by approximately \$15 million. The fair value of our to-be-announced residential mortgage-backed securities and interest rate swap derivative contracts is affected by changes in interest rates. Based on our assessment as of December 31, 2016, changes in interest rates would not materially impact regulatory capital or liquidity needed to support this portion of our customer derivative program.

### **Summary of Loan Loss Experience**

We maintain an allowance for loan losses and an accrual for off-balance sheet credit risk. At December 31, 2016, the combined allowance for loan losses and accrual for off-balance sheet credit risk totaled \$257 million or 1.52% of outstanding loans and 117% of nonaccruing loans, excluding loans guaranteed by U.S. Government agencies. The allowance for loan losses was \$246 million and the accrual for off-balance sheet credit risk was \$11 million. At December 31, 2015, the combined allowance for credit losses was \$227 million or 1.43% of outstanding loans and 181% of nonaccruing loans, excluding loans guaranteed by U.S. Government agencies. The allowance for loan losses was \$226 million and the accrual for off-balance sheet credit risk was \$1.7 million.

On December 1, 2016, we acquired \$492 million of loans in conjunction with the acquisition of Mobank at a fair value of \$485 million. The aggregate discount of \$7.1 million included \$3.7 million for credit risk. None of the acquired loans were considered to be purchase credit impaired loans. No allowance has been attributed to the Mobank loans as of December 31, 2016.

The provision for credit losses is the amount necessary to maintain the allowance for loan losses and an accrual for off-balance sheet credit risk at an amount determined by management to be appropriate based on its evaluation. The provision includes the combined charge or credit to expense for both the allowance for loan losses and the accrual for off-balance sheet credit risk. All losses incurred from lending activities will ultimately be reflected in charge-offs against the allowance for loan losses following funds advanced against outstanding commitments. After evaluating all credit factors, the Company determined that a \$65.0 million provision for credit losses was necessary due to credit migration in our energy loan portfolio at the beginning of the year due to low energy prices. Trends in credit metrics in the latter half of 2016 have continued to show improvement, largely driven by energy price stability and decreased rates of newly identified nonaccruing and potential problem loans.

Based on currently available information, our expectations for loan growth, historical credit factors by loan type and other qualitative and environmental factors, and including the results of our energy stress testing, discussed in more detail following, we estimate a loan loss provision range of \$20 million to \$30 million may be necessary to maintain an appropriate allowance for loan losses and accrual for off-balance sheet credit risk in 2017.

**Table 23 – Summary of Loan Loss Experience**  
(In thousands)

	Year Ended December 31,				
	2016	2015	2014	2013	2012
<b>Allowance for loan losses:</b>					
Beginning balance	\$ 225,524	\$ 189,056	\$ 185,396	\$ 215,507	\$ 253,481
Loans charged off:					
Commercial	(35,828)	(6,734)	(3,569)	(6,335)	(9,341)
Commercial real estate	—	(944)	(2,047)	(5,845)	(11,642)
Residential mortgage	(1,312)	(2,205)	(4,448)	(5,753)	(10,047)
Personal	(5,448)	(5,288)	(6,168)	(7,349)	(11,108)
Total	(42,588)	(15,171)	(16,232)	(25,282)	(42,138)
Recoveries of loans previously charged off:					
Commercial	1,727	2,729	5,703	7,488	6,128
Commercial real estate	1,283	11,079	7,003	9,420	5,706
Residential mortgage	1,999	1,260	2,000	1,558	1,928
Personal	2,747	3,052	4,328	4,778	5,056
Total	7,756	18,120	19,034	23,244	18,818
Net loans recovered (charged off)	(34,832)	2,949	2,802	(2,038)	(23,320)
Provision for loan losses	55,467	33,519	858	(28,073)	(14,654)
Ending balance	\$ 246,159	\$ 225,524	\$ 189,056	\$ 185,396	\$ 215,507
<b>Accrual for off-balance sheet credit risk:</b>					
Beginning balance	\$ 1,711	\$ 1,230	\$ 2,088	\$ 1,915	\$ 9,261
Provision for off-balance sheet credit risk	9,533	481	(858)	173	(7,346)
Ending balance	\$ 11,244	\$ 1,711	\$ 1,230	\$ 2,088	\$ 1,915
<b>Total combined provision for credit losses</b>	<b>\$ 65,000</b>	<b>\$ 34,000</b>	<b>\$ —</b>	<b>\$ (27,900)</b>	<b>\$ (22,000)</b>
Allowance for loan losses to loans outstanding at period end	1.45%	1.41 %	1.33 %	1.45 %	1.75 %
Net charge-offs (recoveries) to average loans	0.21%	(0.02)%	(0.02)%	0.02 %	0.20 %
Total provision for credit losses to average loans	0.40%	0.23 %	— %	(0.23)%	(0.19)%
Recoveries to gross charge-offs	18.21%	119.44 %	117.26 %	91.94 %	44.66 %
Allowance for loan losses as a multiple of net charge-offs	7.07x	(76.47)x	(67.47)x	90.97x	9.24x
Accrual for off-balance sheet credit risk to off-balance sheet credit commitments	0.11%	0.02 %	0.01 %	0.03 %	0.03 %
Combined allowance for credit losses to loans outstanding at period-end	1.52%	1.43 %	1.34 %	1.47 %	1.77 %

<sup>1</sup> Includes \$7.1 million of negative recovery related to a refund of a settlement between BOK Financial and the City of Tulsa invalidated by the Oklahoma Supreme Court. Excluding this refund, BOK Financial net charge-offs to average loans was 0.14%, recoveries to gross charge-offs were 61.51% and the allowance for loan losses as a multiple of net charge-offs was 13.29x for 2012.

## *Allowance for Loan Losses*

The appropriateness of the allowance for loan losses is assessed by management based on an ongoing quarterly evaluation of the probable estimated losses inherent in the portfolio. The allowance consists of specific allowances attributed to certain impaired loans, general allowances based on estimated loss rates by loan class and non-specific allowances based on general economic conditions, concentration in loans with large balances and other relevant factors.

Loans are considered to be impaired when it is probable that we will not collect all amounts due according to the contractual terms of the loan agreements. This includes all nonaccruing loans, all loans modified in trouble debt restructurings and all government guaranteed loans repurchased from GNMA pools. At December 31, 2016, impaired loans totaled \$419 million, including \$11 million with specific allowances of \$843 thousand and \$407 million with no specific allowances because the loan balances represent the amounts we expect to recover. At December 31, 2015, impaired loans totaled \$322 million, including \$44 million of impaired loans with specific allowances of \$16 million and \$278 million with no specific allowances. All Mobank loans were initially recognized at fair value as of the December 1, 2016 acquisition date. Therefore, no allowance for credit losses has been provided. None of the Mobank loans are impaired at December 31, 2016.

Risk grading guidelines in the OCC Oil and Gas Lending Handbook updated at the beginning of 2016, heavily weight the borrowers' ability to repay total debt, regardless of collateral position. This change in grading methodology has increased loans especially mentioned, potential problem loans and nonaccruing loans. Because substantially all of our loans to energy producers are supported by senior lien positions that, in general, have substantially lower loss exposure, the historical relationship between loan credit risk classification and loss exposure has been more difficult to correlate. Our most recently completed energy portfolio redetermination supported that \$121 million of impaired energy loans required no allowance for credit losses based on the adequacy of collateral. In addition, \$89 million of impaired energy loans are current on all payments due.

General allowances for unimpaired loans are based on an estimated loss rate by loan class. Estimated loss rates for risk-graded loans are either increased or decreased based on changes in risk grading for each loan class. Estimated loss rates for both risk-graded and non-risk graded loans may be further adjusted for inherent risks identified for the given loan class which have not yet been captured in the loss rate.

The aggregate amount of general allowances for all unimpaired loans totaled \$217 million at December 31, 2016, compared to \$179 million at December 31, 2015. The general allowance for the commercial loan portfolio segment increased by \$25 million primarily related to the prolonged low energy price environment. The general allowance for the commercial real estate loan portfolio segment increased \$9.4 million over December 31, 2015 primarily due to loan growth and the mix of commercial real estate loans in the portfolio. The general allowance for residential mortgage loans decreased \$1.3 million. The general allowance for personal loans increased \$4.6 million over the prior year.

Nonspecific allowances are maintained for risks beyond factors specific to a particular portfolio segment or loan class. These factors include trends in the economy in our primary lending areas, concentrations in loans with large balances and other relevant factors. Nonspecific allowances totaled \$28 million at December 31, 2016, compared to \$30 million at December 31, 2015. The nonspecific allowance includes consideration of the indirect impact of the prolonged low energy price environment on the broader economies within our geographical footprint that are highly dependent on the energy industry.

An allocation of the allowance for loan losses by loan category follows in Table 24.

**Table 24 – Allowance for Loan Losses Allocation**

(Dollars in thousands)

	December 31,									
	2016		2015		2014		2013		2012	
	Allowance	% of Loans <sup>1</sup>	Allowance	% of Loans <sup>1</sup>	Allowance	% of Loans <sup>1</sup>	Allowance	% of Loans <sup>1</sup>	Allowance	% of Loans <sup>1</sup>
Loan category:										
Commercial	\$ 140,213	61.16%	\$ 130,334	64.32%	\$ 90,875	64.02%	\$ 79,180	62.10%	\$ 65,280	62.07%
Commercial real estate	50,749	22.42%	41,391	20.44%	42,445	19.20%	41,573	18.88%	54,884	18.11%
Residential mortgage	18,224	11.48%	19,509	11.77%	23,458	13.72%	29,465	16.04%	41,703	16.61%
Personal	8,773	4.94%	4,164	3.47%	4,233	3.06%	6,965	2.98%	9,453	3.21%
Nonspecific allowance	28,200		30,126		28,045		28,213		44,187	
Total	\$ 246,159	100.00%	\$ 225,524	100.00%	\$ 189,056	100.00%	\$ 185,396	100.00%	\$ 215,507	100.00%

<sup>1</sup> Represents ratio of loan category balance to total loans.

Our loan monitoring process also identified certain accruing substandard loans, based on regulatory guidelines, that possess more than the normal amount of risk due to deterioration in the financial condition of the borrower or the value of the collateral. Because the borrowers are still performing in accordance with the original terms of the loan agreements, and no loss of principal or interest is anticipated, these loans were not included in nonperforming assets. Known information does, however, cause management concern as to the borrowers' continued ability to comply with current repayment terms. These potential problem loans totaled \$399 million at December 31, 2016 composed primarily of \$308 million or 12% of energy loans, \$38 million or 1% of services loans, \$16 million or less than 1% of healthcare loans, \$15 million or 3% of manufacturing loans and \$13 million or less than 1% of wholesale/retail sector loans. Potential problem loans totaled \$155 million at December 31, 2015.

Our loan monitoring process also identified loans considered to be "other loans especially mentioned" based on regulatory guidelines. Other loans especially mentioned are in compliance with the original terms of the agreement, but may have a weakness that deserves management's close attention. Other loans especially mentioned totaled \$230 million at December 31, 2016 and were composed primarily of \$120 million or 5% of energy loans, \$44 million or 2% of healthcare loans, \$27 million or 5% of manufacturing loans, \$17 million or 1% of wholesale/retail sector loans and \$11 million or less than 1% of service sector loans. Other loans especially mentioned totaled \$386 million at December 31, 2015.

We updated our energy portfolio stress test at December 31, 2016 to determine how the energy portfolio may respond in a prolonged low-price environment. Stress test assumptions included a starting price of \$2.00 per million BTUs for natural gas and \$37.50 per barrel of oil, gradually escalating over seven years to a maximum of \$3.00 and \$55, respectively. In this scenario, the energy portfolio exhibits a greater stress than the Company's fifteen year historical loss rate on energy production loans of 18 basis points. The results of the stress test are factored into our expectation that the loan loss provision could range from \$20 million to \$30 million for 2017, based on current observed conditions. The portion of the combined allowance for credit losses attributable to the energy portfolio totaled 3.68% of outstanding energy loans at December 31, 2016, compared to 2.89% of outstanding energy loans at December 31, 2015.

#### *Net Loans Charged Off*

Loans are charged off against the allowance for loan losses when the loan balance or a portion of the loan balance is no longer covered by the paying capacity of the borrower based on an evaluation of available cash resources and collateral value. Internally risk graded loans are evaluated quarterly and charge-offs are taken in the quarter in which the loss is identified. Non-risk graded loans are generally charged off when payments are between 60 days and 180 days past due, depending on loan class. In addition, non-risk graded loans are generally charged-down to collateral value within 60 days of being notified of a borrower's bankruptcy filing, regardless of payment status.

BOK Financial had net loans charged off of \$34.8 million or 0.21% of average loans for 2016 compared to a net recovery of \$2.9 million or (0.02)% of average loans in 2015.



Net commercial loans charged off totaled \$34.1 million, primarily from energy loans. Energy loan charge-offs included \$21.6 million from a single borrower due to steeper than expected production declines and higher lease operating expenses. Net commercial real estate loan recoveries totaled \$1.3 million. Net recoveries of residential mortgage loans totaled \$687 thousand for the year and net charge-offs of personal loans were \$2.7 million.

**Table 25 – Nonperforming Assets**  
(In thousands)

	December 31,				
	2016	2015	2014	2013	2012
Nonaccruing loans:					
Commercial	\$ 178,953	\$ 76,424	\$ 13,527	\$ 16,760	\$ 24,467
Commercial real estate	5,521	9,001	18,557	40,850	60,626
Residential mortgage	46,220	61,240	48,121	42,320	46,608
Personal	290	463	566	1,219	2,709
Total nonaccruing loans	230,984	147,128	80,771	101,149	134,410
Accruing renegotiated loans guaranteed by U.S. government agencies	81,370	74,049	73,985	54,322	38,515
Real estate and other repossessed assets:					
Guaranteed by U.S. government agencies <sup>1</sup>	—	—	49,898	37,431	22,365
Other	44,287	30,731	51,963	54,841	81,426
Real estate and other repossessed assets	44,287	30,731	101,861	92,272	103,791
Total nonperforming assets	\$ 356,641	\$ 251,908	\$ 256,617	\$ 247,743	\$ 276,716
Total nonperforming assets excluding those guaranteed by U.S. government agencies	\$ 263,425	\$ 155,959	\$ 129,022	\$ 155,213	\$ 215,347
Nonaccruing loans by loan class:					
Commercial:					
Energy	\$ 132,499	\$ 61,189	\$ 1,416	\$ 1,860	\$ 2,460
Services	8,173	10,290	5,201	4,922	12,090
Healthcare	825	1,072	1,380	1,586	3,166
Wholesale/retail	11,407	2,919	4,149	6,969	3,077
Manufacturing	4,931	331	450	592	2,007
Other	21,118	623	931	831	1,667
Total commercial	178,953	76,424	13,527	16,760	24,467
Commercial real estate:					
Retail	326	1,319	3,926	4,857	8,117
Multifamily	38	274	—	7	2,706
Office	426	651	3,420	6,391	6,829
Industrial	76	76	—	252	3,968
Residential construction and land development	3,433	4,409	5,299	17,377	26,131
Other commercial real estate	1,222	2,272	5,912	11,966	12,875
Total commercial real estate	5,521	9,001	18,557	40,850	60,626
Residential mortgage:					
Permanent mortgage	22,855	28,984	34,845	34,279	39,863
Permanent mortgages guaranteed by U.S. government agencies	11,846	21,900	3,712	777	489
Home equity	11,519	10,356	9,564	7,264	6,256
Total residential mortgage	46,220	61,240	48,121	42,320	46,608
Personal	290	463	566	1,219	2,709
Total nonaccruing loans	\$ 230,984	\$ 147,128	\$ 80,771	\$ 101,149	\$ 134,410

**Table 25 – Nonperforming Assets**  
(In thousands)

	December 31,				
	2016	2015	2014	2013	2012
Nonaccruing loans as % of outstanding loan balance for class:					
Nonaccruing loans by loan class:					
Commercial:					
Energy	5.30%	1.98%	0.05%	0.08%	0.10%
Services	0.26%	0.37%	0.22%	0.22%	0.56%
Healthcare	0.04%	0.06%	0.09%	0.12%	0.29%
Wholesale/retail	0.72%	0.21%	0.29%	0.58%	0.28%
Manufacturing	0.96%	0.06%	0.08%	0.15%	0.58%
Other	4.31%	0.12%	0.22%	0.19%	0.35%
Total commercial	1.72%	0.75%	0.15%	0.21%	0.32%
Commercial real estate:					
Retail	0.04%	0.17%	0.59%	0.83%	1.55%
Multifamily	—%	0.04%	—%	—%	0.67%
Office	0.05%	0.10%	0.82%	1.55%	1.60%
Industrial	0.01%	0.01%	—%	0.10%	1.61%
Residential construction and land development	2.53%	2.75%	3.69%	8.42%	10.32%
Other commercial real estate	0.36%	0.65%	1.60%	3.06%	3.42%
Total commercial real estate	0.14%	0.28%	0.68%	1.69%	2.72%
Residential mortgage:					
Permanent mortgage	2.27%	3.07%	3.59%	3.23%	3.55%
Permanent mortgages guaranteed by U.S. government agencies	5.94%	11.12%	1.80%	0.43%	0.30%
Home equity	1.55%	1.41%	1.24%	0.90%	0.82%
Total residential mortgage	2.37%	3.26%	2.47%	2.06%	2.28%
Personal	0.03%	0.08%	0.13%	0.32%	0.68%
Total nonaccruing loans	1.36%	0.92%	0.57%	0.79%	1.09%
Allowance for loan losses to nonaccruing loans <sup>2</sup>	112.33%	180.09%	245.34%	184.71%	160.92%
Accruing loans 90 days or more past due <sup>2</sup>	\$ 5	\$ 1,207	\$ 125	\$ 1,415	\$ 3,925
Foregone interest on nonaccruing loans <sup>3</sup>	15,990	7,432	8,170	5,361	8,587

<sup>1</sup> Approximately \$50 million was reclassified from Real estate and other repossessed assets to Receivables on the balance sheet on January 1, 2015 with the adoption of Financial Accounting Standards Board Update No. 2014-14, *Classification of Certain Government-Guaranteed Mortgage Loans Upon Foreclosure* ("ASU 2014-14"). With the implementation of ASU 2014-14, upon foreclosure of loans for which the loan balance is expected to be recovered from the guarantee by a U.S. government agency, the loan balance is directly reclassified to other receivables without including such foreclosed assets in real estate and other repossessed assets.

<sup>2</sup> Excludes residential mortgages guaranteed by agencies of the U.S. government.

<sup>3</sup> Interest collected and recognized on nonaccruing loans was not significant in 2016 and previous years.

Nonperforming assets increased \$105 million during 2016 to \$357 million or 2.09% of outstanding loans and repossessed assets at December 31, 2016. Nonaccruing loans totaled \$231 million, accruing renegotiated residential mortgage loans totaled \$81 million and real estate and other repossessed assets totaled \$44 million. All accruing renegotiated residential mortgage loans and \$12 million of nonaccruing loans are guaranteed by U.S. government agencies. Excluding assets guaranteed by U.S. government agencies, nonperforming assets increased \$107 million during the year to \$263 million or 1.56% of outstanding non-guaranteed loans and repossessed assets. The increase was primarily due to nonaccruing energy and other commercial & industrial loans, as well as real estate and other repossessed assets from repossession of collateral of certain energy loans. The Company generally retains nonperforming assets to maximize potential recovery, which may cause future nonperforming assets to decrease more slowly.

Loans are generally classified as nonaccruing when it becomes probable that we will not collect the full contractual principal and interest. As more fully discussed in Note 4 to the Consolidated Financial Statements, we may modify loans in a troubled debt restructuring. Modifications may include extension of payment terms and rate concessions. We generally do not forgive principal or accrued but unpaid interest. All loans modified in troubled debt restructurings, except residential mortgage loans guaranteed by U.S. government agencies, are classified as nonaccruing. We may renew matured nonaccruing loans. All nonaccruing loans, including those renewed or modified in troubled debt restructurings, are charged off when the loan balance is no longer covered by the paying capacity of the borrower based on a quarterly evaluation of available cash resources and collateral value. All nonaccruing loans generally remain on nonaccruing status until full collection of principal and interest in accordance with the original terms, including principal previously charged off, is probable. We generally do not voluntarily modify personal loans to troubled borrowers. Personal loans modified at the direction of bankruptcy court orders are identified as troubled debt restructurings and classified as nonaccruing.

As of December 31, 2016, renegotiated loans consist solely of accruing residential mortgage loans guaranteed by U.S. government agencies that have been modified in troubled debt restructurings. See Note 4 to the Consolidated Financial Statements for additional discussion of troubled debt restructurings. Generally, we modify residential mortgage loans primarily by reducing interest rates and extending the number of payments in accordance with U.S. government agency guidelines. No unpaid principal or interest is forgiven. Interest continues to accrue based on the modified terms of the loan. Modified loans guaranteed by U.S. government agencies under residential mortgage loan programs may be sold once they become eligible according to U.S. government agency guidelines.

A rollforward of nonperforming assets for the year ended December 31, 2016 follows in Table 26.

**Table 26 – Rollforward of Nonperforming Assets**

(In thousands)

	Year Ended December 31, 2016			
	Nonaccruing Loans	Renegotiated Loans	Real Estate and Other Reposessed Assets	Total Nonperforming Assets
Balance, December 31, 2015	\$ 147,128	\$ 74,049	\$ 30,731	\$ 251,908
Additions	273,969	46,593	—	320,562
Net transfer to premises and equipment	—	—	2,109	2,109
Payments	(97,214)	(1,808)	—	(99,022)
Charge-offs	(42,588)	—	—	(42,588)
Net gains (losses) and write-downs	—	—	1,108	1,108
Foreclosure of nonaccruing loans	(34,282)	—	34,282	—
Foreclosure of loans guaranteed by U.S. government agencies	(18,045)	(9,471)	—	(27,516)
Proceeds from sales	—	(26,384)	(25,596)	(51,980)
Acquisition of Mobank	—	—	1,740	1,740
Net transfers to nonaccruing loans	2,061	(2,061)	—	—
Return to accrual status	(45)	—	—	(45)
Other, net	—	452	(87)	365
Balance, December 31, 2016	\$ 230,984	\$ 81,370	\$ 44,287	\$ 356,641

We foreclose on loans guaranteed by U.S. government agencies in accordance with agency guidelines. Generally these loans are not eligible for modification programs or have failed to comply with modified loan terms. Principal is guaranteed by agencies of the U.S. government, subject to limitations and credit risk is minimal. At foreclosure, these amounts are transferred to claims receivable accounts. These properties will be conveyed to the agencies and receivables collected once applicable criteria have been met.

Nonaccruing loans totaled \$231 million or 1.36% of outstanding loans at December 31, 2016 compared to \$147 million or 0.92% of outstanding loans at December 31, 2015. Nonaccruing loans increased \$84 million from December 31, 2015. Newly identified nonaccruing loans totaled \$274 million for 2016, partially offset by \$97 million of payments, \$43 million of charge-offs and \$34 million of foreclosures.

## Commercial

Nonaccruing commercial loans totaled \$179 million or 1.72% of total commercial loans at December 31, 2016, compared to \$76 million or 0.75% of total commercial loans at December 31, 2015. Nonaccruing commercial loans increased \$103 million during 2016. Newly identified nonaccruing commercial loans totaled \$225 million, offset by \$61 million in payments, \$36 million of charge-offs and \$25 million of reposessions.

Nonaccruing commercial loans at December 31, 2016 were primarily composed of \$132 million or 5.30% of total energy loans, \$21 million or 4.31% of other commercial and industrial loans, \$11 million or 0.72% of wholesale/retail loans and \$8.2 million or 0.26% of total services loans.

## Commercial Real Estate

Nonaccruing commercial real estate loans were \$5.5 million or 0.14% of outstanding commercial real estate loans at December 31, 2016, down from \$9.0 million or 0.28% of outstanding commercial real estate loans at December 31, 2015. The \$3.5 million decrease was primarily due to \$6.8 million of cash payments received, partially offset by \$3.4 million of newly identified commercial real estate loans during the year. There were no charge-offs or foreclosures of commercial real estate loans in 2016.

Nonaccruing commercial real estate loans were composed of \$3.4 million or 2.53% of total residential land development and construction loans and \$1.2 million or 0.36% of total other commercial real estate loans.

## Residential Mortgage and Personal

Nonaccruing residential mortgage loans totaled \$46 million or 2.37% of outstanding residential mortgage loans at December 31, 2016, compared to \$61 million or 3.26% of outstanding residential mortgage loans at December 31, 2015. Newly identified nonaccruing residential mortgage loans of \$39 million were offset by \$28 million of cash payments, \$26 million of foreclosures and \$1.3 million of loans charged off during the year. Nonaccruing residential mortgage loans primarily consisted of \$23 million or 2.27% of non-guaranteed permanent residential mortgage loans and \$12 million or 5.94% of permanent residential mortgage loans guaranteed by U.S. government agencies. Nonaccruing home equity loans totaled \$12 million or 1.55% of total home equity loans.

Payments on accruing residential mortgage loans and personal loans may be delinquent. The composition of residential mortgage loans and personal loans past due but still accruing is included in the following Table 27. Substantially all non-guaranteed residential loans past due 90 days or more are nonaccruing. At December 31, 2016, residential mortgage loans 30 to 59 days past due of \$5.6 million were largely unchanged compared to the prior year. Residential mortgage loans 60 to 89 days past due increased \$901 thousand over December 31, 2015. Personal loans 30 to 59 days past due decreased \$76 thousand and personal loans 60 to 89 days past due increased \$235 thousand compared to December 31, 2015.

**Table 27 – Residential Mortgage and Personal Loans Past Due**  
(In thousands)

	December 31, 2016			December 31, 2015		
	90 Days or More	60 to 89 Days	30 to 59 Days	90 Days or More	60 to 89 Days	30 to 59 Days
Residential mortgage:						
Permanent mortgage <sup>1</sup>	\$ —	\$ 1,280	\$ 3,299	\$ —	\$ —	\$ 3,290
Home equity	—	337	2,276	20	716	2,379
<b>Total residential mortgage</b>	<b>\$ —</b>	<b>\$ 1,617</b>	<b>\$ 5,575</b>	<b>\$ 20</b>	<b>\$ 716</b>	<b>\$ 5,669</b>
Personal	\$ 5	\$ 263	\$ 589	\$ 8	\$ 28	\$ 665

<sup>1</sup> Excludes past due residential mortgage loans guaranteed by agencies of the U.S. government.

## Real Estate and Other Repossessed Assets

Real estate and other repossessed assets are assets acquired in partial or total forgiveness of loans. The assets are carried at the lower of cost as determined by fair value at date of foreclosure or current fair value, less estimated selling costs.

Real estate and other repossessed assets totaled \$44 million at December 31, 2016, a \$14 million increase over December 31, 2015. The distribution of real estate and other repossessed assets distributed primarily by collateral location is included in Table 28 following.

**Table 28 – Real Estate and Other Repossessed Assets by Collateral Location as of December 31, 2016**

(In thousands)

	<b>Oklahoma</b>	<b>Texas</b>	<b>Colorado</b>	<b>Arkansas</b>	<b>New Mexico</b>	<b>Arizona</b>	<b>Kansas/ Missouri</b>	<b>Other</b>	<b>Total</b>
Oil and gas properties	\$ —	\$ 25,421	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ 25,421
1-4 family residential properties	4,198	305	—	472	1,927	780	511	428	8,621
Developed commercial real estate properties	64	—	2,637	—	590	198	1,296	—	4,785
Undeveloped land	1,350	1,305	—	—	—	306	1,740	—	4,701
Residential land development properties	26	—	210	—	—	499	2	—	737
Vehicles	4	18	—	—	—	—	—	—	22
Total real estate and other repossessed assets	\$ 5,642	\$ 27,049	\$ 2,847	\$ 472	\$ 2,517	\$ 1,783	\$ 3,549	\$ 428	\$ 44,287

Undeveloped land is primarily zoned for commercial development. Developed commercial real estate properties are primarily completed with no additional construction necessary for sale.

## Liquidity and Capital

Based on the average balances for 2016, approximately 65% of our funding was provided by deposit accounts, 21% from borrowed funds, 1% from long-term subordinated debt and 10% from equity. Our funding sources, which primarily include deposits and borrowings from the Federal Home Loan Banks, provide adequate liquidity to meet our operating needs.

### *Subsidiary Banks*

Deposits and borrowed funds are the primary sources of liquidity for the subsidiary banks. Deposit accounts represent our largest funding source. We compete for retail and commercial deposits by offering a broad range of products and services and focusing on customer convenience. Retail deposit growth is supported through personal and small business checking, online bill paying services, mobile banking services, an extensive network of branch locations and ATMs and our Express Bank call center. Commercial deposit growth is supported by offering treasury management and lockbox services. We also acquire brokered deposits when the cost of funds is advantageous to other funding sources.

**Table 29 - Average Deposits by Line of Business**

(In thousands)

	Year Ended December 31,	
	2016	2015
Commercial Banking	\$ 8,430,507	\$ 8,773,512
Consumer Banking	6,632,687	6,668,520
Wealth Management	4,867,293	4,573,710
Subtotal	19,930,487	20,015,742
Funds Management and other	962,086	917,504
Total	\$ 20,892,573	\$ 20,933,246

Average deposits for 2016 totaled \$20.9 billion and represented approximately 65% of total liabilities and capital compared with \$20.9 billion and 68% of total liabilities and capital for 2015. Average deposits decreased \$41 million compared to the prior year. Demand deposits grew by \$426 million, offset by a \$175 million decrease in interest-bearing transaction deposit account balances and a \$328 million decrease in time deposits.

Average deposits attributed to Commercial Banking were \$8.4 billion for 2016, a decrease of \$343 million or 4% compared to 2015. Decreased interest-bearing transaction account and time deposit balances, were partially offset by growth in demand deposit balances. Average balances attributed to our commercial & industrial loan customers decreased \$277 million or 6%. Average balances attributed to our energy customers decreased \$116 million or 8%. Average balances attributed to commercial real estate customers were \$53 million or 10% lower than in the prior year. Small business banking customer average balances increased \$66 million or 5% and average balances attributed to our healthcare customers increased \$59 million or 9%. Commercial customers continue to maintain large cash reserves primarily due to low yields available on other high quality investment alternatives and to minimize deposit service charges through the earnings credit. The earnings credit is a non-cash method that enables commercial customers to offset deposit service charges based on account balances. Commercial account balances may decrease as short-term interest rates rise and commercial customers redeploy cash to better yielding investment alternatives.

Average Consumer Banking deposit balances were largely unchanged compared to the prior year. Average demand deposit balances grew by \$118 million or 8% and average interest-bearing transaction accounts increased \$52 million or 2%. Average savings account balances were up \$30 million or 8%. Higher costing time deposit balances decreased \$235 million or 17%. Average Wealth Management deposit balances increased \$294 million or 6% over the prior year. Non-interest-bearing demand deposits increased \$184 million and interest-bearing transaction balances increased \$171 million, partially offset by a \$64 million decrease in time deposits.

The general trend of increased deposits over the past several years reflects modest growth in the overall economy and low short-term interest rates. If economic activity were to improve significantly, deposits may decline as customers deploy funds into projects. In addition, if short-term interest rates were to increase further, customers could shift deposits from non-interest bearing demand deposits into interest-bearing alternatives.



**Table 30 - Maturity of Domestic CDs and Public Funds in Amounts of \$100,000 or More**  
(In thousands)

	December 31,	
	2016	2015
Months to maturity:		
3 or less	\$ 295,755	\$ 292,292
Over 3 through 6	243,210	206,935
Over 6 through 12	315,506	268,894
Over 12	590,981	746,719
Total	\$ 1,445,452	\$ 1,514,840

Brokered deposits included in time deposits averaged \$384 million for 2016 compared to \$416 million for 2015. Brokered deposits included in time deposits totaled \$417 million at December 31, 2016 and \$358 million at December 31, 2015.

Average interest-bearing transaction accounts for 2016 included \$732 million of brokered deposits compared to \$573 million for 2015. Brokered deposits included in interest-bearing transaction accounts totaled \$1.3 billion at December 31, 2016 and \$561 million at December 31, 2015. The increase in brokered interest-bearing transaction account balances was primarily due to use of a reciprocal program that spreads large customer deposits among participating banks in amounts that qualify FDIC insurance. In exchange, we also receive deposits from participating banks in amounts that qualify for FDIC insurance. Our increased use of this reciprocal program has enabled us to reduce the amount of deposits we are required to collateralize, thereby improving liquidity.

The distribution of our period end deposit account balances among principal markets follows in Table 31.

**Table 31 -- Period End Deposits by Principal Market Area**

(In thousands)

	December 31,				
	2016	2015	2014	2013	2012
Bank of Oklahoma:					
Demand	\$ 3,993,170	\$ 4,133,520	\$ 3,828,819	\$ 3,432,940	\$ 4,207,263
Interest-bearing:					
Transaction	6,345,536	5,971,819	6,117,886	6,318,045	6,023,384
Savings	241,696	226,733	206,357	191,880	163,512
Time	1,118,355	1,202,274	1,301,194	1,214,507	1,267,854
Total interest-bearing	7,705,587	7,400,826	7,625,437	7,724,432	7,454,750
Total Bank of Oklahoma	11,698,757	11,534,346	11,454,256	11,157,372	11,662,013
Bank of Texas:					
Demand	3,137,009	2,627,764	2,639,732	2,481,603	2,606,176
Interest-bearing:					
Transaction	2,388,812	2,132,099	2,065,723	1,966,580	2,129,084
Savings	83,101	77,902	72,037	64,632	58,429
Time	535,642	549,740	547,316	638,465	762,233
Total interest-bearing	3,007,555	2,759,741	2,685,076	2,669,677	2,949,746
Total Bank of Texas	6,144,564	5,387,505	5,324,808	5,151,280	5,555,922
Bank of Albuquerque:					
Demand	627,979	487,286	487,819	502,395	427,510
Interest-bearing:					
Transaction	590,571	563,723	519,544	529,140	511,758
Savings	49,963	43,672	37,471	33,944	31,926
Time	238,408	267,821	295,798	327,281	364,928
Total interest-bearing	878,942	875,216	852,813	890,365	908,612
Total Bank of Albuquerque	1,506,921	1,362,502	1,340,632	1,392,760	1,336,122
Bank of Arkansas:					
Demand	26,389	27,252	35,996	38,566	39,897
Interest-bearing:					
Transaction	105,232	202,857	158,115	144,018	101,868
Savings	2,192	1,747	1,936	1,986	2,239
Time	16,696	24,983	28,520	32,949	42,573
Total interest-bearing	124,120	229,587	188,571	178,953	146,680
Total Bank of Arkansas	150,509	256,839	224,567	217,519	186,577

**Table 31 -- Period End Deposits by Principal Market Area**

(In thousands)

	December 31,				
	2016	2015	2014	2013	2012
Colorado State Bank & Trust:					
Demand	576,000	497,318	445,755	409,942	336,252
Interest-bearing:					
Transaction	616,679	616,697	631,874	541,675	676,144
Savings	32,866	31,927	29,811	26,880	25,889
Time	242,782	296,224	353,998	407,088	472,305
Total interest-bearing	892,327	944,848	1,015,683	975,643	1,174,338
Total Colorado State Bank & Trust	1,468,327	1,442,166	1,461,438	1,385,585	1,510,590
Bank of Arizona:					
Demand	366,755	326,324	369,115	204,092	161,093
Interest-bearing:					
Transaction	305,099	358,556	347,214	364,736	360,276
Savings	2,973	2,893	2,545	2,432	1,978
Time	27,765	29,498	36,680	34,391	31,371
Total interest-bearing	335,837	390,947	386,439	401,559	393,625
Total Bank of Arizona	702,592	717,271	755,554	605,651	554,718
Bank of Kansas City / Mobank:					
Demand	508,418	197,424	259,121	246,739	260,095
Interest-bearing:					
Transaction	513,176	153,203	273,999	69,857	85,524
Savings	12,679	1,378	1,274	1,252	771
Time	42,152	35,524	45,210	41,312	26,728
Total interest-bearing	568,007	190,105	320,483	112,421	113,023
Total Bank of Kansas City / Mobank	1,076,425	387,529	579,604	359,160	373,118
Total BOK Financial deposits	\$ 22,748,095	\$ 21,088,158	\$ 21,140,859	\$ 20,269,327	\$ 21,179,060

See Note 9 to the Consolidated Financial Statements for a summary of other borrowings.

In addition to deposits, liquidity for the subsidiary banks is provided primarily by federal funds purchased, securities repurchase agreements and Federal Home Loan Bank borrowings. Federal funds purchased consist primarily of unsecured, overnight funds acquired from other financial institutions. Funds are primarily purchased from bankers' banks and Federal Home Loan banks from across the country. The largest single source of wholesale federal funds purchased totaled \$12 million at December 31, 2016. Securities repurchase agreements generally mature within 90 days and are secured by certain available for sale securities. Federal Home Loan Bank borrowings are generally short term and are secured by a blanket pledge of eligible collateral (generally unencumbered U.S. Treasury and mortgage-backed securities, 1-4 family residential mortgage loans, multifamily and other qualifying commercial real estate loans). Amounts borrowed from the Federal Home Loan Bank of Topeka averaged \$6.0 billion during 2016 and \$4.9 billion during 2015.

At December 31, 2016, the estimated unused credit available to the subsidiary banks from collateralized sources was approximately \$5.1 billion.

In 2007, BOKF, NA issued \$250 million of subordinated debt due May 15, 2017 to fund the Worth National Bank and First United Bank acquisitions and fund continued asset growth. Interest on this debt was based on a fixed rate of 5.75% through May 14, 2012 which then converted to a floating rate of three-month LIBOR plus 0.69%. The \$227 million that remained outstanding at December 31, 2015 was called during 2016.

BOKF, NA also has a liability related to the repurchase of certain delinquent residential mortgage loans previously sold in GNMA mortgage pools. Interest is payable monthly at rates contractually due to investors.

#### *Parent Company and Other Non-Bank Subsidiaries*

The primary sources of liquidity for BOK Financial are cash on hand and dividends from the subsidiary banks. Cash on hand at December 31, 2016 totaled \$163 million. Dividends from the subsidiary banks are limited by various banking regulations to net profits, as defined, for the year plus retained profits for the two preceding years. Dividends are further restricted by minimum capital requirements. At December 31, 2016, based on the most restrictive limitations as well as management's internal capital policy, BOKF, NA could declare up to \$171 million of dividends without regulatory approval. Dividend constraints may be alleviated through increases in retained earnings, capital issuances or changes in risk weighted assets. Future losses or increases in required regulatory capital could also affect its ability to pay dividends to the parent company.

On June 27, 2016, the parent company issued \$150 million of subordinated debt that will mature on June 30, 2056. This debt bears interest at the rate of 5.375%, payable quarterly. On June 30, 2021, we will have the option to redeem the debt at the principal amount plus accrued interest, subject to regulatory approval.

Shareholders' equity at December 31, 2016 was \$3.3 billion, an increase of \$44 million over December 31, 2015. Net income less cash dividends paid increased equity \$119 million during 2016. Changes in interest rates resulted in an accumulated other comprehensive loss of \$11 million at December 31, 2016, compared to an accumulated other comprehensive gain of \$22 million at December 31, 2015. The Company also repurchased \$67 million of our common stock during 2016. We also deployed \$103 million of capital to acquire all of the outstanding stock of MBT Bancshares, Inc. in an all cash deal. Capital is managed to maximize long-term value to the shareholders. Factors considered in managing capital include projections of future earnings, asset growth and acquisition strategies, and regulatory and debt covenant requirements. Capital management may include subordinated debt issuance, share repurchase and stock and cash dividends.

On October 27, 2015, the board of directors authorized the Company to purchase up to five million common shares, subject to market conditions, securities laws and other regulatory compliance limitations. As of December 31, 2016, a cumulative total of 2,879,243 shares have been repurchased under this authorization. The Company repurchased 1,005,169 shares during 2016 at an average price of \$66.45 per share.

BOK Financial and the subsidiary banks are subject to various capital requirements administered by federal agencies. Failure to meet minimum capital requirements can result in certain mandatory and additional discretionary actions by regulators that could have a material impact on operations. These capital requirements include quantitative measures of assets, liabilities and off-balance sheet items. The capital standards are also subject to qualitative judgments by the regulators.

Effective January 1, 2015, capital rules establish a 7% threshold for the common equity Tier 1 ratio consisting of a minimum level plus capital conservation buffer. The Company has elected to exclude unrealized gains and losses from available for sale securities from its calculation of Tier 1 capital, consistent with the treatment under previous capital rules. Components of the capital rules effective January 1, 2015 will phase in through January 1, 2019.

A summary of minimum capital requirements, including capital conservation buffer follows in Table 32. Failure to meet these minimum capital requirements, including capital conservation buffer, could subject BOK Financial to regulatory restrictions on capital distributions (including but not limited to dividends and share repurchases) and executive bonus payments.

The capital ratios for BOK Financial on a consolidated basis are presented in Table 32 following.

