BOK FINANCIAL CORP ET AL
Form 10-Q
April 27, 2018

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

FORM 10-Q
(Mark One)
ý QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the quarterly period ended March 31, 2018
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	73-1373454
(State or other jurisdiction of Incorporation or Organization)	(IRS Employer Identification No.)

Bank of Oklahoma Tower Boston Avenue at Second Street Tulsa, Oklahoma	74192
(Address of Principal Executive Offices)	(Zip Code)

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

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 ý No ¨

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files).Yes ý No ¨

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, or a non-accelerated filer. See definition of "accelerated filer and large accelerated filer" in Rule 12b-2 of the Exchange Act. (Check one):

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

Emerging growth company ¨

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

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

Indicate the number of shares outstanding of each of the issuer's classes of common stock, as of the latest practicable date: 65,459,505 shares of common stock ($.00006 par value) as of March 31, 2018.

BOK Financial Corporation
Form 10-Q
Quarter Ended March 31, 2018

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Management's Discussion and Analysis of Financial Condition and Results of Operations
Performance Summary

BOK Financial Corporation ("the Company") reported net income of $105.6 million or $1.61 per diluted share for the first quarter of 2018, compared to $88.4 million or $1.35 per diluted share for the first quarter of 2017 and $72.5 million or $1.11 per diluted share for the fourth quarter of 2017. Lower federal corporate income tax rates decreased income tax expense for the first quarter of 2018 by approximately $13.8 million. Accounting for the Tax Cuts and Jobs Act increased income tax expense for the fourth quarter of 2017 by $11.7 million.

Highlights of the first quarter of 2018 included:

- Net interest revenue totaled $219.7 million, up from $201.2 million in the first quarter of 2017 and $216.9 million in the fourth quarter of 2017. The increase in net interest revenue over the prior year was driven by both improving yields and growth in average earning assets. Net interest margin was 2.99 percent for the first quarter of 2018. Net interest margin was 2.81 percent for the first quarter of 2017 and 2.97 percent for the fourth quarter of 2017. Average earning assets were $29.9 billion for the first quarter of 2018 compared to $29.6 billion for the first quarter of 2017.
- Fees and commissions revenue totaled $159.0 million. Adoption of the new revenue recognition accounting standard in the first quarter of 2018 resulted in $9.5 million of interchange fees we pay to issuing banks being netted against transaction card revenue. Previously these fees were included in data processing and communications expense. Excluding this impact, fees and commissions revenue increased $3.8 million over the first quarter of 2017. Growth in fiduciary and asset management revenue and transaction card revenue was partially offset by lower brokerage and trading revenue. Fees and commissions revenue was largely unchanged compared to the fourth quarter of 2017. Increased mortgage banking and transaction card revenues were offset by decreased brokerage and trading revenue.
- Other operating expense totaled $244.4 million, an $8.9 million or 4 percent increase over the first quarter of 2017 on a comparable basis. Personnel expense increased $3.5 million, primarily due to incentive compensation expense and standard annual merit increases. Non-personnel expense increased $5.4 million due largely to a write-down of certain repossessed oil and gas properties. Operating expense decreased $10.0 million compared to the fourth quarter of 2017 on a comparable basis. Personnel expense decreased $5.4 million, primarily due to decreased incentive compensation expense. Non-personnel expense decreased $4.7 million. Professional fees and services expense and mortgage banking expense were lower in the first quarter.
- Income tax expense was $30.9 million or 22.7 percent of net income before taxes for the first quarter of 2018 compared to $38.1 million or 30.1 percent for the first quarter of 2017 and $54.3 million or 42.9 percent for the fourth quarter of 2017. Beginning January 1, 2018, the Tax Cuts and Jobs Act ("the Act") decreased the corporate income tax rate from 35% to 21%. Accounting for the Act required us to revalue our deferred tax assets and liabilities in 2017. We anticipate our effective tax rate to be between 22 percent and 23 percent for 2018.
- The Company recorded a $5.0 million negative provision for credit losses in the first quarter of 2018, due to improved credit metric trends. A $7.0 million negative provision for credit losses was recorded in the fourth quarter of 2017.
- The company had net charge-offs of $1.3 million or 0.03 percent of average loans on an annualized basis in the first quarter of 2018 compared to net charge-offs of $11.7 million or 0.27 percent of average loans on an annualized basis for the fourth quarter of 2017.
- The combined allowance for credit losses totaled $228 million or 1.32 percent of outstanding loans at March 31, 2018 compared to $234 million or 1.37 percent of outstanding loans at December 31, 2017.
- Nonperforming assets that are not guaranteed by U.S. government agencies totaled $195 million or 1.13 percent of outstanding loans and repossessed assets at March 31, 2018 and $207 million or 1.22 percent of outstanding loans and repossessed assets at December 31, 2017. In addition, potential problem loans decreased $19 million to $222 million at March 31, 2018.
- Average loan balances grew by $80 million over the previous quarter, primarily due to growth in commercial loan balances. Period-end outstanding loan balances totaled $17.3 billion at March 31, 2018, a $184 million increase over December 31, 2017.

- Average deposits were largely unchanged compared to the previous quarter. Average demand deposit balances decreased $266 million, largely offset by a $202 million increase in interest-bearing transaction deposit balances. Period-end deposits were $22.2 billion at March 31, 2018, a $144 million increase over December 31, 2017.
- The common equity Tier 1 capital ratio at March 31, 2018 was 12.06 percent. Other regulatory capital ratios were Tier 1 capital ratio, 12.06 percent, total capital ratio, 13.49 percent, and leverage ratio, 9.40 percent. At December 31, 2017, the common equity Tier 1 capital ratio was 12.05 percent, the Tier 1 capital ratio was 12.05 percent, total capital ratio was 13.54 percent, and leverage ratio was 9.31 percent.
- The company paid a regular cash dividend of $29.3 million or $0.45 per common share during the first quarter of 2018. On April 24, 2018, the board of directors approved a quarterly cash dividend of $0.45 per common share payable on or about May 25, 2018 to shareholders of record as of May 11, 2018.
- The company repurchased 82,583 common shares at an average price of $91.83 per share during the first quarter of 2018. The company repurchased 80,000 common shares at an average price of $92.54 per share during the fourth quarter of 2017.

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.

Net interest revenue totaled $219.7 million for the first quarter of 2018, up from $201.2 million in the first quarter of 2017 and $216.9 million in the fourth quarter of 2017. Net interest margin was 2.99 percent for the first quarter of 2018, 2.81 percent for the first quarter of 2017 and 2.97 percent for the fourth quarter of 2017. Net interest margin was 3 basis points lower in the first quarter of 2018 due to the impact of lower effective tax rates from the implementation of the Tax Cut and Jobs Act on the tax-equivalent yield of our tax-exempt loans and securities.

Tax-equivalent net interest revenue increased $16.1 million over the first quarter of 2017. Table 1 shows the effect on net interest revenue from changes in average balances and interest rates for various types of earning assets and interest-bearing liabilities. Changes in interest rates and yields increased net interest revenue by $13.2 million. The benefit of an increase in short-term interest rates on the floating-rate earning assets was partially offset by higher borrowing costs. Tax-equivalent net interest revenue increased $2.9 million due to growth in average assets. Growth in the average balances of trading securities, fair value option securities and loans was partially offset by decreases in available for sale securities and investment securities.

The tax-equivalent yield on earning assets was 3.61 percent, up 46 basis points over the first quarter of 2017, primarily due to increases in short-term interest rates resulting from three 25 basis point increases in the federal funds rate by the Federal Reserve. Loan yields increased 57 basis points to 4.45 percent. The yield on interest-bearing cash and cash equivalents increased 75 basis points. The available for sale securities portfolio yield was up 18 basis points to 2.23 percent. The yield on the fair value option securities portfolio increased 68 basis points primarily related to a change in the mix of securities and an increase in average rates. Funding costs were up 41 basis points over the first quarter of 2017. The cost of interest-bearing deposits increased 22 basis points and the cost of other borrowed funds increased 74 basis points. The benefit to net interest margin from earning assets funded by non-interest bearing liabilities was 31 basis points for the first quarter of 2018, up 13 basis points over the first quarter of 2017.

Average earning assets for the first quarter of 2018 increased $277 million or 1 percent over the first quarter of 2017. Average loans, net of allowance for loan losses, increased $146 million, due primarily to growth in commercial loans partially offset by lower residential mortgage loan balances. The average balance of trading securities increased $354 million primarily due to expansion of U.S. agency residential mortgage-backed securities trading activities. Fair value option securities held as an economic hedge of our mortgage servicing rights increased $210 million. Available for sale securities decreased $330 million. Investment securities balances decreased $90 million.

Average deposits decreased $243 million compared to the first quarter of 2017. Interest-bearing transaction account balances decreased $223 million. Time deposit balances decreased $108 million. Demand deposit balances increased $50 million and savings account balances increased $39 million. Average borrowed funds increased $542 million over the first quarter of 2017, primarily due to the net impact of increased borrowings from the Federal Home Loan Banks and lower average repurchase agreement balances.

Net interest margin increased 2 basis points over the fourth quarter of 2017. The yield on average earning assets increased 12 basis points. The loan portfolio yield increased 16 basis points. The yield on the available for sale

securities portfolio increased 2 basis points. The yield on interest-bearing cash and cash equivalents increased 30 basis points. Funding costs were 0.93 percent, up 14 basis points over the prior quarter. The benefit to net interest margin from earning assets funded by non-interest bearing liabilities increased 4 basis points over the prior quarter.
Average earning assets increased $120 million compared to the fourth quarter of 2017. Trading securities balances increased $373 million. Average interest-bearing cash and cash equivalents balances were up $83 million. Average loan balances grew by $80 million. Available for sale securities decreased $199 million and fair value option securities held as an economic hedge of our mortgage servicing rights decreased $166 million.

Average deposits decreased $34 million compared to the previous quarter. Demand deposit balances decreased $266 million, partially offset by a $202 million increase in interest-bearing transaction account balances. Time deposit and saving account balances also grew over the prior quarter. The average balance of borrowed funds increased $161 million over the fourth quarter of 2017, primarily due to increased borrowings from the Federal Home Loan Banks and funds purchased balances.

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. Approximately 81% of our commercial and commercial real estate loan portfolios are either variable rate or fixed rate that will reprice within one year. These loans are funded primarily by deposit accounts that are either non-interest bearing, or that reprice more slowly than the loans. The result is a balance sheet that would be asset sensitive, which means that assets generally reprice more quickly than liabilities. One of the strategies that we use to manage toward a relative rate-neutral position is to 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. For the remainder of 2018, we expect low-to-mid single digit expansion in net interest margin for each 25 basis point increase in the federal funds rate.

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 1 and in the interest rate sensitivity projections as shown in the Market Risk section of this report.

Table 1 -- Volume/Rate Analysis
(In thousands)

	Three Months Ended March 31, 2018 / 2017		
		Change Due To[1]	
	Change	Volume	Yield/Rate
Tax-equivalent interest revenue:			
Interest-bearing cash and cash equivalents	$3,738	$(134)	$ 3,872
Trading securities	2,440	3,327	(887)
Investment securities:			
Taxable securities	(57)	71	(128)
Tax-exempt securities	(685)	(558)	(127)
Total investment securities	(742)	(487)	(255)
Available for sale securities:			
Taxable securities	2,888	(1,302)	4,190
Tax-exempt securities	(535)	(330)	(205)
Total available for sale securities	2,353	(1,632)	3,985
Fair value option securities	2,439	1,529	910
Restricted equity securities	808	565	243
Residential mortgage loans held for sale	8	(183)	191
Loans	25,555	1,082	24,473
Total tax-equivalent interest revenue	36,599	4,067	32,532
Interest expense:			
Transaction deposits	6,280	(246)	6,526
Savings deposits	1	10	(9)
Time deposits	584	(312)	896
Funds purchased	251	105	146
Repurchase agreements	175	(34)	209
Other borrowings	13,194	1,645	11,549
Subordinated debentures	(22)	2	(24)
Total interest expense	20,463	1,170	19,293
Tax-equivalent net interest revenue	16,136	2,897	13,239
Change in tax-equivalent adjustment	(2,418)		
Net interest revenue	$18,554		

[1] 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 $156.0 million for the first quarter of 2018, a $5.1 million decrease compared to the first quarter of 2017 and a $1.3 million decrease compared to the fourth quarter of 2017. Fees and commissions revenue increased $3.8 million compared to the first quarter of 2017 and was very consistent compared to the prior quarter.

Table 2 – Other Operating Revenue
(In thousands)

	Three Months Ended March 31,				Three Months Ended Dec 31, 2017		
	2018	2017	Increase (Decrease)	% Increase (Decrease)		Increase (Decrease)	% Increase (Decrease)
Brokerage and trading revenue	$30,648	$33,623	$ (2,975)	(9)%	$33,045	$ (2,397)	(7)%
Transaction card revenue[1]	20,990	18,177	2,813	15 %	20,028	962	5 %
Fiduciary and asset management revenue	41,832	38,631	3,201	8 %	41,767	65	— %
Deposit service charges and fees	27,161	27,777	(616)	(2)%	27,685	(524)	(2)%
Mortgage banking revenue	26,025	25,191	834	3 %	24,362	1,663	7 %
Other revenue	12,330	11,752	578	5 %	11,762	568	5 %
Total fees and commissions revenue	158,986	155,151	3,835	2 %	158,649	337	— %
Other gains (losses), net	(664)	3,627	(4,291)	N/A	552	(1,216)	N/A
Loss on derivatives, net	(5,685)	(450)	(5,235)	N/A	(3,045)	(2,640)	N/A
Loss on fair value option securities, net	(17,564)	(1,140)	(16,424)	N/A	(4,238)	(13,326)	N/A
Change in fair value of mortgage servicing rights	21,206	1,856	19,350	N/A	5,898	15,308	N/A
Gain (loss) on available for sale securities, net	(290)	2,049	(2,339)	N/A	(488)	198	N/A
Total other operating revenue	$155,989	$161,093	$ (5,104)	(3)%	$157,328	$ (1,339)	(1)%
Non-GAAP Reconciliation:[1]							
Transaction card revenue on income statement	$20,990	$27,380	N/A	N/A	$29,536	N/A	N/A
Netting adjustment	—	(9,203)	N/A	N/A	(9,508)	N/A	N/A
Transaction card revenue after netting adjustment	$20,990	$18,177	2,813	15 %	$20,028	962	5 %

[1] Non-GAAP measure to net interchange charges from prior quarters between transaction card revenue and data processing and communications expense. This measure has no effect on net income or earnings per share.

Certain percentage increases (decreases) in non-fees and commissions revenue are not meaningful for comparison purposes based on the nature of the item.

Fees and commissions revenue

Diversified sources of fees and commissions revenue are a significant part of our business strategy and represented 42 percent of total revenue for the first quarter of 2018, excluding provision for credit losses and gains and losses on other assets, securities and derivatives and the change in the fair value of mortgage servicing rights. We believe that a variety of fee revenue sources provides 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 such as rising interest rates resulting in growth in net interest revenue or fiduciary and asset management revenue, may also decrease mortgage production volumes. 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, decreased $3.0 million or 9 percent compared to the first quarter of 2017, primarily due to customer reaction to rising interest rates along with changes in regulation.

Revenue earned from retail brokerage transactions decreased $2.1 million or 31 percent compared to the first quarter of 2017 to $4.8 million. Retail brokerage revenue includes 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 product type. The implementation of the new Department of Labor ("DOL") fiduciary rule in the second quarter of 2017 has negatively impacted retail brokerage revenue. New regulation issued by the DOL amended the definition of investment advice under the Employee Retirement Income Security Act ("ERISA"). The new rule is designed to provide better protection to plans, participants, beneficiaries and individual retirement account ("IRA") owners against conflicts of interest, imprudence and disloyalty.

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 was $10.4 million for the first quarter of 2018, a $650 thousand or 6 percent decrease compared to the first quarter of 2017.

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. Customer hedging revenue totaled $10.9 million for the first quarter of 2018, a $731 thousand or 6 percent decrease compared to the first quarter of 2017 .

Investment banking revenue, which includes fees earned upon completion of underwriting and financial advisory services and loan syndication fees, totaled $4.6 million for the first quarter of 2018, a $511 thousand or 13 percent increase over the first quarter of 2017. Investment banking revenue is primarily related to the timing and volume of completed transactions.

Brokerage and trading revenue decreased $2.4 million compared to the fourth quarter of 2017, largely driven by a decrease in investment banking revenue. Many municipal and public school district customers completed debt offerings in the fourth quarter in advance of tax law changes, which prohibit pre-funding of debt issuance.

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 increased $2.8 million or 15 percent over the first quarter of 2017 primarily due to a $1.4 million early termination penalty in the first quarter of 2018. Excluding this termination penalty, TransFund electronic funds transfer ("EFT") network revenue increased $1.4 million or 9 percent over the first quarter of 2017.