**Table 32 – Capital Ratios**

	Minimum Capital Requirement	Capital Conservation Buffer <sup>1</sup>	Minimum Capital Requirement Including Capital Conservation Buffer	December 31,	
				2016	2015
Risk-based capital:					
Common equity Tier 1	4.50%	2.50%	7.00%	11.21%	12.13%
Tier 1 capital	6.00%	2.50%	8.50%	11.21%	12.13%
Total capital	8.00%	2.50%	10.50%	12.81%	13.30%
Tier 1 Leverage	4.00%	N/A	4.00%	8.72%	9.25%
Average total equity to average assets				10.38%	11.03%
Tangible common equity ratio				8.61%	9.02%

<sup>1</sup> Effective January 1, 2016

Capital resources of financial institutions are also regularly measured by the tangible common shareholders' equity ratio. Tangible common shareholders' equity is shareholders' equity as defined by generally accepted accounting principles in the United States of America ("GAAP"), including unrealized gains and losses on available for sale securities, less intangible assets and equity which does not benefit common shareholders. Equity that does not benefit common shareholders includes preferred equity. This non-GAAP measure is a valuable indicator of a financial institution's capital strength since it eliminates intangible assets from shareholders' equity and retains the effect of unrealized losses on securities and other components of accumulated other comprehensive income in shareholders' equity.

Table 33 following provides a reconciliation of the non-GAAP measures with financial measures defined by GAAP.

**Table 33 – Non-GAAP Measures**  
(Dollars in thousands)

	December 31,	
	2016	2015
<b>Tangible common equity ratio:</b>		
Total shareholders' equity	\$ 3,274,854	\$ 3,230,556
Less: Goodwill and intangible assets, net	495,830	429,370
Tangible common equity	2,779,024	2,801,186
Total assets	32,772,281	31,476,128
Less: Goodwill and intangible assets, net	495,830	429,370
Tangible assets	\$ 32,276,451	\$ 31,046,758
Tangible common equity ratio	8.61%	9.02%

On October 20, 2016, BOK Financial published the results of its annual capital stress test. In accordance with the Dodd-Frank Act, the Federal Reserve must publish regulations that require bank holding companies with \$10 billion to \$50 billion in assets to perform annual capital stress tests. The requirements for annual capital stress tests became effective for the Company in the fourth quarter of 2013. The Dodd-Frank Act Stress Test ("DFAST") is a forward-looking exercise under which the Company and its banking subsidiary estimate the impact of a hypothetical severely adverse macroeconomic scenario provided by the Federal Reserve and Office of the Comptroller of the Currency on its financial condition and regulatory capital ratios over a nine-quarter time horizon. Under the scenario provided by the regulatory agencies, all capital ratio measures remain above minimum regulatory thresholds. Additional information concerning the annual stress test may be found on the Company's Investor Relations page at [www.bokf.com](http://www.bokf.com) under the "Presentations" tab. The results of future capital stress tests may place constraints on capital distributions or increases in required regulatory capital under certain circumstances.

## Off-Balance Sheet Arrangements

See Note 14 to the Consolidated Financial Statements for a discussion of the Company's significant off-balance sheet commitments.

## Aggregate Contractual Obligations

BOK Financial has numerous contractual obligations in the normal course of business. These obligations include time deposits and other borrowed funds, premises used under various operating leases, commitments to extend credit to borrowers and to purchase securities, derivative contracts and contracts for services such as data processing that are integral to our operations. Table 34 following summarizes payments due on contractual obligations with initial terms in excess of one year.

**Table 34 – Contractual Obligations as of December 31, 2016**

(In thousands)

	Less Than 1 Year	1 to 3 Years	4 to 5 Years	More Than 5 Years	Total
Time deposits	\$ 624,375	\$ 417,589	\$ 216,275	\$ 407,939	\$ 1,666,178
Other borrowings	724	1,924	2,168	22,857	27,673
Subordinated debentures	8,063	16,125	16,125	422,796	463,109
Operating lease obligations	22,502	39,734	29,577	56,818	148,631
Derivative contracts	9,864	12,939	11,165	8,721	42,689
Data processing services	15,687	19,733	1,320	605	37,345
Tax credit purchase commitment	3,700	—	—	—	3,700
<b>Total</b>	<b>\$ 684,915</b>	<b>\$ 508,044</b>	<b>\$ 276,630</b>	<b>\$ 919,736</b>	<b>\$ 2,389,325</b>
Loan commitments				\$	9,404,665
Standby letters of credit					585,472
Mortgage loans sold with recourse					139,486
Alternative investment commitments					78,357
Unfunded third-party private equity commitments					2,594

Payments on time deposits, other borrowed funds and subordinated debentures include interest which has been calculated from rates at December 31, 2016. These obligations may have variable interest rates and actual payments will differ from the amounts shown on this table.

Payments on time deposits are based on contractual maturity dates. These funds may be withdrawn prior to maturity. We may charge the customer a penalty for early withdrawal.

Operating lease commitments generally represent real property we rent for branch offices, corporate offices and operations facilities. Payments presented represent the minimum lease payments and exclude related costs such as utilities and property taxes.

Obligations under derivative contracts are used in customer hedging programs. As previously discussed, we have entered into derivative contracts which are expected to substantially offset the cash payments due on these obligations.

We also have obligations with respect to employee benefit plans. See Note 11 to the Consolidated Financial Statements for additional information about our employee benefit plans.

Data processing and communications contracts represent the minimum obligations under the contracts. Additional payments that are based on the volume of transactions processed are excluded.

Loan commitments represent legally binding obligations to provide financing to our customers. Some of these commitments are expected to expire before being drawn upon and the total commitment amounts do not necessarily represent future cash requirements. Approximately \$1.4 billion of the loan commitments expire within one year.



The Company has funded \$174 million and has commitments to fund an additional \$78 million for various alternative investments. Alternative investments generally consist of limited partnership interests in or loans to entities that invest in low income housing or economic development projects, distressed assets, energy development, venture capital and other activities. The Company is prohibited by banking regulations from controlling or actively managing the activities of these investments. Legally binding commitments to fund alternative investments are recognized as liabilities in the consolidated financial statements.

An indirect wholly-owned subsidiary of the Company is general partner of two private equity funds and has contingent obligations to make additional investments totaling \$2.6 million as of December 31, 2016. These commitments, which are included in unfunded third-party private equity commitments, generally reflect customer investment obligations. We do not recognize contingent commitments to fund investments that are primarily customer obligations as liabilities in the consolidated financial statements.

### **Recently Issued Accounting Standards**

See Note 1 of the consolidated financial statements for disclosure of newly adopted and pending accounting standards.

### **Forward-Looking Statements**

This report contains forward-looking statements that are based on management's beliefs, assumptions, current expectations, estimates, and projections about BOK Financial, the financial services industry and the economy in general. Words such as "anticipates," "believes," "estimates," "expects," "forecasts," "plans," "projects," "will," "intends," variations of such words and similar expressions are intended to identify such forward-looking statements. Management judgments relating to and discussion of the provision and allowance for loan losses and accrual for off-balance sheet credit risk, allowance for uncertain tax positions, accruals for loss contingencies and valuation of mortgage servicing rights involve judgments as to expected events and are inherently forward-looking statements. Assessments that BOK Financial's acquisitions and other growth endeavors will be profitable are necessary statements of belief as to the outcome of future events, based in part on information provided by others that BOK Financial has not independently verified. These statements are not guarantees of future performance and involve certain risks, uncertainties and assumptions that are difficult to predict with regard to timing, extent, likelihood and degree of occurrence. Therefore, actual results and outcomes may materially differ from what is expressed, implied, or forecasted in such forward-looking statements. Internal and external factors that might cause such a difference include, but are not limited to changes in commodity prices, interest rates and interest rate relationships, demand for products and services, the degree of competition by traditional and nontraditional competitors, changes in banking regulations, tax laws, prices, levies, and assessments, the impact of technological advances and trends in customer behavior as well as their ability to repay loans. BOK Financial and its affiliates undertake no obligation to update, amend, or clarify forward-looking statements, whether as a result of new information, future events or otherwise.

### **Legal Notice**

As used in this report, the term "BOK Financial" and such terms as "the Company," "the Corporation," "our," "we" and "us" may refer to one or more of the consolidated subsidiaries or all of them taken as a whole. All these terms are used for convenience only and are not intended as a precise description of any of the separate companies, each of which manages its own affairs.

## ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

### Market Risk

Market risk is a broad term for the risk of economic loss due to adverse changes in the fair value of a financial instrument. These changes may be the result of various factors, including interest rates, foreign exchange rates, commodity prices or equity prices. Financial instruments that are subject to market risk can be classified either as held for trading or held for purposes other than trading. Market risk excludes changes in fair value due to credit of the individual issuers of financial instruments.

BOK Financial is subject to market risk primarily through the effect of changes in interest rates on both its assets held for purposes other than trading and trading assets. The effects of other changes, such as foreign exchange rates, commodity prices or equity prices do not pose significant market risk to BOK Financial. BOK Financial has no material investments in assets that are affected by changes in foreign exchange rates or equity prices. Energy and agricultural product derivative contracts, which are affected by changes in commodity prices, are matched against offsetting contracts as previously discussed.

The Asset/Liability Committee is responsible for managing market risk in accordance with policy limits established by the Board of Directors. The Committee monitors projected variation in net interest revenue, net interest income and economic value of equity due to specified changes in interest rates. These limits also set maximum levels for short-term borrowings, short-term assets, public funds and brokered deposits and establish minimum levels for unpledged assets, among other things. Further, the Board approved market risk limits for fixed income trading, mortgage pipeline and mortgage servicing assets inclusive of economic hedge benefits. Compliance is reviewed monthly. Deviations from the Board approved limits require Board escalation and approval.

The simulations used to manage market risk are based on numerous assumptions regarding the effects of changes in interest rates on the timing and extent of re-pricing characteristics, future cash flows and customer behavior. These assumptions are inherently uncertain and, as a result, models cannot precisely estimate or precisely predict the impact of higher or lower interest rates. Actual results will differ from simulated results due to timing, magnitude and frequency of interest rate changes, market conditions and management strategies, among other factors.

### *Interest Rate Risk – Other than Trading*

As previously noted in the Net Interest Revenue section of this report, management has implemented strategies to manage the Company's balance sheet to have relatively limited exposure to changes in interest rates over a twelve-month period. The effectiveness of these strategies in managing the overall interest rate risk is evaluated through the use of an asset/liability model. BOK Financial performs a sensitivity analysis to identify more dynamic interest rate risk exposures, including embedded option positions, on net interest revenue. A simulation model is used to estimate the effect of changes in interest rates on our performance across multiple interest rate scenarios. While the current internal policy limit for net interest revenue variation is a maximum decline of 5% due to a 200 basis point change in market interest rates over twelve months, the results of a 200 basis point decrease in interest rates in the current low-rate environment are not meaningful. We report the effect of a 50 basis point decrease in the interim.

The Company's primary interest rate exposures include the Federal Funds rate, which affects short-term borrowings, and the prime lending rate and LIBOR, which are the basis for much of the variable rate loan pricing. Additionally, residential mortgage rates directly affect the prepayment speeds for residential mortgage-backed securities and mortgage servicing rights. Derivative financial instruments and other financial instruments used for purposes other than trading are included in this simulation. In addition, the impact on the level and composition of demand deposit accounts and other core deposit balances resulting from a significant increase in short-term market interest rates and the overall interest rate environment is likely to be material. The simulation incorporates assumptions regarding the effects of such changes based on a combination of historical analysis and expected behavior. The impact of planned growth and new business activities is factored into the simulation model.

**Table 35 – Interest Rate Sensitivity**

(Dollar in thousands)

	200 bp Increase		50 bp Decrease	
	2016	2015	2016	2015
Anticipated impact over the next twelve months on net interest revenue	\$ (4,932)	\$ (7,576)	\$ (18,021)	\$ (22,501)
	(0.60)%	(0.97)%	(2.19)%	(2.87)%

BOK Financial is also subjected to market risk through changes in the fair value of mortgage servicing rights. Changes in the fair value of mortgage servicing rights are highly dependent on changes in primary mortgage rates offered to borrowers, intermediate-term interest rates that affect the value of custodial funds, and assumptions about servicing revenues, servicing costs and discount rates. As primary mortgage rates increase, prepayment speeds slow and the value of our mortgage servicing rights increases. As primary mortgage rates fall, prepayment speeds increase and the value of our mortgage servicing rights decreases.

We maintain a portfolio of financial instruments, which may include residential mortgage-backed securities issued by U.S. government agencies, U.S. Treasury securities and interest rate derivative contracts held as an economic hedge of the changes in the fair value of our mortgage servicing rights. Composition of this portfolio will change based on our assessment of market risk. Changes in the fair value of residential mortgage-backed securities are highly dependent on changes in secondary mortgage rates required by investors, and interest rate derivative contracts are highly dependent on changes in other market interest rates. While primary and secondary mortgage rates generally move in the same direction, the spread between them may widen and narrow due to market conditions and government intervention. Changes in the forward-looking spread between the primary and secondary rates can cause significant earnings volatility.

Management performs a stress test to measure market risk due to changes in interest rates inherent in its MSR portfolio and hedges. The stress test shocks applicable interest rates up and down 50 basis points and calculates an estimated change in fair value, net of economic hedging activity that may result. The Board has approved a \$20 million market risk limit for mortgage servicing rights, net of economic hedges.

**Table 36 - MSR Asset and Hedge Sensitivity Analysis**

(In thousands)

	Year Ended December 31			
	2016		2015	
	Up 50 bp	Down 50 bp	Up 50 bp	Down 50 bp
Average	\$ (1,756)	\$ (11,150)	\$ 431	\$ (907)
Low	(14,461)	(24,758)	(2,700)	(4,080)
High	12,963	9,267	5,775	1,327
Period End	(1,750)	(2,724)	809	292

### Trading Activities

The Company bears market risk by originating residential mortgages held for sale (RMHFS). RMHFS are generally outstanding for 60 to 90 days which represents the typical period from commitment to originate a loan to sale of the closed loan to an investor. Primary mortgage interest rate changes during this period affect the value of RMHFS commitments and loans. We use forward sale contracts to mitigate market risk on all closed mortgage loans held for sale and on an estimate of mortgage loan commitments that are expected to result in closed loans.

A variety of methods are used to monitor market risk of mortgage origination activities. These methods include daily marking of all positions to market value, independent verification of inventory pricing, and revenue sensitivity limits.

Management performs a stress test to measure market risk due to changes in interest rates inherent in the mortgage production pipeline. The stress test shocks applicable interest rates up and down 50 basis points and calculates an estimated change in fair value, net of economic hedging activity that may result. The Board has approved a \$7 million market risk limit for the mortgage production pipeline, net of forward sale contracts.

**Table 37 - Mortgage Pipeline Sensitivity Analysis**

(In thousands)

	Year Ended December 31			
	2016		2015	
	Up 50 bp	Down 50 bp	Up 50 bp	Down 50 bp
Average	\$ (1,840)	\$ (583)	\$ (2,967)	\$ (1,932)
Low	(6,858)	(2,953)	(6,590)	(4,351)
High	2,037	1,815	(998)	1,483
Period End	602	(1,158)	(2,036)	(1,951)

BOK Financial enters into trading activities both as an intermediary for customers and for its own account. As an intermediary, we take positions in securities, generally residential mortgage-backed securities, government agency securities and municipal bonds. These securities are purchased for resale to customers, which include individuals, corporations, foundations and financial institutions. On a limited basis, we may also take trading positions in U.S. Treasury securities, residential mortgage-backed securities, and municipal bonds to enhance returns on its securities portfolios. Both of these activities involve interest rate, liquidity and price risk. BOK Financial has an insignificant exposure to foreign exchange risk and does not take positions in commodity derivatives.

A variety of methods are used to monitor the interest rate risk of trading activities. These methods include daily marking of all positions to market value, independent verification of inventory pricing, and position limits for each trading activity. Economic hedges in either the futures or cash markets may be used to reduce the risk associated with some trading programs.

Management performs a stress test to measure market risk from changes in interest rates on its trading portfolio. The stress test shocks applicable interest rates up and down 50 basis points and calculates an estimated change in fair value, net of economic hedging activity that may result. The Board has approved a \$8 million market risk limit for the trading portfolio, net of economic hedges.

**Table 38 –BOKFS Trading Sensitivity Analysis**

(In thousands)

	Year Ended December 31			
	2016		2015	
	Up 50 bp	Down 50 bp	Up 50 bp	Down 50 bp
Average	\$ (3,150)	\$ 3,196	\$ (1,767)	\$ 1,703
Low	(6,130)	(107)	(4,727)	(446)
High	146	7,013	437	4,728
Period End	1,212	(734)	865	(1,157)

## **ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA**

### **Report of Management on Internal Control over Financial Reporting**

Management of BOK Financial Corporation is responsible for establishing and maintaining adequate internal control over financial reporting and for assessing the effectiveness of internal control over financial reporting, as such term is defined in Exchange Act Rules 13a-15(f) and 15d-15(f), as amended. Management has assessed the effectiveness of the Company's internal control over financial reporting based on the criteria established in "Internal Control – Integrated Framework," issued by the Committee of Sponsoring Organizations ("COSO") of the Treadway Commission in 2013. Based on that assessment and criteria, management has determined that the Company maintained effective internal control over financial reporting as of December 31, 2016.

As permitted, management excluded from its assessment the operations of Missouri Bank and Trust Company which was acquired on December 1, 2016. As described in Note 6 to the Consolidated Financial Statements, assets acquired and excluded from management's assessment of internal control over financial reporting comprised approximately 2% of consolidated assets at December 31, 2016.

Ernst & Young LLP, the independent registered public accounting firm that audited the consolidated financial statements of the Company included in this annual report has issued an audit report on the effectiveness of the Company's internal control over financial reporting as of December 31, 2016. Their report, which expresses unqualified opinion on the effectiveness of the Company's internal control over financial reporting as of December 31, 2016, is included in this annual report.

## **Report of Ernst & Young LLP, Independent Registered Public Accounting Firm**

### **The Board of Directors and Shareholders of BOK Financial Corporation**

We have audited BOK Financial Corporation's ("the Company") internal control over financial reporting as of December 31, 2016, based on criteria established in Internal Control—Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) (the COSO criteria). BOK Financial Corporation'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 Report of Management 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 conducted our audit in accordance with the standards of the Public Company Accounting Oversight Board (United States). 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.

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.

As indicated in the accompanying Report of Management on Internal Control over Financial Reporting, management's assessment of and conclusion on the effectiveness of internal control over financial reporting did not include the internal controls of Missouri Bank and Trust of Kansas City ("Mobank"), which is included in the 2016 consolidated financial statements of the BOK Financial Corporation and constituted \$749 million and \$125 million of total and net assets, respectively, as of December 31, 2016 and \$2 million and \$124 thousand of revenues and net income, respectively, for the year then ended. Our audit of internal control over financial reporting of BOK Financial Corporation also did not include an evaluation of the internal control over financial reporting of Mobank.

In our opinion, BOK Financial Corporation maintained, in all material respects, effective internal control over financial reporting as of December 31, 2016, based on the COSO criteria.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the consolidated balance sheets of BOK Financial Corporation as of December 31, 2016 and 2015, and the related consolidated statements of earnings, comprehensive income, changes in equity, and cash flows for each of the three years in the period ended December 31, 2016 and our report dated February 28, 2017 expressed an unqualified opinion thereon.

/s/ Ernst & Young LLP

Tulsa, Oklahoma  
February 28, 2017



## **Report of Ernst & Young LLP, Independent Registered Public Accounting Firm**

### **The Board of Directors and Shareholders of BOK Financial Corporation**

We have audited the accompanying consolidated balance sheets of BOK Financial Corporation ("the Company") as of December 31, 2016 and 2015, and the related consolidated statements of earnings, comprehensive income, changes in equity, and cash flows for each of the three years in the period ended December 31, 2016. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the consolidated financial position of BOK Financial Corporation at December 31, 2016 and 2015, and the consolidated results of its operations and its cash flows for each of the three years in the period ended December 31, 2016, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), BOK Financial Corporation's internal control over financial reporting as of December 31, 2016, based on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) and our report dated February 28, 2017 expressed an unqualified opinion thereon.

/s/ Ernst & Young LLP

Tulsa, Oklahoma  
February 28, 2017

## Consolidated Statements of Earnings

(In thousands, except share and per share data)

	Year Ended December 31,		
	2016	2015	2014
<b>Interest and dividend revenue</b>			
Loans	\$ 581,030	\$ 529,683	\$ 502,753
Residential mortgage loans held for sale	12,658	13,602	10,143
Trading securities	8,527	2,240	1,945
Investment securities	16,894	18,098	18,891
Available for sale securities	175,321	174,829	185,107
Fair value option securities	6,723	9,264	3,611
Restricted equity securities	17,238	13,532	7,040
Interest-bearing cash and cash equivalents	10,726	5,580	2,749
Total interest and dividend revenue	829,117	766,828	732,239
<b>Interest expense</b>			
Deposits	40,494	44,170	50,683
Borrowed funds	35,336	14,204	7,672
Subordinated debentures	6,059	5,100	8,690
Total interest expense	81,889	63,474	67,045
<b>Net interest and dividend revenue</b>	747,228	703,354	665,194
<b>Provision for credit losses</b>	65,000	34,000	—
<b>Net interest and dividend revenue after provision for credit losses</b>	682,228	669,354	665,194
<b>Other operating revenue</b>			
Brokerage and trading revenue	138,377	129,556	134,437
Transaction card revenue	135,758	128,621	123,689
Fiduciary and asset management revenue	135,477	126,153	115,652
Deposit service charges and fees	92,193	90,431	90,911
Mortgage banking revenue	133,914	126,002	109,093
Other revenue	51,029	49,883	47,537
<b>Total fees and commissions</b>	686,748	650,646	621,319
Other gains, net	4,030	5,702	2,953
Gain (loss) on derivatives, net	(15,685)	430	2,776
Gain (loss) on fair value option securities, net	(10,555)	(3,684)	10,189
Change in fair value of mortgage servicing rights	(2,193)	(4,853)	(16,445)
Gain on available for sale securities, net	11,675	12,058	1,539
Total other-than-temporary impairment losses	—	(2,443)	(373)
Portion of loss recognized in other comprehensive income	—	624	—
Net impairment losses recognized in earnings	—	(1,819)	(373)
<b>Total other operating revenue</b>	674,020	658,480	621,958
<b>Other operating expense</b>			
Personnel	553,119	515,298	476,931
Business promotion	26,582	27,851	26,649
Charitable contributions to BOKF Foundation	2,000	796	4,267
Professional fees and services	56,783	40,123	44,440
Net occupancy and equipment	80,024	76,016	77,232
Insurance	32,489	20,375	18,578
Data processing and communications	131,841	122,383	115,225
Printing, postage and supplies	15,584	13,498	13,518
Net losses and operating expenses of repossessed assets	3,359	1,446	6,019
Amortization of intangible assets	6,862	4,359	3,965
Mortgage banking costs	61,387	38,813	31,705
Other expense	47,560	35,233	28,993
Total other operating expense	1,017,590	896,191	847,522
<b>Net income before taxes</b>	338,658	431,643	439,630
Federal and state income taxes	106,377	139,384	144,151
<b>Net income</b>	232,281	292,259	295,479
Net income (loss) attributable to non-controlling interests	(387)	3,694	3,044
<b>Net income attributable to BOK Financial Corporation shareholders</b>	\$ 232,668	\$ 288,565	\$ 292,435
<b>Earnings per share:</b>			
Basic	\$ 3.53	\$ 4.22	\$ 4.23
Diluted	\$ 3.53	\$ 4.21	\$ 4.22
<b>Average shares used in computation:</b>			
Basic	65,085,627	67,594,689	68,394,194
Diluted	65,143,898	67,691,658	68,544,770
<b>Dividends declared per share</b>	\$ 1.73	\$ 1.69	\$ 1.62

See accompanying notes to consolidated financial statements.

## Consolidated Statements of Comprehensive Income

(In thousands)

	Year Ended December 31,		
	2016	2015	2014
Net income	\$ 232,281	\$ 292,259	\$ 295,479
Other comprehensive income (loss) before income taxes:			
Net change in unrealized gain (loss)	(41,521)	(46,803)	136,775
Reclassification adjustments included in earnings:			
Interest revenue, Investment securities, Taxable securities	(112)	(503)	(1,216)
Interest expense, Subordinated debentures	—	121	296
Net impairment losses recognized in earnings	—	1,819	373
Gain on available for sale securities, net	(11,675)	(12,058)	(1,539)
Other comprehensive income (loss), before income taxes	(53,308)	(57,424)	134,689
Federal and state income taxes	(20,754)	(22,338)	52,393
Other comprehensive income (loss), net of income taxes	(32,554)	(35,086)	82,296
Comprehensive income	199,727	257,173	377,775
Comprehensive income (loss) attributable to non-controlling interests	(387)	3,694	3,044
Comprehensive income attributable to BOK Financial Corp. shareholders	\$ 200,114	\$ 253,479	\$ 374,731

See accompanying notes to consolidated financial statements.

## Consolidated Balance Sheets

(In thousands, except share data)

	December 31,	
	2016	2015
<b>Assets</b>		
Cash and due from banks	\$ 620,846	\$ 573,699
Interest-bearing cash and cash equivalents	1,916,651	2,069,900
Trading securities	337,628	122,404
Investment securities (fair value: 2016 – \$565,493; 2015 – \$629,159)	546,145	597,836
Available for sale securities	8,676,829	9,042,733
Fair value option securities	77,046	444,217
Restricted equity securities	307,240	273,684
Residential mortgage loans held for sale	301,897	308,439
Loans	16,989,660	15,941,154
Allowance for loan losses	(246,159)	(225,524)
Loans, net of allowance	16,743,501	15,715,630
Premises and equipment, net	325,849	306,490
Receivables	772,952	163,480
Goodwill	448,899	385,461
Intangible assets, net	46,931	43,909
Mortgage servicing rights	247,073	218,605
Real estate and other repossessed assets, net of allowance (2016 – \$9,562; 2015 – \$12,622)	44,287	30,731
Derivative contracts	689,872	586,270
Cash surrender value of bank-owned life insurance	308,430	303,335
Receivable on unsettled available for sale securities sales	7,188	40,193
Other assets	353,017	249,112
Total assets	\$ 32,772,281	\$ 31,476,128
<b>Liabilities and Equity</b>		
Liabilities:		
Noninterest-bearing demand deposits	\$ 9,235,720	\$ 8,296,888
Interest-bearing deposits:		
Transaction	10,865,105	9,998,954
Savings	425,470	386,252
Time	2,221,800	2,406,064
Total deposits	22,748,095	21,088,158
Funds purchased	57,929	491,192
Repurchase agreements	668,661	722,444
Other borrowings	4,846,072	4,837,879
Subordinated debentures	144,640	226,350
Accrued interest, taxes and expense	146,704	119,584
Derivative contracts	664,531	581,701
Due on unsettled available for sale securities purchases	6,508	16,897
Other liabilities	182,784	124,284
Total liabilities	29,465,924	28,208,489
Shareholders' equity:		
Common stock (\$.00006 par value; 2,500,000,000 shares authorized; shares issued and outstanding: 2016 – 74,993,407; 2015 – 74,530,364)	4	4
Capital surplus	1,006,535	982,009
Retained earnings	2,823,334	2,704,121
Treasury stock (shares at cost: 2016 – 9,655,975; 2015 – 8,636,332)	(544,052)	(477,165)
Accumulated other comprehensive income (loss)	(10,967)	21,587
Total shareholders' equity	3,274,854	3,230,556
Non-controlling interests	31,503	37,083
Total equity	3,306,357	3,267,639
Total liabilities and equity	\$ 32,772,281	\$ 31,476,128

See accompanying notes to consolidated financial statements.

## Consolidated Statements of Changes in Equity

(In thousands)

	Common Stock		Capital Surplus	Retained Earnings	Treasury Stock		Accumulated Other Comprehensive Income (Loss)	Total Shareholders' Equity	Non-Controlling Interests	Total Equity
	Shares	Amount			Shares	Amount				
Balance, December 31, 2013	73,163	\$ 4	\$ 898,586	\$2,349,428	4,305	\$ (202,346)	\$ (25,623)	\$ 3,020,049	\$ 34,924	\$3,054,973
Net income	—	—	—	292,435	—	—	—	292,435	3,044	295,479
Other comprehensive income	—	—	—	—	—	—	82,296	82,296	—	82,296
Repurchase of common stock	—	—	—	—	200	(12,337)	—	(12,337)	—	(12,337)
Issuance of shares for equity compensation, net	510	—	16,632	—	183	(12,160)	—	4,472	—	4,472
Tax effect from equity compensation, net	—	—	8,258	—	—	—	—	8,258	—	8,258
Share-based compensation	—	—	9,680	—	—	—	—	9,680	—	9,680
Issuance of shares in settlement of deferred compensation, net	331	—	21,488	—	202	(13,136)	—	8,352	—	8,352
Cash dividends on common stock	—	—	—	(111,026)	—	—	—	(111,026)	—	(111,026)
Capital calls and distributions, net	—	—	—	—	—	—	—	—	(3,941)	(3,941)
Balance, December 31, 2014	74,004	4	954,644	2,530,837	4,890	(239,979)	56,673	3,302,179	34,027	3,336,206
Net income	—	—	—	288,565	—	—	—	288,565	3,694	292,259
Other comprehensive loss	—	—	—	—	—	—	(35,086)	(35,086)	—	(35,086)
Repurchase of common stock	—	—	—	—	3,634	(229,540)	—	(229,540)	—	(229,540)
Issuance of shares for equity compensation, net	526	—	14,357	—	112	(7,646)	—	6,711	—	6,711
Tax effect from equity compensation, net	—	—	925	—	—	—	—	925	—	925
Share-based compensation	—	—	12,083	—	—	—	—	12,083	—	12,083
Cash dividends on common stock	—	—	—	(115,281)	—	—	—	(115,281)	—	(115,281)
Sale of non-controlling interest	—	—	—	—	—	—	—	—	5,500	5,500
Capital calls and distributions, net	—	—	—	—	—	—	—	—	(6,138)	(6,138)
Balance, December 31, 2015	74,530	4	982,009	2,704,121	8,636	(477,165)	21,587	3,230,556	37,083	3,267,639
Net income (loss)	—	—	—	232,668	—	—	—	232,668	(387)	232,281
Other comprehensive loss	—	—	—	—	—	—	(32,554)	(32,554)	—	(32,554)
Repurchase of common stock	—	—	—	—	1,005	(66,792)	—	(66,792)	—	(66,792)
Issuance of shares for equity compensation, net	463	—	12,465	—	15	(95)	—	12,370	—	12,370
Tax effect from equity compensation, net	—	—	1,590	—	—	—	—	1,590	—	1,590
Share-based compensation	—	—	10,471	—	—	—	—	10,471	—	10,471
Cash dividends on common stock	—	—	—	(113,455)	—	—	—	(113,455)	—	(113,455)
Capital calls and distributions, net	—	—	—	—	—	—	—	—	(5,193)	(5,193)
Balance, December 31, 2016	74,993	\$ 4	\$1,006,535	\$2,823,334	9,656	\$ (544,052)	\$ (10,967)	\$ 3,274,854	\$ 31,503	\$3,306,357

See accompanying notes to consolidated financial statements.

**Consolidated Statements of Cash Flows**  
(In thousands)

	Year Ended		
	2016	2015	2014
<b>Cash Flows From Operating Activities:</b>			
Net income	\$ 232,281	\$ 292,259	\$ 295,479
Adjustments to reconcile net income to net cash provided by (used in) operating activities:			
Provision for credit losses	65,000	34,000	—
Change in fair value of mortgage servicing rights due to market changes	2,193	4,853	16,445
Change in fair value of mortgage servicing rights due to loan runoff	40,744	28,064	19,325
Unrealized losses (gains) from derivative contracts	11,234	964	(6,495)
Depreciation and amortization	47,016	37,918	36,707
Tax effect from equity compensation, net	(1,505)	(925)	(8,258)
Share-based compensation	10,471	12,083	9,680
Net amortization of securities discounts and premiums	41,643	55,145	57,202
Net realized gains on financial instruments and other assets	(13,011)	(15,212)	(1,362)
Net gain on mortgage loans held for sale	(63,636)	(75,780)	(62,053)
Mortgage loans originated for sale	(6,117,417)	(6,372,956)	(4,484,394)
Proceeds from sale of mortgage loans held for sale	6,193,587	6,446,659	4,441,819
Capitalized mortgage servicing rights	(71,405)	(79,546)	(54,413)
Change in trading and fair value option securities	149,921	(69,298)	(243,265)
Change in receivables	(603,861)	(6,943)	(7,103)
Change in other assets	(49,565)	(29,548)	68,821
Change in accrued interest, taxes and expense	44,269	17,517	(115,772)
Change in other liabilities	(11,413)	15,756	1,007
<b>Net cash provided by (used in) operating activities</b>	<b>(93,454)</b>	<b>295,010</b>	<b>(36,630)</b>
<b>Cash Flows From Investing Activities:</b>			
Proceeds from sales of available for sale securities	899,381	1,600,380	2,664,740
Proceeds from maturities or redemptions of investment securities	86,847	72,664	63,258
Proceeds from maturities or redemptions of available for sale securities	1,740,226	1,542,517	1,635,533
Purchases of investment securities	(41,590)	(25,132)	(44,723)
Purchases of available for sale securities	(2,333,740)	(3,300,601)	(3,045,077)
Change in amount receivable on unsettled securities sales	33,005	34,066	(57,085)
Loans originated, net of principal collected	(621,605)	(1,681,035)	(1,346,995)
Net payments on derivative asset contracts	(103,668)	(156,419)	(247,726)
Proceeds from disposition of assets	198,922	195,760	273,271
Acquisitions, net of cash acquired	56,017	(18,098)	(21,898)
Purchases of assets	(199,802)	(265,406)	(307,318)
<b>Net cash used in investing activities</b>	<b>(286,007)</b>	<b>(2,001,304)</b>	<b>(434,020)</b>
<b>Cash Flows From Financing Activities:</b>			
Net change in demand deposits, transaction deposits and savings accounts	1,277,285	149,951	958,809
Net change in time deposits	(216,084)	(202,652)	(87,277)
Net change in other borrowed funds	(606,476)	2,547,688	511,776
Repayment of subordinated debentures	(226,550)	(121,810)	—
Issuance of subordinated debentures, net of issuance costs	144,615	—	—
Change in amount due on unsettled security purchases	(10,389)	(273,643)	244,800
Issuance of common and treasury stock, net	12,455	6,711	4,472
Net change in derivative margin accounts	(28,806)	(43,226)	84,365
Net payments or proceeds on derivative liability contracts	106,051	149,428	257,439
Tax effect from equity compensation, net	1,505	925	8,258
Sale of non-controlling interests	—	5,500	—
Repurchase of common stock	(66,792)	(229,540)	(12,337)
Dividends paid	(113,455)	(115,281)	(111,026)
<b>Net cash provided by financing activities</b>	<b>273,359</b>	<b>1,874,051</b>	<b>1,859,279</b>
<b>Net increase (decrease) in cash and cash equivalents</b>	<b>(106,102)</b>	<b>167,757</b>	<b>1,388,629</b>
<b>Cash and cash equivalents at beginning of period</b>	<b>2,643,599</b>	<b>2,475,842</b>	<b>1,087,213</b>
<b>Cash and cash equivalents at end of period</b>	<b>\$ 2,537,497</b>	<b>\$ 2,643,599</b>	<b>\$ 2,475,842</b>



**Consolidated Statements of Cash Flows**

(In thousands)

	Year Ended		
	2016	2015	2014
<b>Supplemental Cash Flow Information:</b>			
Cash paid for interest	\$ 82,876	\$ 66,091	\$ 65,721
Cash paid for taxes	\$ 79,883	\$ 101,991	\$ 67,199
Net loans and bank premises transferred to repossessed real estate and other assets	\$ 36,391	\$ 12,592	\$ 79,464
Residential mortgage loans guaranteed by U.S. government agencies that became eligible for repurchase during the period	\$ 120,406	\$ 123,383	\$ 144,630
Conveyance of other real estate owned guaranteed by U.S. government agencies	\$ 68,873	\$ 110,505	\$ 44,963
Issuance of shares in settlement of accrued executive compensation	\$ —	\$ —	\$ 8,352

See accompanying notes to consolidated financial statements.

## Notes to Consolidated Financial Statements

### (1) Significant Accounting Policies

#### *Basis of Presentation*

The Consolidated Financial Statements of BOK Financial Corporation (“BOK Financial” or “the Company”) have been prepared in conformity with accounting principles generally accepted in the United States (“U.S. GAAP”), including interpretations of U.S. GAAP issued by federal banking regulators and general practices of the banking industry. The consolidated financial statements include the accounts of BOK Financial and its subsidiaries, principally BOKF, NA, BOK Financial Securities, Inc., The Milestone Group, Inc. and Cavanal Hill Investment Management, Inc. All significant intercompany transactions are eliminated in consolidation.

The consolidated financial statements include the assets, liabilities, non-controlling interests and results of operations of variable interest entities (“VIEs”) when BOK Financial is determined to be the primary beneficiary. Variable interest entities are generally defined as entities that either do not have sufficient equity to finance their activities without support from other parties or whose equity investors lack a controlling financial interest. See additional discussion of variable interest entities at Note 14 following.

Certain prior year amounts have been reclassified to conform to the current year presentation. For 2015, \$8.4 million of residential mortgage loan origination costs were reclassified from operating expense to mortgage banking revenue. Correction of this error did not affect net income or earnings per share.

#### *Nature of Operations*

BOK Financial, through its subsidiaries, provides a wide range of financial services to commercial and industrial customers, other financial institutions, municipalities, and consumers. These services include depository and cash management; lending and lease financing; mortgage banking; securities brokerage, trading and underwriting; and personal and corporate trust.

BOKF, NA operates as Bank of Oklahoma primarily in the Tulsa and Oklahoma City metropolitan areas of the state of Oklahoma and Bank of Texas primarily in the Dallas, Fort Worth and Houston metropolitan areas of the state of Texas. In addition, BOKF, NA does business as Bank of Albuquerque in Albuquerque, New Mexico; Colorado State Bank and Trust in Denver, Colorado; Bank of Arizona in Phoenix, Arizona; Bank of Kansas City and Mobank in Kansas City, Missouri/Kansas and Bank of Arkansas in Northwest Arkansas. BOKF, NA also operates the TransFund electronic funds network.

#### *Use of Estimates*

Preparation of BOK Financial's consolidated financial statements requires management to make estimates of future economic activities, including loan collectability, prepayments and cash flows from customer accounts. These estimates are based upon current conditions and information available to management. Actual results may differ significantly from these estimates.

#### *Acquisitions*

Assets and liabilities acquired, including identifiable intangible assets, are recorded at fair value on the acquisition date. The purchase price includes consideration paid at closing and the estimated fair value of contingent consideration that will be paid in the future, subject to achieving defined performance criteria. Premiums and discounts assigned to interest-earning assets and interest-bearing liabilities are amortized over the lives of the acquired assets and liabilities on either an individual instrument or pool basis. Provision for credit losses is recognized for changes in credit quality after the acquisition date. Goodwill is recognized as the excess of the purchase price over the net fair value of assets acquired and liabilities assumed. The Consolidated Statements of Earnings include the results of operations from the acquisition date.

#### *Goodwill and Intangible Assets*

Goodwill and intangible assets generally result from business combinations and are evaluated for each of BOK Financial's reporting units for impairment annually or more frequently if conditions indicate impairment. The evaluation of possible impairment of goodwill and intangible assets involves significant judgment based upon short-term and long-term projections of future performance.

Reporting units are defined by the Company as significant lines of business within each operating segment. This definition is consistent with the manner in which the chief operating decision maker assesses the performance of the Company and makes decisions concerning the allocation of resources. The Company qualitatively assesses whether it is more likely than not that the fair value of the reporting units are less than their carrying value, including goodwill. Reporting unit carrying value includes sufficient capital to exceed regulatory requirements. This assessment includes consideration of relevant events and circumstances including but not limited to macroeconomic conditions, industry and market conditions, the financial and stock performance of the Company and other relevant factors.

If the Company concludes that it is not more likely than not that the fair value of a reporting unit is less than its carrying value through the qualitative assessment, a quantitative Step 1 analysis is performed. The quantitative analysis compares the fair value of the reporting unit with its carrying value, including goodwill. The fair value of each reporting unit is estimated by the discounted future earnings method. Goodwill is considered impaired if the fair value of the reporting unit is less than the carrying value of the reporting unit, including goodwill. Impairment is measured through a detailed Step 2 assessment of the fair values for each asset and liability assigned to the reporting unit performed in a manner similar to a business combination.

Intangible assets are generally composed of customer relationships, naming rights, non-compete agreements and core deposit premiums. They are amortized using accelerated or straight-line methods, as appropriate, over the estimated benefit periods. These periods range from 3 years to 20 years. The net book values of identifiable intangible assets are evaluated for impairment when economic conditions indicate impairment may exist.

#### *Cash Equivalents*

Due from banks, funds sold (generally federal funds sold for one day), resell agreements (which generally mature within one to 30 days) and investments in money market funds are considered cash equivalents.

#### *Securities*

Securities are identified as trading, investment (held to maturity) or available for sale at the time of purchase based upon the intent of management, liquidity and capital requirements, regulatory limitations and other relevant factors. Trading securities, which are acquired for profit through resale, are carried at fair value with unrealized gains and losses included in current period earnings. Investment securities are carried at amortized cost. Amortization is computed by methods that approximate level yield and is adjusted for changes in prepayment estimates. Securities identified as available for sale are carried at fair value. Unrealized gains and losses are recorded, net of deferred income taxes, as accumulated other comprehensive income in shareholders' equity. Available for sale securities are separately identified as pledged to creditors if the creditor has the right to sell or re-pledge the collateral.

The purchase or sale of securities is recognized on a trade date basis. Realized gains and losses on sales of securities are based upon specific identification of the security sold. A receivable or payable is recognized for subsequent transaction settlement. Securities meeting certain criteria may also be transferred from the available for sale classification to the investment securities portfolio at fair value on the date of transfer. The unrealized gain or loss at the date of transfer is retained in accumulated other comprehensive income and in the carrying value of the investment securities portfolio. Such amounts are amortized over the estimated remaining life of the security as an adjustment to yield, offsetting the related amortization of the premium or accretion of the discount on the transferred securities.

On a quarterly basis, the Company performs separate evaluations of impaired debt investment and available for sale securities and equity available for sale securities to determine if the decline in fair value below the amortized cost is other-than-temporary.

For debt securities, management determines whether it intends to sell or if it is more likely than not that it will be required to sell impaired securities. This determination considers current and forecasted liquidity requirements and securities portfolio management. If the Company intends to sell or it is more likely than not that it will be required to sell the impaired debt security, a charge is recognized against earnings for the entire unrealized loss. For all impaired debt securities for which there is no intent or expected requirement to sell, the evaluation considers all available evidence to assess whether it is more likely than not that all amounts due would not be collected according to the security's contractual terms. Impairment of debt securities rated investment grade by all nationally-recognized rating agencies is considered temporary unless specific contrary information is identified. Impairment of debt securities rated below investment grade by at least one of the nationally recognized rating agencies is evaluated based on projections of estimated cash flows. Any expected credit loss due to the inability to collect all amounts due according to the security's contractual terms is recognized as a charge against earnings. Any remaining unrealized loss related to other factors would be recognized in other comprehensive income, net of taxes.

For equity securities, management evaluates various factors including cause, severity and duration of the decline in value of the security and prospects for recovery, as well as the Company's intent and ability not to sell the security until the fair value exceeds amortized cost over periods not to exceed three years. If an unrealized loss is determined to be other-than-temporary, a charge is recognized against earnings for the difference between the security's amortized cost and fair value.

BOK Financial may elect to carry certain securities at fair value with changes in fair value recognized in current period income. These securities are held with the intent that gains or losses will offset changes in the fair value of mortgage servicing rights or certain derivative instruments.

Restricted equity securities represent equity interests the Company is required to hold in the Federal Reserve Banks and Federal Home Loan Banks. Restricted equity securities are carried at cost as these securities do not have a readily determined fair value because ownership of these shares is restricted and they lack a market.

#### *Derivative Instruments*

Derivative instruments may be used by the Company as part of its internal risk management programs or may be offered to customers. All derivative instruments are carried at fair value and changes in fair value are generally reported in income as they occur. The determination of fair value of derivative instruments considers changes in interest rates, commodity prices and foreign exchange rates. Credit risk is also considered in determining fair value. Deterioration in the credit rating of customers or other counterparties reduces the fair value of asset contracts. Deterioration of our credit rating could decrease the fair value of our derivative liabilities.

When bilateral netting agreements or similar agreements exist between the Company and its counterparties that create a single legal claim or obligation to pay or receive the net amount in settlement of the individual derivative contracts, the Company reports derivative assets and liabilities on a net by derivative contract by counterparty basis.

Derivative contracts may also require the Company to provide or receive cash margin as collateral for derivative assets and liabilities. Derivative assets and liabilities are reported net of cash margin when certain conditions are met. In addition, derivative contracts executed with customers under Customer Risk Management Programs may be secured by non-cash collateral in conjunction with a credit agreement with that customer. Access to collateral, in the event of default is reasonably assured.

Derivative instruments may be designated as cash flow hedges of variable rate assets or liabilities, or of anticipated transactions. Changes in the fair value of derivative instruments designated as cash flow hedges are recorded in accumulated other comprehensive income to the extent they are effective. The amount recorded in other comprehensive income is reclassified to earnings in the same periods as the hedged cash flows impact earnings. The ineffective portion of changes in fair value is reported in current earnings.

BOK Financial may use derivative instruments in managing its interest rate sensitivity, as part of its economic hedge of the changes in the fair value of mortgage servicing rights and as an economic hedge of trading securities. Changes in the fair value of derivative instruments used in managing interest rate sensitivity and as part of its economic hedge of changes in the fair value of mortgage servicing rights are included in Other Operating Revenue - Gain (loss) on derivatives, net in the Consolidated Statement of Earnings. Changes in the fair value of derivative instruments used as an economic hedge of trading securities are included in Operating Revenue- Brokerage and trading revenue.

BOK Financial also enters into mortgage loan commitments that are considered derivative contracts. Forward sales contracts that have not been designated as hedging instruments are used to economically hedge these mortgage loan commitments as well as mortgage loans held for sale. Mortgage loan commitments are carried at fair value based upon quoted prices. Changes in fair value of mortgage loan commitments, mortgage loans held for sale and forward sales contracts are reported in Other Operating Revenue - Mortgage Banking Revenue.

BOK Financial offers programs that permit its customers to manage various risks, including fluctuations in energy, cattle and other agricultural products, interest rates and foreign exchange rates with derivative contracts. Customers may also manage interest rate risk through interest rate swaps used by the borrower to modify interest rate terms of their loans or to-be-announced securities used by our mortgage banking customers to hedge their loan production. Derivative contracts are executed between the customers and BOK Financial. Offsetting contracts are executed between BOK Financial and other selected counterparties to minimize market risk from changes in commodity prices, interest rates or foreign exchange rates. The counterparty contracts are identical to customer contracts, except for a fixed pricing spread or fee paid to BOK Financial as profit and compensation for administrative costs and credit risk which is recognized over the life of the contracts and included in other Operating Revenue - Brokerage and Trading Revenue in the Consolidated Statements of Earnings.

### *Loans*

Loans are either secured or unsecured based on the type of loan and the financial condition of the borrower. Repayment is generally expected from cash flow or proceeds from the sale of selected assets of the borrower. BOK Financial is exposed to risk of loss on loans due to the borrower's financial difficulties, which may arise from any number of factors, including problems within the respective industry or local economic conditions. Access to collateral, in the event of borrower default, is reasonably assured through adherence to applicable lending laws and through sound lending standards and credit review procedures. Accounting policies for all loans, excluding residential loans guaranteed by U.S. government agencies, are as follows.

Interest is accrued at the applicable interest rate on the outstanding principal amount. Loans are placed on nonaccruing status when, in the opinion of management, full collection of principal or interest is uncertain. Internally risk graded loans are individually evaluated for nonaccruing status quarterly. Non-risk graded loans are generally placed on nonaccruing status when 90 days or more past due or within 60 days of being notified of the borrower's bankruptcy filing. Interest previously accrued but not collected is charged against interest income when the loan is placed on nonaccruing status. Payments received on nonaccruing loans are applied to principal or recognized as interest income, according to management's judgment as to the collectability of principal. Loans may be returned to accruing status when, in the opinion of management, full collection of principal and interest, including principal previously charged off, is probable based on improvements in the borrower's financial condition or a sustained period of performance.

Loans to borrowers experiencing financial difficulties may be modified in troubled debt restructurings ("TDRs"). All TDRs are classified as nonaccruing. Modifications generally consist of extension of payment terms or interest rate concessions and may result either voluntarily through negotiations with the borrower or involuntarily through court order. Generally, principal and accrued but unpaid interest is not voluntarily forgiven.

Performing loans may be renewed under the current collateral, debt service ratio and other underwriting standards. Nonaccruing loans may also be renewed and will remain classified as nonaccruing.

Occasionally, loans, other than residential mortgage loans, may be held for sale in order to manage credit concentration. These loans are carried at the lower of cost or fair value with gains or losses recognized in gain (loss) on assets.

All loans are charged-off when the loan balance or a portion of the loan balance is no longer supported by the paying capacity of the borrower or when the required cash flow is reduced in a TDR. The charge-off amount is determined through an evaluation of available cash resources and collateral value. Internally risk graded loans are evaluated quarterly and charge-offs are taken in the quarter in which the loss is identified. Non-risk graded loans that are past due between 60 days and 180 days, based on the loan product type, are charged off. Loans to borrowers whose personal obligation has been discharged through Chapter 7 bankruptcy proceedings are charged off within 60 days of notice of the bankruptcy filing, regardless of payment status.

Loan origination and commitment fees and direct loan acquisition and origination costs are deferred and amortized as an adjustment to yield over the life of the loan or over the commitment period, as applicable. Amortization does not anticipate loan prepayments. Net unamortized fees are recognized in full at time of payoff.

Qualifying residential mortgage loans guaranteed by U.S. government agencies have been sold into GNMA pools. Under certain performance conditions specified in government programs, the Company has the right, but not the obligation to repurchase loans from GNMA pools. These loans no longer qualify for sale accounting and are recognized in the Consolidated Balance Sheet. Guaranteed loans are considered to be impaired because we do not expect to receive all principal and interest based on the loan's contractual terms. The principal balance continues to be guaranteed, however, interest accrues at a curtailed rate as specified in the programs. The carrying value of these loans is reduced based on an estimate of expected cash flows discounted at the original note rate plus a liquidity spread. Guaranteed loans may be modified in TDRs in accordance with U.S. government agency guidelines. Interest continues to accrue at the modified rate. U.S. government guaranteed loans may either be resold into GNMA pools after a performance period specified by the programs or foreclosed and conveyed to the guarantors.

Loans are disaggregated into portfolio segments and further disaggregated into classes. The portfolio segment is the level at which the Company develops and documents a systematic method for determining its Allowance for Credit Losses. Classes are based on the risk characteristics of the loans and the Company's method for monitoring and assessing credit risk.

#### *Allowance for Loan Losses and Accrual for Off-Balance Sheet Credit Risk*

The appropriateness of the allowance for loan losses and accrual for off-balance sheet credit risk (collectively "Allowance for Credit Losses") is assessed by management quarterly based on an ongoing quarterly evaluation of the probable estimated losses inherent in the portfolio, including probable losses on outstanding loans and unused commitments to provide financing. A consistent well-documented methodology has been developed and is applied by an independent Credit Administration department to assure consistency across the Company.

The allowance for loan losses consists of specific allowances attributed to impaired loans that have not yet been charged down to amounts we expect to recover, general allowances based on estimated loss rates by loan class and nonspecific allowances based on factors that affect more than one portfolio segment. There were no changes to the methodology for estimating general allowances during 2016 or 2015.

Loans are considered to be impaired when it becomes probable that BOK Financial will be unable to collect all amounts due according to the contractual terms of the loan agreements. Internally risk graded loans are evaluated individually for impairment. Substantially all commercial and commercial real estate loans and certain residential mortgage and personal loans are risk graded based on a quarterly evaluation of the borrowers' ability to repay. Certain commercial loans and most residential mortgage and personal loans are small balance, homogeneous pools of loans that are not risk graded. Non-risk graded loans are identified as impaired based on performance status. Generally, non-risk graded loans 90 days or more past due, modified in a troubled debt restructuring or in bankruptcy are considered to be impaired.

Specific allowances for impaired loans are measured by an evaluation of estimated future cash flows discounted at the loan's initial effective interest rate or the fair value of collateral for certain collateral dependent loans. The fair value of real property held as collateral is generally based on third party appraisals that conform to Uniform Standards of Professional Appraisal Practice, less estimated selling costs. Appraised values are on an "as-is" basis and generally are not adjusted by the Company. Updated appraisals are obtained at least annually or more frequently if market conditions indicate collateral values may have declined. Collateral value of mineral rights is generally determined by our internal staff of engineers based on projected cash flows from proven oil and gas reserves under existing economic and operating conditions. The value of other collateral is generally determined by our special assets staff based on projected liquidation cash flows under current market conditions. Collateral values and available cash resources that support impaired loans are evaluated quarterly. Historical statistics may be used as a practical way to estimate impairment in limited situations, such as when a collateral dependent loan is identified as impaired at the end of a reporting period until an appraisal of collateral value is received or a full assessment of future cash flows is completed. Estimates of future cash flows and collateral values require significant judgments and may be volatile.



General allowances for unimpaired loans are based on an estimated loss rate by loan class. The appropriate historical gross loss rate for each loan class is determined by the greater of the current loss rate based on the most recent twelve months or a ten-year average gross loss rate. Recoveries are not directly considered in the estimation of historical loss rates. Recoveries generally do not follow predictable patterns and are not received until well-after the charge-off date as a result of protracted legal actions. For risk graded loans, historical gross loss rates are adjusted for changes in risk grading. For each loan class, the current weighted average risk grade is compared to the long-term weighted average risk grade. This comparison determines whether credit risk in each loan class is increasing or decreasing. Historical loss rates are adjusted upward or downward in proportion to changes in average risk grading. General allowances for unimpaired loans also consider inherent risks identified for each loan class. Inherent risks consider loss rates that most appropriately represent the current credit cycle and other factors attributable to a specific loan class which have not yet been represented in the historical gross loss rates or risk grading. These factors include changes in commodity prices or engineering imprecision which may affect the value of reserves that secure our energy loan portfolio, construction risk that may affect commercial real estate loans, changes in regulations and public policy that may disproportionately impact health care loans and changes in loan products.

Nonspecific allowances are maintained for risks beyond factors specific to a particular portfolio segment or loan class. These factors include trends in the economy in our primary lending areas, concentration in large-balance loans and other relevant factors.

An accrual for off-balance sheet credit risk is included in Other liabilities. The appropriateness of the accrual is determined in the same manner as the allowance for loan losses.

A provision for credit losses is charged against or credited to earnings in amounts necessary to maintain an appropriate Allowance for Credit Losses. Recoveries of loans previously charged off are added to the allowance when received.

#### *Transfers of Financial Assets*

BOK Financial regularly transfers financial assets as part of its mortgage banking activities and periodically may transfer other financial assets. Transfers are recorded as sales when the criteria for surrender of control are met.

The Company has elected to carry certain residential mortgage loans held for sale at fair value under the fair value option. Changes in fair value are recognized in net income as they occur. These loans are reported separately in the Consolidated Balance Sheets and changes in fair value are recorded in other operating revenue - mortgage banking revenue in the Consolidated Statements of Earnings.

Fair value of conforming residential mortgage loans that will be sold to U.S. government agencies is based on sales commitments or market quotes considered Level 2 inputs. Fair value of mortgage loans that are unable to be sold to U.S. government agencies is based on Level 3 inputs using quoted prices of loans that are sold in securitization transactions with a liquidity discount applied. The fair value is corroborated with an independent third party on at least an annual basis.

BOK Financial retains a repurchase obligation under underwriting representations and warranties related to residential mortgage loans transferred and generally retains the right to service the loans. The Company may incur a recourse obligation in limited circumstances. Separate accruals are recognized in Other liabilities in the Consolidated Balance Sheets for repurchase and recourse obligations. These reserves reflect the estimated amount of probable loss the Company will incur as a result of repurchasing a loan, indemnifications, and other settlement resolutions.

Repurchases of loans with an origination defect that are also credit impaired are considered collateral dependent and are initially recognized at net realizable value (appraised value less the cost to sell). The difference between unpaid principal balance and net realizable value is not accreted. Repurchases of loans with an origination defect that are not credit impaired are carried at fair value as of the repurchase date. Interest income continues to accrue on these loans and the discount is accreted over the estimated life of the loan.

The accrual for credit losses related to recourse loans for principal and interest is performed by Credit Administration and subject to oversight by the Finance/Credit Administration Allowance Committee. All other mortgage related accruals are reviewed monthly by the Mortgage Contingency Loss Accrual Committee which is subject to oversight by Finance.

The Company may also choose to purchase GNMA loans once certain mandated delinquency criteria are met. The loans that are eligible and are chosen to be repurchased are initially recognized at fair value based on expected cash flow discounted using the average agency guaranteed debenture rates, average actual principal loss rates and liquidity premium.

The Company may also retain a residual interest in excess cash flows generated by the assets. All assets obtained, including cash, servicing rights and residual interests, and all liabilities incurred, including recourse obligations, are initially recognized at fair value, all assets transferred are de-recognized and any gain or loss on the sale is recognized in earnings. Subsequently, servicing rights and residual interest are carried at fair value with changes in fair value recognized in earnings as they occur.

#### *Real Estate and Other Repossessed Assets*

Real estate and other repossessed assets are acquired in partial or total forgiveness of loans. These assets are initially recognized at cost, which is determined by fair value at date of foreclosure less estimated disposal costs. They are subsequently carried at the lower of cost or current fair value less estimated disposal costs. Decreases in fair value below cost are recognized as asset-specific valuation allowances which may be reversed when supported by future increases in fair value. Subsequent increases in fair value may be used to reduce the allowance but not below zero. Fair values of real estate are based on “as is” appraisals which are updated at least annually or more frequently for certain asset types or assets located in certain distressed markets. Fair values based on appraisals are generally considered to be based on significant other observable inputs. The Company also considers decreases in listing price and other relevant information in quarterly evaluations and reduces the carrying value of real estate and other repossessed assets when necessary. Fair values based on list prices and other relevant information are generally considered to be based on significant unobservable inputs. Additional costs incurred to complete real estate and other repossessed assets may increase the carrying value, up to current fair value based on “as completed” appraisals. The fair value of mineral rights included in repossessed assets are generally determined by our internal staff of engineers based on projected cash flows from proven oil and gas reserves under existing economic and operating conditions. The value of other repossessed assets is generally determined by our special assets staff based on projected liquidation cash flows under current market conditions. Income generated by these assets is recognized as received. Operating expenses are recognized as incurred. Gains or losses on sales of real estate and other repossessed assets are based on the cash proceeds received less the cost basis of the asset, net of any valuation allowances. The estimated disposal costs of real estate and other repossessed assets are evaluated by the Company on an annual basis based on actual results.

#### *Premises and Equipment*

Premises and equipment are carried at cost, including capitalized interest when appropriate, less accumulated depreciation and amortization. Depreciation and amortization are computed on a straight-line basis over the estimated useful lives of the assets or, for leasehold improvements, over the shorter of the estimated useful lives or remaining lease terms. Useful lives range from 5 years to 40 years for buildings and improvements, 3 years to 10 years for software and 3 years to 10 years for furniture and equipment. Construction in progress represents facilities construction and data processing systems projects underway that have not yet been placed into service. Depreciation and amortization begin once the assets are placed into service.

Repair and maintenance costs, including software maintenance and enhancement costs, are charged to expense as incurred. Software licensing costs are generally charged to expense as incurred. Software licensing costs are capitalized if the contractual right to take possession of the software exists and it is feasible to take possession without significant penalty. Capitalized costs are amortized over the shorter of the estimated useful life of the software or remaining contractual life of the license.

Premises no longer used by the Company are transferred to real estate and other repossessed assets. The transferred amount is the lower of cost less accumulated depreciation or fair value less estimated disposal costs as of the transfer date.

Rent expense for leased premises is recognized as incurred over the lease term. The effects of rent holidays, significant rent escalations and other adjustments to rent payments are recognized on a straight-line basis over the lease term.

Ongoing technology projects of significant size or length are reviewed at least annually for impairment. The construction in progress account is reviewed for projects or components of projects that do not support the value of the asset being constructed. Findings of obsolescence, duplicate effort or other conditions that do not support the recorded value are impaired, with the cost of the impaired components being charged to current-year earnings.

#### *Mortgage Servicing Rights*

Mortgage servicing rights may be purchased or may be recognized when mortgage loans are originated and sold with servicing right retained. All mortgage servicing rights are carried at fair value. Changes in the fair value are recognized in earnings as they occur.

There is no active market for trading in mortgage servicing rights after origination. A cash flow model is used to determine fair value. Key assumptions and estimates, including projected prepayment speeds and assumed servicing costs, earnings on escrow deposits, ancillary income and discount rates, used by this model are based on current market sources. Assumptions used to value mortgage servicing rights are considered significant unobservable inputs. A separate third party model is used to estimate prepayment speeds based on interest rates, housing turnover rates, estimated loan curtailment, anticipated defaults and other relevant factors. The prepayment model is updated daily for changes in market conditions and adjusted to better correlate with actual performance of BOK Financial's servicing portfolio. Fair value estimates from outside sources are received at least annually to corroborate the results of the valuation model.

#### *Federal and State Income Taxes*

BOK Financial and its subsidiaries file consolidated tax returns. The subsidiaries provide for income taxes on a separate return basis and remit to BOK Financial amounts determined to be currently payable. BOK Financial is agent for its subsidiaries under the Company's tax sharing agreements and has no ownership rights to any refunds received for the benefit of its subsidiaries.

Current income tax expense or benefit is based on an evaluation that considers estimated taxable income, tax credits, and statutory federal and state income tax rates. The amount of current income tax expense or benefit recognized in any period may differ from amounts reported to taxing authorities. Annually, tax returns are filed with each jurisdiction where the Company conducts business and recognized current income tax expense or benefit is adjusted to the filed tax returns.

Deferred tax assets and liabilities are based upon the differences between the values of assets and liabilities as recognized in the financial statements and their related tax basis using enacted tax rates in effect for the year in which the differences are expected to be recovered or settled. A valuation allowance is provided when it is more likely than not that some portion of the entire deferred tax asset may not be realized based on taxes previously paid in net loss carry-back periods and other factors.

BOK Financial has unrecognized tax benefits, which are included in accrued current income taxes payable, for the uncertain portion of recorded tax benefits and related interest. These uncertainties result from the application of complex tax laws, rules, regulations and interpretations, primarily in state taxing jurisdictions. Unrecognized tax benefits are assessed quarterly and may be adjusted through current income tax expense in future periods based on changing facts and circumstances, completion of examinations by taxing authorities or expiration of a statute of limitations. Estimated penalties and interest on uncertain tax positions are recognized in income tax expense.

#### *Employee Benefit Plans*

BOK Financial sponsors a defined benefit cash balance pension plan ("Pension Plan"), qualified profit sharing plan ("Thrift Plan") and employee health care plans. Pension Plan costs, which are based upon actuarial computations of current costs, are expensed annually. Unrecognized prior service cost and net gains or losses are amortized on a straight-line basis over a period not to exceed the average remaining service periods of the participants. Employer contributions to the Pension Plan are in accordance with Federal income tax regulations. Pension Plan benefits were curtailed as of April 1, 2006. No participants may be added to the Pension Plan and no additional service benefits will be accrued.

BOK Financial recognizes the funded status of its employee benefit plans. For a pension plan, the funded status is the difference between the fair value of plan assets and the projected benefit obligation measured as of the fiscal year-end date. Adjustments required to recognize the Pension Plan's net funded status are made through accumulated other comprehensive income, net of deferred income taxes.

Employer contributions to the Thrift Plan, which matches employee contributions subject to percentage and years of service limits, are expensed when incurred. BOK Financial recognizes the expense of health care benefits on the accrual method.

### *Share-Based Compensation Plans*

BOK Financial awards stock options and non-vested common shares as compensation to certain officers. Compensation cost is generally fixed based on the grant date fair value of the award. The grant date fair value of stock options is based on the Black-Scholes option pricing model. Stock options generally have graded vesting over 7 years. Each tranche is considered a separate award for valuation and compensation cost recognition. Grant date fair value of non-vested shares is based on the then-current market value of BOK Financial common stock. Non-vested shares awarded prior to 2013 generally cliff vest in 5 years. Non-vested shares awarded since January 1, 2013 generally cliff vest in 3 years and are subject to a two year holding period after vesting. Shares awarded under the Executive Incentive Plan are subject to downward adjustment at the discretion of the Incentive Compensation Committee. Compensation cost of non-vested shares granted under the Executive Incentive Plan varies based on changes in the fair value of BOKF common shares.

Compensation cost is recognized as expense over the service period, which is generally the vesting period. Expense is reduced for estimated forfeitures over the vesting period and adjusted for actual forfeitures as they occur. Stock-based compensation awarded to certain officers has performance conditions that affect the number of awards granted. Compensation cost is adjusted based on the probable outcome of the performance conditions.

Excess tax benefits from share-based payments recognized in capital surplus are determined by the excess of tax benefits recognized over the tax effect of compensation cost recognized. Dividends on non-vested shares that are not subject to forfeiture are charged to dividends paid.

### *Other Operating Revenue*

Fees and commission revenue is recognized at the time the related services are provided or products are sold and may be accrued when necessary. Accrued fees and commissions are reversed against revenue if amounts are subsequently deemed to be uncollectible. Revenue is recognized on a gross basis whenever we have primary responsibility and risk in providing the services or products to our customers and on a net basis whenever we act as a broker for products or services of others.

Brokerage and trading revenue includes changes in the fair value of securities and derivatives held for trading purposes and derivatives held for customer risk management programs, including credit losses, commissions earned from the retail sale of securities, mutual funds and other financial instruments, and underwriting and financial advisory fees.

Transaction card revenue includes merchant discount fees, electronic funds transfer network fees and check card fees. Merchant discount fees represent fees paid by customers for account management and electronic processing of transactions. Merchant discount fees are recognized at the time the customer's transactions are processed or other services are performed. The Company also maintains the TransFund electronic funds transfer network for the benefit of its members, which includes BOKF, NA. Electronic funds transfer fees are recognized as electronic transactions processed on behalf of its members. Check card fees represent interchange fees paid by a merchant bank for transactions processed from cards issued by the Company. Check card fees are recognized when transactions are processed. Interchange fees are generally recognized on a gross basis. Related expenses are generally recognized as Data processing and communications expense.

Fiduciary and asset management revenue includes fees from asset management, custody, recordkeeping, investment advisory and administration services. Revenue is recognized on an accrual basis at the time the services are performed and may be based on either the fair value of the account or the service provided.

Deposit service charges and fees are recognized at least quarterly in accordance with a published deposit account agreements and disclosure statements for retail accounts or contractual agreements for commercial accounts. Item charges for overdraft or non-sufficient funds items are recognized as items are presented for payment. Account balance charges and activity fees are accrued monthly and collected in arrears. Commercial account activity fees may be offset by an earnings credit based on account balances.

## Newly Adopted and Pending Accounting Pronouncements

The following is a summary of newly adopted and pending accounting pronouncements that may have a more than insignificant effect on the Company's financial statements.

### Financial Accounting Standards Board ("FASB")

#### FASB Accounting Standards Update No. 2014-09, *Revenue from Contracts with Customers* ("ASU 2014-09")

On May 28, 2014, the FASB issued ASU 2014-09 to clarify the principles for recognizing revenue by providing a more robust framework that will give greater consistency and comparability in revenue recognition practices. In the new framework, an entity recognizes revenue in an amount that reflects the consideration to which the entity expects to be entitled in exchange for goods or services. The new model requires the identification of performance obligations included in contracts with customers, a determination of the transaction price and an allocation of the price to those performance obligations. The entity recognizes revenue when performance obligations are satisfied. ASU 2014-09 is effective for the Company for annual reporting periods beginning after December 15, 2017, including interim periods within that reporting period. Net interest revenue from financial assets and liabilities is explicitly excluded from the scope of ASU 2014-09. Management expects that most fees and commission revenue will not be affected. The Company continues to evaluate the impact of ASU 2014-09 on Fiduciary and Asset Management Revenue and Transaction Card Revenue which represent 18% of total gross revenue and 39% of fees and commissions revenue for 2016. Timing of revenue recognition and gross vs. net revenue presentation may be affected. Management expects to adopt the standard in the first quarter of 2018 with a cumulative effect adjustment to opening retained earnings if such adjustment is significant.

#### FASB Accounting Standards Update No. 2016-08, *Revenue from Contracts with Customers (Topic 606): Principal versus Agent Considerations (Reporting Revenue Gross versus Net)* ("ASU 2016-08")

On March 17, 2016, the FASB Issued ASU 2016-08 to amend the principal versus agent implementation guidance in ASU 2014-09. The ASU clarifies that an entity should evaluate whether it is the principal or the agent for each specified good or service promised in a contract with a customer. ASU 2016-08 is effective for the Company for annual reporting periods beginning after December 15, 2017, including interim periods within that reporting period. The Company generally follows the guidance of ASU 2016-08 and is evaluating the impact the adoption of ASU 2016-08 may have on the Company's financial statements along with ASU 2014-09.

#### FASB Accounting Standards Update No. 2016-10, *Revenue from Contracts with Customers (Topic 606): Identifying Performance Obligations and Licensing* ("ASU 2016-10")

On April 14, 2016, the FASB issued ASU 2016-10 which amends certain sections of ASU 2014-09 related to identifying performance obligations and licensing implementation. ASU 2016-10 is effective for the Company for annual reporting periods beginning after December 15, 2017, including interim periods within that reporting period. The Company is evaluating the impact the adoption of ASU 2016-10 may have on the Company's financial statements along with ASU 2014-09.

#### FASB Accounting Standards Update No. 2016-12, *Revenue from Contracts with Customers (Topic 606): Narrow-Scope Improvements and Practical Expedients* ("ASU 2016-12")

On May 9, 2016, the FASB issued ASU 2016-12, which amends certain aspects of the Board's new revenue standard, ASU 2014-09. The amendments clarify information regarding collectibility, presentation of sales tax and other similar taxes collected from customers, noncash consideration, contract modifications and completed contracts at transition, and transition disclosures. ASU 2016-12 is effective for the Company for annual reporting periods beginning after December 15, 2017, including interim periods within that reporting period. The Company is evaluating the impact the adoption of ASU 2016-12 may have on the Company's financial statements along with ASU 2014-09.



FASB Accounting Standards Update No. 2014-16, *Derivatives and Hedging (Topic 815): Determining Whether the Host Contract in a Hybrid Financial Instrument Issued in the Form of a Share is More Akin to Debt or to Equity* ("ASU 2014-16")

On November 3, 2014, the FASB issued ASU 2014-16 to eliminate the use of different methods and reduce diversity under GAAP in the accounting for hybrid financial instruments issued in the form of a share. For hybrid financial instruments issued in the form of a share, an entity should determine the nature of the host contract by considering all stated and implied substantive terms and features of the hybrid financial instrument. The entity should determine the nature of the host contract by considering the economic characteristics and risks of the entire hybrid financial instrument, including the embedded derivative feature that is being evaluated for separate accounting from the host contract. For public business entities, the ASU was effective for annual periods beginning after December 15, 2015, and interim periods within those annual periods. Adoption of ASU 2014-16 did not impact the Company's consolidated financial statements.

FASB Accounting Standards Update No. 2015-02, *Consolidation (Topic 810): Amendments to the Consolidation Analysis* ("ASU 2015-02")

On February 18, 2015, the FASB issued ASU 2015-02 to address concerns that current U.S. GAAP may require a reporting entity to consolidate another legal entity where the reporting entity's contractual rights do not give it the ability to act primarily on its own behalf, the reporting entity does not hold a majority of the legal entity's voting rights, or the reporting entity is not exposed to a majority of the legal entity's economic benefits or obligations. The amendments affected limited partnerships and similar legal entities, the evaluation of fees paid to a decision maker or a service provider as a variable interest, the effect of fee arrangements and related parties on the primary beneficiary determination, and certain investment funds. The ASU was effective for periods beginning after December 15, 2015 for public companies. Adoption of ASU 2015-02 did not have a material impact on the Company's consolidated financial statements.

FASB Accounting Standards Update No. 2015-07, *Fair Value Measurements (Topic 820): Disclosures for Investments in Certain Entities That Calculate Net Asset Value per Share (or Its Equivalent)* ("ASU 2015-07")

On May 1, 2015, the FASB issued ASU 2015-07 to gain consistency within the categorization of the fair value hierarchy. The update removed the requirement to categorize within the fair value hierarchy all investments for which fair value is measured using the net asset value per share practical expedient. It also removed the requirement to make certain disclosures for all investments that are eligible to be measured at fair value using the net asset value per share practical expedient. The ASU was effective for the Company for interim and annual periods beginning after December 15, 2015 and was applied retrospectively to all periods presented. Adoption of ASU 2015-07 did not have a material impact on the Company's consolidated financial statements.

FASB Accounting Standards Update No. 2016-01, *Financial Instruments - Overall (Subtopic 825-10): Recognition and Measurement of Financial Assets and Financial Liabilities* ("ASU 2016-01")

On January 5, 2016, the FASB issued ASU 2016-01 which requires equity investments, in general, to be measured at fair value with changes in fair value recognized in earnings. It also eliminates the requirement to disclose the methods and significant assumptions used to estimate the fair value for financial instruments measured at amortized cost, requires entities to use the exit price notion when measuring fair value, requires an entity to present separately in other comprehensive income the portion of the total change in fair value of a liability resulting from a change in the instrument-specific credit risk when the fair value option has been elected, requires separate presentation of financial assets and liabilities by measurement category and form on the balance sheet or accompanying notes, clarifies that an entity should evaluate the need for a valuation allowance on a deferred tax asset related to available-for-sale securities in combination with the entity's other deferred tax assets, and simplifies the impairment assessment of equity investments without readily determinable fair values. The ASU is effective for the Company for interim and annual periods beginning after December 15, 2017. Upon adoption, unrealized gains and losses from equity securities will be reclassified from other comprehensive income to retained earnings. As of December 31, 2016, the Company had \$2.4 million of net unrealized gains and losses from equity securities in other comprehensive income.

FASB Accounting Standards Update No. 2016-02, *Leases (Topic 842)* ("ASU 2016-02")

On February 25, 2016, the FASB issued ASU 2016-02 to increase transparency and comparability by recognizing substantially all lease liabilities on the balance sheet and disclosing key information about leasing arrangements. Lessees will be required to recognize an obligation for future lease payments measured on a discounted basis and a related right-of-use asset. The ASU is effective for the Company for interim and annual periods beginning after December 15, 2018 and requires transition through a modified retrospective approach for leases existing at or entered into after January 1, 2017. The Company is evaluating the impact the adoption of ASU 2016-02 will have on the Company's financial statements.



FASB Accounting Standards Update No. 2016-05, *Derivatives and Hedging (Topic 815): Effect of Derivative Contract Novations on Existing Hedge Accounting Relationships ("ASU 2016-05")*

On March 10, 2016, the FASB issued ASU 2016-05 which clarifies that "a change in the counterparty to a derivative instrument that has been designated as the hedging instrument in an existing hedging relationship would not, in and of itself, be considered a termination of the derivative instrument" or "a change in a critical term of the hedging relationship." If all other hedge accounting criteria in ASC 815 are met, a hedging relationship where the hedging derivative instrument is novated would not be discontinued or need to be re-designated. The ASU is effective for interim and annual periods beginning after December 15, 2016. An entity would apply the guidance prospectively unless modified retrospective transition is elected. Early adoption is permitted. Adoption of ASU 2016-05 did not have a material impact on the Company's financial statements.

FASB Accounting Standards Update No. 2016-07, *Investments - Equity Method and Joint Ventures ("ASU 2016-07")*

On March 15, 2016, the FASB issued ASU 2016-07 to simplify the equity method of accounting by eliminating the requirement to retrospectively apply the equity method to an investment that subsequently qualifies for such accounting. The ASU also requires that unrealized holding gains or losses in accumulated other comprehensive income related to an available for sale security that becomes eligible for the equity method be recognized in earnings as of the date the investment qualifies for the equity method. The ASU was effective for all entities for fiscal years beginning after December 15, 2016, including interim periods within those fiscal years. Adoption of ASU 2016-07 did not have a material impact on the Company's financial statements.

FASB Accounting Standards Update No. 2016-09, *Compensation - Stock Compensation (Topic 718): Improvements to Employee Share-Based Payment Accounting ("ASU 2016-09")*

On March 30, 2016, the FASB issued ASU 2016-09 to simplify multiple aspects of accounting for employee share-based payment transactions including accounting income taxes, forfeitures, and statutory tax withholding requirements. The ASU is effective for annual reporting periods beginning after December 15, 2016, including interim periods within those annual reporting periods. Implementation of ASU 2016-09 will add volatility to tax expense as stock prices change; however, we expect the impact on future periods to be insignificant.

FASB Accounting Standards Update No. 2016-13, *Financial Instruments - Credit Losses (Topic 326): Assets Measured at Amortized Cost ("ASU 2016-13")*

On June 16, 2016, the FASB issued ASU 2016-13 to provide more timely recording of credit losses on loans and other financial instruments. The ASU requires an impairment model (known as the current expected credit loss ("CECL") model) that is based on expected credit losses rather than incurred credit losses. It requires measurement of all expected credit losses for financial assets carried at amortized cost, including loans and investment securities, based on historical experience, current conditions, and reasonable and supportable forecasts. ASU 2016-13 also changes the recognition of other-than-temporary impairment of available for sale securities to an allowance methodology from a direct write-down methodology. ASU 2016-13 will be effective for the Company for annual reporting periods beginning after December 15, 2019, including interim periods within those fiscal years. Early adoption is permitted for annual reporting periods beginning after December 15, 2018. ASU 2016-13 will be applied through a cumulative-effect adjustment to retained earnings as of the beginning of the first reporting period in which the guidance is effective. The Company is evaluating the impact the adoption of ASU 2016-13 will have on the Company's financial statements.

FASB Accounting Standards Update No. 2016-15, *Statement of Cash Flows (Topic 230): Classification of Certain Cash Receipts and Cash Payments ("ASU 2016-15")*

On August 26, 2016, the FASB issued ASU 2016-15, which amends ASC 230 on the classification of certain cash receipts and payments in the statement of cash flows. The amendments address eight specific cash flow issues. ASU 2016-15 is effective for the Company for annual reporting periods beginning after December 15, 2017, including interim periods within those fiscal years. Entities generally must apply the guidance retrospectively to all periods presented. Adoption of ASU 2016-15 is not expected to have a material impact on the Company's financial statements.

On October 26, 2016, the FASB issued ASU 2016-17, which amends consolidation guidance on related parties under common control. The ASU requires that a single decision maker consider indirect interests held by related parties under common control on a proportionate basis in a manner consistent with its evaluation of indirect interests held through other related parties. ASU 2016-17 was effective for the Company for annual reporting periods beginning after December 15, 2016, including interim and annual periods. Adoption of ASU 2016-17 did not have a material impact on the Company's financial statements.

## (2) Securities

### Trading Securities

The fair value and net unrealized gain (loss) included in trading securities is as follows (in thousands):

	December 31, 2016		December 31, 2015	
	Fair Value	Net Unrealized Gain (Loss)	Fair Value	Net Unrealized Gain (Loss)
U.S. government agency debentures	\$ 6,234	\$ (4)	\$ 61,295	\$ (71)
U.S. government agency residential mortgage-backed securities	310,067	635	10,989	17
Municipal and other tax-exempt securities	14,427	50	31,901	210
Other trading securities	6,900	57	18,219	(16)
Total trading securities	\$ 337,628	\$ 738	\$ 122,404	\$ 140

### Investment Securities

The amortized cost and fair values of investment securities are as follows (in thousands):

	December 31, 2016				
	Amortized	Carrying	Fair	Gross Unrealized <sup>1</sup>	
	Cost	Value	Value	Gain	Loss
Municipal and other tax-exempt securities	\$ 320,364	\$ 320,364	\$ 321,225	\$ 2,272	\$ (1,411)
U.S. government agency residential mortgage-backed securities – Other	20,777	20,777	21,473	767	(71)
Other debt securities	205,004	205,004	222,795	18,115	(324)
Total investment securities	\$ 546,145	\$ 546,145	\$ 565,493	\$ 21,154	\$ (1,806)

<sup>1</sup> Gross unrealized gains and losses are not recognized in AOCI in the Consolidated Balance Sheets.

	December 31, 2015				
	Amortized	Carrying	Fair	Gross Unrealized <sup>1</sup>	
	Cost	Value	Value	Gain	Loss
Municipal and other tax-exempt securities	\$ 365,258	\$ 365,258	\$ 368,910	\$ 3,935	\$ (283)
U.S. government agency residential mortgage-backed securities – Other	26,721	26,833	27,874	1,063	(22)
Other debt securities	205,745	205,745	232,375	26,689	(59)
Total investment securities	\$ 597,724	\$ 597,836	\$ 629,159	\$ 31,687	\$ (364)

<sup>1</sup> Gross unrealized gains and losses are not recognized in AOCI in the Consolidated Balance Sheets.

The amortized cost and fair values of investment securities at December 31, 2016, by contractual maturity, are as shown in the following table (dollars in thousands):

	Less than One Year	One to Five Years	Six to Ten Years	Over Ten Years	Total	Weighted Average Maturity <sup>2</sup>
Municipal and other tax-exempt securities:						
Carrying value	\$ 83,583	\$ 181,596	\$ 5,909	\$ 49,276	\$ 320,364	3.41
Fair value	83,544	180,993	5,836	50,852	321,225	
Nominal yield <sup>1</sup>	1.48%	2.08%	3.31%	5.20%	2.43%	
Other debt securities:						
Carrying value	\$ 16,045	\$ 41,804	\$ 127,320	\$ 19,835	\$ 205,004	6.66
Fair value	16,107	44,372	142,010	20,306	222,795	
Nominal yield	3.28%	5.14%	5.86%	4.79%	5.41%	
Total fixed maturity securities:						
Carrying value	\$ 99,628	\$ 223,400	\$ 133,229	\$ 69,111	\$ 525,368	4.68
Fair value	99,651	225,365	147,846	71,158	544,020	
Nominal yield	1.77%	2.65%	5.75%	5.08%	3.59%	
Residential mortgage-backed securities:						
Carrying value					\$ 20,777	<sup>3</sup>
Fair value					21,473	
Nominal yield <sup>4</sup>					2.76%	
Total investment securities:						
Carrying value					\$ 546,145	
Fair value					565,493	
Nominal yield					3.56%	

<sup>1</sup> Calculated on a taxable equivalent basis using a 39% effective tax rate.