Fiduciary and asset management revenue is earned through managing or holding of assets for customers and executing transactions or providing related services. Approximately 80 percent of fiduciary and asset management revenue is primarily based on the fair value of assets. Rates applied to asset values vary based on the nature of the relationship. Fiduciary relationships and managed asset relationships generally have higher fee rates than non-fiduciary and/or managed relationships.

Fiduciary and asset management revenue grew by $3.2 million or 8 percent over the first quarter of 2017, primarily due to growth in assets under management, improved pricing discipline and decreased fee waivers. Fiduciary and asset management revenue was consistent between the first quarter of 2018 and the fourth quarter of 2017 at $41.8

million.

A distribution of assets under management or administration and related fiduciary and asset management revenue follows:

Table 3 -- Assets Under Management or Administration

	Three Months Ended March 31,					
	2018			2017		
	Balance	Revenue[1]	Margin[2]	Balance	Revenue[1]	Margin[2]
Managed fiduciary assets:						
Personal	$7,577,717	$22,632	1.19 %	$7,371,857	$20,111	1.09 %
Institutional	13,322,472	5,469	0.16 %	12,444,816	5,295	0.17 %
Total managed fiduciary assets	20,900,189	28,101	0.54 %	19,816,673	25,406	0.51 %
Non-managed assets:						
Fiduciary	25,748,101	12,997	0.20 %	25,176,247	12,562	0.20 %
Non-fiduciary	16,321,458	734	0.02 %	16,352,841	663	0.02 %
Safekeeping and brokerage assets under administration	15,909,241	—	— %	16,073,195	—	— %
Total non-managed assets	57,978,800	13,731	0.09 %	57,602,283	13,225	0.09 %
Total assets under management or administration	$78,878,989	$41,832	0.21 %	$77,418,956	$38,631	0.20 %

[1] Fiduciary and asset management revenue includes asset-based and other fees associated with the assets.

[2] Annualized revenue divided by period-end balance.

A summary of changes in assets under management or administration for the three months ended March 31, 2018 and 2017 follows:

Table 4 -- Changes in Assets Under Management or Administration

	Three Months Ended March 31,	
	2018	2017
Beginning balance	$81,827,797	$75,407,863
Net inflows (outflows)	(3,434,649)	(357,986)
Net change in fair value	485,841	2,369,079
Ending balance	$78,878,989	$77,418,956

Deposit service charges and fees were $27.2 million for the first quarter of 2018, a decrease of $616 thousand or 2 percent compared to the first quarter of 2017. Commercial account service charge revenue totaled $11.9 million, an increase of $337 thousand or 3 percent. Overdraft fees were $8.6 million, a $1.1 million or 10.9 percent decrease compared to the first quarter of 2017. Service charges on deposit accounts with a standard monthly fee were $1.7 million, a decrease of $75 thousand or 4 percent. Deposit service charges and fees decreased $524 thousand compared to the prior quarter.

Mortgage banking revenue increased $834 thousand or 3 percent compared to the first quarter of 2017. Mortgage production revenue increased $909 thousand. Internal changes to better manage our loan production pipeline, improved values of originated servicing rights and an increase in delivery through the retail channel resulted in an increase of 18 basis points in gain on sale margin. Mortgage loan production volumes decreased $34 million. Production volumes decreased compared to the prior year as average primary mortgage interest rates were up 11 basis

points over the first quarter of 2017. Mortgage servicing revenue was relatively consistent compared to the first quarter of 2017. The outstanding principal balance of mortgage loans serviced for others totaled $22.0 billion, consistent with the first quarter of 2017.

Mortgage banking revenue increased $1.7 million compared to the fourth quarter of 2017. Revenue from mortgage loan production increased $1.7 million due to a 21 basis point increase in gain on sale margin and an increase in production volume.

Table 5 – Mortgage Banking Revenue
(In thousands)

	Three Months Ended March 31,		Increase (Decrease)	% Increase (Decrease)	Three Months Ended Dec. 31, 2017	Increase (Decrease)	% Increase (Decrease)
	2018	2017					
Mortgage production revenue	$9,452	$8,543	$909	11 %	$7,786	$1,666	21 %
Mortgage loans funded for sale	$664,958	$711,019			$840,080		
Add: Current period end outstanding commitments	298,318	381,732			222,919		
Less: Prior period end outstanding commitments	222,919	318,359			334,337		
Total mortgage production volume	$740,357	$774,392	$(34,035)	(4)%	$728,662	$11,695	2 %
Mortgage loan refinances to mortgage loans funded for sale	42 %	44 %	(200) bps		47 %	(500) bps	
Gains on sale margin	1.28 %	1.10 %	18 bps		1.07 %	21 bps	
Primary mortgage interest rates:							
Average	4.28 %	4.17 %	11 bps		3.92 %	36 bps	
Period end	4.44 %	4.14 %	30 bps		3.99 %	45 bps	
Mortgage servicing revenue	$16,573	$16,648	$(75)	— %	$16,576	$(3)	— %
Average outstanding principal balance of mortgage loans serviced for others	22,027,726	22,006,295	21,431	— %	22,054,877	(27,151)	— %
Average mortgage servicing revenue rates	0.31 %	0.31 %	—		0.30 %	1 bp	

[1] Actual interest earned on fair value option securities less internal transfer-priced cost of funds.

Primary rates disclosed in Table 5 above represent rates generally available to borrowers on 30 year conforming mortgage loans.

Net gains on other assets, securities and derivatives

Other net losses totaled $664 thousand in the first quarter of 2018 compared to net gains of $3.6 million in the first quarter of 2017. The first quarter of 2017 included the sale of certain merchant banking investments. Other net gains totaled $552 thousand in the fourth quarter of 2017.

As discussed in the Market Risk section following, the fair value of our 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 by designating certain financial instruments as an economic hedge. Changes in the fair value of these instruments are generally expected to partially offset changes in the fair

value of MSRs.

The net economic cost of the changes in fair value of mortgage servicing rights and related economic hedges was $256 thousand in the first quarter of 2018, including a $21.2 million increase in the fair value of mortgage servicing rights, offset by a $23.3 million decrease in the fair value of securities and derivative contracts held as an economic hedge and $1.8 million of related net interest revenue.

The net economic benefit of changes in the fair value of mortgage servicing rights and related economic hedges was $1.5 million for the first quarter of 2017. The fair value of mortgage servicing rights increased $1.9 million. The fair value of securities and interest rate derivative contracts held as an economic hedge decreased $1.7 million. Net interest earned on securities held as an economic hedge was $1.3 million.

The net economic benefit of changes in the fair value of mortgage servicing rights and related economic hedges was $1.3 million for the fourth quarter of 2017. The fair value of mortgage servicing rights increased by $5.9 million. The fair value of securities and interest rate derivative contracts held as an economic hedge decreased by $7.3 million.

Table 6 - Gain (Loss) on Mortgage Servicing Rights
(In thousands)

	Three Months Ended		
	Mar. 31, 2018	Dec. 31, 2017	Mar. 31, 2017
Loss on mortgage hedge derivative contracts, net	$(5,698)	$(3,057)	$(528)
Loss on fair value option securities, net	(17,564)	(4,238)	(1,140)
Loss on economic hedge of mortgage servicing rights, net	(23,262)	(7,295)	(1,668)
Gain on change in fair value of mortgage servicing rights	21,206	5,898	1,856
Gain (loss) on changes in fair value of mortgage servicing rights, net of economic hedges included in other operating revenue	(2,056)	(1,397)	188
Net interest revenue on fair value option securities[1]	1,800	2,656	1,271
Total economic benefit (cost) of changes in the fair value of mortgage servicing rights, net of economic hedges	$(256)	$1,259	$1,459

[1] Actual interest earned on fair value option securities less internal transfer-priced cost of funds.

Other Operating Expense

Other operating expense for the first quarter of 2018 totaled $244.4 million, an increase of $8.9 million or 4 percent compared to the first quarter of 2017. Personnel expense increased $3.5 million or 3 percent. Non-personnel expense increased $5.4 million or 5 percent compared to the prior year.

Other operating expense decreased $10.0 million compared to the previous quarter. Personnel expense decreased $5.4 million or 4 percent and non-personnel expense decreased $4.7 million or 4 percent.

Table 7 – Other Operating Expense
(In thousands)

	Three Months Ended March 31,		Increase (Decrease)	% Increase (Decrease)	Three Months Ended Dec. 31, 2017	Increase (Decrease)	% Increase (Decrease)
	2018	2017					
Regular compensation	$84,991	$83,228	$ 1,763	2 %	$82,785	$2,206	3 %
Incentive compensation:							
Cash-based	29,549	28,836	713	2 %	35,531	(5,982)	(17)%
Share-based	2,902	1,603	1,299	81 %	6,212	(3,310)	(53)%
Deferred compensation	44	792	(748)	N/A	1,324	(1,280)	N/A
Total incentive compensation	32,495	31,231	1,264	4 %	43,067	(10,572)	(25)%
Employee benefits	22,461	21,966	495	2 %	19,477	2,984	15 %
Total personnel expense	139,947	136,425	3,522	3 %	145,329	(5,382)	(4)%
Business promotion	6,010	6,717	(707)	(11)%	7,317	(1,307)	(18)%
Charitable contributions to BOKF Foundation	—	—	—	N/A	2,000	(2,000)	N/A
Professional fees and services	10,200	11,417	(1,217)	(11)%	15,344	(5,144)	(34)%
Net occupancy and equipment	24,046	21,624	2,422	11 %	22,403	1,643	7 %
Insurance	6,593	6,404	189	3 %	6,555	38	1 %
Data processing and communications[1]	27,817	25,699	2,118	8 %	28,903	(1,086)	(4)%
Printing, postage and supplies	4,089	3,851	238	6 %	3,781	308	8 %
Net losses (gains) and operating expenses of repossessed assets	7,705	1,009	6,696	664 %	340	7,365	2,166 %
Amortization of intangible assets	1,300	1,802	(502)	(28)%	1,430	(130)	(9)%
Mortgage banking costs	10,149	13,003	(2,854)	(22)%	14,331	(4,182)	(29)%
Other expense	6,574	7,557	(983)	(13)%	6,746	(172)	(3)%
Total other operating expense	$244,430	$235,508	$ 8,922	4 %	$254,479	$(10,049)	(4)%
Average number of employees (full-time equivalent)	4,899	4,910	(11)	— %	4,900	(1)	— %
Non-GAAP Reconciliation:[1]							
Data processing and communications expense on income statement	27,817	34,902	N/A	N/A	38,411	N/A	N/A
Netting adjustment	—	(9,203)	N/A	N/A	(9,508)	N/A	N/A
Data processing and communications expense after netting adjustment	27,817	25,699	N/A	N/A	28,903	N/A	N/A

[1] Non-GAAP measure to net interchange charges from prior quarters between transaction card revenue and data processing and communications expense. This measure has no effect on net income or earnings per share.

Certain percentage increases (decreases) are not meaningful for comparison purposes.

Personnel expense

Regular compensation, which consists of salaries and wages, overtime pay and temporary personnel costs, increased $1.8 million or 2 percent over the first quarter of 2017. The average number of employees was relatively unchanged compared to the prior year. Standard annual merit increases in regular compensation were effective for the majority of our staff on March 1.

Incentive compensation increased $1.3 million or 4 percent over the first quarter of 2017, primarily due to increased share-based compensation expense. Share-based compensation expense represents expense for equity awards based on grant-date fair value. Non-vested shares generally cliff vest in 3 years and are subject to a two year holding period after vesting. The number of shares that will ultimately vest is determined by BOKF's change in earnings per share relative to a defined group of peer banks. In addition, compensation costs related to certain shares is variable based on changes in the the fair value of BOK Financial common shares.

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. Cash-based incentive compensation expense increased $713 thousand or 2 percent over the first quarter of 2017.

Employee benefits expense increased $495 thousand or 2 percent over the the first quarter of 2017.
Personnel expense decreased $5.4 million compared to the fourth quarter of 2017. Incentive compensation expense decreased $10.6 million primarily due to the impact of tax reform on our earnings per share performance relative to peers. Regular compensation expense increased $2.2 million as merit increases were effective for most staff during the first quarter. A $4.7 million seasonal increase in payroll tax expense was partially offset by a net decrease in employee healthcare costs. The Company is self-insured and these costs may be volatile.

Non-personnel operating expense

Non-personnel operating expense increased $5.4 million or 5 percent compared to the first quarter of 2017 .

Net losses and operating expenses of repossessed assets increased $6.7 million The first quarter of 2018 included a $5.0 million write-down on a set of repossessed oil and gas properties based on an updated analysis of production data.

Data processing and communications expense increased $2.1 million or 8 percent. Occupancy and equipment expense increased $2.4 million or 11 percent due partially to a $1.3 million charge to relocate our primary Oklahoma City location. Other increases in these expense categories were primarily due to information technology infrastructure and cybersecurity project costs and increased data processing transaction activity.

Professional fees and services expense decreased $1.2 million or 11 percent mainly due to the inclusion of Mobank conversion expenses in the first quarter of 2017. Mortgage banking costs decreased $2.9 million compared to the first quarter of 2017, primarily due to a $2.6 million decrease in accruals related to default servicing and loss mitigation costs on loans serviced for others.
Non-personnel expense decreased $4.7 million compared to the fourth quarter of 2017. Professional fees and services expense decreased $5.1 million mainly due to expenses related to projects completed in the fourth quarter of 2017. Mortgage banking costs decreased $4.2 million primarily due to a $3.5 million decrease in accruals related to default servicing and loss mitigation costs on loans serviced for others. The fourth quarter also included a $2.0 million contribution to the BOKF Foundation.

Net losses and operating expenses of repossessed assets increased $7.4 million, primarily due to a $5.0 million write-down on a set of repossessed oil and gas properties.

Income Taxes

The Company's income tax expense was $30.9 million or 22.7 percent of net income before taxes for the first quarter of 2018 compared to $38.1 million or 30.1 percent of net income before taxes for the first quarter of 2017 and $54.3 million or 42.9 percent of net income before taxes for the fourth quarter of 2017.

The Tax Cut and Jobs Act ("the Act") enacted on December 22, 2017 reduced the federal corporate tax rate from 35 percent to 21 percent beginning January 1, 2018. The Company continues to evaluate the impact the Act will have on its financial position and results of operations, including recognition and measurement of deferred tax assets and liabilities and the determination of effective current and deferred federal and state income tax rates. We recorded provisional adjustments of $9.5 million in the fourth quarter of 2017, including $6.4 million of net deferred tax assets resulting from a temporary difference recognized in Accumulated other comprehensive income on the Company's balance sheet. We also recorded a provisional adjustment of $2.2 million for deferred taxes resulting from executive compensation that may no longer be deductible. We recorded a $3.1 million increase in tax expense in the first quarter of 2018 related to information received related to the Act's impact on the proportional amortization of our investments in low-income housing tax credit projects. This additional expense was partially offset by a $1.2 million decrease to tax expense to adjust net deferred tax assets resulting from executive compensation. Provisional amounts recorded in 2017 may be adjusted based on our on-going evaluation, including subsequent guidance provided by federal and state taxing authorities and other information as it becomes available.

In addition to the impact of the Act, the excess benefit of vested share-based compensation decreased income tax expense by $1.6 million for the first quarter of 2018. Excluding the impact of adjustments for the Act and the excess benefit of share-based compensation, income tax expense would have been $30.7 million or 22.5% of net income before taxes for the first quarter of 2018 and $42.7 million or 33.7% of net income before taxes for the fourth quarter of 2017.

The Company's effective tax rate is affected by recurring items such as tax-exempt income, net amortization related to its investments in low-income housing tax credit investments and share-based compensation. The effective tax rate is also affected by items that may occur in any given period but are not consistent from period to period. Accordingly, the comparability of the effective tax rate from period to period may be impacted.

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. The reserve for uncertain tax positions was $20 million at March 31, 2018, $18 million at December 31, 2017 and $17 million at March 31, 2017.
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 business customers served through our consumer branch network and all mortgage banking activities. Wealth Management provides fiduciary services, private banking 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.

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 allocation of certain indirect 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 repricing and cash flow characteristics. Market rates are generally based on the applicable LIBOR or interest rate swap rates, adjusted for prepayment and liquidity risk. This method of transfer-pricing funds that supports 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 that approximate wholesale market rates for funds with similar repricing and cash flow 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 repricing 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-term 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 other 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, net income attributable to our lines of business was up $22.4 million or 26.2% percent over the first quarter of 2017. Net interest revenue grew by $13.8 million over the prior year. Other operating revenue increased by $2.5 million and operating expense increased by $2.1 million. Income tax expense attributable to the lines of business was down $20.1 million due to tax reform.