<sup>2</sup> Expected maturities may differ from contractual maturities because borrowers may have the right to call or prepay obligations with or without penalty.

<sup>3</sup> The average expected lives of residential mortgage-backed securities were 4.7 years based upon current prepayment assumptions.

<sup>4</sup> The nominal yield on residential mortgage-backed securities is based upon prepayment assumptions at the purchase date. Actual yields earned may differ significantly based upon actual prepayments. See Quarterly Financial Summary - Unaudited for current yields on the investment securities portfolio.

## Available for Sale Securities

The amortized cost and fair value of available for sale securities are as follows (in thousands):

	December 31, 2016				
	Amortized Cost	Fair Value	Gross Unrealized <sup>1</sup>		OTTI <sup>2</sup>
			Gain	Loss	
U.S. Treasury securities	\$ 1,000	\$ 999	\$ —	\$ (1)	\$ —
Municipal and other tax-exempt securities	41,050	40,993	343	(400)	—
Residential mortgage-backed securities:					
U.S. government agencies:					
FNMA	3,062,525	3,055,676	25,066	(31,915)	—
FHLMC	1,534,451	1,531,116	8,475	(11,810)	—
GNMA	878,375	873,594	2,259	(7,040)	—
Total U.S. government agencies	5,475,351	5,460,386	35,800	(50,765)	—
Private issue:					
Alt-A loans	44,245	51,512	7,485	—	(218)
Jumbo-A loans	56,947	64,023	7,092	(16)	—
Total private issue	101,192	115,535	14,577	(16)	(218)
Total residential mortgage-backed securities	5,576,543	5,575,921	50,377	(50,781)	(218)
Commercial mortgage-backed securities guaranteed by U.S. government agencies	3,035,750	3,017,933	5,472	(23,289)	—
Other debt securities	4,400	4,152	—	(248)	—
Perpetual preferred stock	15,561	18,474	2,913	—	—
Equity securities and mutual funds	17,424	18,357	1,060	(127)	—
Total available for sale securities	\$ 8,691,728	\$ 8,676,829	\$ 60,165	\$ (74,846)	\$ (218)

<sup>1</sup> Gross unrealized gain/loss recognized in AOCI in the consolidated balance sheet.

<sup>2</sup> Amounts represent unrealized loss that remains in AOCI after an other-than-temporary credit loss has been recognized in income.

December 31, 2015					
	Amortized	Fair	Gross Unrealized <sup>1</sup>		OTTI <sup>2</sup>
	Cost	Value	Gain	Loss	
U.S. Treasury securities	\$ 1,000	\$ 995	\$ —	\$ (5)	\$ —
Municipal and other tax-exempt securities	56,681	56,817	873	(737)	—
Residential mortgage-backed securities:					
U.S. government agencies:					
FNMA	3,156,214	3,187,215	41,502	(10,501)	—
FHLMC	1,940,915	1,949,335	14,727	(6,307)	—
GNMA	763,967	761,801	2,385	(4,551)	—
Total U.S. government agencies	5,861,096	5,898,351	58,614	(21,359)	—
Private issue:					
Alt-A loans	56,387	62,574	6,574	—	(387)
Jumbo-A loans	71,724	76,544	5,260	—	(440)
Total private issue	128,111	139,118	11,834	—	(827)
Total residential mortgage-backed securities	5,989,207	6,037,469	70,448	(21,359)	(827)
Commercial mortgage-backed securities guaranteed by U.S. government agencies	2,919,044	2,905,796	5,396	(18,644)	—
Other debt securities	4,400	4,151	—	(249)	—
Perpetual preferred stock	17,171	19,672	2,501	—	—
Equity securities and mutual funds	17,121	17,833	752	(40)	—
Total available for sale securities	\$ 9,004,624	\$ 9,042,733	\$ 79,970	\$ (41,034)	\$ (827)

<sup>1</sup> Gross unrealized gain/loss recognized in AOCI in the consolidated balance sheet.

<sup>2</sup> Amounts represent unrealized loss that remains in AOCI after an other-than-temporary credit loss has been recognized in income.

The amortized cost and fair values of available for sale securities at December 31, 2016, by contractual maturity, are as shown in the following table (dollars in thousands):

	Less than One Year	One to Five Years	Six to Ten Years	Over Ten Years	Total	Weighted Average Maturity <sup>5</sup>
<b>U.S. Treasury securities:</b>						
Amortized cost	\$ —	\$ 1,000	\$ —	\$ —	\$ 1,000	1.04
Fair value	—	999	—	—	999	
Nominal yield	—%	0.87%	—%	—%	0.87%	
<b>Municipal and other tax-exempt securities:</b>						
Amortized cost	9,848	12,254	2,103	16,845	41,050	7.95
Fair value	9,903	12,399	2,151	16,540	40,993	
Nominal yield <sup>1</sup>	4.81%	4.01%	3.47%	2.28% <sup>6</sup>	3.46%	
<b>Commercial mortgage-backed securities:</b>						
Amortized cost	31,910	921,981	1,832,535	249,324	3,035,750	6.90
Fair value	31,856	920,108	1,820,627	245,342	3,017,933	
Nominal yield	1.00%	1.79%	1.85%	1.82%	1.81%	
<b>Other debt securities:</b>						
Amortized cost	—	—	—	4,400	4,400	30.66
Fair value	—	—	—	4,152	4,152	
Nominal yield	—%	—%	—%	1.71%	1.71%	
<b>Total fixed maturity securities:</b>						
Amortized cost	\$ 41,758	\$ 935,235	\$ 1,834,638	\$ 270,569	\$ 3,082,200	6.95
Fair value	41,759	933,506	1,822,778	266,034	3,064,077	
Nominal yield	1.89%	1.82%	1.85%	1.84%	1.83%	
<b>Residential mortgage-backed securities:</b>						
Amortized cost					\$ 5,576,543	<sup>2</sup>
Fair value					5,575,921	
Nominal yield <sup>4</sup>					1.86%	
<b>Perpetual preferred stock, equity securities and mutual funds:</b>						
Amortized cost					\$ 32,985	<sup>3</sup>
Fair value					36,831	
Nominal yield					—%	
<b>Total available-for-sale securities:</b>						
Amortized cost					\$ 8,691,728	
Fair value					8,676,829	
Nominal yield					1.84%	

<sup>1</sup> Calculated on a taxable equivalent basis using a 39% effective tax rate.

<sup>2</sup> The average expected lives of mortgage-backed securities were 3.9 years based upon current prepayment assumptions.

<sup>3</sup> Primarily common stock and preferred stock of corporate issuers with no stated maturity.

<sup>4</sup> The nominal yield on mortgage-backed securities is based upon prepayment assumptions at the purchase date. Actual yields earned may differ significantly based upon actual prepayments. See Quarterly Financial Summary — Unaudited following for current yields on available for sale securities portfolio.

<sup>5</sup> Expected maturities may differ from contractual maturities, because borrowers may have the right to call or prepay obligations with or without penalty.

<sup>6</sup> Nominal yield on municipal and other tax-exempt securities and other debt securities with contractual maturity dates over ten years are based on variable rates which generally are reset within 35 days.



Sales of available for sale securities resulted in gains and losses as follows (in thousands):

	Year Ended December 31,		
	2016	2015	2014
Proceeds	\$ 899,381	\$ 1,600,380	2,664,740
Gross realized gains	11,696	15,849	24,923
Gross realized losses	(21)	(3,791)	(23,384)
Related federal and state income tax expense	4,542	4,691	599

A summary of investment and available for sale securities that have been pledged as collateral for repurchase agreements, public trust funds on deposit and for other purposes, as required by law was as follows (in thousands):

	December 31,	
	2016	2015
<b>Investment:</b>		
Carrying value	\$ 322,208	\$ 231,033
Fair value	323,808	234,382
<b>Available for sale:</b>		
Amortized cost	7,353,116	6,831,743
Fair value	7,327,470	6,849,524

The secured parties do not have the right to sell or re-pledge these securities.

# Temporarily Impaired Securities as of December 31, 2016

(In thousands)

	Number of Securities	Less Than 12 Months		12 Months or Longer		Total	
		Fair Value	Unrealized Loss	Fair Value	Unrealized Loss	Fair Value	Unrealized Loss
Investment:							
Municipal and other tax-exempt securities	151	\$ 219,892	\$ 1,316	\$ 4,333	\$ 95	\$ 224,225	\$ 1,411
U.S. government agency residential mortgage-backed securities – Other	1	4,358	71	—	—	4,358	71
Other debt securities	41	11,820	322	855	2	12,675	324
Total investment securities	193	\$ 236,070	\$ 1,709	\$ 5,188	\$ 97	\$ 241,258	\$ 1,806

	Number of Securities	Less Than 12 Months		12 Months or Longer		Total	
		Fair Value	Unrealized Loss	Fair Value	Unrealized Loss	Fair Value	Unrealized Loss
Available for sale:							
U.S. Treasury securities	1	\$ 999	\$ 1	\$ —	\$ —	\$ 999	\$ 1
Municipal and other tax-exempt securities	24	\$ 15,666	\$ 22	\$ 4,689	\$ 378	20,355	400
Residential mortgage-backed securities:							
U.S. government agencies:							
FNMA	91	1,787,644	30,238	72,105	1,677	1,859,749	31,915
FHLMC	58	964,017	11,210	18,307	600	982,324	11,810
GNMA	31	548,637	6,145	25,796	895	574,433	7,040
Total U.S. agencies	180	3,300,298	47,593	116,208	3,172	3,416,506	50,765
Private issue <sup>1</sup> :							
Alt-A loans	5	7,931	174	7,410	44	15,341	218
Jumbo-A loans	1	—	—	6,098	16	6,098	16
Total private issue	6	7,931	174	13,508	60	21,439	234
Total residential mortgage-backed securities	186	3,308,229	47,767	129,716	3,232	3,437,945	50,999
Commercial mortgage-backed securities guaranteed by U.S. government agencies							
	171	1,904,584	22,987	38,875	302	1,943,459	23,289
Other debt securities	2	—	—	4,152	248	4,152	248
Perpetual preferred stock	—	—	—	—	—	—	—
Equity securities and mutual funds	104	2,127	41	817	86	2,944	127
Total available for sale securities	488	\$ 5,231,605	\$ 70,818	\$ 178,249	\$ 4,246	\$ 5,409,854	\$ 75,064

<sup>1</sup> Includes securities for which an unrealized loss remains in AOCI after an other-than-temporary credit loss has been recognized in income.

# Temporarily Impaired Securities as of December 31, 2015

(In thousands)

	Number of Securities	Less Than 12 Months		12 Months or Longer		Total	
		Fair Value	Unrealized Loss	Fair Value	Unrealized Loss	Fair Value	Unrealized Loss
Investment:							
Municipal and other tax- exempt securities	73	\$ 127,319	\$ 206	\$ 13,380	\$ 77	\$ 140,699	\$ 283
U.S. government agency residential mortgage-backed securities – Other	1	5,533	22	—	—	5,533	22
Other debt securities	11	1,082	41	1,715	18	2,797	59
Total investment securities	85	\$ 133,934	\$ 269	\$ 15,095	\$ 95	\$ 149,029	\$ 364

	Number of Securities	Less Than 12 Months		12 Months or Longer		Total	
		Fair Value	Unrealized Loss	Fair Value	Unrealized Loss	Fair Value	Unrealized Loss
Available for sale:							
U.S. Treasury securities	1	\$ 995	\$ 5	\$ —	\$ —	\$ 995	\$ 5
Municipal and other tax-exempt securities	20	\$ 9,909	\$ 27	\$ 11,664	\$ 710	21,573	737
Residential mortgage-backed securities:							
U. S. government agencies:							
FNMA	55	1,188,022	10,262	18,236	239	1,206,258	10,501
FHLMC	40	726,713	4,827	77,545	1,480	804,258	6,307
GNMA	15	364,919	1,951	102,109	2,600	467,028	4,551
Total U.S. agencies	110	2,279,654	17,040	197,890	4,319	2,477,544	21,359
Private issue <sup>1</sup> :							
Alt-A loans	4	—	—	9,264	387	9,264	387
Jumbo-A loans	8	—	—	8,482	440	8,482	440
Total private issue	12	—	—	17,746	827	17,746	827
Total residential mortgage-backed securities	122	2,279,654	17,040	215,636	5,146	2,495,290	22,186
Commercial mortgage-backed securities guaranteed by U.S. government agencies	213	1,582,469	11,419	484,258	7,225	2,066,727	18,644
Other debt securities	2	—	—	4,151	249	4,151	249
Perpetual preferred stock	—	—	—	—	—	—	—
Equity securities and mutual funds	61	782	5	991	35	1,773	40
Total available for sale securities	419	\$ 3,873,809	\$ 28,496	\$ 716,700	\$ 13,365	\$ 4,590,509	\$ 41,861

<sup>1</sup> Includes securities for which an unrealized loss remains in AOCI after an other-than-temporary credit loss has been recognized in income.

For debt securities, management determines whether it intends to sell or if it is more-likely-than-not that it will be required to sell impaired securities. Based on this evaluation as of December 31, 2016, we do not intend to sell any impaired available for sale securities before fair value recovers to our current amortized cost and it is more-likely-than-not that we will not be required to sell impaired securities before fair value recovers, which may be maturity.

At December 31, 2016, the composition of the Company's investment and available for sale securities portfolios by the lowest current credit rating assigned by any of the three nationally-recognized rating agencies is as follows (in thousands):

	AAA - AA		A - BBB		Below Investment Grade		Not Rated		Total	
	Carrying Value	Fair Value	Carrying Value	Fair Value	Carrying Value	Fair Value	Carrying Value	Fair Value	Carrying Value	Fair Value
Investment:										
Municipal and other tax-exempt	\$ 193,931	\$193,834	\$ 6,028	\$ 6,037	\$ —	\$ —	\$ 120,405	\$ 121,354	\$ 320,364	\$ 321,225
U.S. government agency residential mortgage-backed securities <sup>1</sup>	—	—	—	—	—	—	20,777	21,473	20,777	21,473
Other debt securities	140,184	156,641	—	—	—	—	64,820	66,154	205,004	222,795
Total investment securities	\$ 334,115	\$350,475	\$ 6,028	\$ 6,037	\$ —	\$ —	\$ 206,002	\$ 208,981	\$ 546,145	\$ 565,493

	AAA - AA		A - BBB		Below Investment Grade		Not Rated		Total	
	Amortized Cost	Fair Value	Amortized Cost	Fair Value	Amortized Cost	Fair Value	Amortized Cost	Fair Value	Amortized Cost	Fair Value
Available for Sale:										
U.S. Treasury securities	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ 1,000	\$ 999	\$ 1,000	\$ 999
Municipal and other tax-exempt	23,343	23,657	5,595	5,237	—	—	12,112	12,099	41,050	40,993
U.S. government agency residential mortgage-backed securities <sup>1</sup>	—	—	—	—	—	—	5,475,351	5,460,386	5,475,351	5,460,386
Privately issued residential mortgage-backed securities	—	—	—	—	101,192	115,535	—	—	101,192	115,535
Commercial mortgage-backed securities guaranteed by U.S. government agencies	—	—	—	—	—	—	3,035,750	3,017,933	3,035,750	3,017,933
Other debt securities	4,400	4,152	—	—	—	—	—	—	4,400	4,152
Perpetual preferred stock	—	—	4,796	5,177	10,765	13,297	—	—	15,561	18,474
Equity securities and mutual funds	4	759	—	—	—	—	17,420	17,598	17,424	18,357
Total available for sale securities	\$ 27,747	\$ 28,568	\$ 10,391	\$ 10,414	\$ 111,957	\$128,832	\$ 8,541,633	\$ 8,509,015	\$ 8,691,728	\$ 8,676,829

<sup>1</sup> U.S. government and government sponsored enterprises are not rated by the nationally-recognized rating agencies as these securities are guaranteed by agencies of the U.S. government or government-sponsored enterprises.

At December 31, 2016, the entire portfolio of privately issued residential mortgage-backed securities was rated below investment grade by at least one of the nationally-recognized rating agencies. The gross unrealized loss on these securities totaled \$234 thousand. Impairment of these securities was evaluated based on projections of estimated cash flows.

The primary assumptions used in this evaluation were:

	December 31,	
	2016	2015
Unemployment rate	Decreasing to 4.6% over the next 12 months and remain at 4.6% thereafter.	Decreasing to 4.8% over the next 12 months and remain at 4.8% thereafter.
Housing price appreciation/depreciation	Starting with current depreciated housing prices based on information derived from the FHFA <sup>1</sup> , appreciating 3.1% over the next 12 months, then flat for the following 12 months and then appreciating at 2% per year thereafter.	Starting with current depreciated housing prices based on information derived from the FHFA <sup>1</sup> , appreciating 3.5% over the next 12 months, then flat for the following 12 months and then appreciating at 2% per year thereafter.
Estimated liquidation costs	Reflect actual historical liquidations costs observed on Jumbo and Alt-A residential mortgage loans in securities owned by the Company.	Reflect actual historical liquidations costs observed on Jumbo and Alt-A residential mortgage loans in securities owned by the Company.
Discount rates	Estimated cash flows were discounted at rates that range from 2.00% to 6.25% based on our current expected yields.	Estimated cash flows were discounted at rates that range from 2.00% to 6.25% based on our current expected yields.

<sup>1</sup> Federal Housing Finance Agency

The Company recognized no credit loss impairment on private-label residential mortgage-backed securities in earnings during 2016. Credit loss impairment of \$157 thousand was recognized in earnings on private-label residential mortgage-backed securities in 2015 and none was recognized in 2014.

Impaired equity securities, including perpetual preferred stocks, are evaluated based on management's ability and intent to hold the securities until fair value recovers. Based on this evaluation, no other-than-temporary impairment losses were recorded in earnings on equity securities during 2016. A \$1.7 million other-than-temporary impairment loss related to equity securities was recorded in earnings in 2015 and \$373 thousand in impairment losses were recognized on equity securities in 2014.

The following is a tabular roll forward of the amount of credit-related OTTI recognized on available for sale debt securities in earnings (in thousands):

	Year Ended December 31,		
	2016	2015	2014
Balance of credit-related OTTI recognized on available for sale debt, beginning of period	\$ 54,504	\$ 54,347	\$ 67,346
Additions for credit-related OTTI not previously recognized	—	—	—
Additions for increases in credit-related OTTI previously recognized when there is no intent to sell and no requirement to sell before recovery of amortized cost	—	157	—
Reductions for change in intent to hold before recovery	—	—	—
Sales	—	—	(12,999)
Balance of credit-related OTTI recognized on available for sale debt securities, end of period	\$ 54,504	\$ 54,504	\$ 54,347

### Fair Value Option Securities

Fair value option securities represent securities which the Company has elected to carry at fair value and separately identified on the Consolidated Balance Sheets with changes in the fair value recognized in earnings as they occur. Certain residential mortgage-backed securities issued by U.S. government agencies and derivative contracts are held as an economic hedge of the mortgage servicing rights.

The fair value and net unrealized gain (loss) included in Fair value option securities is as follows (in thousands):

	December 31, 2016		December 31, 2015	
	Fair Value	Net Unrealized Gain (Loss)	Fair Value	Net Unrealized Gain (Loss)
U.S. government agency residential mortgage-backed securities	\$ 77,046	\$ (1,777)	\$ 444,217	\$ (2,060)

### Restricted Equity Securities

Restricted equity securities include stock we are required to hold as members of the Federal Reserve system and the Federal Home Loan Banks ("FHLB"). Restricted equity securities are carried at cost as these securities do not have a readily determined fair value because ownership of these shares is restricted and they lack a market. A summary of restricted equity securities follows (in thousands):

	December 31,	
	2016	2015
Federal Reserve Bank stock	\$ 36,498	\$ 36,148
Federal Home Loan Bank stock	270,541	237,365
Other	201	171
Total	\$ 307,240	\$ 273,684

### (3) Derivatives

The following table summarizes the fair values of derivative contracts recorded as “derivative contracts” assets and liabilities in the balance sheet at December 31, 2016 (in thousands):

	Assets					
	Notional <sup>1</sup>	Gross Fair Value	Netting Adjustments	Net Fair Value Before Cash Collateral	Cash Collateral	Fair Value Net of Cash Collateral
Customer risk management programs:						
Interest rate contracts						
To-be-announced residential mortgage-backed securities	\$ 16,949,152	\$ 180,695	\$ (60,555)	\$ 120,140	\$ —	\$ 120,140
Interest rate swaps	1,403,408	34,442	—	34,442	(4,567)	29,875
Energy contracts	835,566	64,140	(28,298)	35,842	(71)	35,771
Agricultural contracts	53,209	1,382	(515)	867	—	867
Foreign exchange contracts	580,886	494,349	—	494,349	(5,183)	489,166
Equity option contracts	100,924	4,357	—	4,357	(730)	3,627
Total customer risk management programs	19,923,145	779,365	(89,368)	689,997	(10,551)	679,446
Internal risk management programs	2,514,169	10,426	—	10,426	—	10,426
Total derivative contracts	\$ 22,437,314	\$ 789,791	\$ (89,368)	\$ 700,423	\$ (10,551)	\$ 689,872

	Liabilities					
	Notional <sup>1</sup>	Gross Fair Value	Netting Adjustments	Net Fair Value Before Cash Collateral	Cash Collateral	Fair Value Net of Cash Collateral
Customer risk management programs:						
Interest rate contracts						
To-be-announced residential mortgage-backed securities	\$ 16,637,532	\$ 176,928	\$ (60,555)	\$ 116,373	\$ —	\$ 116,373
Interest rate swaps	1,403,408	34,442	—	34,442	(11,977)	22,465
Energy contracts	820,365	64,306	(28,298)	36,008	(31,534)	4,474
Agricultural contracts	53,216	1,365	(515)	850	(769)	81
Foreign exchange contracts	580,712	494,695	—	494,695	(3,630)	491,065
Equity option contracts	100,924	4,357	—	4,357	—	4,357
Total customer risk management programs	19,596,157	776,093	(89,368)	686,725	(47,910)	638,815
Internal risk management programs	2,582,202	25,716	—	25,716	—	25,716
Total derivative contracts	\$ 22,178,359	\$ 801,809	\$ (89,368)	\$ 712,441	\$ (47,910)	\$ 664,531

<sup>1</sup> Notional amounts for commodity contracts are converted into dollar-equivalent amounts based on dollar prices at the inception of the contract.

When bilateral netting agreements exist between the Company and its counterparties that create a single legal claim or obligation to pay or receive the net amount in settlement of the individual derivative contracts, the Company reports derivative assets and liabilities on a net by counterparty basis. Contracts may also require the Company to provide or receive cash margin as collateral for derivative assets and liabilities. Derivative assets and liabilities are reported net of cash margin when certain conditions are met.

The following table summarizes the fair values of derivative contracts recorded as “derivative contracts” assets and liabilities in the balance sheet at December 31, 2015 (in thousands):

Assets						
	Notional <sup>1</sup>	Gross Fair Value	Netting Adjustments	Net Fair Value Before Cash Collateral	Cash Collateral	Fair Value Net of Cash Collateral
Customer risk management programs:						
Interest rate contracts						
To-be-announced residential mortgage-backed securities	\$ 14,583,052	\$ 43,270	\$ (28,305)	\$ 14,965	\$ —	\$ 14,965
Interest rate swaps	1,332,044	31,744	—	31,744	(1,424)	30,320
Energy contracts	470,613	83,045	(22,970)	60,075	(18,606)	41,469
Agricultural contracts	61,662	2,591	(1,158)	1,433	—	1,433
Foreign exchange contracts	546,572	498,830	—	498,830	(4,140)	494,690
Equity option contracts	137,278	3,780	—	3,780	(470)	3,310
Total customer risk management programs	17,131,221	663,260	(52,433)	610,827	(24,640)	586,187
Internal risk management programs	22,000	83	—	83	—	83
Total derivative contracts	\$ 17,153,221	\$ 663,343	\$ (52,433)	\$ 610,910	\$ (24,640)	\$ 586,270

Liabilities						
	Notional <sup>1</sup>	Gross Fair Value	Netting Adjustments	Net Fair Value Before Cash Collateral	Cash Collateral	Fair Value Net of Cash Collateral
Customer risk management programs:						
Interest rate contracts						
To-be-announced residential mortgage-backed securities	\$ 14,168,927	\$ 40,141	\$ (28,305)	\$ 11,836	\$ (1,308)	\$ 10,528
Interest rate swaps	1,332,044	31,928	—	31,928	(20,530)	11,398
Energy contracts	463,703	81,869	(22,970)	58,899	—	58,899
Agricultural contracts	61,657	2,579	(1,158)	1,421	(1,248)	173
Foreign exchange contracts	546,405	498,574	—	498,574	(1,951)	496,623
Equity option contracts	137,278	3,780	—	3,780	—	3,780
Total customer risk management programs	16,710,014	658,871	(52,433)	606,438	(25,037)	581,401
Internal risk management programs	75,000	300	—	300	—	300
Total derivative contracts	\$ 16,785,014	\$ 659,171	\$ (52,433)	\$ 606,738	\$ (25,037)	\$ 581,701

<sup>1</sup> Notional amounts for commodity contracts are converted into dollar-equivalent amounts based on dollar prices at the inception of the contract.



The following summarizes the pre-tax net gains (losses) on derivative instruments and where they are recorded in the Consolidated Statement of Earnings (in thousands):

	Year Ended December 31,					
	2016		2015		2014	
	Brokerage and Trading Revenue	Gain (Loss) on Derivatives, Net	Brokerage and Trading Revenue	Gain (Loss) on Derivatives, Net	Brokerage and Trading Revenue	Gain (Loss) on Derivatives, Net
Customer risk management programs:						
Interest rate contracts						
To-be-announced residential mortgage-backed securities	\$ 38,523	\$ —	\$ 33,877	\$ —	\$ 27,007	\$ —
Interest rate swaps	2,589	—	2,066	—	2,494	—
Energy contracts	5,027	—	4,060	—	6,572	—
Agricultural contracts	111	—	123	—	146	—
Foreign exchange contracts	945	—	797	—	1,581	—
Equity option contracts	—	—	—	—	—	—
Total customer risk management programs	47,195	—	40,923	—	37,800	—
Internal risk management programs	(4,592)	(15,685)	(209)	430	—	2,776
Total derivative contracts	\$ 42,603	\$ (15,685)	\$ 40,714	\$ 430	\$ 37,800	\$ 2,776

As discussed in Note 7, certain derivative contracts not designated as hedging instruments related to mortgage loan commitments and forward sales contracts are included in Residential mortgage loans held for sale on the Consolidated Balance Sheets. See Note 7 for additional discussion of notional, fair value and impact on earnings of these contracts. Forward sales contracts are not considered swaps under the Commodity and Futures Trading Commission final rules.

No derivative contracts have been designated as hedging instruments for financial reporting purposes.

#### (4) Loans and Allowances for Credit Losses

The portfolio segments of the loan portfolio are as follows (in thousands):

	December 31, 2016				December 31, 2015			
	Fixed Rate	Variable Rate	Non-accrual	Total	Fixed Rate	Variable Rate	Non-accrual	Total
Commercial	\$ 2,327,085	\$ 7,884,786	\$ 178,953	\$ 10,390,824	\$ 1,850,548	\$ 8,325,559	\$ 76,424	\$ 10,252,531
Commercial real estate	624,187	3,179,338	5,521	3,809,046	627,678	2,622,354	9,001	3,259,033
Residential mortgage	1,647,357	256,255	46,220	1,949,832	1,598,992	216,661	61,240	1,876,893
Personal	154,971	684,697	290	839,958	91,816	460,418	463	552,697
Total	\$ 4,753,600	\$ 12,005,076	\$ 230,984	\$ 16,989,660	\$ 4,169,034	\$ 11,624,992	\$ 147,128	\$ 15,941,154
Accruing loans past due (90 days) <sup>1</sup>				\$ 5				\$ 1,207
Foregone interest on nonaccrual loans				\$ 15,990				\$ 7,432

<sup>1</sup> Excludes residential mortgage loans guaranteed by agencies of the U.S. government.

At December 31, 2016, loans to businesses and individuals with collateral primarily located in Texas totaled \$5.4 billion or 32% of the total loan portfolio. Loans to businesses and individuals with collateral primarily located in Oklahoma totaled \$3.5 billion or 21% of our total loan portfolio. Loans for which the collateral location is not relevant, such as unsecured loans and reserve-based energy loans, are distributed by the borrower's primary operating location. These geographic concentrations subject the loan portfolio to the general economic conditions within these areas. At December 31, 2015, loans to businesses and individuals with collateral primarily located in Texas totaled \$5.3 billion or 33% of the loan portfolio and loans to businesses and individuals with collateral primarily located in Oklahoma totaled \$3.9 billion or 24% of the loan portfolio.

### *Commercial*

Commercial loans represent loans for working capital, facilities acquisition or expansion, purchases of equipment and other needs of commercial customers primarily located within our geographical footprint. Commercial loans are underwritten individually and represent on-going relationships based on a thorough knowledge of the customer, the customer's industry and market. While commercial loans are generally secured by the customer's assets including real property, inventory, accounts receivable, operating equipment, interest in mineral rights and other property and may also include personal guarantees of the owners and related parties, the primary source of repayment of the loans is the on-going cash flow from operations of the customer's business. Inherent lending risk is centrally monitored on a continuous basis from underwriting throughout the life of the loan for compliance with commercial lending policies.

At December 31, 2016, commercial loans with collateral primarily located in Texas totaled \$3.3 billion or 32% of the commercial loan portfolio segment and commercial loans with collateral primarily located in Oklahoma totaled \$2.1 billion or 21% of the commercial loan portfolio segment. The commercial loan portfolio segment is further divided into loan classes. The services loan class totaled \$3.1 billion or 18% of total loans. Approximately \$1.4 billion of loans in the services class consisted of loans with individual balances of less than \$10 million. Businesses included in the services class include governmental, financial & insurance, educational, religious and not-for-profit and professional/technical services. The energy loan class totaled \$2.5 billion or 15% of total loans, including \$2.0 billion of outstanding loans to energy producers. Approximately 57% of committed production loans were secured by properties primarily producing oil and 43% are secured by properties producing natural gas. The healthcare loan class totaled \$2.2 billion or 13% of total loans. The healthcare loan class consists primarily of loans for the development and operation of senior housing and care facilities, including independent living, assisted living and skilled nursing. Healthcare also includes loans to hospitals and other medical service providers.

At December 31, 2015, commercial loans with collateral primarily located in Texas totaled \$3.5 billion or 34% of the commercial loan portfolio segment and commercial loans with collateral primarily located in Oklahoma totaled \$2.5 billion or 24% of the commercial loan portfolio segment. The energy loan class totaled \$3.1 billion or 19% of total loans, including \$2.5 billion of outstanding loans to energy producers. At December 31, 2015, approximately 62% of committed production loans were secured by properties primarily producing oil and 38% were secured by properties producing natural gas. The services loan class totaled \$2.8 billion or 17% of total loans. Approximately \$1.2 billion of loans in the services category consisted of loans with individual balances of less than \$10 million. The healthcare loan class totaled \$1.9 billion or 12% of total loans.

### *Commercial Real Estate*

Commercial real estate loans are for the construction of buildings or other improvements to real estate and property held by borrowers for investment purposes primarily within our geographical footprint. We require collateral values in excess of the loan amounts, demonstrated cash flows in excess of expected debt service requirements, equity investment in the project and a portion of the project already sold, leased or permanent financing already secured. The expected cash flows from all significant new or renewed income producing property commitments are stress tested to reflect the risks in varying interest rates, vacancy rates and rental rates. As with commercial loans, inherent lending risks are centrally monitored on a continuous basis from underwriting throughout the life of the loan for compliance with applicable lending policies.

At December 31, 2016, 30% of commercial real estate loans are secured by properties primarily located in the Dallas and Houston areas of Texas. An additional 11% of commercial real estate loans are secured by properties located primarily in the Tulsa and Oklahoma City metropolitan areas of Oklahoma. At December 31, 2015, 30% of commercial real estate loans were secured by properties in Texas, 13% of commercial real estate loans were secured by properties in Oklahoma.

## *Residential Mortgage and Personal*

Residential mortgage loans provide funds for our customers to purchase or refinance their primary residence or to borrow against the equity in their home. Residential mortgage loans are secured by a first or second mortgage on the customer's primary residence. Personal loans consist primarily of loans secured by the cash surrender value of insurance policies and marketable securities. It also includes direct loans secured by and for the purchase of automobiles, recreational and marine equipment as well as other unsecured loans. Residential mortgage and personal loans are made in accordance with underwriting policies. Credit scoring is assessed based on significant credit characteristics including credit history, residential and employment stability. Residential mortgage loans retained in the Company's portfolio are primarily composed of various mortgage programs to support customer relationships including jumbo mortgage loans, non-builder construction loans and special loan programs for high net worth individuals and certain professionals. Jumbo loans may be fixed or variable rate and are fully amortizing. Jumbo loans generally conform to government sponsored entity standards, except that the loan size exceeds maximums required under these standards. These loans generally require a minimum FICO score of 720 and a maximum debt-to-income ratio ("DTI") of 38%. Loan-to-value ("LTV") ratios are tiered from 60% to 100%, depending on the market. Special mortgage programs include fixed and variable fully amortizing loans tailored to the needs of certain healthcare professionals. Variable rate loans are fully indexed at origination and may have fixed rates for three to ten years, then adjust annually thereafter.

At December 31, 2016 and 2015, residential mortgage loans included \$199 million and \$197 million, respectively, of loans guaranteed by U.S. government agencies previously sold into GNMA mortgage pools. These loans either have been repurchased or are eligible to be repurchased by the Company when certain defined delinquency criteria are met. Although payments on these loans generally are past due more than 90 days, interest continues to accrue based on the government guarantee.

Home equity loans totaled \$744 million at December 31, 2016 and \$735 million at December 31, 2015. At December 31, 2016, 65% of the home equity loan portfolio was comprised of first lien loans and 35% of the home equity portfolio was comprised of junior lien loans. Junior lien loans were distributed 52% to amortizing term loans and 48% to revolving lines of credit. At December 31, 2015, 68% of the home equity portfolio was comprised of first lien loans and 32% of the home equity loan portfolio was comprised of junior lien loans. Junior lien loans were distributed 65% to amortizing term loans and 35% to revolving lines of credit. Home equity loans generally require a minimum FICO score of 700 and a maximum DTI of 40%. The maximum loan amount available for our home equity loan products is generally \$400 thousand. Revolving loans have a 5 year revolving period followed by 15 year term of amortizing repayments. Interest-only home equity loans may not be extended for any additional revolving time. All other home equity loans may be extended at management's discretion for an additional 5 year revolving term subject to an update of certain credit information.

At December 31, 2016, 33% of residential mortgage loans are secured by properties located in Oklahoma, 29% of residential mortgage loans are secured by properties located in Texas, 10% of residential mortgage are secured by properties located in New Mexico and 10% of residential mortgage are secured by properties located in Colorado. At December 31, 2015, 37% of residential mortgage loans were secured by properties in Oklahoma, 29% of residential mortgage were secured by properties in Texas, 12% of residential mortgage loans are secured by properties in New Mexico and 9% of residential mortgage loans are secured by properties in Colorado.

## *Credit Commitments*

Commitments to extend credit are agreements to lend to a customer as long as there is no violation of conditions established in the contract. Commitments generally have fixed expiration dates or other termination clauses and may require payment of a fee. At December 31, 2016, outstanding commitments totaled \$9.4 billion. Because some commitments are expected to expire before being drawn upon, the total commitment amounts do not necessarily represent future cash requirements. BOK Financial uses the same credit policies in making commitments as it does loans.

The amount of collateral obtained, if deemed necessary, is based upon management's credit evaluation of the borrower.

Standby letters of credit are conditional commitments issued to guarantee the performance of a customer to a third party. Because the credit risk involved in issuing standby letters of credit is essentially the same as that involved in extending loan commitments, BOK Financial uses the same credit policies in evaluating the creditworthiness of the customer. Additionally, BOK Financial uses the same evaluation process in obtaining collateral on standby letters of credit as it does for loan commitments. The term of these standby letters of credit is defined in each commitment and typically corresponds with the underlying loan commitment. At December 31, 2016, outstanding standby letters of credit totaled \$585 million. Commercial letters of credit are used to facilitate customer trade transactions with the drafts being drawn when the underlying transaction is consummated. At December 31, 2016, outstanding commercial letters of credit totaled \$4.2 million.

#### *Allowances for Credit Losses*

BOK Financial maintains an allowance for loan losses and an accrual for off-balance sheet credit risk. The accrual for off-balance sheet credit risk is maintained at a level that is appropriate to cover estimated losses associated with credit instruments that are not currently recognized as assets such as loan commitments, standby letters of credit or guarantees. As discussed in greater detail in Note 7, the Company also has separate accruals related to off-balance sheet credit risk related to residential mortgage loans previously sold with full or partial recourse and for residential mortgage loans sold to government sponsored agencies under standard representations and warranties.

The allowance for loan losses consists of specific allowances attributed to impaired loans that have not yet been charged down to amounts we expect to recover, general allowances for unimpaired loans based on estimated loss rates by loan class and nonspecific allowances based on general economic conditions, concentration in loans with large balances and other relevant factors.

The activity in the allowance for loan losses and the accrual for off-balance sheet credit risk related to loan commitments and standby letters of credit for the year ended December 31, 2016 is summarized as follows (in thousands):

	Commercial	Commercial Real Estate	Residential Mortgage	Personal	Nonspecific Allowance	Total
<b>Allowance for loan losses:</b>						
Beginning balance	\$ 130,334	\$ 41,391	\$ 19,509	\$ 4,164	\$ 30,126	\$ 225,524
Provision for loan losses	43,980	8,075	(1,972)	7,310	(1,926)	55,467
Loans charged off	(35,828)	—	(1,312)	(5,448)	—	(42,588)
Recoveries	1,727	1,283	1,999	2,747	—	7,756
Ending balance	\$ 140,213	\$ 50,749	\$ 18,224	\$ 8,773	\$ 28,200	\$ 246,159
<b>Accrual for off-balance sheet credit risk:</b>						
Beginning balance	\$ 1,506	\$ 153	\$ 30	\$ 22	\$ —	\$ 1,711
Provision for off-balance sheet credit risk	9,557	(30)	20	(14)	—	9,533
Ending balance	\$ 11,063	\$ 123	\$ 50	\$ 8	\$ —	\$ 11,244
Total provision for credit losses	\$ 53,537	\$ 8,045	\$ (1,952)	\$ 7,296	\$ (1,926)	\$ 65,000

The activity in the allowance for loan losses and the accrual for off-balance sheet credit risk related to loan commitments and standby letters of credit for the year ended December 31, 2015 is summarized as follows (in thousands):

	<u>Commercial</u>	<u>Commercial Real Estate</u>	<u>Residential Mortgage</u>	<u>Personal</u>	<u>Nonspecific Allowance</u>	<u>Total</u>
<b>Allowance for loan losses:</b>						
Beginning balance	\$ 90,875	\$ 42,445	\$ 23,458	\$ 4,233	\$ 28,045	\$ 189,056
Provision for loan losses	43,464	(11,189)	(3,004)	2,167	2,081	33,519
Loans charged off	(6,734)	(944)	(2,205)	(5,288)	—	(15,171)
Recoveries	2,729	11,079	1,260	3,052	—	18,120
Ending balance	\$ 130,334	\$ 41,391	\$ 19,509	\$ 4,164	\$ 30,126	\$ 225,524
<b>Accrual for off-balance sheet credit risk:</b>						
Beginning balance	\$ 475	\$ 707	\$ 28	\$ 20	\$ —	\$ 1,230
Provision for off-balance sheet credit risk	1,031	(554)	2	2	—	481
Ending balance	\$ 1,506	\$ 153	\$ 30	\$ 22	\$ —	\$ 1,711
Total provision for credit losses	\$ 44,495	\$ (11,743)	\$ (3,002)	\$ 2,169	\$ 2,081	\$ 34,000

The activity in the allowance for loan losses and the accrual for off-balance sheet credit risk related to loan commitments and standby letters of credit for the year ended December 31, 2014 is summarized as follows (in thousands):

	<u>Commercial</u>	<u>Commercial Real Estate</u>	<u>Residential Mortgage</u>	<u>Personal</u>	<u>Nonspecific Allowance</u>	<u>Total</u>
<b>Allowance for loan losses:</b>						
Beginning balance	\$ 79,180	\$ 41,573	\$ 29,465	\$ 6,965	\$ 28,213	\$ 185,396
Provision for loan losses	9,561	(4,084)	(3,559)	(892)	(168)	858
Loans charged off	(3,569)	(2,047)	(4,448)	(6,168)	—	(16,232)
Recoveries	5,703	7,003	2,000	4,328	—	19,034
Ending balance	\$ 90,875	\$ 42,445	\$ 23,458	\$ 4,233	\$ 28,045	\$ 189,056
<b>Accrual for off-balance sheet credit risk:</b>						
Beginning balance	\$ 119	\$ 1,876	\$ 90	\$ 3	\$ —	\$ 2,088
Provision for off-balance sheet credit risk	356	(1,169)	(62)	17	—	(858)
Ending balance	\$ 475	\$ 707	\$ 28	\$ 20	\$ —	\$ 1,230
Total provision for credit losses	\$ 9,917	\$ (5,253)	\$ (3,621)	\$ (875)	\$ (168)	\$ —

The allowance for loan losses and recorded investment of the related loans by portfolio segment for each impairment measurement method at December 31, 2016 is as follows (in thousands):

	Collectively Measured for Impairment		Individually Measured for Impairment		Total	
	Recorded Investment	Related Allowance	Recorded Investment	Related Allowance	Recorded Investment	Related Allowance
Commercial	\$ 10,211,871	\$ 139,416	\$ 178,953	\$ 797	\$ 10,390,824	\$ 140,213
Commercial real estate	3,803,525	50,749	5,521	—	3,809,046	50,749
Residential mortgage	1,903,612	18,178	46,220	46	1,949,832	18,224
Personal	839,668	8,773	290	—	839,958	8,773
Total	16,758,676	217,116	230,984	843	16,989,660	217,959
Nonspecific allowance	—	—	—	—	—	28,200
Total	\$ 16,758,676	\$ 217,116	\$ 230,984	\$ 843	\$ 16,989,660	\$ 246,159

The allowance for loan losses and recorded investment of the related loans by portfolio segment for each impairment measurement method at December 31, 2015 is as follows (in thousands):

	Collectively Measured for Impairment		Individually Measured for Impairment		Total	
	Recorded Investment	Related Allowance	Recorded Investment	Related Allowance	Recorded Investment	Related Allowance
Commercial	\$ 10,176,107	\$ 114,027	\$ 76,424	\$ 16,307	\$ 10,252,531	\$ 130,334
Commercial real estate	3,250,032	41,373	9,001	18	3,259,033	41,391
Residential mortgage	1,815,653	19,441	61,240	68	1,876,893	19,509
Personal	552,234	4,164	463	—	552,697	4,164
Total	15,794,026	179,005	147,128	16,393	15,941,154	195,398
Nonspecific allowance	—	—	—	—	—	30,126
Total	\$ 15,794,026	\$ 179,005	\$ 147,128	\$ 16,393	\$ 15,941,154	\$ 225,524

## Credit Quality Indicators

The Company utilizes loan class and risk grading as primary credit quality indicators. Substantially all commercial and commercial real estate loans and certain residential mortgage and personal loans are risk graded based on a quarterly evaluation of the borrowers' ability to repay the loans. Certain commercial loans and most residential mortgage and personal loans are small, homogeneous pools that are not risk graded.

The allowance for loan losses and recorded investment of the related loans by portfolio segment for risk graded and non-risk graded loans at December 31, 2016 is as follows (in thousands):

	Internally Risk Graded		Non-Graded		Total	
	Recorded Investment	Related Allowance	Recorded Investment	Related Allowance	Recorded Investment	Related Allowance
Commercial	\$ 10,360,725	\$ 139,293	\$ 30,099	\$ 920	\$ 10,390,824	\$ 140,213
Commercial real estate	3,809,046	50,749	—	—	3,809,046	50,749
Residential mortgage	243,703	2,893	1,706,129	15,331	1,949,832	18,224
Personal	744,602	5,035	95,356	3,738	839,958	8,773
Total	15,158,076	197,970	1,831,584	19,989	16,989,660	217,959
Nonspecific allowance	—	—	—	—	—	28,200
Total	\$ 15,158,076	\$ 197,970	\$ 1,831,584	\$ 19,989	\$ 16,989,660	\$ 246,159

The allowance for loan losses and recorded investment of the related loans by portfolio segment for risk graded and non-risk graded loans at December 31, 2015 is as follows (in thousands):

	Internally Risk Graded		Non-Graded		Total	
	Recorded Investment	Related Allowance	Recorded Investment	Related Allowance	Recorded Investment	Related Allowance
Commercial	\$ 10,227,303	\$ 129,426	\$ 25,228	\$ 908	\$ 10,252,531	\$ 130,334
Commercial real estate	3,259,033	41,391	—	—	3,259,033	41,391
Residential mortgage	196,701	2,883	1,680,192	16,626	1,876,893	19,509
Personal	467,955	1,390	84,742	2,774	552,697	4,164
Total	14,150,992	175,090	1,790,162	20,308	15,941,154	195,398
Nonspecific allowance	—	—	—	—	—	30,126
Total	\$ 14,150,992	\$ 175,090	\$ 1,790,162	\$ 20,308	\$ 15,941,154	\$ 225,524

Loans are considered to be performing if they are in compliance with the original terms of the agreement which is consistent with the regulatory guideline of “pass.” Performing also includes loans considered to be “other loans especially mentioned” by regulatory guidelines and all residential mortgage loans guaranteed by agencies of the U.S. government that continue to accrue interest based on criteria of the guarantor's programs. Other loans especially mentioned are currently performing in compliance with the original terms of the agreement but may have a potential weakness that deserves management's close attention, consistent with regulatory guidelines.

The risk grading process identified certain loans that have a well-defined weakness (e.g. inadequate debt service coverage or liquidity or marginal capitalization; repayment may depend on collateral or other risk mitigation) that may jeopardize liquidation of the debt and represent a greater risk due to deterioration in the financial condition of the borrower. This is consistent with the regulatory guideline for “substandard.” Because the borrowers are still performing in accordance with the original terms of the loan agreements, these loans were not placed in nonaccruing status.



Nonaccruing loans represent loans for which full collection of principal and interest in accordance with the original terms of the loan agreements is uncertain. This is substantially the same criteria used to determine whether a loan is impaired and includes certain loans considered “substandard” and all loans considered “doubtful” by regulatory guidelines.

The following table summarizes the Company’s loan portfolio at December 31, 2016 by the risk grade categories (in thousands):

	Internally Risk Graded				Non-Graded		
	Performing				Performing	Nonaccrual	Total
	Pass	Other Loans Especially Mentioned	Accruing Substandard	Nonaccrual			
Commercial:							
Energy	\$ 1,937,790	\$ 119,583	\$ 307,996	\$ 132,499	—	—	\$ 2,497,868
Services	3,052,002	10,960	37,855	8,173	—	—	3,108,990
Wholesale/retail	1,535,463	16,886	13,062	11,407	—	—	1,576,818
Manufacturing	468,314	26,532	15,198	4,931	—	—	514,975
Healthcare	2,140,458	44,472	16,161	825	—	—	2,201,916
Other commercial and industrial	433,789	5,309	—	21,060	30,041	58	490,257
Total commercial	9,567,816	223,742	390,272	178,895	30,041	58	10,390,824
Commercial real estate:							
Residential construction and land development	131,630	—	470	3,433	—	—	135,533
Retail	756,418	4,745	399	326	—	—	761,888
Office	798,462	—	—	426	—	—	798,888
Multifamily	898,800	—	4,434	38	—	—	903,272
Industrial	871,673	—	—	76	—	—	871,749
Other commercial real estate	336,488	—	6	1,222	—	—	337,716
Total commercial real estate	3,793,471	4,745	5,309	5,521	—	—	3,809,046
Residential mortgage:							
Permanent mortgage	238,769	1,186	2,331	1,417	741,679	21,438	1,006,820
Permanent mortgages guaranteed by U.S. government agencies	—	—	—	—	187,541	11,846	199,387
Home equity	—	—	—	—	732,106	11,519	743,625
Total residential mortgage	238,769	1,186	2,331	1,417	1,661,326	44,803	1,949,832
Personal							
Personal	743,451	—	1,054	97	95,163	193	839,958
Total							
Total	\$ 14,343,507	\$ 229,673	\$ 398,966	\$ 185,930	\$ 1,786,530	\$ 45,054	\$ 16,989,660

The following table summarizes the Company's loan portfolio at December 31, 2015 by the risk grade categories (in thousands):

	Internally Risk Graded				Non-Graded		
	Performing				Performing	Nonaccrual	Total
	Pass	Other Loans Especially Mentioned	Accruing Substandard	Nonaccrual			
Commercial:							
Energy	\$ 2,580,694	\$ 325,663	\$ 129,782	61,189	\$ —	\$ —	\$ 3,097,328
Services	2,763,929	3,296	6,761	10,290	—	—	2,784,276
Wholesale/retail	1,394,596	18,184	6,365	2,919	—	—	1,422,064
Manufacturing	534,966	19,560	1,872	331	—	—	556,729
Healthcare	1,876,745	5,563	—	1,072	—	—	1,883,380
Other commercial and industrial	477,551	5,479	—	496	25,101	127	508,754
Total commercial	9,628,481	377,745	144,780	76,297	25,101	127	10,252,531
Commercial real estate:							
Residential construction and land development	154,369	1,355	293	4,409	—	—	160,426
Retail	788,708	6,046	426	1,319	—	—	796,499
Office	636,210	291	555	651	—	—	637,707
Multifamily	744,299	—	6,512	274	—	—	751,085
Industrial	563,093	—	—	76	—	—	563,169
Other commercial real estate	347,864	—	11	2,272	—	—	350,147
Total commercial real estate	3,234,543	7,692	7,797	9,001	—	—	3,259,033
Residential mortgage:							
Permanent mortgage	192,367	89	1,932	2,313	721,964	26,671	945,336
Permanent mortgages guaranteed by U.S. government agencies	—	—	—	—	175,037	21,900	196,937
Home equity	—	—	—	—	724,264	10,356	734,620
Total residential mortgage	192,367	89	1,932	2,313	1,621,265	58,927	1,876,893
Personal	467,808	3	14	130	84,409	333	552,697
Total	\$ 13,523,199	\$ 385,529	\$ 154,523	87,741	\$ 1,730,775	\$ 59,387	\$ 15,941,154

## Impaired Loans

Loans are considered to be impaired when it is probable that the Company will not be able to collect all amounts due according to the contractual terms of the loan agreement. This includes all nonaccruing loans, all loans modified in a troubled debt restructuring and all loans repurchased from GNMA pools.

A summary of impaired loans follows (in thousands):

	As of December 31, 2016					Year Ended December 31, 2016	
	Unpaid Principal Balance	Recorded Investment			Related Allowance	Average Recorded Investment	Interest Income Recognized
	Total	With No Allowance	With Allowance				
Commercial:							
Energy	\$ 146,897	\$ 132,499	\$ 121,418	\$ 11,081	\$ 762	\$ 80,100	\$ —
Services	11,723	8,173	8,173	—	—	9,232	—
Wholesale/retail	17,669	11,407	11,407	—	—	7,163	—
Manufacturing	5,320	4,931	4,931	—	—	2,631	—
Healthcare	1,147	825	825	—	—	949	—
Other commercial and industrial	29,006	21,118	21,083	35	35	10,870	—
Total commercial	211,762	178,953	167,837	11,116	797	110,945	—
Commercial real estate:							
Residential construction and land development	4,951	3,433	3,433	—	—	3,921	—
Retail	530	326	326	—	—	823	—
Office	521	426	426	—	—	539	—
Multifamily	1,000	38	38	—	—	156	—
Industrial	76	76	76	—	—	76	—
Other commercial real estate	7,349	1,222	1,222	—	—	1,747	—
Total commercial real estate	14,427	5,521	5,521	—	—	7,262	—
Residential mortgage:							
Permanent mortgage	28,830	22,855	22,809	46	46	25,920	1,255
Permanent mortgage guaranteed by U.S. government agencies <sup>1</sup>	205,564	199,387	199,387	—	—	193,889	7,759
Home equity	12,611	11,519	11,519	—	—	10,937	—
Total residential mortgage	247,005	233,761	233,715	46	46	230,746	9,014
Personal	332	290	290	—	—	377	—
Total	\$ 473,526	\$ 418,525	\$ 407,363	\$ 11,162	\$ 843	\$ 349,330	\$ 9,014

<sup>1</sup> All permanent mortgage loans guaranteed by U.S. government agencies are considered impaired as we do not expect full collection of contractual principal and interest. At December 31, 2016, \$12 million of these loans are nonaccruing and \$188 million are accruing based on the guarantee by U.S. government agencies.

Generally, no interest income is recognized on impaired loans until all principal balances, including amounts charged-off, have been recovered.

	As of December 31, 2015						Year Ended	
	Unpaid Principal Balance	Recorded Investment				December 31, 2015		
		Total	With No Allowance	With Allowance	Related Allowance	Average Recorded Investment	Interest Income Recognized	
Commercial:								
Energy	\$ 63,910	\$ 61,189	\$ 18,330	\$ 42,859	\$ 16,115	\$ 31,303	\$ —	
Services	13,449	10,290	9,657	633	148	7,746	—	
Wholesale/retail	8,582	2,919	2,907	12	9	3,534	—	
Manufacturing	665	331	331	—	—	391	—	
Healthcare	1,352	1,072	931	141	35	1,226	—	
Other commercial and industrial	8,304	623	623	—	—	777	—	
Total commercial	96,262	76,424	32,779	43,645	16,307	44,977	—	
Commercial real estate:								
Residential construction and land development	8,963	4,409	4,409	—	—	4,854	—	
Retail	1,923	1,319	1,319	—	—	2,622	—	
Office	937	651	651	—	—	2,035	—	
Multifamily	1,192	274	274	—	—	137	—	
Industrial	76	76	76	—	—	38	—	
Other commercial real estate	8,363	2,272	2,113	159	18	4,092	—	
Total commercial real estate	21,454	9,001	8,842	159	18	13,778	—	
Residential mortgage:								
Permanent mortgage	37,273	28,984	28,868	116	68	31,914	1,242	
Permanent mortgage guaranteed by U.S. government agencies <sup>1</sup>	202,984	196,937	196,937	—	—	196,827	7,814	
Home equity	10,988	10,356	10,356	—	—	9,960	—	
Total residential mortgage	251,245	236,277	236,161	116	68	238,701	9,056	
Personal	489	463	463	—	—	515	—	
Total	\$ 369,450	\$ 322,165	\$ 278,245	\$ 43,920	\$ 16,393	\$ 297,971	\$ 9,056	

<sup>1</sup> All permanent mortgage loans guaranteed by U.S. government agencies are considered impaired as we do not expect full collection of contractual principal and interest. At December 31, 2015, \$22 million of these loans are nonaccruing and \$175 million are accruing based on the guarantee by U.S. government agencies.

## Troubled Debt Restructurings

A summary of troubled debt restructurings ("TDRs") by accruing status as of December 31, 2016 is as follows (in thousands):

	As of December 31, 2016				Amounts Charged-Off During the Year Ended December 31, 2016
	Recorded Investment	Performing in Accordance With Modified Terms	Not Performing in Accordance With Modified Terms	Specific Allowance	
Nonaccruing TDRs:					
Commercial:					
Energy	\$ 16,893	\$ 10,867	\$ 6,026	\$ —	\$ 4,401
Services	7,527	6,830	697	—	—
Wholesale/Retail	11,291	11,251	40	—	—
Manufacturing	224	224	—	—	—
Healthcare	607	—	607	—	—
Other commercial and industrial	337	53	284	—	—
Total commercial	36,879	29,225	7,654	—	4,401
Commercial real estate:					
Residential construction and land development	690	97	593	—	—
Retail	326	326	—	—	—
Office	143	143	—	—	—
Multifamily	—	—	—	—	—
Industrial	—	—	—	—	—
Other commercial real estate	548	548	—	—	—
Total commercial real estate	1,707	1,114	593	—	—
Residential mortgage:					
Permanent mortgage	14,876	10,175	4,701	46	28
Permanent mortgage guaranteed by U.S. government agencies	6,702	2,241	4,461	—	—
Home equity	5,346	4,458	888	—	230
Total residential mortgage	26,924	16,874	10,050	46	258
Personal	237	236	1	—	73
Total nonaccruing TDRs	65,747	47,449	18,298	46	4,732
Accruing TDRs:					
Residential mortgage:					
Permanent mortgages guaranteed by U.S. government agencies	81,370	27,289	54,081	—	—
Total residential mortgage	81,370	27,289	54,081	—	—
Total accruing TDRs	81,370	27,289	54,081	—	—
Total TDRs	\$ 147,117	\$ 74,738	\$ 72,379	\$ 46	\$ 4,732

A summary of troubled debt restructurings by accruing status as of December 31, 2015 is as follows (in thousands):

	As of December 31, 2015					Amounts Charged-off During the Year Ended December 31, 2015
	Recorded Investment	Performing in Accordance With Modified Terms	Not Performing in Accordance With Modified Terms	Specific Allowance		
Nonaccruing TDRs:						
Commercial:						
Energy	\$ 2,304	\$ 2,304	\$ —	\$ —	\$ 928	
Services	9,027	8,210	817	148	—	
Wholesale/retail	2,758	2,706	52	9	—	
Manufacturing	282	282	—	—	—	
Healthcare	673	673	—	—	—	
Other commercial and industrial	621	89	532	—	—	
Total commercial	15,665	14,264	1,401	157	928	
Commercial real estate:						
Residential construction and land development	2,328	1,556	772	—	—	
Retail	1,319	942	377	—	—	
Office	165	165	—	—	—	
Multifamily	—	—	—	—	—	
Industrial	—	—	—	—	—	
Other commercial real estate	920	478	442	—	—	
Total commercial real estate	4,732	3,141	1,591	—	—	
Residential mortgage:						
Permanent mortgage	16,618	9,043	7,575	68	192	
Permanent mortgage guaranteed by U.S. government agencies	11,136	139	10,997	—	—	
Home equity	5,159	4,218	941	—	80	
Total residential mortgage	32,913	13,400	19,513	68	272	
Personal	324	297	27	—	11	
Total nonaccruing TDRs	53,634	31,102	22,532	225	1,211	
Accruing TDRs:						
Residential mortgage:						
Permanent mortgages guaranteed by U.S. government agencies	74,050	23,029	51,021	—	—	
Total residential mortgage	74,050	23,029	51,021	—	—	
Total accruing TDRs	74,050	23,029	51,021	—	—	
Total TDRs	\$ 127,684	\$ 54,131	\$ 73,553	\$ 225	\$ 1,211	

Troubled debt restructurings generally consist of interest rate concessions, payment stream concessions or a combination of concessions to distressed borrowers. The following table details the recorded balance of loans at December 31, 2016 by class that were restructured during the year ended December 31, 2016 by primary type of concession (in thousands):

	Year Ended December 31, 2016												
	Accruing						Nonaccrual						
	Payment Stream	Combination & Other	Total	Interest Rate	Payment Stream	Combination & Other	Total	Total					
Commercial:													
Energy	\$	—	\$	—	\$	—	\$	—	\$	16,892	\$ 16,892	\$ 16,892	
Services		—		—		—		—		—		—	
Wholesale/retail		—		—		—		—		9,103	9,103	9,103	
Manufacturing		—		—		—		—		—	—	—	
Healthcare		—		—		—		—		—	—	—	
Other commercial and industrial		—		—		—		—		—	—	—	
Total commercial		—		—		—		—		25,995	25,995	25,995	
Commercial real estate:													
Residential construction and land development		—		—		—		—		—	—	—	
Retail		—		—		—		—		—	—	—	
Office		—		—		—		—		—	—	—	
Multifamily		—		—		—		—		—	—	—	
Industrial		—		—		—		—		—	—	—	
Other commercial real estate		—		—		—		—		—	—	—	
Total commercial real estate		—		—		—		—		—	—	—	
Residential mortgage:													
Permanent mortgage		—		—		—		1,036		328	1,364	1,364	
Permanent mortgage guaranteed by U.S. government agencies		11,879		10,042		21,921		—		979	979	22,900	
Home equity		—		—		—		46		2,077	2,123	2,123	
Total residential mortgage		11,879		10,042		21,921		1,082		3,384	4,466	26,387	
Personal		—		—		—		—		77	77	77	
Total	\$	11,879	\$	10,042	\$	21,921	\$	—	\$	1,082	\$ 29,456	\$ 30,538	\$ 52,459



The following table details the recorded balance of loans by class that were restructured during the year ended December 31, 2015 by primary type of concession (in thousands):

	Year Ended December 31, 2015													
	Accruing					Nonaccrual								
	Payment Stream	Combination & Other	Total	Interest Rate	Payment Stream	Combination & Other	Total	Total						
Commercial:														
Energy	\$	—	\$	—	\$	—	\$	—	\$	2,304	\$	2,304	\$	2,304
Services		—		—		—		—		7,577		7,577		7,577
Wholesale/retail		—		—		—		—		—		—		—
Manufacturing		—		—		—		—		—		—		—
Healthcare		—		—		673		—		—		673		673
Other commercial and industrial		—		—		—		—		57		57		57
Total commercial		—		—		673		—		9,938		10,611		10,611
Commercial real estate:														
Residential construction and land development		—		—		—		329		—		329		329
Retail		—		—		—		—		—		—		—
Office		—		—		—		—		—		—		—
Multifamily		—		—		—		—		—		—		—
Industrial		—		—		—		—		—		—		—
Other commercial real estate		—		—		—		—		—		—		—
Total commercial real estate		—		—		—		329		—		329		329
Residential mortgage:														
Permanent mortgage		—		—		—		3,004		1,051		4,055		4,055
Permanent mortgage guaranteed by U.S. government agencies		17,717		10,384		28,101		—		1,264		1,837		3,101
Home equity		—		—		—		57		181		1,870		2,108
Total residential mortgage		17,717		10,384		28,101		57		4,449		4,758		9,264
Personal		—		—		—		—		—		115		115
Total	\$	17,717	\$	10,384	\$	28,101	\$	730	\$	4,778	\$	14,811	\$	20,319

The following table summarizes, by loan class, the recorded investment at December 31, 2016 and 2015, respectively of loans modified as TDRs within the previous 12 months and for which there was a payment default during the years ended December 31, 2016 and 2015, respectively (in thousands):

	Year Ended					
	December 31, 2016			December 31, 2015		
	Accruing	Nonaccrual	Total	Accruing	Nonaccrual	Total
Commercial:						
Energy	\$ —	\$ 8,593	\$ 8,593	\$ —	\$ —	\$ —
Services	—	—	—	—	—	—
Wholesale/retail	—	—	—	—	—	—
Manufacturing	—	—	—	—	—	—
Healthcare	—	—	—	—	—	—
Other commercial and industrial	—	—	—	—	38	38
Total commercial	—	8,593	8,593	—	38	38
Commercial real estate:						
Residential construction and land development	—	—	—	—	329	329
Retail	—	—	—	—	—	—
Office	—	—	—	—	—	—
Multifamily	—	—	—	—	—	—
Industrial	—	—	—	—	—	—
Other commercial real estate	—	—	—	—	—	—
Total commercial real estate	—	—	—	—	329	329
Residential mortgage:						
Permanent mortgage	—	544	544	—	3,034	3,034
Permanent mortgage guaranteed by U.S. government agencies	17,154	647	17,801	27,223	3,101	30,324
Home equity	—	585	585	—	524	524
Total residential mortgage	17,154	1,776	18,930	27,223	6,659	33,882
Personal	—	5	5	—	13	13
Total	\$ 17,154	\$ 10,374	\$ 27,528	\$ 27,223	\$ 7,039	\$ 34,262

A payment default is defined as being 30 days or more past due. The table above includes loans that experienced a payment default during the period, but may be performing in accordance with the modified terms as of the balance sheet date.

## Nonaccrual & Past Due Loans

Past due status for all loan classes is based on the actual number of days since the last payment was due according to the contractual terms of the loans.

A summary of loans currently performing, loans past due and accruing and nonaccrual loans as of December 31, 2016 is as follows (in thousands):

		Past Due			Nonaccrual	Total
		Current	30 to 59 Days	60 to 89 Days		
Commercial:						
Energy	\$ 2,364,890	\$ 479	—	\$ —	\$ 132,499	\$ 2,497,868
Services	3,099,605	191	1,021	—	8,173	3,108,990
Wholesale/retail	1,561,650	3,761	—	—	11,407	1,576,818
Manufacturing	509,662	382	—	—	4,931	514,975
Healthcare	2,201,050	—	41	—	825	2,201,916
Other commercial and industrial	468,981	155	3	—	21,118	490,257
Total commercial	10,205,838	4,968	1,065	—	178,953	10,390,824
Commercial real estate:						
Residential construction and land development	132,100	—	—	—	3,433	135,533
Retail	761,562	—	—	—	326	761,888
Office	798,462	—	—	—	426	798,888
Multifamily	903,234	—	—	—	38	903,272
Industrial	871,673	—	—	—	76	871,749
Other commercial real estate	336,488	6	—	—	1,222	337,716
Total commercial real estate	3,803,519	6	—	—	5,521	3,809,046
Residential mortgage:						
Permanent mortgage	979,386	3,299	1,280	—	22,855	1,006,820
Permanent mortgages guaranteed by U.S. government agencies	40,594	17,465	13,803	115,679	11,846	199,387
Home equity	729,493	2,276	337	—	11,519	743,625
Total residential mortgage	1,749,473	23,040	15,420	115,679	46,220	1,949,832
Personal	838,811	589	263	5	290	839,958
Total	\$ 16,597,641	\$ 28,603	16,748	\$ 115,684	\$ 230,984	\$ 16,989,660

A summary of loans currently performing, loans past due and accruing and nonaccrual loans as of December 31, 2015 is as follows (in thousands):

		Past Due			Nonaccrual	Total
		Current	30 to 59 Days	60 to 89 Days		
Commercial:						
Energy	\$ 3,033,504	\$ 2,635	—	\$ —	\$ 61,189	\$ 3,097,328
Services	2,769,895	66	4,025	—	10,290	2,784,276
Wholesale/retail	1,418,396	49	—	700	2,919	1,422,064
Manufacturing	556,398	—	—	—	331	556,729
Healthcare	1,879,873	2,435	—	—	1,072	1,883,380
Other commercial and industrial	507,929	84	16	102	623	508,754
Total commercial	10,165,995	5,269	4,041	802	76,424	10,252,531
Commercial real estate:						
Residential construction and land development	156,017	—	—	—	4,409	160,426
Retail	795,180	—	—	—	1,319	796,499
Office	637,056	—	—	—	651	637,707
Multifamily	742,697	8,114	—	—	274	751,085
Industrial	563,093	—	—	—	76	563,169
Other commercial real estate	347,498	—	—	377	2,272	350,147
Total commercial real estate	3,241,541	8,114	—	377	9,001	3,259,033
Residential mortgage:						
Permanent mortgage	913,062	3,290	—	—	28,984	945,336
Permanent mortgages guaranteed by U.S. government agencies	33,653	16,986	13,397	111,001	21,900	196,937
Home equity	721,149	2,379	716	20	10,356	734,620
Total residential mortgage	1,667,864	22,655	14,113	111,021	61,240	1,876,893
Personal	551,533	665	28	8	463	552,697
Total	\$ 15,626,933	\$ 36,703	18,182	\$ 112,208	\$ 147,128	\$ 15,941,154

## (5) Premises and Equipment

Premises and equipment at December 31 are summarized as follows (in thousands):

	December 31,	
	2016	2015
Land	\$ 70,552	\$ 72,612
Buildings and improvements	250,311	225,181
Software	158,155	142,476
Furniture and equipment	217,399	194,715
Construction in progress	36,743	39,886
Premises and equipment	733,160	674,870
Less accumulated depreciation	407,311	368,380
Premises and equipment, net of accumulated depreciation	\$ 325,849	\$ 306,490

Depreciation expense of premises and equipment was \$40 million, \$34 million and \$33 million for the years ended December 31, 2016, 2015 and 2014, respectively.

## (6) Goodwill and Intangible Assets

On May 4, 2015, the Company acquired a majority voting interest in Heartland Food Products, LLC, a Kansas-based food product and restaurant equipment company pursuant to merchant banking regulations and restrictions. The cash purchase price for this acquisition was \$18 million. The purchase price allocation included \$11 million of identifiable intangible assets and \$2.7 million of goodwill.

On January 12, 2016, the Company acquired E-Spectrum Advisors, a boutique energy investment banking firm based in Dallas that offers a broad range of oil and natural gas property sales and strategic advisory services. On February 29, 2016, the Company acquired Weaver and Tidwell Financial Advisors LTD d/b/a Weaver Wealth Management, a registered investment advisor. The acquisition included hiring Weaver Wealth Management's team and transitioning its wealth management clients to The Milestone Group, a wholly owned subsidiary of BOK Financial. The acquisition increased BOK Financial's assets under management and administration by approximately \$340 million. The combined cash purchase price for these two acquisitions in 2016 totaled \$7.7 million, including \$5.3 million of identifiable intangible assets and \$3.3 million of goodwill.

On December 1, 2016, the Company acquired MBT Bancshares, Inc. ("MBT"), parent company of Missouri Bank and Trust of Kansas City ("Mobank"). Mobank operates four banking branches in the Kansas City, Missouri area. BOK Financial paid \$102.5 million in an all-cash deal for all outstanding shares of MBT stock. MBT was merged into BOK Financial and Mobank became a wholly owned subsidiary of BOK Financial on December 1, 2016. On February 17, 2017, Mobank was merged with the Bank of Kansas City banking division of BOKF, NA. All branches in the Kansas City market will operate under the Mobank name.

A summary of the preliminary purchase price allocation and resulting goodwill follows (in thousands):

Cash and cash equivalents	\$ 166,215
Securities	14,431
Loans <sup>1</sup>	444,482
Premises and equipments, net	8,035
Intangible assets – Core deposit premium	6,510
Other assets	3,599
<b>Total assets acquired</b>	<b>643,272</b>
Deposits	598,735
Other borrowings	7,217
Other liabilities	980
<b>Total liabilities assumed</b>	<b>606,932</b>
Net assets acquired	36,340
Less: purchase price	102,500
<b>Goodwill</b>	<b>\$ 66,160</b>

<sup>1</sup> Loans are presented net of participations sold to BOKF NA.

The pro-forma impact of all acquisition transactions for periods prior to the acquisition dates was not material to the Company's consolidated financial statements.

The following table presents the original cost and accumulated amortization of intangible assets (in thousands):

	Dec. 31,	
	2016	2015
Core deposit premiums	\$ 35,879	\$ 29,369
Less accumulated amortization	29,369	29,101
<b>Net core deposit premiums</b>	<b>6,510</b>	<b>268</b>
Other identifiable intangible assets	60,951	55,509
Less accumulated amortization	20,530	11,868
<b>Net other identifiable intangible assets</b>	<b>40,421</b>	<b>43,641</b>
<b>Total intangible assets, net</b>	<b>\$ 46,931</b>	<b>\$ 43,909</b>

Expected amortization expense for intangible assets that will continue to be amortized (in thousands):

	Core Deposit Premiums	Other Identifiable Intangible Assets	Total
2017	\$ 808	\$ 4,565	\$ 5,373
2018	732	3,908	4,640
2019	716	3,556	4,272
2020	697	3,420	4,117
2021	675	3,063	3,738
Thereafter	2,882	21,909	24,791
	<b>\$ 6,510</b>	<b>\$ 40,421</b>	<b>\$ 46,931</b>

The changes in the carrying value of goodwill by operating segment are as follows (in thousands):

	<b>Commercial Banking</b>	<b>Consumer Banking</b>	<b>Wealth Management</b>	<b>Funds Management and Other</b>	<b>Total</b>
Balance, December 31, 2014					
Goodwill	\$ 269,363	\$ 39,251	\$ 69,394	\$ —	\$ 378,008
Accumulated impairment losses	—	(228)	—	—	(228)
	269,363	39,023	69,394	—	377,780
Goodwill acquired during 2015	7,681	—	—	—	7,681
Balance, December 31, 2015					
Goodwill	277,044	39,251	69,394	—	385,689
Accumulated impairment losses	—	(228)	—	—	(228)
	277,044	39,023	69,394	—	385,461
Goodwill acquired during 2016	<b>1,210</b>	—	<b>2,126</b>	<b>66,160</b>	<b>69,496</b>
Adjustment <sup>1</sup>	<b>(6,058)</b>	—	—	—	<b>(6,058)</b>
Balance, December 31, 2016					
Goodwill	<b>272,196</b>	<b>39,251</b>	<b>71,520</b>	<b>66,160</b>	<b>449,127</b>
Accumulated impairment losses	—	(228)	—	—	(228)
	<b>\$ 272,196</b>	<b>\$ 39,023</b>	<b>\$ 71,520</b>	<b>\$ 66,160</b>	<b>\$ 448,899</b>

<sup>1</sup> Completion of an external audit of Heartland Food Products resulted in a reallocation of the purchase price between net assets acquired, intangible assets and goodwill during 2016.

Goodwill related to the Mobank acquisition was not yet allocated to the operating segments as of December 31, 2016 and accordingly is included in Funds Management and Other above. All of the goodwill related to the Mobank acquisition is tax deductible.

The annual goodwill evaluations for 2016 and 2015 did not indicate impairment for any reporting unit. Economic conditions did not indicate that impairment existed for any identifiable intangible assets and therefore no impairment evaluation was performed.

## **(7) Mortgage Banking Activities**

### *Residential Mortgage Loan Production*

The Company originates, markets and services conventional and government-sponsored residential mortgage loans. Generally, conforming fixed rate residential mortgage loans are held for sale in the secondary market and non-conforming and adjustable-rate residential mortgage loans are held for investment. The volume of mortgage loans originated for sale and secondary market prices are the primary drivers of originating and marketing revenue.

Residential mortgage loan commitments are generally outstanding for 60 to 90 days, which represents the typical period from commitment to originate a residential mortgage loan to when the closed loan is sold to an investor. Residential mortgage loan commitments are subject to both credit and interest rate risk. Credit risk is managed through underwriting policies and procedures, including collateral requirements, which are generally accepted by the secondary loan markets. Exposure to interest rate fluctuations is partially managed through forward sales of residential mortgage-backed securities and forward sales contracts. These latter contracts set the price for loans that will be delivered in the next 60 to 90 days.



The unpaid principal balance of residential mortgage loans held for sale, notional amounts of derivative contracts related to residential mortgage loan commitments and forward contract sales and their related fair values included in Mortgage loans held for sale on the Consolidated Balance Sheets were (in thousands):

	December 31, 2016		December 31, 2015	
	Unpaid Principal Balance/Notional	Fair Value	Unpaid Principal Balance/Notional	Fair Value
Residential mortgage loans held for sale	\$ 286,414	\$ 286,971	\$ 293,637	\$ 299,505
Residential mortgage loan commitments	318,359	9,733	601,147	8,134
Forward sales contracts	569,543	5,193	884,710	800
		<u>\$ 301,897</u>		<u>\$ 308,439</u>

No residential mortgage loans held for sale were 90 days or more past due or considered impaired as of December 31, 2016 or December 31, 2015. No credit losses were recognized on residential mortgage loans held for sale for the years ended December 31, 2016, 2015 and 2014.

Mortgage banking revenue was as follows (in thousands):

	Year Ended		
	2016	2015	2014
Production revenue:			
Net realized gains on sales of mortgage loans	\$ 68,947	\$ 67,407	\$ 56,696
Net change in unrealized gain on mortgage loans held for sale	(5,311)	(784)	5,357
Net change in the fair value of mortgage loan commitments	1,599	(1,837)	7,315
Net change in the fair value of forward sales contracts	4,393	4,801	(8,307)
Total production revenue	69,628	69,587	61,061
Servicing revenue	64,286	56,415	48,032
Total mortgage banking revenue	\$ 133,914	\$ 126,002	\$ 109,093

Mortgage production revenue includes gain (loss) on residential mortgage loans held for sale and changes in the fair value of derivative contracts not designated as hedging instruments related to residential mortgage loan commitments and forward sales contracts. Servicing revenue includes servicing fee income and late charges on loans serviced for others.

#### *Residential Mortgage Servicing*

The Company generally retains the right to service residential mortgage loans sold and may purchase mortgage servicing rights. The unpaid principal balance of loans serviced for others is the primary driver of servicing revenue.

The following represents a summary of mortgage servicing rights (Dollars in thousands):

	December 31,		
	2016	2015	2014
Number of residential mortgage loans serviced for others	139,340	131,859	117,483
Outstanding principal balance of residential mortgage loans serviced for others	\$ 21,997,568	\$ 19,678,226	\$ 16,162,887
Weighted average interest rate	3.97%	4.12%	4.29%
Remaining contractual term (in months)	301	300	296

Activity in capitalized mortgage servicing rights during the three years ended December 31, 2016 is as follows (in thousands):

	<b>Purchased</b>	<b>Originated</b>	<b>Total</b>
Balance, December 31, 2013	\$ 15,935	\$ 137,398	\$ 153,333
Additions, net	—	54,413	54,413
Change in fair value due to loan runoff	(2,357)	(16,968)	(19,325)
Change in fair value due to market changes	(2,464)	(13,981)	(16,445)
Balance, December 31, 2014	11,114	160,862	171,976
Additions, net	—	79,546	79,546
Change in fair value due to loan runoff	(2,645)	(25,419)	(28,064)
Change in fair value due to market changes	1,442	(6,295)	(4,853)
Balance, December 31, 2015	9,911	208,694	218,605
Additions, net	—	71,405	71,405
Change in fair value due to loan runoff	(2,844)	(37,900)	(40,744)
Change in fair value due to market changes	1,842	(4,035)	(2,193)
Balance, December 31, 2016	\$ 8,909	\$ 238,164	\$ 247,073

Changes in the fair value of mortgage servicing rights due to market changes are included in Other operating revenue in the Consolidated Statements of Earnings. Changes in fair value due to loan runoff are included in Mortgage banking costs.

There is no active market for trading in mortgage servicing rights after origination. Fair value is determined by discounting the projected net cash flows. Significant assumptions used to determine fair value considered to be significant unobservable inputs were as follows:

	<b>December 31,</b>	
	<b>2016</b>	<b>2015</b>
Discount rate – risk-free rate plus a market premium	10.08%	10.11%
Prepayment rate - based upon loan interest rate, original term and loan type	8.98%-16.91%	7.41% - 23.88%
Loan servicing costs – annually per loan based upon loan type:		
Performing loans	\$63 - \$120	\$63 - \$105
Delinquent loans	\$150 - \$500	\$150 - \$500
Loans in foreclosure	\$650 - \$4,250	\$650 - \$4,250
Primary/secondary mortgage rate spread	105 bps	130 bps
Escrow earnings rate – indexed to rates paid on deposit accounts with comparable average life	1.98%	1.73%

Changes in primary residential mortgage interest rates directly affect the prepayment speeds used in valuing our mortgage servicing rights. A separate third party model is used to estimate prepayment speeds based on interest rates, housing turnover rates, estimated loan curtailment, anticipated defaults and other relevant factors. The prepayment model is updated periodically for changes in market conditions and adjusted to better correlate with actual performance of BOK Financial's servicing portfolio.

The interest rate sensitivity of our mortgage servicing rights is modeled over a range of +/- 50 basis points. At December 31, 2016, a 50 basis point increase in mortgage interest rates is expected to increase the fair value of our mortgage servicing rights by \$25 million. A 50 basis point decrease in mortgage interest rates is expected to decrease the fair value of our mortgage servicing rights by \$29 million. In the model, changes in the value of servicing rights due to changes in interest rates assume stable relationships between residential mortgage rates and prepayment speeds. Changes in market conditions can cause variations from these assumptions. These factors and others may cause changes in the value of our mortgage servicing rights to differ from our expectations.

The aging status of our mortgage loans serviced for others by investor at December 31, 2016 follows (in thousands):

	Current	Past Due			Total
		30 to 59 Days	60 to 89 Days	90 Days or More	
FHLMC	\$ 7,950,818	\$ 52,434	\$ 9,812	\$ 25,670	\$ 8,038,734
FNMA	6,922,833	44,532	11,233	21,486	7,000,084
GNMA	6,304,914	181,669	56,534	22,471	6,565,588
Other	390,109	763	351	1,939	393,162
Total	\$ 21,568,674	\$ 279,398	\$ 77,930	\$ 71,566	\$ 21,997,568

The Company has off-balance sheet credit risk related to first lien, fixed-rate residential mortgage loans sold to U.S. government agencies with recourse prior to 2008 under various community development programs. The Company no longer sells residential mortgage loans with recourse other than obligations under standard representations and warranties. The recourse obligation relates to loan performance for the life of the loan. The principal balance of residential mortgage loans sold subject to recourse obligations totaled \$139 million at December 31, 2016 and \$155 million at December 31, 2015. A separate accrual for these off-balance sheet commitments is included in Other liabilities in the Consolidated Balance Sheets. The provision for credit losses on loans sold with recourse is included in Mortgage banking costs in the Consolidated Statements of Earnings.

The activity in the accrual for losses on loans sold with recourse included in Other liabilities in the Consolidated Balance Sheets is summarized as follows (in thousands):

	Year Ended		
	2016	2015	2014
Beginning balance	\$ 4,649	\$ 7,299	\$ 9,562
Provision for recourse losses	725	(982)	354
Loans charged off, net	(1,358)	(1,668)	(2,617)
Ending balance	\$ 4,016	\$ 4,649	\$ 7,299

The Company also has off-balance sheet obligations to repurchase or provide indemnification for residential mortgage loans sold to government sponsored entities due to standard representations and warranties made under contractual agreements. The Company has established an accrual for credit losses related to potential loan repurchases under representations and warranties and related servicing expenses that is included in Other liabilities in the Consolidated Balance Sheets and in Mortgage banking costs in the Consolidated Statements of Earnings. In 2016, the Company repurchased 18 loans from the agencies for \$3.9 million and paid indemnification for 7 loans. Losses on both repurchases and indemnifications were insignificant.