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

	Three Months Ended March 31,	
	2018	2017
Commercial Banking	$79,243	$68,409
Consumer Banking	9,406	3,246
Wealth Management	19,609	14,159
Subtotal	108,258	85,814
Funds Management and other	(2,696)	2,542
Total	$105,562	$88,356

Commercial Banking

Commercial Banking contributed $79.2 million to consolidated net income in the first quarter of 2018, an increase of $10.8 million or 16 percent over the first quarter of 2017. The increase in Commercial Banking's contribution was primarily due to lower corporate income tax rates in the first quarter, partially offset by increased losses on repossessed assets related to certain repossessed oil and gas properties and increased corporate expense allocations.

Table 9 -- Commercial Banking
(Dollars in thousands)

	Three Months Ended March 31,		Increase (Decrease)
	2018	2017	
Net interest revenue from external sources	$160,413	$147,376	$13,037
Net interest expense from internal sources	(28,343)	(18,115)	(10,228)
Total net interest revenue	132,070	129,261	2,809
Net loans charged off (recovered)	627	(1,463)	2,090
Net interest revenue after net loans charged off (recovered)	131,443	130,724	719
Fees and commissions revenue[1]	40,017	35,999	4,018
Other gains (losses), net	(341)	1,642	(1,983)
Other operating revenue	39,676	37,641	2,035
Personnel expense	28,921	27,362	1,559
Non-personnel expense[1]	17,548	16,340	1,208
Other operating expense	46,469	43,702	2,767
Net direct contribution	124,650	124,663	(13)
Gain on financial instruments, net	7	38	(31)
Loss on repossessed assets, net	(4,166)	(5)	(4,161)
Corporate expense allocations	12,507	8,719	3,788
Income before taxes	107,984	115,977	(7,993)
Federal and state income tax	28,741	47,568	(18,827)
Net income	$79,243	$68,409	$10,834
Average assets	$17,793,820	$17,640,973	$152,847
Average loans	14,426,750	14,203,784	222,966
Average deposits	8,664,452	8,679,269	(14,817)
Average invested capital	1,335,896	1,315,200	20,696

[1] Fees and commission revenue for 2017 has been adjusted on a comparable basis with 2018 (Non-GAAP measure) to net $9.2 million of interchange fees paid to issuing banks on card transactions processed by our TransFund merchant processing services. The discussion following is based on this comparable basis.

Net interest revenue increased $2.8 million or 2.2 percent over the prior year. Growth in net interest revenue was primarily due to increased yields on commercial loans due to rising short-term interest rates and a $223 million or 2 percent increase in average loan balances. Yields on deposits sold to the funds management unit also went up due to the increase in short-term interest rates from the Federal Reserve increases in the federal funds rate.

Fees and commissions revenue increased $4.0 million or 11 percent over the first quarter of 2017, primarily due to a $3.0 million increase in transaction card revenue primarily due to a $1.4 million early termination penalty. In addition,

loan syndication fees and commercial deposit service charges and fees were up over the prior year.

Operating expenses increased $2.8 million or 6 percent percent compared to the first quarter of 2017. Personnel expense increased $1.6 million or 6 percent, primarily due to incentive compensation expense and standard annual merit increases. Non-personnel expense increased $1.2 million or 7.4 percent.

Corporate expense allocations were up $3.8 million or 43 percent over the prior year, primarily due to enhancements of activity based costing drivers to better reflect services being utilized by the Commercial Banking line of business.

The average outstanding balance of loans attributed to Commercial Banking were up $223 million or 2 percent over the first quarter of 2017 to $14.4 billion. See the Loans section of Management’s Discussion and Analysis of Financial Condition following for additional discussion of changes in commercial and commercial real estate loans, which are primarily attributed to the Commercial Banking segment.

Average deposits attributed to Commercial Banking were $8.7 billion for the first quarter of 2018, largely unchanged compared to the first quarter of 2017. See Management's Discussion and Analysis of Financial Condition and Results of Operations – Liquidity and Capital for further discussion of change.

Consumer Banking

Consumer Banking provides retail banking services 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 Home Direct Mortgage, an online origination channel.

Consumer Banking contributed $9.4 million to consolidated net income for the first quarter of 2018, up $6.2 million over the first quarter of 2017. Net interest revenue grew by $6.0 million and operating expense decreased $3.1 million.

Table 10 -- Consumer Banking
(Dollars in thousands)

	Three Months Ended March 31,		Increase (Decrease)
	2018	2017	
Net interest revenue from external sources	$21,755	$18,593	$3,162
Net interest revenue from internal sources	15,224	12,418	2,806
Total net interest revenue	36,979	31,011	5,968
Net loans charged off	1,301	1,273	28
Net interest revenue after net loans charged off	35,678	29,738	5,940
Fees and commissions revenue	44,964	45,193	(229)
Other gains (losses), net	(16)	(59)	43
Other operating revenue	44,948	45,134	(186)
Personnel expense	24,301	24,919	(618)
Non-personnel expense	25,512	27,947	(2,435)
Total other operating expense	49,813	52,866	(3,053)
Net direct contribution	30,813	22,006	8,807
Loss on financial instruments, net	(23,262)	(1,668)	(21,594)
Change in fair value of mortgage servicing rights	21,206	1,856	19,350
Loss on repossessed assets, net	(108)	(136)	28
Corporate expense allocations	16,029	16,746	(717)
Income before taxes	12,620	5,312	7,308
Federal and state income tax	3,214	2,066	1,148
Net income	$9,406	$3,246	$6,160
Average assets	$8,468,101	$8,277,304	$190,797
Average loans	1,746,136	1,740,617	5,519
Average deposits	6,538,096	6,533,901	4,195
Average invested capital	298,438	277,403	21,035

Net interest revenue from Consumer Banking activities grew by $6.0 million or 19 percent over the the first quarter of 2017, primarily due to increased rates received on deposit balances sold to the Funds Management unit.

Fees and commissions revenue decreased $229 thousand or 1 percent compared to the first quarter of 2017. Increased mortgage banking revenue from the increase in mortgage loan production volumes was offset by lower overdraft fees compared to the prior year.

Operating expenses decreased $3.1 million or 6 percent compared to the first quarter of 2017. Personnel expenses decreased $618 thousand or 2 percent. Non-personnel expenses decreased $2.4 million or 9 percent compared to the prior year. Mortgage banking costs were down $2.9 million, primarily due to a decrease in accruals related to default servicing and loss mitigation costs on loans serviced for others.

Changes in the fair value of our mortgage servicing rights, net of economic hedge, resulted in a $1.5 million decrease in Consumer Banking net income in the first quarter of 2018 compared to a $115 thousand increase in Consumer Banking net income in the first quarter of 2017.

Average consumer deposits were largely unchanged compared to the first quarter of 2017. Demand deposit balances grew by $123 million or 7 percent and savings deposit balances were up $42 million or 10 percent. Higher-costing time deposit balances decreased $109 million or 10 percent and interest-bearing transaction account balances decreased $53 million or 2 percent.

Wealth Management

Wealth Management contributed $19.6 million to consolidated net income in the first quarter of 2018, up $5.5 million or 38 percent over the first quarter of 2017, largely due to growth in net interest revenue.

Table 11 -- Wealth Management
(Dollars in thousands)

	Three Months Ended March 31,		Increase (Decrease)
	2018	2017	
Net interest revenue from external sources	$15,407	$11,485	$3,922
Net interest revenue from internal sources	9,932	8,856	1,076
Total net interest revenue	25,339	20,341	4,998
Net loans charged off (recovered)	(48)	39	(87)
Net interest revenue after net loans charged off (recovered)	25,387	20,302	5,085
Fees and commissions revenue	74,807	73,921	886
Other gains (losses), net	(41)	237	(278)
Other operating revenue	74,766	74,158	608
Personnel expense	46,947	44,787	2,160
Non-personnel expense	15,855	15,623	232
Other operating expense	62,802	60,410	2,392
Net direct contribution	37,351	34,050	3,301
Corporate expense allocations	10,955	10,672	283
Income before taxes	26,396	23,378	3,018
Federal and state income tax	6,787	9,219	(2,432)
Net income	$19,609	$14,159	$5,450
Average assets	$8,095,794	$7,160,849	$934,945
Average loans	1,389,926	1,266,579	123,347
Average deposits	5,662,470	5,582,554	79,916
Average invested capital	246,673	212,887	33,786

Net interest revenue increased $5.0 million or 25 percent over the first quarter of 2017, primarily due to loan growth and net interest expansion. Average deposit balances increased by $80 million or 1 percent over the first quarter of 2017, primarily due to a $56 million or 2 percent increase in interest-bearing transaction account balances and a $29 million or 4 percent increase time deposit balances.

Fees and commissions revenue increased $886 thousand or 1 percent over the first quarter of 2017. Fiduciary and asset management revenue grew by $3.2 million or 8 percent over the prior year, primarily due to growth in assets under management, improved pricing discipline and decreased fee waivers. Other revenue attributable to Wealth Management was also up $1.9 million. Brokerage and trading revenue decreased by $4.1 million or 14 percent compared to the prior year, primarily due to decreased activity related to our mortgage banking customers along with a decrease in brokerage fees due to the implementation of the DOL fiduciary rule in the second quarter of 2017.

Fees and commissions revenue above includes fees earned from state and municipal bond and corporate debt underwritings and financial advisory services, primarily in the Oklahoma and Texas markets. In the first quarter of 2018, the Wealth Management division participated in 45 state and municipal bond underwritings that totaled $626 million. As a participant, the Wealth Management division was responsible for facilitating the sale of approximately $189 million of these underwritings. The Wealth Management division also participated in 8 corporate debt underwritings that totaled $4.9 billion. Our interest in these underwritings was $131 million. In the first quarter of 2017, the Wealth Management division participated in 38 state and municipal bond underwritings that totaled approximately $1.6 billion. Our interest in these underwritings totaled approximately $316 million. The Wealth Management division also participated in 5 corporate debt underwritings that totaled $3.6 billion. Our interest in these underwritings was $111 million.

Operating expense increased $2.4 million or 4.0 percent over the first quarter of 2017. Personnel expense increased $2.2 million or 5 percent, primarily due to incentive compensation expense and standard annual merit increases. Non-personnel expense increased $232 thousand or 1 percent.

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 March 31, 2018, December 31, 2017 and March 31, 2017.

We hold an inventory of trading securities in support of sales to a variety of customers, including banks, corporations, insurance companies, money managers and others. Trading securities increased $830 million to $1.3 billion during the first quarter of 2018 in response to expanded relationships with mortgage loan originator clients. As discussed in the Market Risk section of this report, trading activities involve risk of loss from adverse price movement. We mitigate this risk within board-approved limits through the use of derivative contracts, short-sales and other techniques. These limits remain unchanged from levels set before our expanded trading activities.

At March 31, 2018, the carrying value of investment (held-to-maturity) securities was $417 million and the fair value was $429 million. Investment securities consist primarily of 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 $92 million of the $199 million portfolio of Texas school construction bonds is 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 $8.4 billion at March 31, 2018, a $29 million increase compared to December 31, 2017. At March 31, 2018, the available for sale securities portfolio consisted primarily of U.S. government agency residential mortgage-backed securities and U.S. government agency commercial mortgage-backed

securities. Both residential and commercial mortgage-backed securities 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. Commercial mortgage-backed securities have prepayment penalties similar to commercial loans.

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 residential mortgage-backed securities portfolio held in investment and available for sale securities at March 31, 2018 is 3.4 years. Management estimates the duration extends to 4.1 years assuming an immediate 200 basis point upward shock. The estimated duration contracts to 3.1 years assuming a 50 basis point decline in the current low rate environment.

The aggregate gross amount of unrealized losses on available for sale securities totaled $177 million at March 31, 2018, compared to $89 million at December 31, 2017. On a quarterly basis, we perform an evaluation on debt 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 during the first quarter of 2018.

BOK Financial is 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 the ownership of these shares is restricted and they lack a market. We are required to hold stock in the FHLB in proportion to our borrowings with the FHLB.

Loans

The aggregate loan portfolio before allowance for loan losses totaled $17.3 billion at March 31, 2018, up $184 million over December 31, 2017, primarily due to growth in commercial loan balances. Increased commercial real estate loans were offset by lower residential mortgage loan balances. Personal loan balances were largely unchanged compared to the prior quarter.

Table 12 -- Loans
(In thousands)

	Mar. 31, 2018	Dec. 31, 2017	Sept. 30, 2017	June 30, 2017	Mar. 31, 2017
Commercial:					
Energy	$2,969,618	$2,930,156	$2,867,981	$2,847,240	$2,537,112
Services	2,928,294	2,986,949	2,967,513	2,958,827	3,013,375
Healthcare	2,359,928	2,314,753	2,239,451	2,221,518	2,265,604
Wholesale/retail	1,531,576	1,471,256	1,658,098	1,543,695	1,506,243
Manufacturing	559,695	496,774	519,446	546,137	543,430
Other commercial and industrial	570,556	534,087	543,445	520,538	461,346
Total commercial	10,919,667	10,733,975	10,795,934	10,637,955	10,327,110
Commercial real estate:					
Multifamily	1,008,903	980,017	999,009	952,380	922,991
Retail	750,396	691,532	725,865	722,805	745,046
Office	737,144	831,770	797,089	862,973	860,889
Industrial	613,608	573,014	591,080	693,635	871,463
Residential construction and land development	117,458	117,245	112,102	141,592	135,994
Other commercial real estate	279,273	286,409	292,997	315,207	334,680
Total commercial real estate	3,506,782	3,479,987	3,518,142	3,688,592	3,871,063
Residential mortgage:					
Permanent mortgage	1,047,785	1,043,435	1,013,965	989,040	977,743
Permanent mortgages guaranteed by U.S. government agencies	177,880	197,506	187,370	191,729	204,181

Home equity	720,104	732,745	744,415	758,429	764,350
Total residential mortgage	1,945,769	1,973,686	1,945,750	1,939,198	1,946,274
Personal	965,632	965,776	947,008	917,900	847,459
Total	$17,337,850	$17,153,424	$17,206,834	$17,183,645	$16,991,906

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 ongoing 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 ongoing 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.

Commercial loans totaled $10.9 billion or 63 percent of the loan portfolio at March 31, 2018, an increase of $186 million over December 31, 2017. Manufacturing sector loan balances were up $63 million. Wholesale/retail sector loan balances grew by $60 million. Healthcare sector loan balances increased $45 million. Energy loan balances grew by $39 million. Unfunded energy loan commitments increased $97 million over December 31, 2017 to $3.0 billion at March 31, 2018. Other commercial and industrial loans increased by $36 million. This growth was partially offset by a $59 million decrease in service sector loan balances.

Table 13 presents the commercial sector of our loan portfolio distributed primarily by collateral location. Loans for which collateral location is less relevant, such as unsecured loans and reserve-based energy loans, are distributed by the borrower's primary operating location.

Table 13 -- Commercial Loans by Collateral Location
(In thousands)

	Oklahoma	Texas	New Mexico	Arkansas	Colorado	Arizona	Kansas/Missouri	Other	Total
Energy	$511,399	$1,584,188	$39,455	$3,087	$395,725	$7,171	$66,039	$362,554	$2,969,618
Services	695,043	826,626	156,522	5,777	335,914	238,088	291,582	378,742	2,928,294
Healthcare	251,766	354,012	116,386	94,696	152,477	117,829	260,423	1,012,339	2,359,928
Wholesale/retail	310,686	558,838	43,188	25,583	74,065	59,580	84,000	375,636	1,531,576
Manufacturing	90,797	201,659	113	3,701	60,182	36,936	91,496	74,811	559,695
Other commercial and industrial	83,396	174,278	2,609	67,917	26,479	18,343	72,945	124,589	570,556
Total commercial loans	$1,943,087	$3,699,601	$358,273	$200,761	$1,044,842	$477,947	$866,485	$2,328,671	$10,919,667

The majority of the collateral securing our commercial loan portfolio is located within our geographical footprint with 34 percent concentrated in the Texas market and 18 percent concentrated in the Oklahoma market. At March 31, 2018, the Other category is primarily composed of California - $279 million or 3 percent of the commercial loan portfolio, Florida - $227 million or 2 percent of the commercial loan portfolio, Louisiana - $170 million or 2 percent of the commercial loan portfolio, Ohio - $140 million or 1 percent of the commercial loan portfolio, Pennsylvania - $129 million or 1 percent of the commercial loan portfolio and Tennessee - $128 million or 1 percent of the commercial loan portfolio. All other states individually represent one percent or less of total commercial loans.