A summary of unresolved deficiency requests from the agencies follows (in thousands, except for number of unresolved deficiency requests):

	December 31,	
	2016	2015
Number of unresolved deficiency requests	233	198
Aggregate outstanding principal balance subject to unresolved deficiency requests	\$ 17,382	\$ 15,624
Unpaid principal balance subject to indemnification by the Company	5,803	4,365

The activity in the accruals for mortgage losses related to repurchases is summarized as follows (in thousands).

	December 31,	
	2016	2015
Beginning balance	\$ 3,359	\$ 3,220
Provision for losses	27	353
Charge-offs, net	(598)	(214)
Ending balance	\$ 2,788	\$ 3,359

## (8) Deposits

Interest expense on deposits is summarized as follows (in thousands):

	Year Ended December 31,		
	2016	2015	2014
Transaction deposits	\$ 13,906	\$ 8,821	\$ 9,757
Savings	386	383	401
Time:			
Certificates of deposits under \$100,000	8,776	11,894	14,278
Certificates of deposits \$100,000 and over	10,123	10,643	11,878
Other time deposits	7,303	12,429	14,369
Total time	26,202	34,966	40,525
Total	\$ 40,494	\$ 44,170	\$ 50,683

The aggregate amounts of time deposits in denominations of \$250,000 or more at December 31, 2016 and 2015 were \$866 million and \$905 million, respectively.

Time deposit maturities are as follows: 2017 – \$1.3 billion, 2018 – \$340 million, 2019 – \$71 million, 2020 – \$94 million, 2021 – \$114 million and \$342 million thereafter.

At December 31, 2016 and 2015, the Company had \$417 million and \$358 million, respectively, in fixed rate, brokered certificates of deposits. The weighted-average interest rate paid on these certificates was 1.33% in 2016 and 1.48% in 2015.

The aggregate amount of overdrawn customer transaction deposits that have been reclassified as loan balances was \$9.7 million at December 31, 2016 and \$5.3 million at December 31, 2015.

## (9) Other Borrowings

Information relating to other borrowings is summarized as follows (dollars in thousands):

	As of December 31, 2016		Year Ended December 31, 2016		
	Balance	Rate	Average Balance	Rate	Maximum Outstanding At Any Month End
Parent company and other non-bank subsidiaries:					
Trust preferred debt	\$ 7,217	3.28%	\$ 611	3.27%	\$ 7,217
Other	1,092	8.27%	2,073	16.11%	3,157
Total other borrowings	8,309		2,684	13.19%	
Subordinated debentures	144,640	5.60%	74,428	5.59%	\$ 145,393
Total parent company and other non-bank subsidiaries	152,949		77,112	5.86%	
BOKF, NA:					
Funds purchased	57,929	0.38%	78,222	0.24%	567,103
Repurchase agreements	668,661	0.02%	589,145	0.04%	668,661
Other borrowings:					
Federal Home Loan Bank advances	4,800,000	0.72%	5,985,656	0.55%	6,500,000
GNMA repurchase liability	22,471	4.26%	15,637	4.74%	22,471
Other	15,292	2.66%	15,670	2.41%	15,797
Total other borrowings	4,837,763		6,016,963	0.57%	
Subordinated debentures	—	—%	140,414	1.35%	226,434
Total BOKF, NA	5,564,353		6,824,744	0.54%	
Total other borrowed funds	\$ 5,717,302		\$ 6,901,856	0.60%	

	As of		Year Ended		
	December 31, 2015		December 31, 2015		
	Balance	Rate	Average Balance	Rate	Maximum Outstanding At Any Month End
Parent company and other non-bank subsidiaries:					
Trust preferred debt	\$ —	—%	\$ —	—%	\$ —
Other	—	—%	—	—%	—
Total other borrowings	—		—	—%	
Subordinated debentures	—	—%	—	—%	—
Total parent company and other non-bank subsidiaries	—		—	—%	
BOKF, NA:					
Funds purchased	491,192	0.15%	73,219	0.09%	491,192
Repurchase agreements	722,444	0.02%	623,921	0.04%	1,008,144
Other borrowings:					
Federal Home Loan Bank advances	4,800,000	0.48%	4,921,739	0.28%	5,000,000
GNMA repurchase liability	19,478	4.75%	16,668	4.95%	19,478
Other	18,402	2.70%	18,768	2.35%	26,058
Total other borrowings	4,837,880		4,957,175	0.33%	
Subordinated debentures	226,350	1.05%	226,332	1.84%	348,076
Total BOKF, NA	6,277,866		5,880,647	0.36%	
Total other borrowed funds	\$ 6,277,866		\$ 5,880,647	0.36%	

	As of		Year Ended		
	December 31, 2014		December 31, 2014		
	Balance	Rate	Average Balance	Rate	Maximum Outstanding At Any Month End
Parent company and other non-bank subsidiaries:					
Trust preferred debt	\$ —	—%	\$ —	—%	\$ —
Other	—	—%	—	—%	—
Total other borrowings	—		—	—%	
Subordinated debentures	—	—%	—	—%	—
Total parent company and other non-bank subsidiaries	—		—	—%	
BOKF, NA:					
Funds purchased	57,031	0.05%	494,220	0.07%	1,548,676
Repurchase agreements	1,187,489	0.04%	928,767	0.06%	1,187,489
Other borrowings:					
Federal Home Loan Bank advances	2,103,400	0.25%	1,894,966	0.24%	3,453,400
GNMA repurchase liability	14,298	5.05%	17,343	5.20%	24,980
Other	16,076	2.73%	16,433	2.32%	16,582
Total other borrowings	2,133,774		1,928,742	0.35%	
Subordinated debentures	347,983	2.35%	347,892	2.50%	347,983
Total BOKF, NA	3,726,277		3,699,621	0.43%	
Total other borrowed funds	\$ 3,726,277		\$ 3,699,621	0.43%	

Aggregate annual principal repayments at December 31, 2016 are as follows (in thousands):

	Parent Company and Other Non-bank Subsidiaries	BOKF, NA
2017	\$ —	\$ 5,549,587
2018	—	711
2019	—	956
2020	—	961
2021	—	965
Thereafter	152,949	11,173
Total	\$ 152,949	\$ 5,564,353

Funds purchased are unsecured and generally mature within one to ninety days from the transaction date. Securities repurchase agreements are recorded as secured borrowings that generally mature within ninety days and are secured by certain available for sale securities. There was no outstanding accrued interest payable related to repurchase agreements at December 31, 2016 or December 31, 2015.

Additional information relating to securities sold under agreements to repurchase and related liabilities at December 31, 2016 and 2015 is as follows (dollars in thousands):

Security Sold/Maturity	December 31, 2016			
	Amortized Cost	Fair Value	Repurchase Liability <sup>1</sup>	Average Rate
U.S. government agency mortgage-backed securities:				
Overnight <sup>1</sup>	\$ 655,529	\$ 655,851	\$ 668,661	0.02%
Long-term	—	—	—	—%
Total Agency Securities	\$ 655,529	\$ 655,851	\$ 668,661	0.02%

Security Sold/Maturity	December 31, 2015			
	Amortized Cost	Fair Value	Repurchase Liability <sup>1</sup>	Average Rate
U.S. government agency mortgage-backed securities:				
Overnight <sup>1</sup>	\$ 685,458	\$ 688,485	\$ 722,444	0.02%
Long-term	—	—	—	—%
Total Agency Securities	\$ 685,458	\$ 688,485	\$ 722,444	0.02%

<sup>1</sup> BOK Financial maintains control over the securities underlying overnight repurchase agreements and generally transfers control over securities underlying longer-term dealer repurchase agreements to the respective counterparty.

Borrowings from the Federal Home Loan Banks are used for funding purposes. In accordance with policies of the Federal Home Loan Banks, BOK Financial has granted a blanket pledge of eligible assets (generally unencumbered U.S. Treasury and residential mortgage-backed securities, 1-4 family loans and multifamily loans) as collateral for these advances. The Federal Home Loan Banks have issued letters of credit totaling \$242 million to secure BOK Financial's obligations to depositors of public funds. The unused credit available to BOK Financial at December 31, 2016 pursuant to the Federal Home Loan Bank's collateral policies is \$1.3 billion.

In 2016, BOK Financial issued \$150 million of subordinated debt that will mature on June 30, 2056. Interest on this debt bears an interest rate of 5.375%, payable quarterly. On June 30, 2021, BOK Financial will have the option to redeem the debt at the principal amount plus accrued interest, subject to regulatory approval.



In conjunction with the acquisition of MBT, BOK Financial assumed \$7.2 million of variable rate subordinated trust preferred. This trust preferred debt is callable prior to maturity on September 17, 2033 and December 15, 2036, respectively, subject to regulatory approval. Interest is payable quarterly at three-month LIBOR plus 2.95% on \$3.1 million and three-month LIBOR plus 1.82% on \$4.1 million.

BOK Financial Securities, Inc. may borrow funds from Pershing, LLC ("Pershing"), a clearing broker/dealer and a wholly owned subsidiary of Bank of New York Mellon, for the purposes of financing securities purchases or to facilitate funding of investment banking activities, on terms to be negotiated at the time of the borrowing. BOK Financial Securities, Inc. had no borrowings from Pershing outstanding at December 31, 2016 or December 31, 2015.

In 2007, BOKF, NA issued \$250 million of subordinated debt due May 15, 2017. Interest on this debt was based upon a fixed rate of 5.75% through May 14, 2012 and is based on a floating rate of three-month LIBOR plus 0.69% thereafter. The proceeds of this debt were used to fund the Worth National Bank and First United Bank acquisitions and to fund continued asset growth. The outstanding balance of this subordinated debt was \$226 million at December 31, 2015. The remaining outstanding balance was called during 2016.

The Company has a liability related to the repurchase of certain delinquent residential mortgage loans previously sold into GNMA mortgage pools. Interest is payable at rates contractually due to investors.

## (10) Federal and State Income Taxes

Deferred income taxes reflect the net tax effects of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes. Significant components of deferred tax assets and liabilities are as follows (in thousands):

	December 31,	
	2016	2015
Deferred tax assets:		
Available for sale securities mark to market	\$ 5,779	\$ —
Share-based compensation	9,360	10,522
Credit loss allowances	99,191	88,906
Valuation adjustments	12,222	6,957
Deferred compensation	30,262	25,950
Unearned fees	11,877	11,124
Other	42,541	34,169
Total deferred tax assets	211,232	177,628
Deferred tax liabilities:		
Available for sale securities mark to market	—	14,828
Depreciation	25,877	22,080
Mortgage servicing rights	92,748	77,900
Lease financing	17,923	22,301
Other	45,363	41,904
Total deferred tax liabilities	181,911	179,013
Net deferred tax assets (liabilities)	\$ 29,321	\$ (1,385)

The Company determined that no valuation allowance was necessary on deferred tax assets as of December 31, 2016 and 2015.

The significant components of the provision for income taxes attributable to continuing operations for BOK Financial are shown below (in thousands):

	Year Ended December 31,		
	2016	2015	2014
Current income tax expense:			
Federal	\$ 107,379	\$ 117,566	\$ 95,289
State	11,028	12,397	9,392
Total current income tax expense	118,407	129,963	104,681
Deferred income tax expense:			
Federal	(11,340)	8,397	36,521
State	(690)	1,024	2,949
Total deferred income tax expense	(12,030)	9,421	39,470
Total income tax expense	\$ 106,377	\$ 139,384	\$ 144,151

The reconciliations of income attributable to continuing operations at the U.S. federal statutory tax rate to income tax expense are as follows (in thousands):

	Year Ended December 31,		
	2016	2015	2014
Amount:			
Federal statutory tax	\$ 118,530	\$ 151,075	\$ 153,870
Tax exempt revenue	(10,544)	(9,553)	(8,446)
Effect of state income taxes, net of federal benefit	6,478	9,082	9,054
Utilization of tax credits:			
Low-income housing tax credits, net of amortization	(4,171)	(3,874)	(2,953)
Other tax credits	(2,085)	(2,085)	(2,109)
Bank-owned life insurance	(2,911)	(3,264)	(3,183)
Other, net	1,080	(1,997)	(2,082)
Total income tax expense	\$ 106,377	\$ 139,384	\$ 144,151

	Year Ended December 31,		
	2016	2015	2014
Percent of pretax income:			
Federal statutory tax	35.0%	35.0%	35.0%
Tax exempt revenue	(3.1)	(2.2)	(1.9)
Effect of state income taxes, net of federal benefit	1.9	2.1	2.1
Utilization of tax credits:			
Low-income housing tax credits, net of amortization	(1.2)	(0.9)	(0.7)
Other tax credits	(0.6)	(0.5)	(0.5)
Bank-owned life insurance	(0.9)	(0.7)	(0.7)
Other, net	0.3	(0.5)	(0.5)
Total	31.4%	32.3%	32.8%

A reconciliation of the beginning and ending amount of unrecognized tax benefits is as follows (in thousands):

	2016	2015	2014
Balance as of January 1	\$ 13,232	\$ 13,374	\$ 12,058
Additions for tax for current year positions	5,640	2,226	3,813
Settlements during the period	—	—	—
Lapses of applicable statute of limitations	(3,031)	(2,368)	(2,497)
Balance as of December 31	\$ 15,841	\$ 13,232	\$ 13,374

Of the above unrecognized tax benefits, \$10.3 million, if recognized, would have affected the effective tax rate.

BOK Financial recognizes interest and penalties accrued related to unrecognized tax benefits in income tax expense. The Company recognized \$1.0 million for 2016, \$1.0 million for 2015 and \$1.5 million for 2014 in interest and penalties. The Company had approximately \$3.5 million and \$3.3 million accrued for the payment of interest and penalties at December 31, 2016 and 2015, respectively. Federal statutes remain open for federal tax returns filed in the previous three reporting periods. Various state income tax statutes remain open for the previous three to six reporting periods.

## (11) Employee Benefits

BOK Financial sponsors a defined benefit cash balance Pension Plan for all employees who satisfy certain age and service requirements. Pension Plan benefits were curtailed as of April 1, 2006. No participants may be added to the plan and no additional service benefits will be accrued. During 2016 and 2015, interest accrued on employees' account balances at a variable rate tied to the five-year trailing average of five-year U.S. Treasury securities plus 1.5%. The rate has a floor of 3.0% and a ceiling of 5.0%. The 2016 quarterly variable rates remained at 3.00%.

The following table presents information regarding this plan (in thousands):

	December 31,	
	2016	2015
Change in projected benefit obligation:		
Projected benefit obligation at beginning of year	\$ 38,797	\$ 45,224
Interest cost	1,309	1,487
Actuarial loss (gain)	(55)	(2,702)
Benefits paid	(5,087)	(5,212)
Projected benefit obligation at end of year <sup>1,2</sup>	\$ 34,964	\$ 38,797
Change in plan assets:		
Plan assets at fair value at beginning of year	\$ 44,190	\$ 49,443
Actual return on plan assets	2,666	(41)
Benefits paid	(5,087)	(5,212)
Plan assets at fair value at end of year	\$ 41,769	\$ 44,190
Funded status of the plan	\$ 6,805	\$ 5,393
Components of net periodic benefit costs:		
Interest cost	\$ 1,309	\$ 1,487
Expected return on plan assets	(2,167)	(2,706)
Other	(741)	1,849
Net benefit cost	\$ (1,599)	\$ 630

<sup>1</sup> Projected benefit obligation equals accumulated benefit obligation.

<sup>2</sup> Projected benefit obligation is based on January 1 measurement date.

Weighted-average assumptions as of December 31:	2016	2015
Discount rate	3.43%	3.54%
Expected return on plan assets	5.00%	5.00%

As of December 31, 2016, expected future benefit payments related to the Pension Plan were as follows (in thousands):

2017	\$ 2,706
2018	3,072
2019	3,402
2020	3,090
2021	2,934
Thereafter	28,044
Total estimated future benefit payments	\$ 43,248

Assets of the Pension Plan consist primarily of shares in the Cavanal Hill Active Core Fund. The stated objective of this fund is to provide an attractive total return with a well-balanced mix of equities and bonds. The typical portfolio mix is approximately 60% equities and 40% bonds. The net asset value of shares in the Cavanal Hill Funds is reported daily based on market quotations for the Fund's securities. Management considers the Fund's recent and long-term performance as indicators when setting the expected return on plan assets. As of December 31, 2016, the expected return on plan assets for 2017 is 5.00%. The maximum tax deductible Pension Plan contribution for 2016 was \$12 million. No minimum contribution was required for 2016, 2015 or 2014.

Employee contributions to the Thrift Plan are eligible for Company matching equal to 6% of base compensation, as defined in the plan. The Company-provided matching contribution rates range from 50% for employees with less than 4 years of service to 200% for employees with 15 or more years of service. Additionally, a maximum Company-provided, non-elective annual contribution of up to \$750 per participant is provided for employees whose annual base compensation is less than \$40,000. Total non-elective contributions were \$530 thousand for 2016, \$605 thousand for 2015 and \$662 thousand for 2014.

Participants may direct investments in their accounts to a variety of options, including a BOK Financial common stock fund and Cavanal Hill funds. Employer contributions, which are invested in accordance with the participant's investment options, vest over five years. Thrift Plan expenses were \$22.4 million for 2016, \$20.6 million for 2015 and \$18.6 million for 2014.

BOK Financial offers numerous incentive compensation plans that are aligned with the Company's growth strategy. Compensation awarded under these plans may be based on defined formulas, other performance criteria or discretionary. Incentive compensation is designed to motivate and reinforce sales and customer service behavior in all markets. Earnings were charged \$128.1 million in 2016, \$114.3 million in 2015, and \$111.7 million in 2014 for cash incentive compensation.

## (12) Share-Based Compensation Plans

The shareholders and Board of Directors of BOK Financial have approved various share-based compensation plans. An independent compensation committee of the Board of Directors determines the number of awards granted to the Chief Executive Officer and other senior executives. Share-based compensation is granted to other officers and employees as determined by the Chief Executive Officer.

The following table presents stock options outstanding during 2016, 2015 and 2014 under these plans (in thousands, except for per share data):

	Number	Weighted-Average Exercise Price	Aggregate Intrinsic Value
Options outstanding at December 31, 2013	1,135,105	\$ 49.09	\$ 19,564
Options awarded	—	—	
Options exercised	(323,004)	49.17	
Options forfeited	(15,509)	45.71	
Options expired	(2,701)	47.98	
Options outstanding at December 31, 2014	793,891	49.05	8,725
Options awarded	—	—	
Options exercised	(286,678)	47.86	
Options forfeited	(22,304)	48.90	
Options expired	(4,874)	51.32	
Options outstanding at December 31, 2015	480,035	49.75	4,821
Options awarded	—	—	
Options exercised	(249,404)	47.60	
Options forfeited	(4,098)	55.44	
Options expired	(8,009)	53.43	
Options outstanding at December 31, 2016	218,524	\$ 51.95	\$ 6,793
Options vested at:			
December 31, 2014	347,633	\$ 48.85	\$ 3,889
December 31, 2015	243,395	48.17	2,829
December 31, 2016	93,117	46.22	3,429

The following table summarizes information concerning currently outstanding and vested stock options:

Exercise Prices	Options Outstanding			Options Vested		
	Number Outstanding	Weighted Average Remaining Contractual Life (years)	Weighted Average Exercise Price	Number Vested	Weighted Average Exercise Price	Weighted Average Remaining Contractual Life (years)
\$36.65	36,722	1.45	\$36.65	36,722	\$36.65	1.45
48.30	14,208	2.32	48.30	6,906	48.30	1.57
48.46	21,138	0.81	48.46	21,138	48.46	0.81
54.33	3,628	0.03	54.33	3,628	54.33	0.03
55.74	51,570	4.28	55.74	5,008	55.74	2.03
55.94	48,800	3.08	55.94	12,260	55.94	1.72
58.76	42,458	3.62	58.76	7,455	58.76	1.70

The aggregate intrinsic value of options exercised was \$6.2 million for 2016, \$5.1 million for 2015 and \$5.5 million for 2014.

No options were granted in 2016, 2015 or 2014. Compensation expense recognized on stock options totaled \$254 thousand for 2016, \$362 thousand for 2015 and \$826 thousand for 2014. Compensation cost of stock options granted that may be recognized as compensation expense in future years totaled \$229 thousand at December 31, 2016.

The following represents a summary of the non-vested stock awards as of December 31, 2016 (in thousands):

	<b>Shares</b>	<b>Weighted Average Grant Date Fair Value</b>
Non-vested at January 1, 2014	647,989	
Granted	206,621	\$64.96
Vested	(140,820)	\$44.56
Forfeited	(25,179)	\$56.26
Non-vested at December 31, 2014	688,611	
Granted	312,755	\$57.66
Vested	(114,045)	\$50.15
Forfeited	(96,212)	\$58.33
Non-vested at December 31, 2015	791,109	
Granted	256,670	\$55.35
Vested	(213,941)	\$55.87
Forfeited	(47,132)	\$57.86
Non-vested at December 31, 2016	786,706	

Compensation expense recognized on non-vested shares totaled \$10.2 million for 2016, \$12.0 million for 2015 and \$10.0 million for 2014. Unrecognized compensation cost of non-vested shares totaled \$14.1 million at December 31, 2016. Subject to adjustment for forfeitures and changes in the fair value of 293,110 shares awarded under the Executive Incentive Plan, we expect to recognize compensation expense of \$9.3 million in 2017, \$4.7 million in 2018, and \$89 thousand in 2019.

During January 2017, BOK Financial awarded 170,785 shares of non-vested stock with a fair value per award of \$83.50. The aggregate compensation cost of these awards totaled approximately \$14.3 million.



### (13) Related Parties

In compliance with applicable banking regulations, the Company may extend credit to certain executive officers, directors, principal shareholders and their affiliates (collectively referred to as “related parties”) in the ordinary course of business. The Company’s loans to related parties do not involve more than the normal credit risk and there are no nonaccruing or impaired related party loans outstanding at December 31, 2016 or 2015.

Activity in loans to related parties is summarized as follows (in thousands):

	Year Ended December 31,	
	2016	2015
Beginning balance	\$ 594,225	\$ 103,395
Advances	884,511	3,582,384
Payments	(1,123,747)	(3,104,004)
Adjustments <sup>1</sup>	(218,044)	12,450
Ending balance	\$ 136,945	\$ 594,225

<sup>1</sup> Adjustments generally consist of changes in status as a related party.

As defined by banking regulations, loan commitments and equity investments to a single affiliate may not exceed 10% of unimpaired capital and surplus and loan commitments and equity investments to all affiliates may not exceed 20% of unimpaired capital and surplus. All loans to affiliates must be fully secured by eligible collateral. At December 31, 2016, loan commitments and equity investments were limited to \$287 million to a single affiliate and \$573 million to all affiliates. The largest loan commitment and equity investment to a single affiliate was \$220 million and the aggregate loan commitments and equity investments to all affiliates were \$337 million. The largest outstanding amount to a single affiliate at December 31, 2016 was \$24 million and the total outstanding amounts to all affiliates were \$39 million. At December 31, 2015, total loan commitments and equity investments to all affiliates were \$330 million and the total outstanding amounts to all affiliates were \$244 million.

Certain related parties are customers of the Company for services other than loans, including consumer banking, corporate banking, risk management, wealth management, brokerage and trading, or fiduciary/trust services. The Company engages in transactions with related parties in the ordinary course of business in compliance with applicable regulations.

The Company rents office space in facilities owned by affiliates of Mr. Kaiser, its Chairman and principal shareholder. Lease payments totaled \$1.1 million for 2016, \$975 thousand for 2015 and \$1.1 million for 2014.

During 2016, the Company agreed to purchase approximately \$7.5 million of Oklahoma Historic State Income Tax Credits from the George Kaiser Family Foundation, a principal shareholder of BOKF. In the fourth quarter, \$3.8 million of these tax credits were purchased and reduced the Company's state liability for 2016. The remaining credits when purchased will be used to reduce the Company's state income tax liability in 2017.

Cavanal Hill Investment Management, Inc., a wholly-owned subsidiary of BOKF, NA, is the administrator to and investment advisor for the Cavanal Hill Funds (the "Funds"), a diversified, open-ended investment company established as a business trust under the Investment Company Act of 1940 (the "1940 Act"). BOKF, NA is custodian and BOK Financial Securities, Inc. is distributor for the Funds. The Funds’ products are offered to customers, employee benefit plans, trusts and the general public in the ordinary course of business. Approximately 94% of the Funds’ assets of \$3.8 billion are held for the Company's clients. A Company executive officer serves on the Funds' board of trustees and officers of BOKF, NA serve as president and secretary of the Funds. A majority of the members of the Funds’ board of trustees are, however, independent of the Company and the Funds are managed by its board of trustees.

## **(14) Commitments and Contingent Liabilities**

### *Litigation Contingencies*

As a member of Visa, BOK Financial is obligated for a proportionate share of certain covered litigation losses incurred by Visa under a retrospective responsibility plan. A contingent liability was recognized for the Company's share of Visa's covered litigation liabilities. Visa funded an escrow account to cover litigation claims, including covered litigation losses under the retrospective responsibility plan, with proceeds from its initial public offering in 2008 and from available cash.

BOK Financial currently owns 252,233 Visa Class B shares which are convertible into 415,755 shares of Visa Class A shares after the final settlement of all covered litigation. Class B shares may be diluted in the future if the escrow fund is not adequate to cover future covered litigation costs. Therefore, no value has been currently assigned to the Class B shares and no value may be assigned until the Class B shares are converted into a known number of Class A shares.

On March 3, 2015, BOKF, NA and the Company were named as defendants in a class action alleging (1) that the manner in which the Bank posted charges to its consumer deposit accounts was improper from September 1, 2011 through July 8, 2014, the period after which the Bank and BOK Financial had settled a class action respecting a similar claim, and before it made changes to its posting order and (2) that the manner in which the Bank posted charges to its small business deposit accounts was improper from July 9, 2009 through July 8, 2014. Following mediation of the case in August 2016, the Class Representatives and the Bank reached a settlement of the action for \$7.8 million. The settlement is subject to the approval of the Court which the Parties to the Action expect. The Company has funded the settlement.

On June 24, 2015, the Bank received a complaint alleging that an employee had colluded with a bond issuer and an individual in misusing revenues pledged to municipal bonds for which the Bank served as trustee under the bond indenture. The Company conducted an investigation and concluded that employees in one of its Corporate Trust offices had, with respect to a single group of affiliated bond issuances, violated Company policies and procedures by waiving financial covenants, granting forbearances and accepting without disclosure to the bondholders, debt service payments from sources other than pledged revenues. The relationship manager was terminated. The Company reported the circumstances to, and cooperated with an investigation by, the Securities and Exchange Commission ("SEC"). On December 28, 2015, in an action brought by the SEC, the United States District Court for the District of New Jersey entered a judgment against the principals involved in the issuing the bonds, precluding the principals from denying the alleged violations of the federal securities laws and requiring the principals to pay all outstanding principal, accrued interest, and other amounts required under the bond documents (estimated to be approximately \$73 million, less the value of the facilities securing repayment of the bonds), subject to oversight by a court appointed monitor. On September 7, 2016, the Bank agreed, and the SEC entered, a consent order finding that the Bank had violated Section 17(a) of the Securities Act of 1933 and Section 10(b) of the Securities Exchange Act and requiring the Bank to disgorge \$1,067,721 of fees and pay a civil penalty of \$600,000. The Bank has disgorged the fees and paid the penalty. On January 7, 2016, the terminated employee filed an action against the Bank alleging the Bank defamed the employee and made a demand for indemnification respecting the SEC investigation which demand the respective boards of directors of the Company and the Bank denied. On September 26, 2016, the employee dismissed the action without prejudice. On September 9, 2016, the SEC filed a complaint against the terminated employee alleging the employee violated Section 17(a) of the Securities Act of 1933 and Section 10(b) of the Securities Exchange Act and requiring the employee to disgorge ill-gotten gains. The SEC and the terminated employee have advised the Court that a settlement has been reached subject to approval by the Commission. On August 26, 2016, the Bank was sued in the United States District Court for New Jersey by two bondholders in a putative class action on behalf of all holders of the bonds alleging the Bank participated in the fraudulent sale of securities by the principals. On September 14, 2016, the Bank was sued in the District Court of Tulsa County, Oklahoma by 19 bondholders alleging the Bank participated in the fraudulent sale of securities by the principals. Management has been advised by counsel that the Bank has valid defenses to the claims. The Bank expects the Court ordered payment plan will result in the payment of the bonds by the principals. Accordingly, no loss is probable at this time and no provision for loss has been made. If the payment plan does not result in payment of the bonds, a loss could become probable. A reasonable estimate cannot be made at this time though the amount could be material to the Company.

The Director of the New Mexico Securities Division of the State of New Mexico Regulation and Licensing Department ("the Director") issued a Notice of Contemplated Action in connection with the purchase of various municipal bonds by the elected County Treasurer of Bernalillo County, New Mexico, from BOK Financial Securities, Inc., the Company's broker-dealer affiliate. The Notice was settled by a \$125,000 payment to the Division's Educational fund, without any fine, penalty or sanction. The County of Bernalillo, New Mexico, has commenced arbitration pursuant to the Arbitration Rules of FINRA seeking recovery of \$5.6 million arising out of the purchase. The Company has been advised that any recovery by the County is remote.

In the ordinary course of business, BOK Financial and its subsidiaries are subject to legal actions and complaints. Management believes, based upon the opinion of counsel, that the actions and liability or loss, if any, resulting from the final outcomes of the proceedings, will not have a material effect on the Company's financial condition, results of operations or cash flows.

#### *Alternative Investment Commitments*

The Company sponsors two private equity funds and invests in several tax credit entities and other funds as permitted by banking regulations. Consolidation of these investments is based on the variable interest model determined by the nature of the entity. Variable interest entities are generally defined as entities that either do not have sufficient equity to finance their activities without support from other parties or whose equity investors lack a controlling financial interest. Variable interest entities are consolidated based on the determination that the Company is the primary beneficiary including the power to direct the activities that most significantly impact the variable interest's economic performance and the obligation to absorb losses of the variable interest or the right to receive benefits of the variable interest that could be significant to the variable interest.

BOKF Equity, LLC, an indirect wholly-owned subsidiary, is the general partner of two consolidated private equity funds ("the Funds"). The Funds provide alternative investment opportunities to certain customers, some of which are related parties, through unaffiliated limited partnerships. These unaffiliated limited partnerships generally invest in distressed assets, asset buy-outs or venture capital companies. As general partner, BOKF Equity, LLC has the power to direct activities that most significantly affect the Funds' performance and contingent obligations to make additional investments totaling \$2.6 million at December 31, 2016. Substantially all of the obligations are offset by limited partner commitments. The Company does not accrue its contingent liability to fund investments. The Volcker Rule in Title VI of the Dodd-Frank Act will limit both the amount and structure of these type of investments.

Consolidated tax credit entities represent the Company's interest in entities earning federal new market tax credits related to qualifying loans for which the Company has the power to direct the activities that most significantly impact the variable interest's economic performance of the entity including being the primary beneficiary of or the obligation to absorb losses of the variable interest that could be significant to the variable interest. The creditors underlying the other borrowings of consolidated tax credit entities do not have recourse to the general credit of BOKF.

The Company also has interests in various unrelated alternative investments generally consisting of unconsolidated limited partnership interests in or loans to entities for which investment return is in the form of tax credits or that invest in distressed real estate loans and properties, energy development, venture capital and other activities. The Company is prohibited by banking regulations from controlling or actively managing the activities of these investments and the Company's maximum exposure to loss is restricted to its investment balance. The Company's obligation to fund alternative investments is included in Other liabilities in the Consolidated Balance Sheets.

A summary of consolidated and unconsolidated alternative investments as of December 31, 2016 and December 31, 2015 is as follows (in thousands):

	December 31, 2016				
	Loans	Other Assets	Other Liabilities	Other Borrowings	Non-controlling Interests
Consolidated:					
Private equity funds	\$ —	\$ 17,357	\$ —	\$ —	\$ 13,237
Tax credit entities	10,000	11,585	—	10,964	10,000
Other	—	29,783	3,189	1,092	8,266
Total consolidated	\$ 10,000	\$ 58,725	\$ 3,189	\$ 12,056	\$ 31,503
Unconsolidated:					
Tax credit entities	\$ 44,488	\$ 143,715	\$ 63,329	\$ —	\$ —
Other	—	31,675	15,028	—	—
Total unconsolidated	\$ 44,488	\$ 175,390	\$ 78,357	\$ —	\$ —

**December 31, 2015**

	<b>Loans</b>	<b>Other Assets</b>	<b>Other Liabilities</b>	<b>Other Borrowings</b>	<b>Non-controlling Interests</b>
<b>Consolidated:</b>					
Private equity funds	\$ —	\$ 22,472	\$ —	\$ —	\$ 17,823
Tax credit entities	10,000	12,206	—	10,964	10,000
Other	—	40,453	2,198	2,831	9,260
<b>Total consolidated</b>	<b>\$ 10,000</b>	<b>\$ 75,131</b>	<b>\$ 2,198</b>	<b>\$ 13,795</b>	<b>\$ 37,083</b>
<b>Unconsolidated:</b>					
Tax credit entities	\$ 16,916	\$ 85,274	\$ 14,572	\$ —	\$ —
Other	—	15,506	6,319	—	—
<b>Total unconsolidated</b>	<b>\$ 16,916</b>	<b>\$ 100,780</b>	<b>\$ 20,891</b>	<b>\$ —</b>	<b>\$ —</b>

*Other Commitments and Contingencies*

Cavanal Hill Funds' assets include U.S. Treasury and government securities market funds. Assets of these funds consist of highly-rated, short-term obligations of the U.S. Treasury and Agencies. The net asset value of units in these funds was \$1.00 at December 31, 2016. An investment in these funds is not insured by the Federal Deposit Insurance Corporation or guaranteed by BOK Financial or any of its subsidiaries. BOK Financial may, but is not obligated to purchase assets from these funds to maintain the net asset value at \$1.00. No assets were purchased from the funds in 2016 or 2015.

Total rent expense for BOK Financial was \$25.8 million in 2016, \$25.2 million in 2015 and \$25.0 million in 2014. At December 31, 2016, future minimum lease payments for premises under operating leases were as follows: \$22.5 million in 2017, \$20.1 million in 2018, \$19.6 million in 2019, \$16.2 million in 2020, \$13.4 million in 2021 and \$56.8 million thereafter. BOKF, NA is obligated under a long-term lease for its bank premises in downtown Tulsa. The lease term, which began November 1, 1976, is for fifty-seven years with an option to terminate in 2024 with a two-year prior written notice. Premises leases may include options to renew at then current market rates and may include escalation provisions based upon changes in consumer price index or similar benchmarks.

The Federal Reserve Bank requires member banks to maintain certain minimum average cash balances. Member banks may satisfy reserve balance requirements through holdings of vault cash and balances maintained directly with a Federal Reserve Bank. The combined average balance of vault cash and balances held at the Federal Reserve Bank was \$1.9 billion for the year ended December 31, 2016 and \$1.8 billion for the year ended December 31, 2015.

## **(15) Shareholders Equity**

### *Preferred Stock*

One billion shares of preferred stock with a par value of \$0.00005 per share are authorized. The Series A Preferred Stock has no voting rights except as otherwise provided by Oklahoma corporate law and may be converted into one share of Common Stock for each 36 shares of Series A Preferred Stock at the option of the holder. Dividends are cumulative at an annual rate of ten percent of the \$0.06 per share liquidation preference value when declared and are payable in cash. Aggregate liquidation preference is \$15 million. No Series A Preferred Stock was outstanding in 2016, 2015 or 2014.

### *Common Stock*

Common stock consists of 2.5 billion authorized shares with a \$0.00006 par value. Holders of common shares are entitled to one vote per share at the election of the Board of Directors and on any question arising at any shareholders' meeting and to receive dividends when and as declared. Additionally, regulations restrict the ability of national banks and bank holding companies to pay dividends.

### *Subsidiary Bank*

The amounts of dividends that BOK Financial's subsidiary bank can declare and the amounts of loans the subsidiary bank can extend to affiliates are limited by various federal banking regulations and state corporate law. Generally, dividends declared during a calendar year are limited to net profits, as defined, for the year plus retained profits for the preceding two years. The amounts of dividends are further restricted by minimum capital requirements.

### *Regulatory Capital*

BOK Financial and the subsidiary banks are subject to various capital requirements administered by the federal banking agencies. Failure to meet minimum capital requirements can initiate certain mandatory and additional discretionary actions by regulators that could have a material effect on BOK Financial's operations. These capital requirements include quantitative measures of assets, liabilities and certain off-balance sheet items. The capital standards are also subject to qualitative judgments by the regulators.

New capital rules were effective for BOK Financial on January 1, 2015. Components of these rules will phase in through January 1, 2019. A bank falling below the minimum capital requirements, including the capital conservation buffer, would be subject to regulatory restrictions on capital distributions (including but not limited to dividends and share repurchases) and executive bonus payments. For a banking institution to qualify as well capitalized, Common equity Tier 1, Tier I, Total and Leverage capital ratios must be at least 6.5%, 8%, 10% and 5%, respectively. Tier I capital consists primarily of common stockholders' equity, excluding unrealized gains or losses on available for sale securities, less goodwill, core deposit premiums and certain other intangible assets. Total capital consists primarily of Tier I capital plus preferred stock, subordinated debt and allowances for credit losses, subject to certain limitations. The subsidiary banks exceeded the regulatory definition of well capitalized as of December 31, 2016 and December 31, 2015.

A summary of regulatory capital minimum requirements and levels follows (dollars in thousands):

	Minimum Capital Requirement	Capital Conservation Buffer <sup>1</sup>	Minimum Capital Requirement Including Capital Conservation Buffer				
				December 31, 2016		December 31, 2015	
Common equity Tier 1 Capital (to Risk Weighted Assets):							
Consolidated	4.50%	2.50%	7.00%	2,834,532	11.21%	\$ 2,842,193	12.13 %
BOKF, NA	4.50%	N/A	4.50%	2,609,450	10.65%	2,385,323	10.26 %
Mobank <sup>2</sup>	4.50%	N/A	4.50%	54,616	10.03%	N/A	N/A
Tier I Capital (to Risk Weighted Assets):							
Consolidated	6.00%	2.50%	8.50%	\$ 2,834,532	11.21%	\$ 2,842,193	12.13 %
BOKF, NA	6.00%	N/A	6.00%	2,609,450	10.65%	2,385,323	10.26 %
Mobank <sup>2</sup>	6.00%	N/A	6.00%	54,616	10.03%	N/A	N/A
Total Capital (to Risk Weighted Assets):							
Consolidated	8.00%	2.50%	10.50%	\$ 3,238,323	12.81%	\$ 3,116,144	13.30 %
BOKF, NA	8.00%	N/A	8.00%	2,866,949	11.70%	2,657,935	11.43 %
Mobank <sup>2</sup>	8.00%	N/A	8.00%	54,617	10.03%	N/A	N/A
Leverage (Tier I Capital to Average Assets):							
Consolidated	4.00%	N/A	4.00%	\$ 2,834,532	8.72%	\$ 2,842,193	9.25 %
BOKF, NA	4.00%	N/A	4.00%	2,609,450	8.11%	2,385,323	7.81 %
Mobank <sup>2</sup>	4.00%	N/A	4.00%	54,616	8.37%	N/A	N/A

<sup>1</sup> Capital conservation buffer is effective January 1, 2016 and is phased in through 2019. The phased in capital conservation buffer at December 31, 2016 is 0.625%. The fully phased in requirement of 2.50% is included in the table above.

<sup>2</sup> Missouri Bank and Trust Company of Kansas City dba Mobank was acquired by BOK Financial effective December 1, 2016.

## *Accumulated Other Comprehensive Income (Loss)*

AOCI includes unrealized gains and losses on available for sale ("AFS") securities and non-credit related unrealized losses on AFS securities for which an other-than-temporary impairment has been recorded in earnings. AOCI also includes unrealized gains on AFS securities that were transferred from AFS to investment securities in 2011. Such amounts were amortized over the estimated remaining life of the security as an adjustment to yield, offsetting the related amortization of premium on the transferred securities. Unrealized losses on employee benefit plans will be reclassified into income as pension plan costs are recognized over the remaining service period of plan participants. Accumulated losses on the interest rate lock hedge of the subordinated debt issuance in 2005 were reclassified into income over the ten-year life of the debt. Gains and losses in AOCI are net of deferred income taxes.

A rollforward of the components of accumulated other comprehensive income (loss) is included as follows (in thousands):

	Unrealized Gain (Loss) on				
	Available for Sale Securities	Investment Securities Transferred from AFS	Employee Benefit Plans	Loss on Effective Cash Flow Hedges	Total
Balance, December 31, 2013	\$ (23,175)	\$ 1,118	\$ (3,311)	\$ (255)	\$ (25,623)
Net change in unrealized gain (loss)	136,050	—	725	—	136,775
Reclassification adjustments included in earnings:					
Interest revenue, Investment securities, Taxable securities	—	(1,216)	—	—	(1,216)
Interest expense, Subordinated debentures	—	—	—	296	296
Net impairment losses recognized in earnings	373	—	—	—	373
Gain on available for sale securities, net	(1,539)	—	—	—	(1,539)
Other comprehensive income (loss), before income taxes	134,884	(1,216)	725	296	134,689
Federal and state income tax <sup>1</sup>	52,470	(474)	282	115	52,393
Other comprehensive income (loss), net of income taxes	82,414	(742)	443	181	82,296
Balance, December 31, 2014	59,239	376	(2,868)	(74)	56,673
Net change in unrealized gain (loss)	(48,607)	—	1,804	—	(46,803)
Reclassification adjustments included in earnings:					
Interest revenue, Investment securities, Taxable securities	—	(503)	—	—	(503)
Interest expense, Subordinated debentures	—	—	—	121	121
Net impairment losses recognized in earnings	1,819	—	—	—	1,819
Gain on available for sale securities, net	(12,058)	—	—	—	(12,058)
Other comprehensive income (loss), before income taxes	(58,846)	(503)	1,804	121	(57,424)
Federal and state income tax <sup>1</sup>	(22,891)	(195)	701	47	(22,338)
Other comprehensive income (loss), net of income taxes	(35,955)	(308)	1,103	74	(35,086)
Balance, December 31, 2015	23,284	68	(1,765)	—	21,587
Net change in unrealized gain (loss)	(41,333)	—	(188)	—	(41,521)
Reclassification adjustments included in earnings:					
Interest revenue, Investment securities, Taxable securities	—	(112)	—	—	(112)
Interest expense, Subordinated debentures	—	—	—	—	—
Net impairment losses recognized in earnings	—	—	—	—	—
Gain on available for sale securities, net	(11,675)	—	—	—	(11,675)
Other comprehensive income (loss), before income taxes	(53,008)	(112)	(188)	—	(53,308)
Federal and state income tax <sup>1</sup>	(20,637)	(44)	(73)	—	(20,754)
Other comprehensive income (loss), net of income taxes	(32,371)	(68)	(115)	—	(32,554)
Balance, December 31, 2016	\$ (9,087)	\$ —	\$ (1,880)	\$ —	\$ (10,967)

<sup>1</sup> Calculated using 39% effective tax rate.



## (16) Earnings Per Share

The following table presents the computation of basic and diluted earnings per share (dollars in thousands, except per share data):

	Year Ended		
	2016	2015	2014
Numerator:			
Net income attributable to BOK Financial Corp. shareholders	\$ 232,668	\$ 288,565	\$ 292,435
Less: Earnings allocated to participating securities	2,883	3,383	3,239
Numerator for basic earnings per share – income available to common shareholders	229,785	285,182	289,196
Effect of reallocating undistributed earnings of participating securities	1	3	4
Numerator for diluted earnings per share – income available to common shareholders	\$ 229,786	\$ 285,185	\$ 289,200
Denominator:			
Weighted average shares outstanding	65,901,110	68,397,215	69,159,902
Less: Participating securities included in weighted average shares outstanding	815,483	802,526	765,708
Denominator for basic earnings per common share	65,085,627	67,594,689	68,394,194
Dilutive effect of employee stock compensation plans <sup>1</sup>	58,271	96,969	150,576
Denominator for diluted earnings per common share	65,143,898	67,691,658	68,544,770
Basic earnings per share	\$ 3.53	\$ 4.22	\$ 4.23
Diluted earnings per share	\$ 3.53	\$ 4.21	\$ 4.22
<sup>1</sup> Excludes employee stock options with exercise prices greater than current market price.	—	—	—

## (17) Reportable Segments

BOK Financial operates three principal lines of business: Commercial Banking, Consumer Banking and Wealth Management. Commercial Banking includes lending, treasury and cash management services and customer risk management products to small businesses, middle market and larger commercial customers. Commercial Banking also includes the TransFund EFT network. Consumer Banking includes retail lending and deposit services, lending and deposit services to small business customers served through the consumer branch network and all mortgage banking activities. Wealth Management provides fiduciary services, private bank services and investment advisory services in all markets. Wealth Management also underwrites state and municipal securities and engages in brokerage and trading activities.

In addition to its lines of business, BOK Financial has a Funds Management unit. The primary purpose of this unit is to manage overall liquidity needs and interest rate risk. Each line of business borrows funds from and provides funds to the Funds Management unit as needed to support their operations. Operating results for Funds Management and other include the effect of interest rate risk positions and risk management activities, securities gains and losses including impairment charges, the provision for credit losses in excess of net loans charged off, tax planning strategies and certain executive compensation costs that are not attributed to the lines of business.

BOK Financial allocates resources and evaluates performance of its lines of business after allocation of funds, actual net credit losses and capital costs. In addition, we measure the performance of our business lines after allocation of certain indirect expenses and taxes on statutory rates. The allocation for the prior comparable periods have been revised on a comparable basis.

The cost of funds borrowed from the Funds Management unit by the operating lines of business is transfer priced at rates that approximate market rates for funds with similar duration. Market rates are generally based on the applicable LIBOR or interest rate swap rates, adjusted for prepayment risk. This method of transfer-pricing funds that support assets of the operating lines of business tends to insulate them from interest rate risk.

The value of funds provided by the operating lines of business to the Funds Management unit is based on rates which approximate the wholesale market rates for funds with similar duration and re-pricing characteristics. Market rates are generally based on LIBOR or interest rate swap rates. The funds credit formula applied to deposit products with indeterminate maturities is established based on their re-pricing characteristics reflected in a combination of the short-term LIBOR rates and a moving average of an intermediate term swap rate, with an appropriate spread applied to both. Shorter duration products are weighted towards the short-term LIBOR rate and longer duration products are weighted towards intermediate swap rates. The expected duration ranges from 30 days for certain rate-sensitive deposits to five years.

Substantially all revenue is from domestic customers. No single external customer accounts for more than 10% of total revenue.

Net loans charged off and provision for credit losses represents net loans charged off as attributed to the lines of business and the provision for credit losses in excess of net charge-offs attributed to Funds Management and Other.

The acquisition of Mobank on December 1, 2016 was not yet allocated to the operating segments at December 31, 2016. Accordingly, the operation, assets and liabilities of Mobank were included in Funds Management and Other for 2016.

Reportable segments reconciliation to the Consolidated Financial Statements for the year ended December 31, 2016 is as follows (in thousands):

	Commercial	Consumer	Wealth Management	Funds Management and Other	BOK Financial Consolidated
Net interest and dividend revenue from external sources	\$ 492,967	\$ 85,998	\$ 33,006	\$ 135,257	\$ 747,228
Net interest revenue (expense) from internal sources	(58,781)	37,777	29,043	(8,039)	—
Net interest and dividend revenue	434,186	123,775	62,049	127,218	747,228
Provision for credit losses	32,959	4,927	(801)	27,915	65,000
Net interest and dividend revenue after provision for credit losses	401,227	118,848	62,850	99,303	682,228
Other operating revenue	195,521	224,802	283,222	(29,525)	674,020
Other operating expense	216,451	249,744	250,994	300,401	1,017,590
Net direct contribution	380,297	93,906	95,078	(230,623)	338,658
Gain (loss) on financial instruments, net	10	(26,252)	(42)	26,284	—
Change in fair value of mortgage servicing rights	—	(2,193)	—	2,193	—
Gain (loss) on repossessed assets, net	669	979	—	(1,648)	—
Corporate expense allocations	35,760	66,411	42,378	(144,549)	—
Net income before taxes	345,216	29	52,658	(59,245)	338,658
Federal and state income taxes	134,289	11	20,484	(48,407)	106,377
Net income	210,927	18	32,174	(10,838)	232,281
Net income (loss) attributable to non-controlling interests	—	—	—	(387)	(387)
Net income attributable to BOK Financial Corp. shareholders	\$ 210,927	\$ 18	\$ 32,174	\$ (10,451)	\$ 232,668
Average assets	\$ 16,998,626	\$ 8,722,372	\$ 6,281,127	\$ 276,277	\$ 32,278,402

Reportable segments reconciliation to the Consolidated Financial Statements for the year ended December 31, 2015 is as follows (in thousands):

	<b>Commercial</b>	<b>Consumer</b>	<b>Wealth Management</b>	<b>Funds Management and Other</b>	<b>BOK Financial Consolidated</b>
Net interest and dividend revenue from external sources	\$ 439,751	\$ 84,848	\$ 24,744	\$ 154,011	\$ 703,354
Net interest revenue (expense) from internal sources	(52,313)	28,503	24,043	(233)	—
Net interest and dividend revenue	387,438	113,351	48,787	153,778	703,354
Provision for credit losses	(6,748)	6,934	(1,083)	34,897	34,000
Net interest and dividend revenue after provision for credit losses	394,186	106,417	49,870	118,881	669,354
Other operating revenue	177,729	218,095	267,523	(4,867)	658,480
Other operating expense	202,804	203,070	228,664	261,653	896,191
Net direct contribution	369,111	121,442	88,729	(147,639)	431,643
Gain (loss) on financial instruments, net	—	(4,712)	(204)	4,916	—
Change in fair value of mortgage servicing rights	—	(4,853)	—	4,853	—
Gain (loss) on repossessed assets, net	708	916	—	(1,624)	—
Corporate expense allocations	43,279	74,936	40,357	(158,572)	—
Net income before taxes	326,540	37,857	48,168	19,078	431,643
Federal and state income taxes	127,024	14,726	18,737	(21,103)	139,384
Net income	199,516	23,131	29,431	40,181	292,259
Net income attributable to non-controlling interests	—	—	—	3,694	3,694
Net income attributable to BOK Financial Corp. shareholders	\$ 199,516	\$ 23,131	\$ 29,431	\$ 36,487	\$ 288,565
Average assets	\$ 16,284,527	\$ 8,836,327	\$ 5,444,483	\$ 9,418	\$ 30,574,755

Reportable segments reconciliation to the Consolidated Financial Statements for the year ended December 31, 2014 is as follows (in thousands):

	<b>Commercial</b>	<b>Consumer</b>	<b>Wealth Management</b>	<b>Funds Management and Other</b>	<b>BOK Financial Consolidated</b>
Net interest and dividend revenue from external sources	\$ 382,331	\$ 81,852	\$ 23,817	\$ 177,194	\$ 665,194
Net interest revenue (expense) from internal sources	(40,083)	26,813	20,959	(7,689)	—
Net interest and dividend revenue	342,248	108,665	44,776	169,505	665,194
Provision for credit losses	(7,447)	5,477	213	1,757	—
Net interest and dividend revenue after provision for credit losses	349,695	103,188	44,563	167,748	665,194
Other operating revenue	171,390	214,657	242,268	(6,357)	621,958
Other operating expense	195,706	207,131	218,000	226,685	847,522
Net direct contribution	325,379	110,714	68,831	(65,294)	439,630
Gain (loss) on financial instruments, net	—	12,406	(235)	(12,171)	—
Change in fair value of mortgage servicing rights	—	(16,445)	—	16,445	—
Gain (loss) on repossessed assets, net	(3,187)	1,418	—	1,769	—
Corporate expense allocations	45,502	64,531	38,731	(148,764)	—
Net income before taxes	276,690	43,562	29,865	89,513	439,630
Federal and state income taxes	107,632	16,946	11,617	7,956	144,151
Net income	169,058	26,616	18,248	81,557	295,479
Net income attributable to non-controlling interests	—	—	—	3,044	3,044
Net income attributable to BOK Financial Corp. shareholders	\$ 169,058	\$ 26,616	\$ 18,248	\$ 78,513	\$ 292,435
Average assets	\$ 15,394,957	\$ 8,373,317	\$ 5,002,515	\$ (771,931)	\$ 27,998,858

## **(18) Fair Value Measurements**

Fair value is defined by applicable accounting guidance as the price to sell an asset or transfer a liability in an orderly transaction between market participants in the principal market for the given asset or liability at the measurement date based on market conditions at that date. An orderly transaction assumes exposure to the market for a customary period for marketing activities prior to the measurement date and not a forced liquidation or distressed sale. Certain assets and liabilities are recorded in the Company's financial statements at fair value. Some are recorded on a recurring basis and some on a non-recurring basis.

For some assets and liabilities, observable market transactions and market information might be available. For other assets and liabilities, observable market transactions and market information might not be available. A hierarchy for fair value has been established which categorizes into three levels the inputs to valuation techniques used to measure fair value. The three levels are as follows:

Quoted Prices in Active Markets for Identical Assets or Liabilities (Level 1) - fair value is based on unadjusted quoted prices in active markets for identical assets or liabilities.

Significant Other Observable Inputs (Level 2) - fair value is based on significant other observable inputs which are generally determined based on a single price for each financial instrument provided to us by an applicable third-party pricing service and is based on one or more of the following:

- Quoted prices for similar, but not identical, assets or liabilities in active markets;
- Quoted prices for identical or similar assets or liabilities in inactive markets;
- Inputs other than quoted prices that are observable, such as interest rate and yield curves, volatilities, prepayment speeds, loss severities, credit risks and default rates;
- Other inputs derived from or corroborated by observable market inputs.

Significant Unobservable Inputs (Level 3) - fair value is based upon model-based valuation techniques for which at least one significant assumption is not observable in the market.

Transfers between levels are recognized as of the end of the reporting period. There were no transfers in or out of quoted prices in active markets for identical instruments to significant other observable inputs or significant unobservable inputs during the year ended December 31, 2016 and 2015, respectively. Transfers between significant other observable inputs and significant unobservable inputs during the year ended December 31, 2016 and 2015 are included in the summary of changes in recurring fair values measured using unobservable inputs.

The underlying methods used by the third-party pricing services are considered in determining the primary inputs used to determine fair values. Management has evaluated the methodologies employed by the third-party pricing services by comparing the price provided by the pricing service with other sources, including brokers' quotes, sales or purchases of similar instruments and discounted cash flows to establish a basis for reliance on the pricing service values. Significant differences between the pricing service provided value and other sources are discussed with the pricing service to understand the basis for their values. Based on all observable inputs, management may adjust prices obtained from third-party pricing services to more appropriately reflect the prices that would be received to sell assets or paid to transfer liabilities in orderly transactions in the current market. No significant adjustments were made to prices provided by third-party pricing services at December 31, 2016 and 2015.

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

The fair value of financial assets and liabilities that are measured on a recurring basis is as follows as of December 31, 2016 (in thousands):

	Total	Quoted Prices in Active Markets for Identical Instruments	Significant Other Observable Inputs	Significant Unobservable Inputs
Assets:				
Trading securities:				
U.S. government agency debentures	\$ 6,234	\$ —	\$ 6,234	\$ —
U.S. agency residential mortgage-backed securities	310,067	—	310,067	—
Municipal and other tax-exempt securities	14,427	—	14,427	—
Other trading securities	6,900	—	6,900	—
Total trading securities	337,628	—	337,628	—
Available for sale securities:				
U.S. Treasury securities	999	999	—	—
Municipal and other tax-exempt securities	40,993	—	35,204	5,789
U.S. government agency residential mortgage-backed securities	5,460,386	—	5,460,386	—
Privately issued residential mortgage-backed securities	115,535	—	115,535	—
Commercial mortgage-backed securities guaranteed by U.S. government agencies	3,017,933	—	3,017,933	—
Other debt securities	4,152	—	—	4,152
Perpetual preferred stock	18,474	—	18,474	—
Equity securities and mutual funds	18,357	3,495	14,862	—
Total available for sale securities	8,676,829	4,494	8,662,394	9,941
Fair value option securities – U.S. government agency residential mortgage-backed securities	77,046	—	77,046	—
Residential mortgage loans held for sale	301,897	—	290,280	11,617
Mortgage servicing rights, net <sup>1</sup>	247,073	—	—	247,073
Derivative contracts, net of cash margin <sup>2</sup>	689,872	7,541	682,331	—
Liabilities:				
Derivative contracts, net of cash margin <sup>2</sup>	664,531	6,972	657,559	—

<sup>1</sup> A reconciliation of the beginning and ending fair value of mortgage servicing rights and disclosures of significant assumptions used to determine fair value are presented in Note 7, Mortgage Banking Activities.

<sup>2</sup> See Note 3 for detail of fair value of derivative contracts by contract type. Derivative contracts in a net asset position that were valued based on quoted prices in active markets or identical instruments (Level 1) are exchange-traded interest rate and energy derivative contracts, net of cash margin. Derivative contracts in a net liability position that were valued using quoted prices in active markets for identical instruments (Level 1) are exchange-traded interest rate, energy and agricultural derivative contracts, net of cash margin.

The fair value of financial assets and liabilities that are measured on a recurring basis is as follows as of December 31, 2015 (in thousands):

	Total	Quoted Prices in Active Markets for Identical Instruments	Significant Other Observable Inputs	Significant Unobservable Inputs
Assets:				
Trading securities:				
U.S. government agency debentures	\$ 61,295	\$ —	\$ 61,295	\$ —
U.S. government agency residential mortgage-backed securities	10,989	—	10,989	—
Municipal and other tax-exempt securities	31,901	—	31,901	—
Other trading securities	18,219	—	18,219	—
Total trading securities	122,404	—	122,404	—
Available for sale securities:				
U.S. Treasury securities	995	995	—	—
Municipal and other tax-exempt securities	56,817	—	47,207	9,610
U.S. government agency residential mortgage-backed securities	5,898,351	—	5,898,351	—
Privately issued residential mortgage-backed securities	139,118	—	139,118	—
Commercial mortgage-backed securities guaranteed by U.S. government agencies	2,905,796	—	2,905,796	—
Other debt securities	4,151	—	—	4,151
Perpetual preferred stock	19,672	—	19,672	—
Equity securities and mutual funds	17,833	3,265	14,568	—
Total available for sale securities	9,042,733	4,260	9,024,712	13,761
Fair value option securities – U.S. government agency residential mortgage-backed securities	444,217	—	444,217	—
Residential mortgage loans held for sale	308,439	—	300,565	7,874
Mortgage servicing rights, net <sup>1</sup>	218,605	—	—	218,605
Derivative contracts, net of cash margin <sup>2</sup>	586,270	38,530	547,740	—
Liabilities:				
Derivative contracts, net of cash margin <sup>2</sup>	581,701	—	581,701	—

<sup>1</sup> A reconciliation of the beginning and ending fair value of mortgage servicing rights and disclosures of significant assumptions used to determine fair value are presented in Note 7, Mortgage Banking Activities.

<sup>2</sup> See Note 3 for detail of fair value of derivative contracts by contract type. Derivative contracts in a net asset position that were valued based on quoted prices in active markets for identical instruments (Level 1) are exchange-traded energy derivative contracts, net of cash margin. Derivative contracts in a net liability position that were valued using quoted prices in active markets for identical instruments based on quoted prices in active markets for identical instruments (Level 1) are exchange-traded interest rate and agricultural derivative contracts, fully offset by cash margin.



Following is a description of the Company's valuation methodologies used for assets and liabilities measured on a recurring basis:

#### *Securities*

The fair values of trading, available for sale and fair value option securities are based on quoted prices for identical instruments in active markets, when available. If quoted prices for identical instruments are not available, fair values are based on significant other observable inputs such as quoted prices of comparable instruments or interest rates and credit spreads, yield curves, volatilities, prepayment speeds and loss severities.

The fair value of certain available for sale municipal and other debt securities may be based on significant unobservable inputs. These significant unobservable inputs include limited observed trades, projected cash flows, current credit rating of the issuers and, when applicable, the insurers of the debt and observed trades of similar debt. Discount rates are primarily based on reference to interest rate spreads on comparable securities of similar duration and credit rating as determined by the nationally-recognized rating agencies adjusted for a lack of trading volume. Significant unobservable inputs are developed by investment securities professionals involved in the active trading of similar securities. A summary of significant inputs used to value these securities follows. A management committee composed of senior members from the Company's Capital Markets, Risk Management and Finance departments assess the appropriateness of these inputs quarterly.

#### *Derivatives*

All derivative instruments are carried on the balance sheet at fair value. Fair values for exchange-traded contracts are based on quoted prices. Fair values for over-the-counter interest rate, commodity and foreign exchange contracts are based on valuations provided either by third-party dealers in the contracts, quotes provided by independent pricing services, or a third-party provided pricing model that uses significant other observable market inputs.

Credit risk is considered in determining the fair value of derivative instruments. Management determines fair value adjustments based on various risk factors including but not limited to counterparty credit rating or equivalent loan grading, derivative contract notional size, price volatility of the underlying commodity, duration of the derivative contracts and expected loss severity. Expected loss severity is based on historical losses for similarly risk graded commercial loan customers. Decreases in counterparty credit rating or grading and increases in price volatility and expected loss severity all tend to increase the credit quality adjustment which reduces the fair value of asset contracts.

We also consider our own credit risk in determining the fair value of derivative contracts. Changes in our credit rating would affect the fair value of our derivative liabilities. In the event of a credit downgrade, the fair value of our derivative liabilities would increase. The change in the fair value would be recognized in earnings in the current period.

#### *Residential Mortgage Loans Held for Sale*

Residential mortgage loans held for sale are carried on the balance sheet at fair value. The fair values of conforming residential mortgage loans held for sale are based upon quoted market prices of such loans sold in securitization transactions, including related unfunded loan commitments. The fair value of mortgage loans that are unable to be sold to U.S. government agencies is determined using quoted prices of loans that are sold in securitization transactions with a liquidity discount applied.

#### *Other Assets - Private Equity Funds*

The fair value of the portfolio investments of the Company's two private equity funds are based upon net asset value reported by the underlying funds, as adjusted by the general partner when necessary, as a practical expedient to measure the fair value of the investments in the underlying funds. The Company's private equity funds provide customers alternative investment opportunities as limited partners of the funds. As fund of funds, the private equity funds invest in other limited partnerships or limited liability companies that invest substantially all of their assets in U.S. companies pursuing diversified investment strategies including early-stage venture capital, distressed securities and corporate or asset buy-outs. Private equity fund assets are long-term, illiquid investments. No secondary market exists for these assets. The private equity funds typically invest in funds that provide no redemption rights to investors. The fair value of the private equity investments may only be realized through cash distributions from the underlying funds.

See Note 14 for disclosure of the fair value of the private equity funds using the net asset value per share of the underlying investments, as a practical expedient, included in Other assets in the Consolidated Balance Sheets of the Company.

The following represents the changes related to assets measured at fair value on a recurring basis using significant unobservable inputs (in thousands):

	Available for Sale Securities		Residential mortgage loans held for sale
	Municipal and other tax-exempt securities	Other debt securities	
Balance, December 31, 2014	\$ 10,093	\$ 4,150	\$ 11,856
Transfer to Level 3 from Level 2 <sup>1</sup>	—	—	2,193
Purchases and capital calls	—	—	—
Redemptions and distributions	—	—	—
Proceeds from sales	—	—	(6,283)
Gain (loss) recognized in earnings:			
Mortgage banking revenue	—	—	108
Other comprehensive income (loss):			
Net change in unrealized gain (loss)	(483)	1	—
Balance, December 31, 2015	9,610	4,151	7,874
Transfer to Level 3 from Level 2 <sup>1</sup>	—	—	6,631
Purchases and capital calls	—	—	—
Redemptions and distributions	(3,975)	—	—
Proceeds from sales	—	—	(2,540)
Gain (loss) recognized in earnings:			
Mortgage banking revenue	—	—	(348)
Other comprehensive income (loss):			
Net change in unrealized gain (loss)	154	1	—
Balance, December 31, 2016	\$ 5,789	\$ 4,152	\$ 11,617

<sup>1</sup> Recurring transfers to Level 3 from Level 2 consist of residential mortgage loans intended for sale to U.S. government agencies that fail to meet conforming standards.

A summary of quantitative information about assets measured at fair value on a recurring basis using significant unobservable inputs (Level 3) as of December 31, 2016 follows (in thousands):

Quantitative Information about Level 3 Recurring Fair Value Measurements							
	Par Value	Amortized Cost/ Unpaid Principal Balance	Fair Value	Valuation Technique(s)	Significant Unobservable Input	Range (Weighted Average)	
Available for sale securities:							
Municipal and other tax-exempt securities	\$ 6,195	\$ 6,163	\$ 5,712	Discounted cash flows	Interest rate spread	5.91%-6.21% (6.16%) 90.00%-93.40% (92.20%)	<sup>2</sup> <sup>3</sup>
Other debt securities	4,400	4,400	4,152	Discounted cash flows	Interest rate spread	6.01% - 6.26% (6.23%) 94.34% - 94.36% (94.36%)	<sup>4</sup> <sup>3</sup>
Residential mortgage loans held for sale	N/A	12,431	11,617	Quoted prices of loans sold in securitization transactions, with a liquidity discount applied	Liquidity discount applied to the market value of mortgage loans qualifying for sale to U.S. government agencies	93.45%	

<sup>1</sup> Discounted cash flows developed using discount rates primarily based on reference to interest rate spreads for comparable securities of similar duration and credit rating as determined by the nationally-recognized rating agencies, adjusted for lack of trading volume.

<sup>2</sup> Interest rate yields used to value investment grade tax-exempt securities represent a spread of 467 to 525 basis points over average yields for comparable tax-exempt securities.

<sup>3</sup> Represents fair value as a percentage of par value.

<sup>4</sup> Interest rate yields used to value investment grade taxable securities based on comparable short-term taxable securities which are generally yielding approximately 1%.

A summary of quantitative information about Recurring Fair Value Measurements based on Significant Unobservable Inputs (Level 3) as of December 31, 2015 follows (in thousands):

Quantitative Information about Level 3 Recurring Fair Value Measurements							
	Par Value	Amortized Cost <sup>6</sup>	Fair Value	Valuation Technique(s)	Significant Unobservable Input	Range (Weighted Average)	
Available for sale securities:							
Municipal and other tax-exempt securities	\$ 10,370	\$ 10,311	\$ 9,610	Discounted cash flows	Interest rate spread	5.47%-5.77% (5.73%) 92.34%-92.93% (92.67%)	<sup>2</sup> <sup>3</sup>
Other debt securities	4,400	4,400	4,151	Discounted cash flows	Interest rate spread	5.80% - 5.92% (5.90%) 94.33% - 94.34% (94.34%)	<sup>4</sup> <sup>3</sup>
Residential mortgage loans held for sale	N/A	8,395	7,874	Quoted prices of loans sold in securitization transactions, with a liquidity discount applied	Liquidity discount applied to the market value of mortgage loans qualifying for sale to U.S. government agencies	93.79%	

<sup>1</sup> Discounted cash flows developed using discount rates primarily based on reference to interest rate spreads for comparable securities of similar duration and credit rating as determined by the nationally-recognized rating agencies, adjusted for lack of trading volume.

<sup>2</sup> Interest rate yields used to value investment grade tax-exempt securities represent a spread of 499 to 541 basis points over average yields for comparable tax-exempt securities.

<sup>3</sup> Represents fair value as a percentage of par value.

<sup>4</sup> Interest rate yields used to value investment grade taxable securities based on comparable short-term taxable securities which are generally yielding less than 1%.

## Fair Value of Assets and Liabilities Measured on a Non-Recurring Basis

Assets measured at fair value on a non-recurring basis include pension plan assets, which are based on quoted prices in active markets for identical instruments, collateral for certain impaired loans and real property and other assets acquired to satisfy loans, which are based primarily on comparisons to completed sales of similar assets. See Note 6 for information related to the non-recurring fair value measurement of Mobank.

The following represents the carrying value of assets measured at fair value on a non-recurring basis and related losses recorded during the year. The carrying value represents only those assets with the balance sheet date for which the fair value was adjusted during the year:

	Carrying Value at December 31, 2016			Fair Value Adjustments for the Year Ended December 31, 2016 Recognized In:	
	Quoted Prices in Active Markets for Identical Instruments	Significant Other Observable Inputs	Significant Unobservable Inputs	Gross charge-offs against allowance for loan losses	Net losses and expenses of repossessed assets, net
Impaired loans	\$ —	\$ 539	\$ 11,295	\$ 7,594	\$ —
Real estate and other repossessed assets	—	7,965	2,192	—	2,527

	Carrying Value at December 31, 2015			Fair Value Adjustments for the Year Ended December 31, 2015 Recognized In:	
	Quoted Prices in Active Markets for Identical Instruments	Significant Other Observable Inputs	Significant Unobservable Inputs	Gross charge-offs against allowance for loan losses	Net losses and expenses of repossessed assets, net
Impaired loans	\$ —	\$ 252	\$ 20,805	\$ 4,042	\$ —
Real estate and other repossessed assets	—	13,611	245	—	1,820

The fair value of collateral-dependent impaired loans and real estate and other repossessed assets and the related fair value adjustments are generally based on unadjusted third-party appraisals. Our appraisal review policies require appraised values to be supported by observed inputs derived principally from or corroborated by observable market data. Appraisals that are not based on observable inputs or that require significant adjustments or fair value measurements that are not based on third-party appraisals are considered to be based on significant unobservable inputs. Non-recurring fair value measurements of collateral-dependent impaired loans and real estate and other repossessed assets based on significant unobservable inputs are generally due to estimates of current fair values between appraisal dates. Significant unobservable inputs include listing prices for comparable assets, uncorroborated expert opinions or management's knowledge of the collateral or industry. Non-recurring fair value measurements of collateral dependent loans secured by mineral rights are generally determined by our internal staff of engineers on projected cash flows under current market conditions and are based on significant unobservable inputs. Projected cash flows are discounted according to risk characteristics of the underlying oil and gas properties. Assets are evaluated to demonstrate with reasonable certainty that crude oil, natural gas and natural gas liquids can be recovered from known oil and gas reservoirs under existing economic and operating conditions at current prices with existing conventional equipment, operating methods and costs. Significant unobservable inputs are developed by asset management and workout professionals and approved by senior Credit Administration executives.

A summary of quantitative information about Non-recurring Fair Value Measurements based on Significant Unobservable Inputs (Level 3) as of December 31, 2016 follows (in thousands):

Quantitative Information about Level 3 Non-recurring Fair Value Measurements				
	Fair Value	Valuation Technique(s)	Significant Unobservable Input	Range (Weighted Average)
Impaired loans	\$ 11,295	Appraised value, as adjusted	Recoverable oil and gas reserves, forward-looking commodity prices and estimated operating costs	22% - 59% (57%) <sup>1</sup>
Real estate and other repossessed assets	2,192	Appraised value, as adjusted	Marketability adjustments off appraised value <sup>2</sup>	70% - 87% (74%)

<sup>1</sup> Represents fair value as a percentage of the unpaid principal balance.

<sup>2</sup> Marketability adjustments include consideration of estimated costs to sell which is approximately 10% of the fair value.

A summary of quantitative information about Non-recurring Fair Value Measurements based on Significant Unobservable Inputs (Level 3) as of December 31, 2015 follows (in thousands):

Quantitative Information about Level 3 Non-recurring Fair Value Measurements				
	Fair Value	Valuation Technique(s)	Significant Unobservable Input	Range (Weighted Average)
Impaired loans	\$ 20,805	Appraised value, as adjusted	Broker quotes and management's knowledge of industry and collateral.	N/A
Real estate and other repossessed assets	245	Appraised value, as adjusted	Marketability adjustments off appraised value <sup>1</sup>	66%-81% (74%)

<sup>1</sup> Marketability adjustments include consideration of estimated costs to sell which is approximately 10% of the fair value.

The fair value of pension plan assets was approximately \$42 million at December 31, 2016 and \$44 million at December 31, 2015, determined by significant other observable inputs. Fair value adjustments of pension plan assets along with changes in the projected benefit obligation are recognized in other comprehensive income.

## Fair Value of Financial Instruments

The following table presents the carrying values and estimated fair values of all financial instruments, including those financial assets and liabilities that are not measured and reported at fair value on a recurring basis or non-recurring (dollars in thousands):

	December 31, 2016				
	Carrying Value	Estimated Fair Value	Quoted Prices in Active Markets for Identical Instruments (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Cash and due from banks	\$ 620,846	620,846	620,846	—	—
Interest-bearing cash and cash equivalents	1,916,651	1,916,651	1,916,651	—	—
Trading securities:					
U.S. government agency debentures	6,234	6,234	—	6,234	—
U.S. government agency residential mortgage-backed securities	310,067	310,067	—	310,067	—
Municipal and other tax-exempt securities	14,427	14,427	—	14,427	—
Other trading securities	6,900	6,900	—	6,900	—
Total trading securities	337,628	337,628	—	337,628	—
Investment securities:					
Municipal and other tax-exempt securities	320,364	321,225	—	321,225	—
U.S. government agency residential mortgage-backed securities	20,777	21,473	—	21,473	—
Other debt securities	205,004	222,795	—	222,795	—
Total investment securities	546,145	565,493	—	565,493	—
Available for sale securities:					
U.S. Treasury securities	999	999	999	—	—
Municipal and other tax-exempt securities	40,993	40,993	—	35,204	5,789
U.S. government agency residential mortgage-backed securities	5,460,386	5,460,386	—	5,460,386	—
Privately issued residential mortgage-backed securities	115,535	115,535	—	115,535	—
Commercial mortgage-backed securities guaranteed by U.S. government agencies	3,017,933	3,017,933	—	3,017,933	—
Other debt securities	4,152	4,152	—	—	4,152
Perpetual preferred stock	18,474	18,474	—	18,474	—
Equity securities and mutual funds	18,357	18,357	3,495	14,862	—
Total available for sale securities	8,676,829	8,676,829	4,494	8,662,394	9,941
Fair value option securities – U.S. government agency residential mortgage-backed securities	77,046	77,046	—	77,046	—
Residential mortgage loans held for sale	301,897	301,897	—	290,280	11,617
Loans:					
Commercial	10,390,824	10,437,016	—	—	10,437,016
Commercial real estate	3,809,046	3,850,981	—	—	3,850,981
Residential mortgage	1,949,832	2,025,159	—	—	2,025,159
Personal	839,958	864,904	—	—	864,904
Total loans	16,989,660	17,178,060	—	—	17,178,060
Allowance for loan losses	(246,159)	—	—	—	—
Loans, net of allowance	16,743,501	17,178,060	—	—	17,178,060
Mortgage servicing rights	247,073	247,073	—	—	247,073
Derivative instruments with positive fair value, net of cash margin	689,872	689,872	7,541	682,331	—
Deposits with no stated maturity	20,526,295	20,526,295	—	—	20,526,295
Time deposits	2,221,800	2,218,303	—	—	2,218,303
Other borrowed funds	5,572,662	5,556,327	—	—	5,556,327
Subordinated debentures	144,640	128,903	—	128,903	—
Derivative instruments with negative fair value, net of cash margin	664,531	664,531	6,972	657,559	—

December 31, 2015

	Carrying Value	Estimated Fair Value	Quoted Prices in Active Markets for Identical Instruments (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Cash and due from banks	\$ 573,699	\$ 573,699	573,699	—	\$ —
Interest-bearing cash and cash equivalents	2,069,900	2,069,900	2,069,900	—	—
Trading securities:					
U.S. government agency debentures	61,295	61,295	—	61,295	—
U.S. government agency residential mortgage-backed securities	10,989	10,989	—	10,989	—
Municipal and other tax-exempt securities	31,901	31,901	—	31,901	—
Other trading securities	18,219	18,219	—	18,219	—
Total trading securities	122,404	122,404	—	122,404	—
Investment securities:					
Municipal and other tax-exempt securities	365,258	368,910	—	368,910	—
U.S. government agency residential mortgage-backed securities	26,833	27,874	—	27,874	—
Other debt securities	205,745	232,375	—	232,375	—
Total investment securities	597,836	629,159	—	629,159	—
Available for sale securities:					
U.S. Treasury securities	995	995	995	—	—
Municipal and other tax-exempt securities	56,817	56,817	—	47,207	9,610
U.S. government agency residential mortgage-backed securities	5,898,351	5,898,351	—	5,898,351	—
Privately issued residential mortgage-backed securities	139,118	139,118	—	139,118	—
Commercial mortgage-backed securities guaranteed by U.S. government agencies	2,905,796	2,905,796	—	2,905,796	—
Other debt securities	4,151	4,151	—	—	4,151
Perpetual preferred stock	19,672	19,672	—	19,672	—
Equity securities and mutual funds	17,833	17,833	3,265	14,568	—
Total available for sale securities	9,042,733	9,042,733	4,260	9,024,712	13,761
Fair value option securities – U.S. government agency residential mortgage-backed securities	444,217	444,217	—	444,217	—
Residential mortgage loans held for sale	308,439	308,439	—	300,565	7,874
Loans:					
Commercial	10,252,531	10,053,952	—	—	10,053,952
Commercial real estate	3,259,033	3,233,476	—	—	3,233,476
Residential mortgage	1,876,893	1,902,976	—	—	1,902,976
Personal	552,697	549,068	—	—	549,068
Total loans	15,941,154	15,739,472	—	—	15,739,472
Allowance for loan losses	(225,524)	—	—	—	—
Loans, net of allowance	15,715,630	15,739,472	—	—	15,739,472
Mortgage servicing rights	218,605	218,605	—	—	218,605
Derivative instruments with positive fair value, net of cash margin	586,270	586,270	38,530	547,740	—
Deposits with no stated maturity	18,682,094	18,682,094	—	—	18,682,094
Time deposits	2,406,064	2,394,562	—	—	2,394,562
Other borrowed funds	6,051,515	5,600,932	—	—	5,600,932
Subordinated debentures	226,350	223,758	—	—	223,758
Derivative instruments with negative fair value, net of cash margin	581,701	581,701	—	581,701	—

Because no market exists for certain of these financial instruments and management does not intend to sell these financial instruments, the fair values shown in the tables above may not represent values at which the respective financial instruments could be sold individually or in the aggregate at the given reporting date.



The following methods and assumptions were used in estimating the fair value of these financial instruments:

#### *Cash and Cash Equivalents*

The book value reported in the consolidated balance sheet for cash and short-term instruments approximates those assets' fair values.

#### *Securities*

The fair values of securities are generally based on Significant Other Observable Inputs such as quoted prices for comparable instruments or interest rates and credit spreads, yield curves, volatilities, prepayment speeds and loss severities.

#### *Loans*

The fair value of loans, excluding loans held for sale, are based on discounted cash flow analyses using interest rates and credit and liquidity spreads currently being offered for loans with similar remaining terms to maturity and risk, adjusted for the impact of interest rate floors and ceilings which are classified as Significant Unobservable Inputs. The fair values of loans were estimated to approximate their discounted cash flows less loan loss allowances allocated to these loans of \$218 million at December 31, 2016 and \$195 million at December 31, 2015. A summary of assumptions used in determining the fair value of loans follows:

	<b>Range of Contractual Yields</b>	<b>Average Re-pricing (in years)</b>	<b>Discount Rate</b>
December 31, 2016			
Commercial	0.38% - 30.00%	0.70	0.64% - 4.60%
Commercial real estate	0.38% - 18.00%	0.71	0.94% - 4.27%
Residential mortgage	1.74% - 18.00%	2.27	1.71% - 4.26%
Personal	0.25% - 21.00%	0.40	1.03% - 4.59%
December 31, 2015			
Commercial	0.25% - 30.00%	0.62	0.52% - 4.34%
Commercial real estate	0.38% - 18.00%	0.73	0.95% - 3.93%
Residential mortgage	1.67% - 18.00%	2.42	0.86% - 4.25%
Personal	0.38% - 21.00%	0.37	1.19% - 4.11%

#### *Deposits*

The fair values of time deposits are based on discounted cash flow analyses using interest rates currently being offered on similar transactions which are considered Significant Unobservable Inputs. Estimated fair value of deposits with no stated maturity, which includes demand deposits, transaction deposits, money market deposits and savings accounts, is equal to the amount payable on demand. Although market premiums paid reflect an additional value for these low cost deposits, adjusting fair value for the expected benefit of these deposits is prohibited. Accordingly, the positive effect of such deposits is not included in the tables above. A summary of assumptions used in determining the fair value of time deposits follows:

	<b>Range of Contractual Yields</b>	<b>Average Re-pricing (in years)</b>	<b>Discount Rate</b>
December 31, 2016	0.02% - 9.65%	1.96	1.57% - 2.00%
December 31, 2015	0.02% - 5.50%	1.78	1.11% - 1.57%

### *Other Borrowed Funds and Subordinated Debentures*

The fair values of these instruments are based upon discounted cash flow analyses using interest rates currently being offered on similar instruments which are considered Significant Unobservable Inputs. A summary of assumptions used in determining the fair value of other borrowings and subordinated debentures follows:

	<b>Range of Contractual Yields</b>	<b>Average Re-pricing (in years)</b>	<b>Discount Rate</b>
December 31, 2016			
Other borrowed funds	0.25% - 3.50%	0.00	0.55% - 3.22%
Subordinated debentures	5.38%	16.86	6.11%
December 31, 2015			
Other borrowed funds	0.25% - 3.40%	0.00	0.20% - 2.89%
Subordinated debentures	1.05%	1.37	2.12%

### *Off-Balance Sheet Instruments*

The fair values of commercial loan commitments are based on fees currently charged to enter into similar agreements, taking into account the remaining terms of the agreements. The fair values of these off-balance sheet instruments were not significant at December 31, 2016 or December 31, 2015.

### **Fair Value Election**

As more fully disclosed in Note 2 and Note 7 to the Consolidated Financial Statements, the Company has elected to carry all U.S. government agency residential mortgage-backed securities held as economic hedges against changes in the fair value of mortgage servicing rights and all residential mortgage loans originated for sale at fair value. Changes in the fair value of these financial instruments are recognized in earnings.