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 $3.0 billion or 17 percent of total loans at March 31, 2018. Unfunded energy loan commitments were $3.0 billion at March 31, 2018, up $97 million over December 31, 2017. Approximately $2.5 billion of energy loans were to oil and gas producers, largely unchanged compared to December 31, 2017. The majority of this portfolio is first lien, senior secured, reserve-based lending, which we believe is the lowest risk form of energy lending. Approximately 56 percent of the committed production loans are secured by properties primarily producing oil and 44 percent of the committed production loans are secured by properties primarily producing natural gas. Loans to midstream oil and gas companies totaled $299 million at March 31, 2018, an increase of $38 million over December 31, 2017. Loans to borrowers that provide services to the energy industry totaled $113 million at March 31, 2018, down $17 million compared to the prior quarter. Loans to other energy borrowers, including those engaged in wholesale or retail energy sales, totaled $59 million, a $3 million decrease compared to the prior quarter.

The services sector of the loan portfolio totaled $2.9 billion or 17 percent of total loans and consists of a large number of loans to a variety of businesses, including governmental, educational services, commercial services, loans to entities providing services for real estate and construction and consumer services. Service sector loans decreased by $59 million compared to December 31, 2017. Loans to governmental entities totaled $548 million at March 31, 2018. 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 $2.4 billion or 14 percent 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 $100 million and with three or more non-affiliated banks as participants. At March 31, 2018, the outstanding principal balance of these loans totaled $3.6 billion. Substantially all of these loans are to borrowers with local market relationships. We serve as the agent lender in approximately 15 percent 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 generally within our geographical footprint, with larger concentrations in Texas and Oklahoma which represent 34% and 12% of the total commercial real estate portfolio at March 31, 2018, respectively. 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 $3.5 billion or 20% of the loan portfolio at March 31, 2018. The outstanding balance of commercial real estate loans increased $27 million during the first quarter of 2018. Loans secured by retail facilities were up $59 million. Loans secured by industrial properties grew by $41 million. Multifamily residential loans increased $29 million. This growth was partially offset by a $95 million decrease in loans secured by office

buildings. The commercial real estate loan balance as a percentage of our total loan portfolio has ranged from 19 percent to 23 percent over the past five years.

The commercial real estate sector of our loan portfolio distributed by collateral location follows in Table 14.

Table 14 -- Commercial Real Estate Loans by Collateral Location
(In thousands)

	Oklahoma	Texas	New Mexico	Arkansas	Colorado	Arizona	Kansas/Missouri	Other	Total
Retail	$61,706	$281,164	$114,127	$7,581	$45,364	$27,699	$ 15,756	$196,999	$750,396
Multifamily	120,768	455,048	23,457	26,333	71,230	60,596	119,997	131,474	1,008,903
Office	92,817	198,338	94,251	9,846	31,373	71,139	39,754	199,626	737,144
Industrial	66,660	186,358	22,517	110	9,208	8,205	44,153	276,397	613,608
Residential construction and land development	18,787	21,524	17,493	2,185	21,618	4,003	12,849	18,999	117,458
Other commercial real estate	53,303	36,103	12,709	3,604	11,277	21,051	28,080	113,146	279,273
Total commercial real estate loans	$414,041	$1,178,535	$284,554	$49,659	$190,070	$192,693	$ 260,589	$936,641	$3,506,782

The Other category is primarily composed of California - $150 million or 4 percent of the commercial real estate portfolio, Utah - $114 million or 3 percent of the commercial real estate portfolio and Florida - $106 million or 3 percent of the commercial real estate portfolio. All other states represent less than 3% individually.

While recent changes nationally in consumer purchasing trends from brick-and-mortar stores to online has created concern with regards to retail lending, our credit quality remains very good. The portfolio is highly diversified with no material exposure to a single borrower or tenant.

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. Loans may be individually underwritten or credit scored based on size and other criteria. Credit scoring is assessed based on significant credit characteristics including credit history, residential and employment stability.

Residential mortgage loans totaled $1.9 billion, a decrease of $27.9 million compared to December 31, 2017. In general, we sell the majority of our conforming fixed rate loan originations 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 96% of our residential mortgage loan portfolio is located within our geographical footprint.

The majority of our permanent mortgage loan portfolio is 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 exceeds 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 percent. Loan-to-value ratios (“LTV”) are tiered from 60 percent to 100 percent, 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 March 31, 2018, $178 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 the Company may repurchase 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 on the Consolidated Balance Sheet. Permanent residential mortgage loans guaranteed by U.S. government agencies decreased $20 million compared to December 31, 2017.

Home equity loans totaled $720 million at March 31, 2018, a $13 million decrease compared to December 31, 2017. Our home equity loan 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 percent. 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 a 15 year term of amortizing repayment. 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 March 31, 2018 by lien position and amortizing status follows in Table 15.

Table 15 -- Home Equity Loans
(In thousands)

	Revolving	Amortizing	Total
First lien	$71,539	$381,394	$452,933
Junior lien	143,758	123,413	267,171
Total home equity	$215,297	$504,807	$720,104

The distribution of residential mortgage and personal loans at March 31, 2018 is as follows in Table 16. Residential mortgage loans are distributed by collateral location. Personal loans are generally distributed by borrower location.

Table 16 -- Residential Mortgage and Personal Loans by Collateral Location
(In thousands)

	Oklahoma	Texas	New Mexico	Arkansas	Colorado	Arizona	Kansas/Missouri	Other	Total
Residential mortgage:									
Permanent mortgage	$175,730	$433,502	$49,914	$13,255	$177,017	$95,283	$60,109	$42,975	$1,047,785
Permanent mortgages guaranteed by U.S. government agencies	47,034	33,411	34,427	7,675	4,463	1,175	11,755	37,940	177,880
Home equity	379,874	132,276	88,581	5,871	38,787	9,716	62,370	2,629	720,104
Total residential mortgage	$602,638	$599,189	$172,922	$26,801	$220,267	$106,174	$134,234	$83,544	$1,945,769
Personal	$311,032	$390,469	$11,467	$9,916	$64,861	$52,123	$77,860	$47,904	$965,632

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 the Bank are centrally managed by the Bank of Oklahoma.

Table 17 -- Loans Managed by Primary Geographical Market
(In thousands)

	Mar. 31, 2018	Dec. 31, 2017	Sept. 30, 2017	June. 30, 2017	Mar. 31, 2017
Bank of Oklahoma:					
Commercial	$3,265,013	$3,238,720	$3,408,973	$3,369,967	$3,189,183
Commercial real estate	668,031	682,037	712,915	667,932	691,332
Residential mortgage	1,419,281	1,435,432	1,405,900	1,398,021	1,404,054
Personal	353,128	342,212	322,320	318,016	310,708
Total Bank of Oklahoma	5,705,453	5,698,401	5,850,108	5,753,936	5,595,277
Bank of Texas:					
Commercial	4,715,841	4,520,401	4,434,595	4,339,634	4,148,316
Commercial real estate	1,254,421	1,261,864	1,236,702	1,360,164	1,452,988
Residential mortgage	229,761	233,675	229,993	232,074	231,647
Personal	363,608	375,084	375,173	354,222	312,092
Total Bank of Texas	6,563,631	6,391,024	6,276,463	6,286,094	6,145,043
Bank of Albuquerque:					
Commercial	315,701	343,296	367,747	369,370	407,403
Commercial real estate	348,485	341,282	319,208	324,405	307,927
Residential mortgage	93,490	98,018	101,983	103,849	106,432
Personal	11,667	11,721	12,953	12,439	11,305
Total Bank of Albuquerque	769,343	794,317	801,891	810,063	833,067
Bank of Arkansas:					
Commercial	94,430	95,644	91,051	85,020	88,010
Commercial real estate	88,700	87,393	80,917	73,943	74,469
Residential mortgage	7,033	6,596	6,318	6,395	6,829
Personal	9,916	9,992	10,388	11,993	6,279
Total Bank of Arkansas	200,079	199,625	188,674	177,351	175,587
Colorado State Bank & Trust:					
Commercial	1,180,655	1,130,714	1,124,200	1,065,780	998,216
Commercial real estate	210,801	174,201	186,427	255,379	266,218
Residential mortgage	64,530	63,350	63,734	63,346	62,313
Personal	63,118	63,115	60,513	56,187	49,523
Total Colorado State Bank & Trust	1,519,104	1,431,380	1,434,874	1,440,692	1,376,270
Bank of Arizona:					
Commercial	624,106	687,792	634,809	617,759	643,222
Commercial real estate	672,319	660,094	706,188	705,858	737,088
Residential mortgage	39,227	41,771	40,730	37,034	36,737
Personal	57,023	57,140	55,050	55,528	51,386

Total Bank of Arizona	1,392,675	1,446,797	1,436,777	1,416,179	1,468,433
Mobank (Kansas City):					
Commercial	723,921	717,408	734,559	790,425	852,760
Commercial real estate	264,025	273,116	275,785	300,911	341,041
Residential mortgage	92,447	94,844	97,092	98,479	98,262
Personal	107,172	106,512	110,611	109,515	106,166
Total Mobank (Kansas City)	1,187,565	1,191,880	1,218,047	1,299,330	1,398,229
Total BOK Financial loans	$17,337,850	$17,153,424	$17,206,834	$17,183,645	$16,991,906

Loan Commitments

We enter into certain off-balance sheet arrangements in the normal course of business. These arrangements included unfunded loan commitments, which totaled $10.2 billion and standby letters of credit, which totaled $664 million at March 31, 2018. 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 $15 thousand of the outstanding standby letters of credit were issued on behalf of customers whose loans are nonperforming at March 31, 2018.

Table 18 – Off-Balance Sheet Credit Commitments
(In thousands)

	Mar. 31, 2018	Dec. 31, 2017	Sept. 30, 2017	June 30, 2017	Mar. 31, 2017
Loan commitments	$10,249,729	$9,958,080	$9,693,489	$9,632,911	$9,403,641
Standby letters of credit	664,342	647,653	665,513	614,852	595,746
Mortgage loans sold with recourse	121,197	125,127	128,681	133,896	134,631

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. The Company no longer sells residential mortgage loans with recourse. 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. Substantially all of these loans are to borrowers in our primary markets including $73 million to borrowers in Oklahoma, $13 million to borrowers in Arkansas and $12 million to borrowers in New Mexico. An accrual related to this off-balance sheet risk is included in Other liabilities in the consolidated balance sheets and totaled $3.7 million at March 31, 2018 and $3.7 million at December 31, 2017 and $3.9 million at March 31, 2017.

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 and to service loans in accordance with investor guidelines. The Company has established accruals for losses related to these obligations that are included in Other liabilities in the Consolidated Balance Sheets and in Mortgage banking costs in the Consolidated Statements of Earnings.

For the period from 2010 through the first quarter of 2018 combined, approximately 17% of repurchase requests have currently resulted in actual repurchases or indemnification by the Company. The Company repurchased one loan from the agencies for $53 thousand during the first quarter of 2018. There was one indemnification on a loan paid during the first quarter of 2018. Losses recognized on repurchases were insignificant.

A summary of unresolved deficiency requests from the agencies follows (in thousands, except for number of unresolved deficiency requests):

	March 31,	
	2018	2017
Number of unresolved deficiency requests	181	185
Aggregate outstanding principal balance subject to unresolved deficiency requests	$8,160	$9,622
Unpaid principal balance subject to indemnification by the Company	4,512	5,249

The accrual for potential loan repurchases under representations and warranties totaled $1.2 million at March 31, 2018, $1.4 million at December 31, 2017, and $2.6 million at March 31, 2017.

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 to minimize market risk due to 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 scenarios 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 counterparties 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 supported the contract or the customer or the 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 March 31, 2018, the net fair values of derivative contracts, before consideration of cash margin, reported as assets under these programs totaled $292 million compared to $225 million at December 31, 2017. At March 31, 2018, the net fair value of our derivative contracts included $163 million for foreign exchange contracts, $76 million for energy contracts, $36 million for interest rate swaps and $13 million of to-be-announced residential mortgage-backed securities. The aggregate net fair value of derivative contracts, before consideration of cash margin, held under these programs reported as liabilities totaled $280 million at March 31, 2018 and $214 million at December 31, 2017.

At March 31, 2018, total derivative assets were reduced by $9.9 million of cash collateral received from counterparties and total derivative liabilities were reduced by $66 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 March 31, 2018 follows in Table 19.

Table 19 -- Fair Value of Derivative Contracts
(In thousands)

Customers	$153,903
Banks and other financial institutions	110,152
Exchanges and clearing organizations	17,693
Fair value of customer risk management program asset derivative contracts, net	$281,748

At March 31, 2018, our largest derivative exposure was to an exchange for interest rate swap derivative contracts of $17 million.

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 $32.95 per barrel of oil would decrease the fair value of derivative assets by $55 million. An increase in prices equivalent to $75.73 per barrel of oil would increase the fair value of derivative assets by $101 million as current prices move further away from the fixed prices embedded in our existing contracts. Liquidity requirements of this program may also be affected by our credit rating. At March 31, 2018, a decrease in our credit rating to below investment grade did not have a significant impact on our obligation to post cash margin on existing contracts. 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 March 31, 2018, 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 March 31, 2018, the combined allowance for loan losses and off-balance sheet credit losses totaled $228 million or 1.32% of outstanding loans and 133% of nonaccruing loans, excluding loans guaranteed by U.S. government agencies. The allowance for loan losses was $224 million and the accrual for off-balance sheet credit losses was $4.1 million. At December 31, 2017, the combined allowance for credit losses was $234 million or 1.37 percent of outstanding loans and 131 percent of nonaccruing loans, excluding loans guaranteed by U.S. government agencies. The allowance for loan losses was $231 million and the accrual for off-balance sheet credit losses was $3.7 million.

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 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. Based on an evaluation of all credit factors, including continued trend of improvement in nonaccruing and potential problem loans, and net charge-offs, the Company determined that a $5.0 million negative provision for credit losses was appropriate for the first quarter of 2018. The Company recorded a $7.0 million negative provision for the fourth quarter of 2017.

Table 20 -- Summary of Loan Loss Experience
(In thousands)

	Three Months Ended				
	Mar. 31, 2018	Dec. 31, 2017	Sept. 30, 2017	June 30, 2017	Mar. 31, 2017
Allowance for loan losses:					
Beginning balance	$230,682	$247,703	$250,061	$248,710	$246,159
Loans charged off:					
Commercial	(1,563)	(13,254)	(4,429)	(1,703)	(424)
Commercial real estate	—	—	—	(76)	—
Residential mortgage	(100)	(205)	(168)	(40)	(236)
Personal	(1,227)	(1,290)	(1,228)	(1,053)	(1,493)
Total	(2,890)	(14,749)	(5,825)	(2,872)	(2,153)
Recoveries of loans previously charged off:					
Commercial	488	1,982	1,014	283	1,182
Commercial real estate	183	258	739	208	735
Residential mortgage	242	229	134	169	228
Personal	663	592	550	554	755
Total	1,576	3,061	2,437	1,214	2,900
Net loans recovered (charged off)	(1,314)	(11,688)	(3,388)	(1,658)	747
Provision for loan losses	(5,401)	(5,333)	1,030	3,009	1,804
Ending balance	$223,967	$230,682	$247,703	$250,061	$248,710
Accrual for off-balance sheet credit losses:					
Beginning balance	$3,734	$5,401	$6,431	$9,440	$11,244
Provision for off-balance sheet credit losses	401	(1,667)	(1,030)	(3,009)	(1,804)
Ending balance	$4,135	$3,734	$5,401	$6,431	$9,440
Total combined provision for credit losses	$(5,000)	$(7,000)	$—	$—	$—
Allowance for loan losses to loans outstanding at period-end	1.29%	1.34%	1.44%	1.46%	1.46%
Net charge-offs (recoveries) (annualized) to average loans	0.03%	0.27%	0.08%	0.04%	(0.02)%
Total provision for credit losses (annualized) to average loans	(0.12)%	(0.16)%	—%	—%	—%
Recoveries to gross charge-offs	54.53%	20.75%	41.84%	42.27%	134.70%
Accrual for off-balance sheet credit losses to off-balance sheet credit commitments	0.04%	0.04%	0.05%	0.06%	0.09%
Combined allowance for credit losses to loans outstanding at period-end	1.32%	1.37%	1.47%	1.49%	1.52%

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 original contractual terms of the loan agreement. This includes all nonaccruing loans, all loans modified in troubled debt restructurings and all government guaranteed loans repurchased from GNMA pools. A specific allowance is

required when the outstanding principal balance of the loan is not supported by either the discounted cash flows expected to be received from the borrower or the fair value of collateral for collateral dependent loans. At March 31, 2018, impaired loans totaled $349 million, including $74 million with specific allowances of $13 million and $275 million with no specific allowances. At December 31, 2017, impaired loans totaled $376 million, including $51 million of impaired loans with specific allowances of $8.8 million and $325 million with no specific allowances.

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 risk 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 $191 million at March 31, 2018. The general allowance for unimpaired loans decreased $9.0 million compared to December 31, 2017, primarily related to the commercial loan segment.

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 $20 million at March 31, 2018, a $2.2 million decrease compared to December 31, 2017. The nonspecific allowance decreased based on energy price environment stabilization. The nonspecific allowance also includes consideration of the estimated long-term impact of Hurricane Harvey in 2017 on the Houston, Texas market.

An allocation of the allowance for loan losses by portfolio segment is included in Note 4 to the Consolidated Financial Statements.

Our loan monitoring process also identified certain accruing substandard loans 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’ ability to comply with current repayment terms. These potential problem loans totaled $222 million at March 31, 2018 and were primarily composed of $124 million or 4 percent of energy loans, $31 million or 1 percent of service sector loans, $28 million or 1 percent of healthcare sector loans, $19 million or 1 percent of wholesale/retail sector loans and $10 million or 2 percent of other commercial and industrial loans. Potential problem loans totaled $241 million at December 31, 2017.

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 $78 million at March 31, 2018 and were composed primarily of $23 million or 1 percent of service sector loans, $22 million or 3 percent of commercial real estate loans secured by retail facilities and $11 million or less than 1 percent of outstanding energy loans. Other loans especially mentioned totaled $118 million at December 31, 2017.

We updated our semi-annual energy loan portfolio stress test at December 31, 2017 to estimate how the energy portfolio may respond in a prolonged low-price environment. Stress test assumptions applied the five year forward pricing curve to a starting price of $2.17 per million BTUs for natural gas and $45.88 per barrel of oil and then escalating 3 percent annually for years six through ten to a maximum of $2.67 and $47.26, respectively.

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 charge-offs of $1.3 million in the first quarter of 2018, compared to net charge-offs of $11.7 million in the fourth quarter of 2017 and a net recovery of $747 thousand in the first quarter of 2017. The ratio of net loans charged off to average loans on an annualized basis was 0.03 percent for the first quarter of 2018, compared with 0.27 percent for the fourth quarter of 2017 and (0.02) percent for the first quarter of 2017.

Net charge-offs of commercial loans were $1.1 million in the first quarter of 2018. Net commercial real estate loan recoveries were $183 thousand in the first quarter of 2018. Net charge-offs of residential mortgage loans were $142 thousand and net charge-offs of personal loans were $564 thousand for the first quarter. Personal loan net charge-offs include deposit account overdraft losses.

Nonperforming Assets

Table 21 -- Nonperforming Assets
(In thousands)

	Mar. 31, 2018	Dec. 31, 2017	Sept. 30, 2017	June 30, 2017	Mar. 31, 2017
Nonaccruing loans:					
Commercial	$131,460	$137,303	$176,900	$197,157	$156,825
Commercial real estate	2,470	2,855	2,975	3,775	4,475
Residential mortgage	45,794	47,447	45,506	44,235	46,081
Personal	340	269	255	272	235
Total nonaccruing loans	180,064	187,874	225,636	245,439	207,616
Accruing renegotiated loans guaranteed by U.S. government agencies	74,418	73,994	69,440	80,624	83,577
Real estate and other repossessed assets	23,652	28,437	32,535	39,436	42,726
Total nonperforming assets	$278,134	$290,305	$327,611	$365,499	$333,919
Total nonperforming assets excluding those guaranteed by U.S. government agencies	$194,833	$207,132	$249,280	$275,823	$240,234
Nonaccruing loans by loan portfolio segment and class:					
Commercial:					
Energy	$89,942	$92,284	$110,683	$123,992	$110,425
Services	2,109	2,620	1,174	7,754	7,713
Healthcare	15,342	14,765	24,446	24,505	909
Wholesale/retail	2,564	2,574	1,893	10,620	11,090
Manufacturing	3,002	5,962	9,059	9,656	5,907
Other commercial and industrial	18,501	19,098	29,645	20,630	20,781
Total commercial	131,460	137,303	176,900	197,157	156,825
Commercial real estate:					
Multifamily	—	—	—	10	24
Retail	264	276	289	301	314
Office	275	275	275	396	413
Industrial	—	—	—	—	76
Residential construction and land development	1,613	1,832	1,924	2,051	2,616
Other commercial real estate	318	472	487	1,017	1,032
Total commercial real estate	2,470	2,855	2,975	3,775	4,475
Residential mortgage:					
Permanent mortgage	24,578	25,193	24,623	23,415	24,188
Permanent mortgage guaranteed by U.S. government agencies	8,883	9,179	8,891	9,052	10,108
Home equity	12,333	13,075	11,992	11,768	11,785
Total residential mortgage	45,794	47,447	45,506	44,235	46,081
Personal	340	269	255	272	235
Total nonaccruing loans	$180,064	$187,874	$225,636	$245,439	$207,616
Ratios:					
Allowance for loan losses to nonaccruing loans[1]	130.84 %	129.09 %	114.28 %	105.78 %	125.92 %

Accruing loans 90 days or more past due[1]	$90	$633	$253	$1,414	$95

[1] Excludes residential mortgages guaranteed by agencies of the U.S. Government.

Nonperforming assets totaled $278 million or 1.60 percent of outstanding loans and repossessed assets at March 31, 2018. Nonaccruing loans totaled $180 million, accruing renegotiated residential mortgage loans totaled $74 million and real estate and other repossessed assets totaled $24 million. All accruing renegotiated residential mortgage loans and $8.9 million of nonaccruing loans are guaranteed by U.S. government agencies. Excluding assets guaranteed by U.S. government agencies, nonperforming assets decreased $12 million compared to the first quarter, primarily due to a decrease in nonaccruing 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 troubled debt restructurings. 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 for residential mortgage loans guaranteed by U.S. government agencies, are classified as nonaccruing. We may also 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 nonaccrual 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.

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. Generally, 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 three months ended March 31, 2018 follows in Table 22.

Table 22 -- Rollforward of Nonperforming Assets
(In thousands)

	Three Months Ended March 31, 2018			
	Nonaccruing Loans	Renegotiated Loans	Real Estate and Other Repossessed Assets	Total Nonperforming Assets
Balance, December 31, 2017	$187,874	$ 73,994	$ 28,437	$ 290,305
Additions	10,420	17,021	—	27,441
Payments	(12,439)	(668)	—	(13,107)
Charge-offs	(2,890)	—	—	(2,890)
Net gains, losses and write-downs	—	—	(4,186)	(4,186)
Foreclosure of nonperforming loans	(2,156)	—	2,156	—
Foreclosure of loans guaranteed by U.S. government agencies	(1,528)	(1,827)	—	(3,355)
Proceeds from sales	—	(13,723)	(2,447)	(16,170)
Net transfers to nonaccruing loans	783	(783)	—	—

Other, net	—	404	(308)	96
Balance, March 31, 2018	$180,064	$ 74,418	$ 23,652	$ 278,134

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. These properties will be conveyed to the agencies once applicable criteria have been met.

Commercial

Nonaccruing commercial loans totaled $131 million or 1.20 percent of total commercial loans at March 31, 2018 and $137 million or 1.28 percent of commercial loans at December 31, 2017. There were $5.0 million in newly identified nonaccruing commercial loans during the quarter, offset by $8.8 million in payments and $1.6 million of charge-offs and $459 thousand of foreclosures.

Nonaccruing commercial loans at March 31, 2018 were primarily composed of $90 million or 3.03 percent of total energy loans, $19 million or 3.24 percent of total other commercial and industrial sector loans and $15 million or 0.65 percent of total healthcare sector loans.

Commercial Real Estate

Nonaccruing commercial real estate loans totaled $2.5 million or 0.07 percent of outstanding commercial real estate loans at March 31, 2018, compared to $2.9 million or 0.08 percent of outstanding commercial real estate loans at December 31, 2017. Newly identified nonaccruing commercial real estate loans of $725 thousand were offset by $1.1 million of cash payments received. There were no charge-offs or foreclosures of nonaccruing commercial real estate loans during the first quarter.

Nonaccruing commercial real estate loans were primarily composed of $1.6 million or 1.37 percent of residential construction and land development loans.

Residential Mortgage and Personal

Nonaccruing residential mortgage loans totaled $46 million or 2.35 percent of outstanding residential mortgage loans at March 31, 2018, a $1.7 million decrease compared to December 31, 2017. Newly identified nonaccruing residential mortgage loans totaling $3.3 million were partially offset by $3.2 million of foreclosures, $2.4 million of payments and $100 thousand of loans charged off during the quarter.

Nonaccruing residential mortgage loans primarily consist of non-guaranteed permanent residential mortgage loans, which totaled $25 million or 2.35 percent of outstanding non-guaranteed permanent residential mortgage loans at March 31, 2018. Nonaccruing home equity loans totaled $12 million or 1.71 percent of total home equity loans.

Payments of 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 23. Substantially all non-guaranteed residential loans past due 90 days or more are nonaccruing. Residential mortgage loans 30 to 59 days past due decreased $1.9 million in the first quarter to $3.7 million at March 31, 2018. Residential mortgage loans 60 to 89 days past due decreased by $273 thousand. Personal loans past due 30 to 59 days increased by $113 thousand and personal loans 60 to 89 days decreased $177 thousand.

Table 23 -- Residential Mortgage and Personal Loans Past Due
(In thousands)

	March 31, 2018			December 31, 2017		
	90 Days or	60 to 89 Days	30 to 59 Days	90 Days or	60 to 89 Days	30 to 59 Days

	More			More		
Residential mortgage:						
Permanent mortgage[1]	$—	$—	$2,322	$—	$219	$3,435
Home equity	22	386	1,377	17	440	2,206
Total residential mortgage	$22	$386	$3,699	17	$659	$5,641
Personal	$62	$14	$794	$261	$191	$681

[1] 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 the date of foreclosure or current fair value, less estimated selling costs.

Real estate and other repossessed assets totaled $24 million at March 31, 2018, composed primarily of $12 million of oil and gas properties, $6.2 million of 1-4 family residential properties and $4.6 million of undeveloped land primarily zoned for commercial development. Real estate and other repossessed assets totaled $28 million at December 31, 2017.

Liquidity and Capital

Based on the average balances for the first quarter of 2018, approximately 66 percent of our funding was provided by deposit accounts, 20 percent from borrowed funds, less than 1 percent is from long-term subordinated debt and 10 percent from equity. Our funding sources, which primarily include deposits and borrowings from the Federal Home Loan Banks and other banks, provide adequate liquidity to meet our operating needs.

Subsidiary Bank

Deposits and borrowed funds are the primary sources of liquidity for BOKF, NA, the wholly owned subsidiary bank of BOK Financial. 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.

Average deposits for the first quarter of 2018 totaled $22.1 billion, largely unchanged compared to the fourth quarter of 2017. Demand deposit balances decreased $266 million, partially offset by a $202 million increase in interest-bearing transaction account balances. Both time deposits and savings account balances were also up over the fourth quarter of 2017.

Table 24 - Average Deposits by Line of Business
(In thousands)

	Three Months Ended				
	Mar. 31, 2018	Dec. 31, 2017	Sept. 30, 2017	June 30, 2017	Mar. 31, 2017
Commercial Banking	$8,622,436	$8,756,437	$8,683,331	$8,652,811	$8,631,724
Consumer Banking	6,580,112	6,664,878	6,707,859	6,662,838	6,581,446
Wealth Management	5,662,470	5,457,566	5,495,250	5,531,091	5,582,554
Subtotal	20,865,018	20,878,881	20,886,440	20,846,740	20,795,724
Funds Management and other	1,261,877	1,282,179	1,232,881	1,245,591	1,573,698
Total	$22,126,895	$22,161,060	$22,119,321	$22,092,331	$22,369,422

Average Commercial Banking deposit balances decreased $134 million compared to the fourth quarter of 2017. Demand deposit balances decreased $183 million, partially offset by a $53 million increase in interest-bearing transaction account balances. Average deposit balances attributed to healthcare customers decreased by $68 million and average balances attributed to commercial real estate customers decreased $47 million. Balances attributed to small business customers were down $25 million. Balances attributed to treasury services customers grew by $11 million. Commercial customers continue to retain large cash reserves primarily due to a combination of factors including uncertainty about the economic environment and potential for growth, lack of preferable liquid alternatives and a desire 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 deposit balances may decrease once the economic outlook improves and customers deploy cash or related earnings credit rates rise, reducing the amount of deposits required to offset service charges.

Average Consumer Banking deposit balances decreased by $85 million. Interest-bearing transaction balances also decreased $46 million. Time deposit balances decreased by $24 million. Demand deposit balances were down $24 million. Savings deposit balances were up $15 million over the prior quarter.

Average Wealth Management deposits increased $205 million over the fourth quarter of 2017. A $192 million increase in interest-bearing transaction account balances and a $51 million increase in time deposits was partially offset by a $38 million decrease in demand deposit balances.

Average deposits attributed to Funds Management and Other decreased $20 million.

Average time deposits for the first quarter of 2018 included $657 million of brokered deposits, an increase of $75 million over the fourth quarter of 2017. Average interest-bearing transaction accounts for the first quarter included $1.6 billion of brokered deposits, an increase of $158 million over the fourth quarter of 2017.

The distribution of our period end deposit account balances among principal markets follows in Table 25.

Table 25 -- Period End Deposits by Principal Market Area
(In thousands)

	Mar. 31, 2018	Dec. 31, 2017	Sept. 30, 2017	June 30, 2017	Mar. 31, 2017
Bank of Oklahoma:					
Demand	$4,201,842	$3,885,008	$4,061,612	$4,353,421	$4,320,666
Interest-bearing:					
Transaction	6,051,302	5,901,293	5,909,259	5,998,787	6,114,288
Savings	289,351	265,870	265,023	263,664	265,014
Time	1,203,534	1,092,133	1,131,547	1,170,014	1,189,144
Total interest-bearing	7,544,187	7,259,296	7,305,829	7,432,465	7,568,446
Total Bank of Oklahoma	11,746,029	11,144,304	11,367,441	11,785,886	11,889,112
Bank of Texas:					
Demand	3,015,869	3,239,098	3,094,184	3,121,890	3,091,258
Interest-bearing:					
Transaction	2,208,480	2,397,071	2,272,987	2,272,185	2,317,576
Savings	98,852	93,620	93,400	91,491	89,640
Time	475,967	502,879	521,072	502,128	511,037
Total interest-bearing	2,783,299	2,993,570	2,887,459	2,865,804	2,918,253
Total Bank of Texas	5,799,168	6,232,668	5,981,643	5,987,694	6,009,511
Bank of Albuquerque:					
Demand	695,060	663,353	659,793	612,117	593,117
Interest-bearing:					
Transaction	555,414	552,393	551,884	558,523	623,677
Savings	60,596	55,647	53,532	54,136	53,683
Time	216,306	216,743	224,773	229,616	233,506
Total interest-bearing	832,316	824,783	830,189	842,275	910,866
Total Bank of Albuquerque	1,527,376	1,488,136	1,489,982	1,454,392	1,503,983
Bank of Arkansas:					
Demand	35,291	30,384	31,442	40,511	42,622
Interest-bearing:					
Transaction	94,206	85,095	126,746	129,848	106,804
Savings	1,960	1,881	1,876	2,135	2,304
Time	11,878	14,045	14,434	14,876	15,067
Total interest-bearing	108,044	101,021	143,056	146,859	124,175
Total Bank of Arkansas	143,335	131,405	174,498	187,370	166,797
Colorado State Bank & Trust:					
Demand	521,963	633,714	540,300	577,617	601,778
Interest-bearing:					
Transaction	687,785	657,629	628,807	626,343	610,510
Savings	37,232	35,223	34,776	35,651	37,801
Time	215,330	224,962	231,927	228,458	234,740
Total interest-bearing	940,347	917,814	895,510	890,452	883,051
Total Colorado State Bank & Trust	1,462,310	1,551,528	1,435,810	1,468,069	1,484,829

	Mar. 31, 2018	Dec. 31, 2017	Sept. 30, 2017	June 30, 2017	Mar. 31, 2017
Bank of Arizona:					
Demand	330,196	334,701	335,740	366,866	342,854
Interest-bearing:					
Transaction	248,337	274,846	174,010	154,457	180,254
Savings	4,116	3,343	4,105	3,638	3,858
Time	21,009	20,394	20,831	19,911	26,112
Total interest-bearing	273,462	298,583	198,946	178,006	210,224
Total Bank of Arizona	603,658	633,284	534,686	544,872	553,078
Mobank (Kansas City):					
Demand	505,802	457,080	462,410	496,473	514,278
Interest-bearing:					
Transaction	381,447	382,066	361,391	346,996	406,105
Savings	13,845	13,574	12,513	13,603	13,424
Time	22,230	27,260	27,705	31,119	34,242
Total interest-bearing	417,522	422,900	401,609	391,718	453,771
Total Mobank (Kansas City)	923,324	879,980	864,019	888,191	968,049
Total BOK Financial deposits	$22,205,200	$22,061,305	$21,848,079	$22,316,474	$22,575,359

In addition to deposits, liquidity 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 $16 million at March 31, 2018. 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 agency 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 $6.3 billion during the quarter, up from $6.2 billion in the fourth quarter of 2017.