## (19) Parent Company Only Financial Statements

Summarized financial information for BOK Financial – Parent Company Only follows:

### Balance Sheets

(In thousands)

	December 31,	
	2016	2015
<b>Assets</b>		
Cash and cash equivalents	\$ 163,418	\$ 282,169
Available for sale securities	19,234	20,150
Investment in bank subsidiaries	3,067,595	2,746,810
Investment in non-bank subsidiaries	177,068	186,271
Other assets	4,865	1,534
Total assets	\$ 3,432,180	\$ 3,236,934
<b>Liabilities and Shareholders' Equity</b>		
Liabilities:		
Other liabilities	\$ 5,469	\$ 6,378
Other borrowings – Trust preferred debt	7,217	—
Subordinated debentures	144,640	—
Total liabilities	157,326	6,378
Shareholders' equity:		
Common stock	4	4
Capital surplus	1,006,535	982,009
Retained earnings	2,823,334	2,704,121
Treasury stock	(544,052)	(477,165)
Accumulated other comprehensive income (loss)	(10,967)	21,587
Total shareholders' equity	3,274,854	3,230,556
Total liabilities and shareholders' equity	\$ 3,432,180	\$ 3,236,934

# Statements of Earnings

(In thousands)

	Year Ended December 31,		
	2016	2015	2014
Dividends, interest and fees received from bank subsidiaries	\$ 15,237	\$ 150,308	\$ 75,412
Dividends, interest and fees received from non-bank subsidiaries	25,923	—	—
Other revenue	1,612	1,279	1,572
Total revenue	42,772	151,587	76,984
Interest expense	4,182	131	293
Charitable contributions to BOKF Foundation	—	—	2,420
Professional fees and services	395	378	600
Other operating expense	1,583	1,864	1,556
Total expense	6,160	2,373	4,869
Income before taxes and equity in undistributed income of subsidiaries	36,612	149,214	72,115
Federal and state income taxes	(1,920)	(375)	(1,702)
Income before equity in undistributed income of subsidiaries	38,532	149,589	73,817
Equity in undistributed income of bank subsidiaries	216,120	134,045	214,435
Equity in undistributed income of non-bank subsidiaries	(21,984)	4,931	4,183
Net income attributable to BOK Financial Corp. shareholders	\$ 232,668	\$ 288,565	\$ 292,435

## Statements of Cash Flows

(In thousands)

	Year Ended December 31,		
	2016	2015	2014
<b>Cash Flows From Operating Activities:</b>			
Net income	\$ 232,668	\$ 288,565	\$ 292,435
Adjustments to reconcile net income to net cash provided by operating activities:			
Equity in undistributed income of bank subsidiaries	(216,120)	(134,045)	(214,435)
Equity in undistributed income of non-bank subsidiaries	21,984	(4,931)	(4,183)
Tax effect from equity compensation, net	(1,505)	(925)	(8,258)
Change in other assets	(2,933)	49	8,726
Change in other liabilities	(1,285)	(2,818)	1,055
Net cash provided by operating activities	32,809	145,895	75,340
<b>Cash Flows From Investing Activities:</b>			
Proceeds from sales of available for sale securities	1,632	4,760	—
Investment in subsidiaries	(26,000)	(41,969)	(15,336)
Acquisitions, net of cash acquired	(105,520)	—	—
Net cash used in investing activities	(129,888)	(37,209)	(15,336)
<b>Cash Flows From Financing Activities:</b>			
Issuance of subordinated debentures, net of issuance costs	144,615	—	—
Issuance of common and treasury stock, net	12,455	6,711	4,472
Tax effect from equity compensation, net	1,505	925	8,258
Dividends paid	(113,455)	(115,281)	(111,026)
Repurchase of common stock	(66,792)	(229,540)	(12,337)
Net cash used in financing activities	(21,672)	(337,185)	(110,633)
Net decrease in cash and cash equivalents	(118,751)	(228,499)	(50,629)
Cash and cash equivalents at beginning of period	282,169	510,668	561,297
<b>Cash and cash equivalents at end of period</b>	<b>\$ 163,418</b>	<b>\$ 282,169</b>	<b>\$ 510,668</b>
<b>Cash paid for interest</b>	<b>\$ 4,127</b>	<b>\$ 131</b>	<b>\$ 293</b>
<b>Issuance of shares in settlement of deferred compensation, net</b>	<b>\$ —</b>	<b>\$ —</b>	<b>\$ 8,352</b>

## (20) Subsequent Events

The Company evaluated events from the date of the consolidated financial statements on December 31, 2016 through the issuance of those consolidated financial statements included in this Annual Report on Form 10-K. No events were identified requiring recognition in and/or disclosure in the consolidated financial statements.

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**Annual Financial Summary – Unaudited**

Consolidated Daily Average Balances, Average Yields and Rates

(Dollars in Thousands, Except Per Share Data)

	Year Ended		
	December 31, 2016		
	Average Balance	Revenue/ Expense	Yield/ Rate
<b>Assets</b>			
Interest-bearing cash and cash equivalents	\$ 2,038,919	\$ 10,726	0.53%
Trading securities	317,808	9,213	3.43%
Investment securities			
Taxable	226,442	12,268	5.42%
Tax-exempt	334,812	7,567	2.26%
Total investment securities	561,254	19,835	3.54%
Available for sale securities			
Taxable	8,799,716	173,272	2.01%
Tax-exempt	67,667	3,353	5.18%
Total available for sale securities	8,867,383	176,625	2.03%
Fair value option securities	323,695	6,723	1.93%
Restricted equity securities	320,975	17,238	5.37%
Residential mortgage loans held for sale	370,600	12,658	3.45%
Loans	16,357,867	593,700	3.63%
Allowance for loan losses	(243,631)		
Loans, net of allowance	16,114,236	593,700	3.68%
Total earning assets	28,914,870	846,718	2.95%
Receivable on unsettled securities sales	114,773		
Cash and other assets	3,248,759		
Total assets	\$ 32,278,402		
<b>Liabilities and equity</b>			
Interest-bearing deposits:			
Transaction	\$ 9,744,998	\$ 13,906	0.14%
Savings	414,103	386	0.09%
Time	2,259,242	26,202	1.16%
Total interest-bearing deposits	12,418,343	40,494	0.33%
Funds purchased	78,222	186	0.24%
Repurchase agreements	589,145	248	0.04%
Other borrowings	6,019,647	34,902	0.58%
Subordinated debentures	214,842	6,059	2.82%
Total interest-bearing liabilities	19,320,199	81,889	0.42%
Non-interest bearing demand deposits	8,474,230		
Due on unsettled securities purchases	132,539		
Other liabilities	1,002,018		
Total equity	3,349,416		
Total liabilities and equity	\$ 32,278,402		
<b>Tax-equivalent Net Interest Revenue</b>		\$ 764,829	2.53%
<b>Tax-equivalent Net Interest Revenue to Earning Assets</b>			2.66%
Less tax-equivalent adjustment		17,601	
<b>Net Interest Revenue</b>		747,228	
Provision for credit losses		65,000	
Other operating revenue		674,020	
Other operating expense		1,017,590	
<b>Net income before taxes</b>		338,658	
Federal and state income taxes		106,377	
<b>Net income</b>		232,281	
Net income attributable to non-controlling interests		(387)	
<b>Net income attributable to BOK Financial Corporation shareholders</b>		\$ 232,668	
<b>Earnings Per Average Common Share Equivalent:</b>			
Net income:			
Basic		\$ 3.53	
Diluted		\$ 3.53	

Yield calculations are shown on a tax equivalent at the statutory federal and state rates for the periods presented. The yield calculations exclude security trades that have been recorded on trade date with no corresponding interest income and the unrealized gains and losses. The yield calculation also include average loan balances for which the accrual of interest has been discontinued and are net of unearned income. Yield/rate calculations are generally based on the conventions that determine how interest income and expense is accrued.



**Annual Financial Summary – Unaudited (continued)**

Consolidated Daily Average Balances, Average Yields and Rates

(Dollars in Thousands, Except Per Share Data)

	Year Ended					
	December 31, 2015			December 31, 2014		
	Average Balance	Revenue/ Expense	Yield/ Rate	Average Balance	Revenue/ Expense	Yield/ Rate
<b>Assets</b>						
Interest-bearing cash and cash equivalents	\$ 2,031,403	\$ 5,580	0.27%	\$ 1,127,664	\$ 2,749	0.24%
Trading securities	149,572	3,055	2.49%	120,415	2,520	2.57%
Investment securities						
Taxable	236,193	12,932	5.48%	233,105	13,183	5.66%
Tax-exempt	386,122	5,971	1.55%	422,507	6,785	1.61%
Total investment securities	622,315	18,903	3.04%	655,612	19,968	3.05%
Available for sale securities						
Taxable	8,937,418	172,582	1.97%	9,546,366	182,923	1.94%
Tax-exempt	81,469	3,341	4.25%	92,438	3,321	3.73%
Total available for sale securities	9,018,887	175,923	1.99%	9,638,804	186,244	1.95%
Fair value option securities	426,461	9,264	2.26%	183,206	3,611	2.05%
Restricted equity securities	230,140	13,532	5.88%	127,161	7,040	5.54%
Residential mortgage loans held for sale	380,979	13,602	3.59%	259,809	10,143	3.93%
Loans	15,063,002	539,426	3.58%	13,406,118	510,916	3.81%
Allowance for loan losses	(200,872)			(189,574)		
Loans, net of allowance	14,862,130	539,426	3.63%	13,216,544	510,916	3.87%
Total earning assets	27,721,887	779,285	2.84%	25,329,215	743,191	2.95%
Receivable on unsettled securities sales	80,079			88,784		
Cash and other assets	2,772,789			2,580,859		
Total assets	\$ 30,574,755			\$ 27,998,858		
<b>Liabilities and equity</b>						
Interest-bearing deposits:						
Transaction	\$ 9,919,913	\$ 8,821	0.09%	\$ 9,737,795	\$ 9,757	0.10%
Savings	377,497	383	0.10%	345,183	401	0.12%
Time	2,587,367	34,966	1.35%	2,644,847	40,525	1.53%
Total interest-bearing deposits	12,884,777	44,170	0.34%	12,727,825	50,683	0.40%
Funds purchased	69,149	65	0.09%	494,220	341	0.07%
Repurchase agreements	766,410	282	0.04%	928,767	583	0.06%
Other borrowings	4,212,417	13,857	0.33%	1,928,742	6,748	0.35%
Subordinated debentures	276,662	5,100	1.84%	347,892	8,690	2.50%
Total interest-bearing liabilities	18,209,415	63,474	0.35%	16,427,446	67,045	0.41%
Non-interest bearing demand deposits	8,048,469			7,687,333		
Due on unsettled securities purchases	173,743			136,360		
Other liabilities	769,823			536,958		
Total equity	3,373,305			3,210,761		
Total liabilities and equity	\$ 30,574,755			\$ 27,998,858		
<b>Tax-equivalent Net Interest Revenue</b>		\$ 715,811	2.49%		\$ 676,146	2.54%
<b>Tax-equivalent Net Interest Revenue to Earning Assets</b>			2.60%			2.68%
Less tax-equivalent adjustment		12,457			10,952	
<b>Net Interest Revenue</b>		703,354			665,194	
Provision for credit losses		34,000			—	
Other operating revenue		658,480			621,958	
Other operating expense		896,191			847,522	
<b>Net income before taxes</b>		431,643			439,630	
Federal and state income taxes		139,384			144,151	
<b>Net income</b>		292,259			295,479	
Net income attributable to non-controlling interests		3,694			3,044	
<b>Net income attributable to BOK Financial Corporation shareholders</b>		\$ 288,565			\$ 292,435	
<b>Earnings Per Average Common Share Equivalent:</b>						
Net income:						
Basic		\$ 4.22			\$ 4.23	
Diluted		\$ 4.21			\$ 4.22	

**Quarterly Financial Summary – Unaudited**

Consolidated Daily Average Balances, Average Yields and Rates

(In Thousands, Except Per Share Data)

	Three Months Ended					
	December 31, 2016			September 30, 2016		
	Average Balance	Revenue/Expense	Yield/Rate	Average Balance	Revenue/Expense	Yield/Rate
<b>Assets</b>						
Interest-bearing cash and cash equivalents	\$ 2,032,785	\$ 2,800	0.55%	\$ 2,047,991	\$ 2,651	0.51%
Trading securities	476,498	4,554	3.91%	366,545	3,157	2.71%
Investment securities						
Taxable	224,376	3,024	5.39%	224,518	3,000	5.34%
Tax-exempt	318,493	1,854	2.33%	328,074	1,851	2.26%
Total investment securities	542,869	4,878	3.60%	552,592	4,851	3.51%
Available for sale securities						
Taxable	8,706,449	42,482	1.98%	8,795,869	42,513	1.99%
Tax-exempt	60,106	748	5.27%	66,721	867	5.47%
Total available for sale securities	8,766,555	43,230	2.00%	8,862,590	43,380	2.01%
Fair value option securities	210,733	541	0.99%	266,998	1,531	1.70%
Restricted equity securities	334,114	4,554	5.45%	335,812	4,510	5.37%
Residential mortgage loans held for sale	345,066	2,835	3.31%	445,930	3,615	3.28%
Loans	16,723,588	156,734	3.67%	16,447,750	150,077	3.63%
Allowance for loan losses	(246,977)			(247,901)		
Loans, net of allowance	16,476,611	156,734	3.72%	16,199,849	150,077	3.69%
Total earning assets	29,185,231	220,126	2.98%	29,078,307	213,772	2.93%
Receivable on unsettled securities sales	33,813			259,906		
Cash and other assets	3,742,032			3,308,260		
Total assets	\$ 32,961,076			\$ 32,646,473		
<b>Liabilities and equity</b>						
Interest-bearing deposits:						
Transaction	\$ 9,980,132	\$ 3,912	0.16%	\$ 9,650,618	\$ 3,417	0.14%
Savings	421,654	91	0.09%	420,009	100	0.09%
Time	2,177,035	6,140	1.12%	2,197,350	6,295	1.14%
Total interest-bearing deposits	12,578,821	10,143	0.32%	12,267,977	9,812	0.32%
Funds purchased	62,004	44	0.28%	68,280	33	0.19%
Repurchase agreements	560,891	34	0.02%	522,822	53	0.04%
Other borrowings	6,072,150	9,315	0.61%	6,342,369	9,105	0.57%
Subordinated debentures	144,635	2,003	5.51%	255,890	2,468	3.84%
Total interest-bearing liabilities	19,418,501	21,539	0.44%	19,457,338	21,471	0.44%
Non-interest bearing demand deposits	9,124,595			8,497,037		
Due on unsettled securities purchases	77,575			200,574		
Other liabilities	1,004,212			1,099,858		
Total equity	3,336,193			3,391,666		
Total liabilities and equity	\$ 32,961,076			\$ 32,646,473		
<b>Tax-equivalent Net Interest Revenue</b>		\$ 198,587	2.54%		\$ 192,301	2.49%
<b>Tax-equivalent Net Interest Revenue to Earning Assets</b>			2.69%			2.64%
Less tax-equivalent adjustment		4,389			4,455	
<b>Net Interest Revenue</b>		194,198			187,846	
Provision for credit losses		—			10,000	
Other operating revenue		143,754			187,310	
Other operating expense		265,547			258,088	
<b>Net income before taxes</b>		72,405			107,068	
Federal and state income taxes		22,496			31,956	
<b>Net income</b>		49,909			75,112	
Net income attributable to non-controlling interests		(117)			835	
<b>Net income attributable to BOK Financial Corp. shareholders</b>		\$ 50,026			\$ 74,277	
<b>Earnings Per Average Common Share Equivalent:</b>						
Net income:						
Basic		\$ 0.76			\$ 1.13	
Diluted		\$ 0.76			\$ 1.13	

Yield calculations are shown on a tax equivalent at the statutory federal and state rates for the periods presented. The yield calculations exclude security trades that have been recorded on trade date with no corresponding interest income and the unrealized gains and losses. The yield calculation also include average loan balances for which the accrual of interest has been discontinued and are net of unearned income. Yield/rate calculations are generally based on the conventions that determine how interest income and expense is accrued

**Quarterly Financial Summary – Unaudited (continued)**  
Consolidated Daily Average Balances, Average Yields and Rates

Three Months Ended								
June 30, 2016			Mar. 31, 2016			December 31, 2015		
Average Balance	Revenue / Expense	Yield / Rate	Average Balance	Revenue / Expense	Yield / Rate	Average Balance	Revenue / Expense	Yield / Rate
\$ 2,022,028	\$ 2,569	0.51%	\$ 2,052,840	\$ 2,706	0.53%	\$ 1,995,945	\$ 1,466	0.29%
237,808	775	1.89%	188,100	727	2.47%	150,402	840	2.86%
227,103	3,069	5.41%	229,817	3,175	5.53%	232,566	3,144	5.41%
335,288	1,878	2.25%	357,648	1,984	2.22%	369,803	1,413	1.53%
562,391	4,947	3.52%	587,465	5,159	3.51%	602,369	4,557	3.03%
8,819,135	43,345	2.01%	8,878,478	44,932	2.06%	8,894,019	43,649	2.02%
70,977	862	5.06%	72,958	876	4.95%	77,071	786	4.22%
8,890,112	44,207	2.04%	8,951,435	45,808	2.08%	8,971,090	44,435	2.04%
368,434	2,062	2.19%	450,478	2,589	2.38%	435,449	2,461	2.32%
319,136	3,863	4.84%	294,529	4,311	5.85%	262,461	3,905	5.95%
401,114	3,508	3.53%	289,743	2,700	3.75%	310,425	2,968	3.85%
16,263,132	144,708	3.58%	15,991,993	142,181	3.57%	15,586,998	139,372	3.55%
(245,448)			(234,116)			(207,156)		
16,017,684	144,708	3.63%	15,757,877	142,181	3.63%	15,379,842	139,372	3.60%
28,818,707	206,639	2.91%	28,572,467	206,181	2.92%	28,107,983	200,004	2.86%
49,568			115,101			62,228		
3,117,767			2,820,903			2,909,965		
\$ 31,986,042			\$ 31,508,471			\$ 31,080,176		
\$ 9,590,855	\$ 3,260	0.14%	\$ 9,756,843	\$ 3,317	0.14%	\$ 9,527,491	\$ 2,098	0.09%
417,122	102	0.10%	397,479	93	0.09%	382,284	89	0.09%
2,297,621	6,635	1.16%	2,366,543	7,132	1.21%	2,482,714	7,881	1.26%
12,305,598	9,997	0.33%	12,520,865	10,542	0.34%	12,392,489	10,068	0.32%
70,682	33	0.19%	112,211	76	0.27%	73,220	21	0.11%
611,264	72	0.05%	662,640	89	0.05%	623,921	68	0.04%
6,076,028	8,675	0.57%	5,583,917	7,807	0.56%	4,957,175	4,720	0.38%
232,795	878	1.52%	226,368	710	1.26%	226,332	644	1.13%
19,296,367	19,655	0.41%	19,106,001	19,224	0.40%	18,273,137	15,521	0.34%
8,162,134			8,105,756			8,312,961		
93,812			158,050			248,811		
1,089,483			813,427			884,652		
3,344,246			3,325,237			3,360,615		
\$ 31,986,042			\$ 31,508,471			\$ 31,080,176		
\$ 186,984	2.50%		\$ 186,957	2.52%		\$ 184,483	2.52%	
	2.63%			2.65%			2.64%	
4,372			4,385			3,222		
182,612			182,572			181,261		
20,000			35,000			22,500		
185,542			157,414			158,983		
251,385			242,570			230,426		
96,769			62,416			87,318		
30,497			21,428			26,242		
66,272			40,988			61,076		
471			(1,576)			1,475		
\$ 65,801			\$ 42,564			\$ 59,601		
\$ 1.00			\$ 0.64			\$ 0.89		
\$ 1.00			\$ 0.64			\$ 0.89		

## **ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE**

None.

### **ITEM 9A. CONTROLS AND PROCEDURES**

As of the end of the period covered by this report and pursuant to Rule 13a-15 of the Securities Exchange Act of 1934 (the “Exchange Act”), the Company's management, including the Chief Executive Officer and Chief Financial Officer, conducted an evaluation of the effectiveness and design of the Company's disclosure controls and procedures (as that term is defined in Rules 13a-15(e) and 15d-15(e) of the Exchange Act). Based upon that evaluation, the Company's Chief Executive Officer and Chief Financial Officer concluded, as of the end of the period covered by this report, that the Company's disclosure controls and procedures were effective in recording, processing, summarizing and reporting information required to be disclosed by the Company, within the time periods specified in the Securities and Exchange Commission's rules and forms.

In addition and as of the end of the period covered by this report, there have been no changes in internal control over financial reporting (as defined in Rule 13a-15(f) and 15d-15(f), as amended, of the Exchange Act) during the Company's fourth fiscal quarter that have materially affected, or are reasonably likely to materially affect, the internal control over financial reporting.

Management's Report on Internal Control over Financial Reporting appears within Item 8, “Financial Statements and Supplementary Data.” The independent registered public accounting firm, Ernst & Young LLP, has audited the financial statements included in Item 8 and has issued an audit report on the Company's internal control over financial reporting, which appears therein.

### **ITEM 9B. OTHER INFORMATION**

None.

## **PART III**

### **ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE**

The information set forth under the headings “Election of Directors,” “Executive Officers,” “Insider Reporting,” “Director Nominations,” and “Report of the Audit Committee” in BOK Financial's 2017 Annual Proxy Statement is incorporated herein by reference.

The Company has a Code of Ethics which is applicable to all Directors, officers and employees of the Company, including the Chief Executive Officer and the Chief Financial Officer, the principal executive officer and principal financial and accounting officer, respectively. A copy of the Code of Ethics will be provided without charge to any person who requests it by writing to the Company's headquarters at Bank of Oklahoma Tower, P.O. Box 2300, Tulsa, Oklahoma 74192 or telephoning the Chief Risk Officer at (918) 588-6000. The Company will also make available amendments to or waivers from its Code of Ethics applicable to Directors or executive officers, including the Chief Executive Officer and the Chief Financial Officer, in accordance with all applicable laws and regulations.

There are no material changes to the procedures by which security holders may recommend nominees to the Company's board of directors since the Company's 2016 Annual Proxy Statement to Shareholders.

### **ITEM 11. EXECUTIVE COMPENSATION**

The information set forth under the heading “Compensation Discussion and Analysis,” “Compensation Committee Interlocks and Insider Participation,” “Compensation Committee Report,” “Executive Compensation Tables,” and “Director Compensation” in BOK Financial's 2017 Annual Proxy Statement is incorporated herein by reference.

## **ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS**

The information set forth under the headings “Security Ownership of Certain Beneficial Owners and Management” and “Election of Directors” in BOK Financial's 2017 Annual Proxy Statement is incorporated herein by reference.

## **ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE**

Information regarding related parties is set forth in Note 13 of the Company's Notes to Consolidated Financial Statements, which appears elsewhere herein. Additionally, the information set forth under the headings “Certain Transactions,” “Director Independence” and “Related Party Transaction Review and Approval Process” in BOK Financial's 2017 Annual Proxy Statement is incorporated herein by reference.

## **ITEM 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES**

The information set forth under the heading “Principal Accountant Fees and Services” in BOK Financial's 2017 Annual Proxy Statement is incorporated herein by reference.

## **PART IV**

## **ITEM 15. EXHIBITS, FINANCIAL STATEMENT SCHEDULES**

### **(a) (1) Financial Statements**

The following financial statements of BOK Financial Corporation are filed as part of this Form 10-K in Item 8:

- Consolidated Statements of Earnings for the years ended December 31, 2016, 2015 and 2014
- Consolidated Statements of Comprehensive Income for the years ended December 31, 2016, 2015 and 2014
- Consolidated Balance Sheets as of December 31, 2016 and 2015
- Consolidated Statements of Cash Flows for the years ended December 31, 2016, 2015 and 2014
- Consolidated Statements of Changes in Equity for the years ended December 31, 2016, 2015 and 2014
- Notes to Consolidated Financial Statements
- Annual Financial Summary - Unaudited
- Quarterly Financial Summary - Unaudited
- Reports of Independent Registered Public Accounting Firm

### **(a) (2) Financial Statement Schedules**

The schedules to the consolidated financial statements required by Regulation S-X are not required under the related instructions or are inapplicable and are therefore omitted.

**(a) (3) Exhibits**

Exhibit Number	Description of Exhibit
3.0	The Articles of Incorporation of BOK Financial, incorporated by reference to (i) Amended and Restated Certificate of Incorporation of BOK Financial filed with the Oklahoma Secretary of State on May 28, 1991, filed as Exhibit 3.0 to S-1 Registration Statement No. 33-90450, and (ii) Amendment attached as Exhibit A to Information Statement and Prospectus Supplement filed November 20, 1991.
3.1	Bylaws of BOK Financial, incorporated by reference to Exhibit 3.1 of S-1 Registration Statement No. 33-90450.
3.1(a)	Bylaws of BOK Financial, as amended and restated as of October 30, 2007, incorporated by reference to Exhibit 3.1 of Form 8-K filed on November 5, 2007.
4.0	The rights of the holders of the Common Stock and Preferred Stock of BOK Financial are set forth in its Certificate of Incorporation.
4.2	Subordinated Notes Indenture, dated as of June 27, 2016, between the Company and U.S. Bank National Association, as trustee (incorporated by reference to Exhibit 4.1 to the Company's filing on Form 8-K filed June 27, 2016).
4.3	Form of 5.375% Subordinated Notes due 2056 Global Security (incorporated by reference to Exhibit 4.2 to the Company's Registration Statement on Form 8-A filed on June 24, 2016).
10.0	Purchase and Sale Agreement dated October 25, 1990, among BOK Financial, Kaiser, and the FDIC, incorporated by reference to Exhibit 2.0 of S-1 Registration Statement No. 33-90450.
10.1	Amendment to Purchase and Sale Agreement effective March 29, 1991, among BOK Financial, Kaiser, and the FDIC, incorporated by reference to Exhibit 2.2 of S-1 Registration Statement No. 33-90450.
10.2	Letter agreement dated April 12, 1991, among BOK Financial, Kaiser, and the FDIC, incorporated by reference to Exhibit 2.3 of S-1 Registration Statement No. 33-90450.
10.3	Second Amendment to Purchase and Sale Agreement effective April 15, 1991, among BOK Financial, Kaiser, and the FDIC, incorporated by reference to Exhibit 2.4 of S-1 Registration Statement No. 33-90450.
10.4	Employment and Compensation Agreements.
10.4.2	Amended and Restated Deferred Compensation Agreement (Amended as of December 1, 2003) between Steven G. Bradshaw and BOK Financial Corporation, incorporated by reference to Exhibit 10.4.2 of Form 10-K for the fiscal year ended December 31, 2003.
10.4.2 (a)	409A Deferred Compensation Agreement between Steven G. Bradshaw and BOK Financial Corporation dated December 31, 2004, incorporated by reference to Exhibit 10.4.2 (a) of Form 8-K filed on January 5, 2005.
10.4.2 (b)	Employment Agreement between BOK Financial and Steven G. Bradshaw dated September 29, 2003, incorporated by reference to Exhibit 10.4.2 (b) of Form 10-K for the fiscal year ended December 31, 2004.
10.4.2 (c)	Amended and Restated Employment Agreement (amended as of June 30, 2013) between BOK Financial and Steven G. Bradshaw, incorporated by reference to Exhibit 99.A of Form 8-K filed August 20, 2013.
10.4.7	409A Deferred Compensation Agreement between Steven E. Nell and BOK Financial Corporation dated December 31, 2004, incorporated by reference to Exhibit 10.4.7 of Form 8-K filed on January 5, 2005.
10.4.7 (a)	Amended and Restated Deferred Compensation Agreement (Amended as of December 1, 2003) between Steven E. Nell and BOK Financial Corporation, incorporated by reference to Exhibit 10.4.7 (a) of Form 10-K for the fiscal year ended December 31, 2004.
10.4.7 (b)	Amended and Restated Employment Agreement (amended June 15, 2013) between BOK Financial and Steven Nell incorporated by reference to Exhibit 99.B of Form 8-K filed September 4, 2013.
10.4.8	Employment Agreement dated August 1, 2005 between BOK Financial Corporation and Donald T. Parker, incorporated by reference to Exhibit 99 (a) of Form 8-K filed on February 1, 2006.

Exhibit Number	Description of Exhibit
10.4.8 (a)	Amended and Restated Employment Agreement Dated June 15, 2013 between BOK Financial and Donald T. Parker, incorporated by reference to Exhibit 10.4.8(a) of Form 10-K filed on February 27, 2015.
10.4.9	Employment Agreement dated April 4, 2008 between Bank of Texas, NA, and Norman P. Bagwell, incorporated by reference to Exhibit 10.4.9 of Form 10-K filed on February 27, 2013.
10.4.9 (a)	First Amendment of Employment Agreement dated June 30, 2011 between Bank of Texas, a division of BOKF, NA, and Norman P. Bagwell, incorporated by reference to Exhibit 10.4.9 (a) of Form 10-K filed on February 27, 2013.
10.4.9 (b)	Amended and Restated Employment Agreement (amended as of June 15, 2013) between BOK Financial and Norman Bagwell, incorporated by reference to Exhibit 99.A of Form 8-K filed September 4, 2013.
10.4.10	Amended and Restated Employment Agreement (amended as of June 15, 2013) between BOK Financial and Stacy C. Kymes, filed herewith.
10.6	Capitalization and Stock Purchase Agreement dated May 20, 1991, between BOK Financial and Kaiser, incorporated by reference to Exhibit 10.6 of S-1 Registration Statement No. 33-90450.
10.7.7	BOK Financial Corporation 2001 Stock Option Plan, incorporated by reference to Exhibit 4.0 of S-8 Registration Statement No. 333-62578.
10.7.8	BOK Financial Corporation Directors' Stock Compensation Plan, incorporated by reference to Exhibit 4.0 of S-8 Registration Statement No. 33-79836.
10.7.9	Bank of Oklahoma Thrift Plan (Amended and Restated Effective as of January 1, 1995), incorporated by reference to Exhibit 10.7.6 of Form 10-K for the year ended December 31, 1994.
10.7.10	Trust Agreement for the Bank of Oklahoma Thrift Plan (December 30, 1994), incorporated by reference to Exhibit 10.7.7 of Form 10-K for the year ended December 31, 1994.
10.7.11	BOK Financial Corporation 2003 Stock Option Plan, incorporated by reference to Exhibit 4.0 of S-8 Registration Statement No. 333-106531.
10.7.12	BOK Financial Corporation 2003 Executive Incentive Plan, incorporated by reference to Exhibit 4.0 of S-8 Registration Statement No. 333-106530.
10.7.13	10b5-1 Repurchase Plan between BOK Financial Corporation and BOSC, Inc. dated May 27, 2008, incorporated by reference to Exhibit 10.1 of Form 8-K filed May 27, 2008.
10.7.14	BOK Financial Corporation 2003 Executive Incentive Plan, as amended and restated, for the Chief Executive Officer and for Direct Reports to the Chief Executive Officer, incorporated by reference to the Schedule 14 A Definitive Proxy Statement filed on March 15, 2011.
10.7.16	BOK Financial Corporation 2009 Omnibus Incentive Plan, Amended and Restated effective April 30, 2013, incorporated by reference to the Schedule 14A Definitive Proxy Statement filed on March 20, 2013.
10.8	Lease Agreement between One Williams Center Co. and National Bank of Tulsa (predecessor to BOk) dated June 18, 1974, incorporated by reference to Exhibit 10.9 of S-1 Registration Statement No. 33-90450.
10.9	Lease Agreement between Security Capital Real Estate Fund and BOk dated January 1, 1988, incorporated by reference to Exhibit 10.10 of S-1 Registration Statement No. 33-90450.
21	Subsidiaries of BOK Financial, filed herewith.
23	Consent of independent registered public accounting firm - Ernst & Young LLP, filed herewith.
31.1	Certification of Chief Executive Officer Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002, filed herewith.
31.2	Certification of Chief Financial Officer Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002, filed herewith.



Exhibit Number	Description of Exhibit
32	Certification of Chief Executive Officer and Chief Financial Officer Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, filed herewith.
99	Additional Exhibits.
101	Interactive data files pursuant to Rule 405 of Regulation S-T: (i) the Consolidated Balance Sheets, (ii) the Consolidated Statements of Earnings, (iii) the Consolidated Statements of Changes in Equity, (iv) the Consolidated Statement of Cash Flows and (v) the Notes to the Consolidated Financial Statements, filed herewith.

**(b) Exhibits**

See Item 15 (a) (3) above.

**(c) Financial Statement Schedules**

See Item 15 (a) (2) above.

## **SIGNATURES**

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

BOK FINANCIAL CORPORATION

DATE: February 28, 2017

BY: /s/ George B. Kaiser  
George B. Kaiser  
Chairman of the Board of Directors

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below on February 28, 2017, by the following persons on behalf of the registrant and in the capacities indicated.

## **OFFICERS**

/s/ George B. Kaiser  
George B. Kaiser  
Chairman of the Board of Directors

/s/ Steven G. Bradshaw  
Steven G. Bradshaw  
Director, President and Chief Executive Officer

/s/ Steven E. Nell  
Steven E. Nell  
Executive Vice President and  
Chief Financial Officer

/s/ John C. Morrow  
John C. Morrow  
Senior Vice President and  
Chief Accounting Officer

## DIRECTORS

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Alan S. Armstrong

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/s/ Kimberley D. Henry  
Kimberley D. Henry

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C. Frederick Ball, Jr.

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/s/ E. Carey Joullian, IV  
E. Carey Joullian, IV

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/s/ Jack E. Finley  
Jack E. Finley

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Stanley A. Lybarger

---

/s/ Chester E. Cadieux, III  
Chester E. Cadieux, III

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Steven J. Malcolm

---

/s/ Joseph W. Craft, III  
Joseph W. Craft, III

---

/s/ Emmet C. Richards  
Emmet C. Richards

---

/s/ John W. Gibson  
John W. Gibson

---

/s/ Robert J. LaFortune  
Robert J. LaFortune

---

/s/ David F. Griffin  
David F. Griffin

---

Michael C. Turpen

---

V. Burns Hargis

---

R.A. Walker

---

Douglas D. Hawthorne

---

Peter C. Boylan III

**BOK FINANCIAL CORPORATION**  
**SUBSIDIARIES OF THE REGISTRANT**

**Banking Subsidiaries**

BOKF, National Association (1)  
Missouri Bank and Trust Company of Kansas City (2)

**Other subsidiaries of BOK Financial Corporation**

BOK Capital Service Corporation  
BOKC Real Estate Corporation (8)  
BOKF Capital Corporation  
BOKF-CC (Aimbridge), LLC  
BOKF-CC (FSE), LLC  
BOKF-CC (Collision Works), LLC  
BOKF-CS (Global Holdings), LLC  
BOKF-CC (Heartland), LLC  
BOKF-CS (Newco Valves), LLC  
BOKF-CC (O2 Concepts), LLC  
BOKF-CC (QAA), LLC (4)  
BOKF Equity, LLC  
BOKF Private Equity Limited Partnership  
BOKF Private Equity Limited Partnership II  
BOK Financial Securities, Inc.  
Cavanal Hill Distributors, Inc.  
Heartland Food Products, LLC (8)  
HFP II, LLC  
Lakeland Operating Company, LLC (7)  
The Milestone Group, Inc. (6)  
Quality Aircraft Accessories Holding Corporation (4)  
Quality Aircraft Accessories, Inc. (4)

**Subsidiaries of BOKF, National Association (1)**

4525-4527 Fairway, LLC

Affiliated BancServices, Inc.

Affiliated Financial Holding Co.

Affiliated Financial Insurance Agency, Inc.

BancOklahoma Agri-Service Corporation

BancOklahoma Mortgage Corporation

BOK Delaware, Inc. (4)

BOK Financial Asset Management, Inc. (3)

BOK Financial Equipment Finance, Inc.

BOK Funding Trust (4)

BOKFCDF Fund I, LLC

BOKF Community Development Fund, LLC

BOKF Community Development Corporation

BOKF Petro Holding, LLC

BOKF Special Assets I, LLC

BOSC Agency, Inc. (Oklahoma)

BOSC Agency, Inc. (New Mexico) (5)

BOSC Agency, Inc.. (Texas) (3)

Calicotte Ranch HOA, LLC

Cavanal Hill Investment Management, Inc.

Cottonwood Valley Ventures, Inc.

CVV Management, Inc.

CVV Partnership, an Oklahoma General Partnership

Oklahoma New Markets Fund I, LLC

Oklahoma New Markets Fund II, LLC

Oklahoma New Markets Fund III, LLC

Oklahoma New Markets Fund IV, LLC

Pacesetter Leasing Company

**Subsidiaries of Missouri Bank and Trust Company of Kansas City (2)**

Ottawa Land Partners, LLC

All Subsidiaries listed above were incorporated in Oklahoma, except as noted.

- (1) Chartered by the United States Government
- (2) Chartered by the State of Missouri
- (3) Incorporated in Texas
- (4) Incorporated in Delaware
- (5) Incorporated in New Mexico
- (6) Incorporated in Colorado
- (7) Incorporated in California
- (8) Incorporated in Kansas

**Consent of Independent Registered Public Accounting Firm**

We consent to the incorporation by reference in the following Registration Statements:

- Registration Statement (Form S-8, No. 33-44121) pertaining to the Reoffer Prospectus of the Bank of Oklahoma Master Thrift Plan and Trust Agreement as amended October 6, 2008.
- Registration Statement (Form S-8, No. 333-40280) pertaining to the Reoffer Prospectus of the BOK Financial Corporation Master Thrift Plan for Hourly Employees as amended October 6, 2008.
- Registration Statement (Form S-8, No. 33-79836) pertaining to the Reoffer Prospectus of the BOK Financial Corporation Directors' Stock Compensation Plan.
- Registration Statement (Form S-8, No. 333-32649) pertaining to the Reoffer Prospectus of the BOK Financial Corporation 1997 Stock Option Plan.
- Registration Statement (Form S-8, No. 333-93957) pertaining to the Reoffer Prospectus of the BOK Financial Corporation 2000 Stock Option Plan.
- Registration Statement (Form S-8, No. 333-62578) pertaining to the Reoffer Prospectus of the BOK Financial Corporation 2001 Stock Option Plan.
- Registration Statement (Form S-8, No. 333-106530) pertaining to the Reoffer Prospectus of the BOK Financial Corporation 2003 Executive Incentive Plan.
- Registration Statement (Form S-8, No. 333-106531) pertaining to the Reoffer Prospectus of the BOK Financial Corporation 2003 Stock Option Plan.
- Registration Statement (Form S-8, No. 333-135224) pertaining to the Reoffer Prospectus of the BOK Financial Corporation 2003 Stock Option Plan.
- Registration Statement (Form S-8, No. 333-158846) pertaining to the Reoffer Prospectus of the BOK Financial Corporation 2009 Omnibus Incentive Plan.
- Registration Statement (Form S-3, (No. 333-212120) pertaining to the Reoffer Prospectus of the BOK Financial Corporation 2016 Subordinated Note Issuance.

of our reports dated February 28, 2017, with respect to the consolidated financial statements of BOK Financial Corporation and the effectiveness of internal control over financial reporting of BOK Financial Corporation included in this Annual Report (10-K) of BOK Financial Corporation for the year ended December 31, 2016.

/s/ Ernst & Young LLP  
Tulsa, Oklahoma

February 28, 2017



**CERTIFICATION PURSUANT TO  
SECTION 302  
OF THE SARBANES-OXLEY ACT OF 2002  
FOR THE CHIEF EXECUTIVE OFFICER**

I, Steven G. Bradshaw, President and Chief Executive Officer of BOK Financial Corporation ("BOK Financial"), certify that:

1. I have reviewed this Annual Report on Form 10-K of BOK Financial;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
  - a. Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
  - b. Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, 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;
  - c. Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
  - d. Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
  - a. All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
  - b. Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 28, 2017

/s/ Steven G. Bradshaw  
Steven G. Bradshaw  
President  
Chief Executive Officer  
BOK Financial Corporation

**CERTIFICATION PURSUANT TO  
SECTION 302  
OF THE SARBANES-OXLEY ACT OF 2002  
FOR THE CHIEF FINANCIAL OFFICER**

I, Steven E. Nell, Chief Financial Officer of BOK Financial Corporation ("BOK Financial"), certify that:

1. I have reviewed this Annual Report on Form 10-K of BOK Financial;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
5. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
  - a. Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
  - b. Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, 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;
  - c. Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
  - d. Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
6. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
  - a. All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
  - b. Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 28, 2017

/s/ Steven E. Nell  
Steven E. Nell  
Executive Vice President and Chief Financial Officer  
BOK Financial Corporation

**CERTIFICATION PURSUANT TO**  
**18 U.S.C. SECTION 1350,**  
**AS ADOPTED PURSUANT TO**  
**SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the Annual Report of BOK Financial Corporation (“BOK Financial”) on Form 10-K for the fiscal year ending December 31, 2016 as filed with the Securities and Exchange Commission on the date hereof (the “Report”), we, Steven G. Bradshaw and Steven E. Nell, Chief Executive Officer and Chief Financial Officer, respectively, of BOK Financial, certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that to our knowledge:

1. The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
2. The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of BOK Financial as of, and for, the periods presented.

February 28, 2017

/s/ Steven G. Bradshaw  
Steven G. Bradshaw  
President  
Chief Executive Officer  
BOK Financial Corporation

/s/ Steven E. Nell  
Steven E. Nell  
Executive Vice President  
Chief Financial Officer  
BOK Financial Corporation

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