At March 31, 2018, the estimated unused credit available to BOKF, NA from collateralized sources was approximately $5.6 billion.

A summary of other borrowings for BOK Financial on a consolidated basis follows in Table 26.

Table 26 -- Borrowed Funds
(In thousands)

		Three Months Ended March 31, 2018				Three Months Ended December 31, 2017		
	Mar 31, 2018	Average Balance During the Quarter	Rate	Maximum Outstanding At Any Month End During the Quarter	Dec 31, 2017	Average Balance During the Quarter	Rate	Maximum Outstanding At Any Month End During the Quarter
Parent Company and Other Non-Bank Subsidiaries:								
Other borrowings	—	—	— %	$ —	—	1,012	11.33%	1,012
Subordinated debentures	144,687	144,682	5.61%	$ 144,687	144,677	144,673	5.55 %	144,677
Total parent company and other non-bank subsidiaries	144,687	144,682	5.61%		144,677	145,685	5.58 %	
BOKF, NA:								
Funds purchased	130,561	106,362	1.20%	160,087	58,628	63,713	0.90 %	80,967
Repurchase agreements	415,763	426,051	0.20%	415,763	516,335	424,617	0.18 %	516,335
Other borrowings:								
Federal Home Loan Bank advances	5,700,000	6,295,556	1.58%	5,700,000	5,100,000	6,170,652	1.34 %	5,600,000
GNMA repurchase liability	12,020	16,434	4.64%	15,011	19,947	22,849	4.55 %	23,700
Other	15,005	14,977	2.33%	15,005	14,950	15,390	2.37 %	15,506
Total other borrowings	5,727,025	6,326,967	1.60%		5,134,897	6,208,891	1.36 %	
Total BOKF, NA	6,273,349	6,859,380	1.50%		5,709,860	6,697,221	1.28 %	
Total other borrowed funds and subordinated debentures	$6,418,036	$7,004,062	1.59%		$5,854,537	$6,842,906	1.37 %	

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

At March 31, 2018, cash and interest-bearing cash and cash equivalents held by the parent company totaled $165 million. The primary sources of liquidity for BOK Financial are cash on hand and dividends from BOKF, NA. Dividends from the bank 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 March 31, 2018, based upon the most restrictive limitations as well as management's internal capital policy, the bank could declare up to $366 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 at the bank could affect its ability to pay dividends to the parent company.

Our equity capital at March 31, 2018 was $3.5 billion, largely unchanged compared to December 31, 2017. Net income less cash dividends paid increased equity $76 million during the first quarter of 2018. Changes in interest rates resulted in an increase in the accumulated other comprehensive loss to $111 million at March 31, 2018, compared to

$36 million at December 31, 2017. The Company also repurchased $9.8 million of our common stock during the first quarter of 2018. Capital is managed to maximize long-term value to the shareholders. Factors considered in managing capital include projections of future earnings including expected benefits from lower federal income tax rates, asset growth and acquisition strategies, and regulatory and debt covenant requirements. Capital management may include subordinated debt or perpetual preferred stock 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 law and other regulatory compliance limitations. As of March 31, 2018, a cumulative total of 3,041,826 shares have been repurchased under this authorization. The Company repurchased 82,583 shares in the first quarter of 2018 at an average of $91.83 per share. The Company repurchased 80,000 shares in the fourth quarter of 2017 at an average price of $92.54 per share.

BOK Financial and BOKF, NA are subject to various capital requirements administered by federal agencies. Failure to meet minimum capital requirements can result in certain mandatory and possibly 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.
Regulatory capital rules establish a 7 percent 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. Components of the capital rules effective January 1, 2015 for the Company will phase in through January 1, 2019, with certain exceptions.

A summary of minimum capital requirements, including capital conservation buffer follows in Table 27. 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.

The capital ratios for BOK Financial on a consolidated basis are presented in Table 27.

Table 27 -- Capital Ratios

	Minimum Capital Requirement	Capital Conservation Buffer	Minimum Capital Requirement Including Capital Conservation Buffer	Mar. 31, 2018	Dec. 31, 2017	Mar. 31, 2017
Risk-based capital:						
Common equity Tier 1	4.50%	2.50%	7.00%	12.06%	12.05%	11.59%
Tier 1 capital	6.00%	2.50%	8.50%	12.06%	12.05%	11.59%
Total capital	8.00%	2.50%	10.50%	13.49%	13.54%	13.25%
Tier 1 Leverage	4.00%	N/A	4.00%	9.40 %	9.31 %	8.89 %
Average total equity to average assets				10.31%	10.51%	10.10%
Tangible common equity ratio				9.18 %	9.50 %	8.88 %

At March 31, 2018, the company exceeded the $1 billion regulatory capital rules threshold for trading assets plus liabilities. This subjects the company to the market risk rule, which will impose additional modeling, systems, oversight and reporting requirements effective in the second quarter of 2018. Risk weighted assets associated with trading will increase.

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") 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 28 provides a reconciliation of the non-GAAP measures with financial measures defined by GAAP.

Table 28 -- Non-GAAP Measure
(Dollars in thousands)

	Mar. 31, 2018	Dec. 31, 2017	Sept. 30, 2017	June 30, 2017	Mar. 31, 2017
Tangible common equity ratio:					
Total shareholders' equity	$3,495,029	$3,495,367	$3,488,814	$3,422,469	$3,341,744
Less: Goodwill and intangible assets, net	477,088	476,088	485,710	487,452	488,294
Tangible common equity	3,017,941	3,019,279	3,003,104	2,935,017	2,853,450
Total assets	33,361,492	32,272,160	33,005,515	32,263,532	32,628,932
Less: Goodwill and intangible assets, net	477,088	476,088	485,710	487,452	488,294
Tangible assets	$32,884,404	$31,796,072	$32,519,805	$31,776,080	$32,140,638
Tangible common equity ratio	9.18 %	9.50 %	9.23 %	9.24 %	8.88 %

Off-Balance Sheet Arrangements

See Note 6 to the Consolidated Financial Statements for a discussion of the Company’s significant off-balance sheet commitments.

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 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 un-pledged 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. Exposure is measured daily and compliance is reviewed monthly. Deviations from the Board approved limits, which periodically occur throughout the reporting period, may require management to develop and execute plans to reduce exposure. These plans are subject to escalation to and approval by the Board.

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 repricing 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. Our current internal policy limit for net interest revenue variation due to a 200 basis point parallel change in market interest rates over twelve months is a maximum decline of 5%. The results of a 200 basis point decrease in interest rates in the current low-rate environment are not meaningful. Until such time as it becomes meaningful, we will instead report the effect of a 50 basis point decrease in interest rates.

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 29 -- Interest Rate Sensitivity
(Dollars in thousands)

	200 bp Increase March 31,		50 bp Decrease March 31,	
	2018	2017	2018	2017
Anticipated impact over the next twelve months on net interest revenue	$(1,846)	$(4,411)	$(17,889)	$(18,474)
	(0.20)%	(0.53)%	(1.89)%	(2.20)%

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 debt securities issued by the U.S. government or its agencies 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 30 -- MSR Asset and Hedge Sensitivity Analysis
(Dollars in thousands)

	March 31, 2018		2017	
	Up 50 bp	Down 50 bp	Up 50 bp	Down 50 bp
MSR Asset	$23,504	$(26,145)	$25,101	$(30,489)
MSR Hedge	(24,994)	22,132	(29,524)	25,984
Net Exposure	(1,490)	(4,013)	(4,423)	(4,505)

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 31 -- Mortgage Pipeline Sensitivity Analysis
(Dollars in thousands)

	Three Months Ended March 31,			
	2018		2017	
	Up 50 bp	Down 50 bp	Up 50 bp	Down 50 bp
Average[1]	$185	$(619)	$253	$(1,215)
Low[2]	942	699	991	(398)
High[3]	(1,015)	(1,504)	(456)	(1,787)
Period End	390	(1,201)	193	(1,656)

[1] Average represents the simple average of each daily value observed during the reporting period.

[2] Low represents least risk of loss in fair value measured as the smallest negative value or the largest positive value observed daily during the reporting period.

[3] High represents the greatest risk of loss in fair value measured as the largest negative value or the smallest positive value observed daily during the reporting period.

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 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 an $8 million market risk limit for the trading portfolio, net of economic hedges.

Table 32 -- Trading Sensitivity Analysis
(Dollars in thousands)

	Three Months Ended March 31,			
	2018		2017	
	Up 50 bp	Down 50 bp	Up 50 bp	Down 50 bp
Average[1]	$(563)	$358	$(2,643)	$2,912
Low[2]	849	2,321	86	5,210
High[3]	(2,808)	(1,206)	(4,386)	2
Period End	579	(841)	(3,222)	3,364

[1] Average represents the simple average of each daily value observed during the reporting period.

[2] Low represents least risk of loss in fair value measured as the smallest negative value or the largest positive value observed daily during the reporting period.

[3] High represents the greatest risk of loss in fair value measured as the largest negative value or the smallest positive value observed daily during the reporting period.

Controls and Procedures

As required by Rule 13a-15(b), BOK Financial's management, including the Chief Executive Officer and Chief Financial Officer, conducted an evaluation as of the end of the period covered by their report, of the effectiveness of the Company's disclosure controls and procedures as defined in Exchange Act Rule 13a-15(e). Based on that evaluation, the Chief Executive Officer and Chief Financial Officer concluded that the disclosure controls and procedures were effective as of the end of the period covered by this report. As required by Rule 13a-15(d), BOK Financial's management, including the Chief Executive Officer and Chief Financial Officer, also conducted an evaluation of the Company's internal controls over financial reporting to determine whether any changes occurred during the quarter covered by this report that have materially affected, or are reasonably likely to materially affect, the Company's internal controls over financial reporting. Based on that evaluation, there has been no such change during the quarter covered by this report.

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," var 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 credit losses, 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.

Consolidated Statements of Earnings (Unaudited)

(In thousands, except share and per share data)	Three Months Ended March 31,	
	2018	2017
Interest revenue		
Loans	$188,091	$160,895
Residential mortgage loans held for sale	1,844	1,836
Trading securities	7,738	5,183
Investment securities	3,857	4,171
Available for sale securities	45,959	43,372
Fair value option securities	4,819	2,380
Restricted equity securities	5,117	4,309
Interest-bearing cash and cash equivalents	7,982	4,244
Total interest revenue	265,407	226,390
Interest expense		
Deposits	18,219	11,354
Borrowed funds	25,449	11,829
Subordinated debentures	2,003	2,025
Total interest expense	45,671	25,208
Net interest revenue	219,736	201,182
Provision for credit losses	(5,000)	—
Net interest revenue after provision for credit losses	224,736	201,182
Other operating revenue		
Brokerage and trading revenue	30,648	33,623
Transaction card revenue	20,990	27,380
Fiduciary and asset management revenue	41,832	38,631
Deposit service charges and fees	27,161	27,777
Mortgage banking revenue	26,025	25,191
Other revenue	12,330	11,752
Total fees and commissions	158,986	164,354
Other gains (losses), net	(664)	3,627
Loss on derivatives, net	(5,685)	(450)
Loss on fair value option securities, net	(17,564)	(1,140)
Change in fair value of mortgage servicing rights	21,206	1,856
Gain (loss) on available for sale securities, net	(290)	2,049
Total other operating revenue	155,989	170,296
Other operating expense		
Personnel	139,947	136,425
Business promotion	6,010	6,717
Professional fees and services	10,200	11,417
Net occupancy and equipment	24,046	21,624
Insurance	6,593	6,404
Data processing and communications	27,817	34,902
Printing, postage and supplies	4,089	3,851
Net losses and operating expenses of repossessed assets	7,705	1,009
Amortization of intangible assets	1,300	1,802
Mortgage banking costs	10,149	13,003
Other expense	6,574	7,557
Total other operating expense	244,430	244,711

Net income before taxes	136,295	126,767
Federal and state income taxes	30,948	38,103
Net income	105,347	88,664
Net income (loss) attributable to non-controlling interests	(215)	308
Net income attributable to BOK Financial Corporation shareholders	$105,562	$88,356
Earnings per share:		
Basic	$1.61	$1.35
Diluted	$1.61	$1.35
Average shares used in computation:		
Basic	64,847,334	64,715,964
Diluted	64,888,033	64,783,737
Dividends declared per share	$0.45	$0.44

See accompanying notes to consolidated financial statements.

Consolidated Statements of Comprehensive Income (Unaudited)
(In thousands, except share and per share data)

	Three Months Ended March 31,	
	2018	2017
Net income	$105,347	$88,664
Other comprehensive income (loss) before income taxes:		
Net change in unrealized gain (loss)	(97,406)	11,411
Reclassification adjustments included in earnings:		
Loss (gain) on available for sale securities, net	290	(2,049)
Other comprehensive income (loss) before income taxes	(97,116)	9,362
Federal and state income taxes	(24,808)	3,616
Other comprehensive income (loss), net of income taxes	(72,308)	5,746
Comprehensive income	33,039	94,410
Comprehensive income (loss) attributable to non-controlling interests	(215)	308
Comprehensive income attributable to BOK Financial Corp. shareholders	$33,254	$94,102

See accompanying notes to consolidated financial statements.

Consolidated Balance Sheets
(In thousands, except share data)

	Mar. 31, 2018 (Unaudited)	Dec. 31, 2017 (Footnote 1)	Mar. 31, 2017 (Unaudited)
Assets			
Cash and due from banks	$544,534	$602,510	$546,575
Interest-bearing cash and cash equivalents	2,054,899	1,714,544	2,220,640
Trading securities	1,292,432	462,676	677,156
Investment securities (fair value: March 31, 2018 – $428,861; December 31, 2017 – $480,035 ; March 31, 2017 – $540,663)	416,672	461,793	519,402
Available for sale debt securities	8,249,432	8,321,578	8,437,291
Fair value option securities	513,668	755,054	441,714
Restricted equity securities	338,552	320,189	283,936
Residential mortgage loans held for sale	225,190	221,378	248,707
Loans	17,337,850	17,153,424	16,991,906
Allowance for loan losses	(223,967)	(230,682)	(248,710)
Loans, net of allowance	17,113,883	16,922,742	16,743,196
Premises and equipment, net	314,347	317,335	325,546
Receivables	478,027	442,897	394,394
Goodwill	447,430	447,430	445,738
Intangible assets, net	29,658	28,658	42,556
Mortgage servicing rights	274,978	252,867	249,403
Real estate and other repossessed assets, net of allowance (March 31, 2018 – $17,661; December 31, 2017 – $12,648; March 31, 2017 – $9,065)	23,652	28,437	42,726
Derivative contracts, net	286,687	220,502	304,727
Cash surrender value of bank-owned life insurance	318,661	316,498	310,537
Receivable on unsettled securities sales	3,638	75,980	9,921
Other assets	435,152	359,092	384,767
Total assets	$33,361,492	$32,272,160	$32,628,932
Liabilities and Equity			
Liabilities:			
Noninterest-bearing demand deposits	$9,306,023	$9,243,338	$9,506,573
Interest-bearing deposits:			
Transaction	10,226,971	10,250,393	10,359,214
Savings	505,952	469,158	465,724
Time	2,166,254	2,098,416	2,243,848
Total deposits	22,205,200	22,061,305	22,575,359
Funds purchased	130,561	58,628	47,629
Repurchase agreements	415,763	516,335	508,352
Other borrowings	5,727,025	5,134,897	5,238,947
Subordinated debentures	144,687	144,677	144,649
Accrued interest, taxes and expense	156,146	164,895	140,235
Derivative contracts, net	233,202	171,963	276,422
Due on unsettled securities purchases	94,424	151,198	137,069
Other liabilities	737,142	349,928	189,376
Total liabilities	29,844,150	28,753,826	29,258,038
Shareholders' equity:			

Common stock ($.00006 par value; 2,500,000,000 shares authorized; shares issued and outstanding: March 31, 2018 – 75,318,088; December 31, 2017 – 75,147,686; March 31, 2017 – 75,080,768)	4	4	4
Capital surplus	1,041,242	1,035,895	1,009,360
Retained earnings	3,127,575	3,048,487	2,883,042
Treasury stock (shares at cost: March 31, 2018 – 9,858,583; December 31, 2017 – 9,752,749; March 31, 2017 – 9,672,749)	(562,601)	(552,845)	(545,441)
Accumulated other comprehensive loss	(111,191)	(36,174)	(5,221)
Total shareholders' equity	3,495,029	3,495,367	3,341,744
Non-controlling interests	22,313	22,967	29,150
Total equity	3,517,342	3,518,334	3,370,894
Total liabilities and equity	$33,361,492	$32,272,160	$32,628,932

See accompanying notes to consolidated financial statements.

Consolidated Statements of Changes in Equity (Unaudited)
(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, 2016	74,993	$4	$1,006,535	$2,823,334	9,656	$(544,052)	$(10,967)	$3,274,854	$31,503	$3,306,357
Net income	—	—	—	88,356	—	—	—	88,356	308	88,664
Other comprehensive income	—	—	—	—	—	—	5,746	5,746	—	5,746
Share-based compensation plans:										
Stock options exercised	27	—	1,222	—	—	—	—	1,222	—	1,222
Non-vested shares awarded, net	61	—	—	—	—	—	—	—	—	—
Vesting of non-vested shares	—	—	—	—	17	(1,389)	—	(1,389)	—	(1,389)
Share-based compensation	—	—	1,603	—	—	—	—	1,603	—	1,603
Cash dividends on common stock	—	—	—	(28,648)	—	—	—	(28,648)	—	(28,648)
Capital calls and distributions, net	—	—	—	—	—	—	—	—	(2,661)	(2,661)
Balance, March 31, 2017	75,081	$4	$1,009,360	$2,883,042	9,673	$(545,441)	$(5,221)	$3,341,744	$29,150	$3,370,894
Balance, December 31, 2017	75,148	$4	$1,035,895	$3,048,487	9,753	$(552,845)	$(36,174)	$3,495,367	$22,967	$3,518,334
Transition adjustment of net unrealized gains on equity securities	—	—	—	2,709	—	—	(2,709)	—	—	—
Balance, December 31, 2017, Adjusted	75,148	4	1,035,895	3,051,196	9,753	(552,845)	(38,883)	3,495,367	22,967	3,518,334

Net income (loss)	—	—	—	105,562	—	—	—	105,562	(215)	105,347
Other comprehensive loss	—	—	—	—	—	—	(72,308)	(72,308)	—	(72,308)
Repurchase of common stock	—	—	—	—	83	(7,584)	—	(7,584)	—	(7,584)
Share-based compensation plans:										
Stock options exercised	43	—	2,274	—	—	—	—	2,274	—	2,274
Non-vested shares awarded, net	127	—	—	—	—	—	—	—	—	—
Vesting of non-vested shares	—	—	—	—	23	(2,172)	—	(2,172)	—	(2,172)
Share-based compensation	—	—	3,073	—	—	—	—	3,073	—	3,073
Cash dividends on common stock	—	—	—	(29,183)	—	—	—	(29,183)	—	(29,183)
Capital calls and distributions, net	—	—	—	—	—	—	—	—	(439)	(439)
Balance, March 31, 2018	75,318	4	1,041,242	3,127,575	9,859	(562,601)	(111,191)	3,495,029	22,313	3,517,342

See accompanying notes to consolidated financial statements.

Consolidated Statements of Cash Flows (Unaudited)
(in thousands)

	Three Months Ended March 31,	
	2018	2017
Cash Flows From Operating Activities:		
Net income	$105,347	$88,664
Adjustments to reconcile net income to net cash used in operating activities:		
Provision for credit losses	(5,000)	—
Change in fair value of mortgage servicing rights due to market changes	(21,206)	(1,856)
Change in the fair value of mortgage servicing rights due to principal payments	7,995	7,962
Net unrealized losses from derivative contracts	2,222	1,093
Share-based compensation	3,073	1,603
Depreciation and amortization	13,561	12,516
Net amortization of securities discounts and premiums	6,555	8,520
Net losses (gains) on financial instruments and other losses (gains), net	5,593	(2,308)
Net gain on mortgage loans held for sale	(7,549)	(12,457)
Mortgage loans originated for sale	(664,958)	(711,019)
Proceeds from sale of mortgage loans held for sale	670,598	772,752
Capitalized mortgage servicing rights	(8,900)	(8,436)
Change in trading and fair value option securities	(588,588)	(704,860)
Change in receivables	(33,631)	379,310
Change in other assets	(4,349)	(6,805)
Change in accrued interest, taxes and expense	(8,749)	(6,469)
Change in other liabilities	379,649	13,059
Net cash used in operating activities	(148,337)	(168,731)
Cash Flows From Investing Activities:		
Proceeds from maturities or redemptions of investment securities	44,031	39,651
Proceeds from maturities or redemptions of available for sale securities	412,391	396,410
Purchases of investment securities	—	(14,392)
Purchases of available for sale securities	(518,361)	(391,834)
Proceeds from sales of available for sale securities	44,790	240,010
Change in amount receivable on unsettled securities transactions	72,342	(2,733)
Loans originated, net of principal collected	(180,381)	16,369
Net payments on derivative asset contracts	(40,537)	361,996
Proceeds from disposition of assets	44,620	103,521
Purchases of assets	(59,788)	(62,899)
Net cash provided by (used in) investing activities	(180,893)	686,099
Cash Flows From Financing Activities:		
Net change in demand deposits, transaction deposits and savings accounts	76,057	(194,784)
Net change in time deposits	67,838	22,048
Net change in other borrowed funds	544,157	191,785
Net proceeds on derivative liability contracts	41,486	(365,752)
Net change in derivative margin accounts	(24,490)	(42,693)
Change in amount due on unsettled security transactions	(56,774)	130,561
Issuance of common and treasury stock, net	102	(167)
Repurchase of common stock	(7,584)	—
Dividends paid	(29,183)	(28,648)
Net cash provided by (used in) financing activities	611,609	(287,650)

Net increase in cash and cash equivalents	282,379	229,718
Cash and cash equivalents at beginning of period	2,317,054	2,537,497
Cash and cash equivalents at end of period	$2,599,433	$2,767,215
Supplemental Cash Flow Information:		
Cash paid for interest	$47,165	$26,057
Cash paid for taxes	$1,548	$2,602
Net loans and bank premises transferred to repossessed real estate and other assets	$2,156	$909
Residential mortgage loans guaranteed by U.S. government agencies that became eligible for repurchase during the period	$19,332	$30,481
Conveyance of other real estate owned guaranteed by U.S. government agencies	$11,817	$11,704

See accompanying notes to consolidated financial statements.

Notes to Consolidated Financial Statements (Unaudited)

(1) Significant Accounting Policies

Basis of Presentation

The accompanying unaudited consolidated financial statements of BOK Financial Corporation (“BOK Financial” or “the Company”) have been prepared in accordance with accounting principles for interim financial information generally accepted in the United States and with the instructions to Form 10-Q and Article 10 of Regulation S-X. Accordingly, they do not include all of the information and footnotes required by generally accepted accounting principles for complete financial statements. In the opinion of management, all adjustments (consisting of normal recurring accruals) considered necessary for a fair presentation have been included.

The unaudited consolidated financial statements include accounts of BOK Financial and its subsidiaries, principally BOKF, NA (“the Bank”), BOK Financial Securities, Inc., The Milestone Group, Inc. and Cavanal Hill Investment Management Inc. Operating divisions of the Bank include Bank of Albuquerque, Bank of Arizona, Bank of Arkansas, Bank of Oklahoma, Bank of Texas, Colorado State Bank and Trust, Mobank, BOK Financial Mortgage and the TransFund electronic funds network.

Certain reclassifications have been made to conform to the current period presentation.

The financial information should be read in conjunction with BOK Financial’s 2017 Form 10-K filed with the Securities and Exchange Commission, which contains audited financial statements. Amounts presented as of December 31, 2017 have been derived from the audited financial statements included in BOK Financial’s 2017 Form 10-K but do not include all of the information and footnotes required by generally accepted accounting principles for complete financial statements. Operating results for the three-month period ended March 31, 2018 are not necessarily indicative of the results that may be expected for the year ending December 31, 2018.

Newly Adopted and Pending Accounting Policies

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. Revenue from financial assets and liabilities is explicitly excluded from the scope of ASU 2014-09. Management adopted the standard in the first quarter of 2018 using the modified retrospective transition method. There were no significant cumulative effect adjustments as a result of implementation as of January 1, 2018 as our current revenue recognition policies generally conform with the principals in ASU 2014-09.

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. Management adopted the standard in the first quarter of 2018. Interchange fees paid to issuing banks for card transactions processed related to its merchant processing services previously included in data processing and communication expense are now netted against the amounts charged to the merchant in transaction card processing revenue. For the first quarter of 2018, interchange fees related to merchant processing services were approximately $9.5 million.

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 over the recognition and measurement of financial assets and liabilities. The update 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. Management adopted the standard in the first quarter of 2018. Upon adoption, unrealized gains and losses of $2.7 million from equity securities were reclassified from other comprehensive income to retained earnings.

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 lease assets and 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 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 currently estimates that implementation of ASU 2016-02 will increase reported right of use assets and liabilities by approximately $100 million to $150 million.

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 in order to provide more timely recording of credit losses on loans and other financial instruments. The ASU adds 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 guidance in ASC 230 on the classification of certain cash receipts and payments in the statement of cash flows. The amendments address eight cash flow issues. Management adopted the standard in first quarter of 2018. Adoption of ASU 2016-15 did not have a material impact on the Company's financial statements.

FASB Accounting Standards Update No. 2017-12, Derivatives and Hedging (Topic 815): Targeted Improvements to Accounting for Hedging Activities ("ASU 2017-12")

On August 28, 2017, the FASB issued ASU 2017-12, which amends the hedge accounting recognition and presentation requirements in ASC 815 in order to improve transparency and understandability of information and reduce the complexity. The update expands the types of transactions eligible for hedge accounting, eliminates the requirement to separately measure and present hedge ineffectiveness, simplifies hedge effectiveness assessments and updates documentation and presentation requirements. The update allows the reclassification of certain debt securities from held to maturity to available for sale if the debt security is eligible to be hedged under the last-of-layer method. ASU 2017-12 is effective for the Company for fiscal years beginning after December 15, 2018, and interim periods therein; however, early adoption is permitted. The Company is evaluating the impact the adoption of ASU 2017-12 will have on the Company's financial statements.

FASB Accounting Standards Update No. 2018-05, Income Taxes (Topic 740): Amendments to SEC Paragraphs Pursuant to SEC Staff Accounting Bulletin No. 118 (SAB 118).

On March 13, 2018, the FASB issued ASU 2018-05, which adds SEC guidance related to SAB 118 - Income Tax Accounting Implications of the Tax Cuts and Jobs Act. ASU 2018-05 was effective upon issuance.

(2) Securities

Trading Securities

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

	March 31, 2018		December 31, 2017		March 31, 2017	
	Fair Value	Net Unrealized Gain (Loss)	Fair Value	Net Unrealized Gain (Loss)	Fair Value	Net Unrealized Gain (Loss)
U.S. government agency debentures	$37,115	$ 68	$21,196	$ 8	$18,365	$ (74)
U.S. government agency residential mortgage-backed securities	1,078,085	(2,692)	392,673	(517)	578,977	1,575
Municipal and other tax-exempt securities	72,013	—	13,559	83	45,114	171
Asset-backed securities	94,734	19	23,885	(26)	—	—
Other trading securities	10,485	(58)	11,363	4	34,700	36
Total trading securities	$1,292,432	$ (2,663)	$462,676	$ (448)	$677,156	$ 1,708

Investment Securities

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

	March 31, 2018			
	Amortized Cost	Fair Value	Gross Unrealized Gain	Loss
Municipal and other tax-exempt	$197,238	$198,254	$1,914	$(898)
U.S. government agency residential mortgage-backed securities – Other	14,967	15,112	319	(174)
Other debt securities	204,467	215,495	13,029	(2,001)
Total investment securities	$416,672	$428,861	$15,262	$(3,073)
	December 31, 2017			
	Amortized Cost	Fair Value	Gross Unrealized Gain	Loss
Municipal and other tax-exempt	$228,186	$230,349	$2,967	$(804)
U.S. government agency residential mortgage-backed securities – Other	15,891	16,242	446	(95)
Other debt securities	217,716	233,444	17,095	(1,367)
Total investment securities	$461,793	$480,035	$20,508	$(2,266)
	March 31, 2017			
	Amortized Cost	Fair Value	Gross Unrealized Gain	Loss
Municipal and other tax-exempt	$298,811	$301,128	$2,872	$(555)
U.S. government agency residential mortgage-backed securities – Other	19,378	19,967	669	(80)
Other debt securities	201,213	219,568	19,172	(817)
Total investment securities	$519,402	$540,663	$22,713	$(1,452)

The amortized cost and fair values of investment securities at March 31, 2018, 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[2]
Municipal and other tax-exempt:						
Amortized cost	$82,916	$63,604	$14,879	$35,839	$197,238	3.77
Fair value	82,772	63,244	15,159	37,079	198,254	
Nominal yield[1]	2.02 %	2.62 %	5.23 %	5.65 %	3.11 %	
Other debt securities:						
Amortized cost	14,388	50,653	123,762	15,664	204,467	6.22
Fair value	14,585	52,890	133,634	14,386	215,495	
Nominal yield	4.13 %	4.83 %	5.67 %	4.34 %	5.25 %	
Total fixed maturity securities:						
Amortized cost	$97,304	$114,257	$138,641	$51,503	$401,705	5.02
Fair value	97,357	116,134	148,793	51,465	413,749	
Nominal yield	2.33 %	3.60 %	5.62 %	5.25 %	4.20 %	
Residential mortgage-backed securities:						
Amortized cost					$14,967	[3]
Fair value					15,112	
Nominal yield[4]					2.76 %	
Total investment securities:						
Amortized cost					$416,672	
Fair value					428,861	
Nominal yield					4.15 %	

[1] Calculated on a taxable equivalent basis using a 25 percent effective tax rate.

[2] Expected maturities may differ from contractual maturities, because borrowers may have the right to call or prepay obligations with or without penalty.

[3] The average expected lives of residential mortgage-backed securities were 4.9 years based upon current prepayment assumptions.

[4] 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):

	March 31, 2018				
	Amortized Cost	Fair Value	Gross Unrealized Gain	Loss	OTTI
U.S. Treasury	$493	$491	$—	$(2)	$ —
Municipal and other tax-exempt	20,428	20,414	136	(150)	—
Residential mortgage-backed securities:					
U. S. government agencies:					
FNMA	3,107,874	3,041,408	4,197	(70,663)	—
FHLMC	1,567,520	1,532,582	1,390	(36,328)	—
GNMA	817,800	805,931	1,265	(13,134)	—
Total U.S. government agencies	5,493,194	5,379,921	6,852	(120,125)	—
Private issue	70,434	90,160	19,726	—	—
Total residential mortgage-backed securities	5,563,628	5,470,081	26,578	(120,125)	—
Commercial mortgage-backed securities guaranteed by U.S. government agencies	2,787,630	2,732,966	1,998	(56,662)	—
Other debt securities	25,500	25,480	48	(68)	—
Total available for sale securities	$8,397,679	$8,249,432	$28,760	$(177,007)	$ —

	December 31, 2017				
	Amortized Cost	Fair Value	Gross Unrealized Gain	Loss	OTTI
U.S. Treasury	$1,000	$1,000	$—	$—	$—
Municipal and other tax-exempt	27,182	27,080	181	(283)	—
Residential mortgage-backed securities:					
U. S. government agencies:					
FNMA	3,021,551	2,997,563	11,549	(35,537)	—
FHLMC	1,545,971	1,531,009	3,148	(18,110)	—
GNMA	787,626	780,580	1,607	(8,653)	—
Total U.S. government agencies	5,355,148	5,309,152	16,304	(62,300)	—
Private issue	74,311	93,221	19,301	—	(391)
Total residential mortgage-backed securities	5,429,459	5,402,373	35,605	(62,300)	(391)
Commercial mortgage-backed securities guaranteed by U.S. government agencies	2,858,885	2,834,961	1,963	(25,887)	—
Other debt securities	25,500	25,481	50	(69)	—
Perpetual preferred stock	12,562	15,767	3,205	—	—
Equity securities and mutual funds	14,487	14,916	515	(86)	—
Total available for sale securities	$8,369,075	$8,321,578	$41,519	$(88,625)	$(391)

	March 31, 2017				
	Amortized Cost	Fair Value	Gross Unrealized Gain	Loss	OTTI
U.S. Treasury	$1,000	$999	$—	$(1)	$—
Municipal and other tax-exempt	35,555	35,453	343	(445)	—
Residential mortgage-backed securities:					
U. S. government agencies:					
FNMA	3,126,933	3,126,083	26,304	(27,154)	—
FHLMC	1,401,752	1,399,011	7,836	(10,577)	—
GNMA	851,498	847,822	2,499	(6,175)	—
Total U.S. government agencies	5,380,183	5,372,916	36,639	(43,906)	—
Private issue	93,372	108,626	15,332	(14)	(64)
Total residential mortgage-backed securities	5,473,555	5,481,542	51,971	(43,920)	(64)
Commercial mortgage-backed securities guaranteed by U.S. government agencies	2,895,258	2,877,028	4,883	(23,113)	—
Other debt securities	4,400	4,153	—	(247)	—
Perpetual preferred stock	15,562	19,272	3,710	—	—
Equity securities and mutual funds	17,498	18,844	1,433	(87)	—
Total available for sale securities	$8,442,828	$8,437,291	$62,340	$(67,813)	$(64)

The amortized cost and fair values of available for sale securities at March 31, 2018, 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[4]
U.S. Treasuries:						
Amortized cost	$—	$493	$—	$—	$493	1.84
Fair value	—	491	—	—	491	
Nominal yield	— %	1.99 %	— %	— %	1.99 %	
Municipal and other tax-exempt:						
Amortized cost	$5,687	$2,282	$—	$12,459	$20,428	10.02
Fair value	5,692	2,391	—	12,331	20,414	
Nominal yield[1]	3.18 %	6.27 %	— %	2.84 %[5]	3.32 %	
Commercial mortgage-backed securities:						
Amortized cost	$18,207	$1,021,173	$1,502,536	$245,714	$2,787,630	6.97
Fair value	18,124	1,005,725	1,469,488	239,629	2,732,966	
Nominal yield	1.58 %	1.93 %	2.06 %	2.08 %	2.01 %	
Other debt securities:						
Amortized cost	$—	$—	$—	$25,500	$25,500	14.43
Fair value	—	—	—	25,480	25,480	
Nominal yield	— %	— %	— %	1.59 %[5]	1.59 %	
Total fixed maturity securities:						
Amortized cost	$23,894	$1,023,948	$1,502,536	$283,672	$2,834,051	7.06
Fair value	23,816	1,008,607	1,469,488	277,440	2,779,351	
Nominal yield	1.96 %	1.94 %	2.06 %	2.07 %	2.02 %	
Residential mortgage-backed securities:						
Amortized cost					$5,563,628	[2]
Fair value					5,470,081	
Nominal yield[3]					2.00 %	
Total available-for-sale securities:						
Amortized cost					$8,397,679	
Fair value					8,249,432	
Nominal yield					2.01 %	

[1] Calculated on a taxable equivalent basis using a 25 percent effective tax rate.

[2] The average expected lives of mortgage-backed securities were 4.3 years years based upon current prepayment assumptions.

[3] 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.

[4] Expected maturities may differ from contractual maturities because borrowers may have the right to call or prepay obligations with or without penalty.

[5] 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):

	Three Months Ended March 31,

	2018	2017
Proceeds	$44,790	$240,010
Gross realized gains	193	2,092
Gross realized losses	(483)	(43)
Related federal and state income tax expense	74	797

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):

	Mar. 31, 2018	Dec. 31, 2017	Mar. 31, 2017
Investment:			
Amortized cost	$196,566	$226,852	$290,417
Fair value	197,845	229,429	293,352
Available for sale:			
Amortized cost	8,289,623	7,151,468	6,647,659
Fair value	8,124,367	7,089,346	6,629,319

The secured parties do not have the right to sell or repledge these securities.

Temporarily Impaired Securities as of March 31, 2018
(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	96	$121,251	$ 699	$5,014	$ 199	$126,265	$ 898
U.S. government agency residential mortgage-backed securities – Other	2	3,578	47	3,082	127	6,660	174
Other debt securities	78	34,042	1,803	3,321	198	37,363	2,001
Total investment securities	176	$158,871	$ 2,549	$11,417	$ 524	$170,288	$ 3,073

	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	1	$491	$ 2	$—	$ —	$491	$ 2
Municipal and other tax-exempt	13	12,935	8	1,891	142	14,826	150
Residential mortgage-backed securities:							
U. S. government agencies:							
FNMA	156	1,815,606	35,077	755,589	35,586	2,571,195	70,663
FHLMC	82	998,792	21,502	361,326	14,826	1,360,118	36,328
GNMA	32	252,190	3,986	235,156	9,148	487,346	13,134
Total U.S. government agencies	270	3,066,588	60,565	1,352,071	59,560	4,418,659	120,125
Private issue	—	—	—	—	—	—	—
Total residential mortgage-backed securities	270	3,066,588	60,565	1,352,071	59,560	4,418,659	120,125
Commercial mortgage-backed securities guaranteed by U.S. government agencies	216	1,658,562	36,141	582,971	20,521	2,241,533	56,662
Other debt securities	2	19,961	40	472	28	20,433	68
Total available for sale securities	502	$4,758,537	$ 96,756	$1,937,405	$ 80,251	$6,695,942	$ 177,007

Temporarily Impaired Securities as of December 31, 2017
(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	100	$145,960	$ 643	$5,833	$ 161	$151,793	$ 804
U.S. government agency residential mortgage-backed securities – Other	1	—	—	3,356	95	3,356	95
Other debt securities	49	20,091	1,238	3,076	129	23,167	1,367
Total investment securities	150	$166,051	$ 1,881	$12,265	$ 385	$178,316	$ 2,266

	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	—	$—	$ —	$—	$ —	$—	$ —
Municipal and other tax-exempt	19	12,765	18	4,802	265	17,567	283
Residential mortgage-backed securities:							
U. S. government agencies:							
FNMA	113	1,203,041	9,618	824,029	25,919	2,027,070	35,537
FHLMC	69	863,778	7,297	385,816	10,813	1,249,594	18,110
GNMA	27	201,887	1,452	248,742	7,201	450,629	8,653
Total U.S. government agencies	209	2,268,706	18,367	1,458,587	43,933	3,727,293	62,300
Private issue[1]	8	5,898	391	—	—	5,898	391
Total residential mortgage-backed securities	217	2,274,604	18,758	1,458,587	43,933	3,733,191	62,691
Commercial mortgage-backed securities guaranteed by U.S. government agencies	185	1,465,703	11,824	652,296	14,063	2,117,999	25,887
Other debt securities	2	19,959	41	472	28	20,431	69
Perpetual preferred stocks	—	—	—	—	—	—	—
Equity securities and mutual funds	111	911	7	2,203	79	3,114	86
Total available for sale securities	534	$3,773,942	$ 30,648	$2,118,360	$ 58,368	$5,892,302	$ 89,016

[1] 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 March 31, 2017
(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	102	$127,374	$ 515	$1,563	$ 40	$128,937	$ 555
U.S. government agency residential mortgage-backed securities – Other	1	4,055	80	—	—	4,055	80
Other debt securities	43	14,440	817	—	—	14,440	817
Total investment securities	146	$145,869	$ 1,412	$1,563	$ 40	$147,432	$ 1,452

	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	1	$999	$ 1	$—	$ —	$999	$ 1
Municipal and other tax-exempt	12	1,407	1	4,623	444	6,030	445
Residential mortgage-backed securities:							
U. S. government agencies:							
FNMA	83	1,595,879	25,623	68,215	1,531	1,664,094	27,154
FHLMC	51	795,586	10,001	17,284	576	812,870	10,577
GNMA	25	325,565	4,402	69,563	1,773	395,128	6,175
Total U.S. government agencies	159	2,717,030	40,026	155,062	3,880	2,872,092	43,906
Private issue[1]	6	6,805	37	13,461	41	20,266	78
Total residential mortgage-backed securities	165	2,723,835	40,063	168,523	3,921	2,892,358	43,984
Commercial mortgage-backed securities guaranteed by U.S. government agencies	161	1,828,685	22,758	36,305	355	1,864,990	23,113
Other debt securities	2	—	—	4,153	247	4,153	247
Perpetual preferred stocks	—	—	—	—	—	—	—
Equity securities and mutual funds	104	2,116	40	856	47	2,972	87
Total available for sale securities	445	$4,557,042	$ 62,863	$214,460	$ 5,014	$4,771,502	$ 67,877

[1] Includes securities for which an unrealized loss remains in AOCI after an other-than-temporary credit loss has been recognized in income.

Based on evaluations of impaired securities as of March 31, 2018, the Company does not intend to sell any impaired available for sale debt securities before fair value recovers to the current amortized cost and it is more-likely-than-not that the Company will not be required to sell impaired securities before fair value recovers, which may be maturity.

Fair Value Option Securities

Fair value option securities represent securities which the Company has elected to carry at fair value and are separately identified on the Consolidated Balance Sheets. Changes in the fair value are recognized in earnings as they occur. Certain securities 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):

	March 31, 2018		December 31, 2017		March 31, 2017	
	Fair Value	Net Unrealized Gain (Loss)	Fair Value	Net Unrealized Gain (Loss)	Fair Value	Net Unrealized Gain (Loss)
U.S. government agency residential mortgage-backed securities	513,668	(5,269)	755,054	(1,877)	441,714	(1,646)

Restricted Equity Securities

Restricted equity securities primarily include stock we are required to hold as members of the Federal Reserve system and the 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 are restricted and they lack a market. A summary of restricted equity securities follows (in thousands):

	Mar. 31, 2018	Dec. 31, 2017	Mar. 31, 2017
Federal Reserve stock	$41,178	$40,746	$36,498
Federal Home Loan Bank stock	297,374	279,200	247,194
Other	—	243	244
Total	$338,552	$320,189	$283,936

(3) Derivatives

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 reported in earnings as they occur. Credit risk is also considered in determining fair value. Deterioration in the credit rating of customer or other counterparties reduced 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 arrangements 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 type by counterparty basis.

Derivative contracts may 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.

None of these derivative contracts have been designated as hedging instruments for accounting purposes.

Customer Risk Management Programs

BOK Financial offers programs to 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 borrowers to modify interest rate terms of their loans or to-be-announced securities used by 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 the risk of 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.

Internal Risk Management Programs

BOK Financial may use derivative contracts in managing its interest rate sensitivity, as part of its economic hedge of the change in the fair value of mortgage servicing rights and to mitigate the market risk of holding trading securities. Changes in the fair value of derivative instruments used in managing interest rate sensitivity and as part of the 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 Statements of Earnings. Changes in the fair value of derivative instruments used to mitigate the market risk of holding trading securities are included in Other operating revenue – Brokerage and trading revenue.

As discussed in Note 5, 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 5 for additional discussion of notional, fair value and impact on earnings of these contracts.

The following table summarizes the fair values of derivative contracts recorded as “derivative contracts” assets and liabilities in the balance sheet at March 31, 2018 (in thousands):

	Assets					
	Notional[1]	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	$12,375,681	$49,371	$(36,833)	$12,538	$—	$12,538
Interest rate swaps	1,500,421	38,114	(2,220)	35,894	(9,107)	26,787
Energy contracts	1,219,505	134,873	(59,308)	75,565	—	75,565
Agricultural contracts	60,706	2,023	(1,256)	767	—	767
Foreign exchange contracts	166,060	162,966	—	162,966	(164)	162,802
Equity option contracts	99,239	3,949	—	3,949	(660)	3,289
Total customer risk management programs	15,421,612	391,296	(99,617)	291,679	(9,931)	281,748
Internal risk management programs	3,789,270	57,387	(52,448)	4,939	—	4,939
Total derivative contracts	$19,210,882	$448,683	$(152,065)	$296,618	$(9,931)	$286,687

	Liabilities					
	Notional[1]	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	$12,229,881	$46,180	$(36,833)	$9,347	$(6,539)	$2,808
Interest rate swaps	1,500,421	38,116	(2,220)	35,896	(5,674)	30,222
Energy contracts	1,193,851	131,459	(59,308)	72,151	(54,199)	17,952
Agricultural contracts	60,608	1,993	(1,256)	737	—	737
Foreign exchange contracts	160,945	157,621	—	157,621	—	157,621
Equity option contracts	99,239	3,949	—	3,949	—	3,949
Total customer risk management programs	15,244,945	379,318	(99,617)	279,701	(66,412)	213,289
Internal risk management programs	4,469,374	72,361	(52,448)	19,913	—	19,913
Total derivative contracts	$19,714,319	$451,679	$(152,065)	$299,614	$(66,412)	$233,202

[1] Notional amounts for commodity contracts are converted into dollar-equivalent amounts based on dollar prices at the inception of the contract.

The following table summarizes the fair values of derivative contracts recorded as “derivative contracts” assets and liabilities in the balance sheet at December 31, 2017 (in thousands):

	Assets					
	Notional [1]	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	$12,347,542	$23,606	$ (18,096)	$5,510	$—	$5,510
Interest rate swaps	1,478,944	28,278	—	28,278	(4,964)	23,314
Energy contracts	1,190,067	103,044	(47,873)	55,171	(196)	54,975
Agricultural contracts	53,238	1,576	(960)	616	—	616
Foreign exchange contracts	132,397	129,551	—	129,551	(448)	129,103
Equity option contracts	99,633	5,503	—	5,503	(920)	4,583
Total customer risk management programs	15,301,821	291,558	(66,929)	224,629	(6,528)	218,101
Internal risk management programs	4,736,701	9,494	(7,093)	2,401	—	2,401
Total derivative contracts	$20,038,522	$301,052	$ (74,022)	$227,030	$(6,528)	$220,502

	Liabilities					
	Notional [1]	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	$11,537,742	$20,367	$ (18,096)	$2,271	$(704)	$1,567
Interest rate swaps	1,478,944	28,298	—	28,298	(12,896)	15,402
Energy contracts	1,166,924	101,603	(47,873)	53,730	(42,767)	10,963
Agricultural contracts	48,552	1,551	(960)	591	—	591
Foreign exchange contracts	126,251	123,321	—	123,321	(53)	123,268
Equity option contracts	99,633	5,503	—	5,503	—	5,503
Total customer risk management programs	14,458,046	280,643	(66,929)	213,714	(56,420)	157,294
Internal risk management programs	5,728,421	21,762	(7,093)	14,669	—	14,669
Total derivative contracts	$20,186,467	$302,405	$ (74,022)	$228,383	$(56,420)	$171,963

[1] Notional amounts for commodity contracts are converted into dollar-equivalent amounts based on dollar prices at the inception of the contract.

The following table summarizes the fair values of derivative contracts recorded as “derivative contracts” assets and liabilities in the balance sheet at March 31, 2017 (in thousands):

	Assets					
	Notional[1]	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	$14,549,828	$80,272	$ (33,143)	$47,129	$—	$47,129
Interest rate swaps	1,491,414	32,286	—	32,286	(3,349)	28,937
Energy contracts	886,699	42,598	(28,455)	14,143	(543)	13,600
Agricultural contracts	51,679	2,031	(786)	1,245	—	1,245
Foreign exchange contracts	211,837	204,774	—	204,774	(72)	204,702
Equity option contracts	99,031	4,505	—	4,505	(920)	3,585
Total customer risk management programs	17,290,488	366,466	(62,384)	304,082	(4,884)	299,198
Internal risk management programs	2,756,963	5,529	—	5,529	—	5,529
Total derivative contracts	$20,047,451	$371,995	$ (62,384)	$309,611	$(4,884)	$304,727

	Liabilities					
	Notional[1]	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	$14,322,223	$76,971	$ (33,143)	$43,828	$(34,310)	$9,518
Interest rate swaps	1,491,414	33,036	—	33,036	—	33,036
Energy contracts	844,406	40,604	(28,455)	12,149	(258)	11,891
Agricultural contracts	51,509	2,015	(786)	1,229	(1,040)	189
Foreign exchange contracts	208,236	201,043	—	201,043	(3,726)	197,317
Equity option contracts	99,031	4,505	—	4,505	—	4,505
Total customer risk management programs	17,016,819	358,174	(62,384)	295,790	(39,334)	256,456
Internal risk management programs	1,090,867	19,966	—	19,966	—	19,966
Total derivative contracts	$18,107,686	$378,140	$ (62,384)	$315,756	$(39,334)	$276,422

[1] 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 income statement (in thousands):

	Three Months Ended March 31, 2018		March 31, 2017	
	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	$6,819	$ —	$8,027	$ —
Interest rate swaps	756	—	459	—
Energy contracts	3,140	—	2,873	—
Agricultural contracts	15	—	9	—
Foreign exchange contracts	176	—	270	—
Equity option contracts	—	—	—	—
Total customer risk management programs	10,906	—	11,638	—
Internal risk management programs	(1,883)	(5,685)	(467)	(450)
Total derivative contracts	$9,023	$ (5,685)	$11,171	$ (450)

(4) Loans and Allowances for Credit Losses

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 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 mortgage loans guaranteed by U.S. government agencies, are as follows.

Interest is accrued at the applicable interest rate on the principal amount outstanding. 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 more than 90 days 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 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, excluding loans guaranteed by U.S. government agencies. 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 value, debt service ratio and other underwriting standards. Nonaccruing loans may 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 other gains (losses), net in the Statements of Earnings.

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 a quarterly evaluation of available cash resources and collateral value 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 may have 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 Sheets. Guaranteed loans are considered 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 the 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 based on the modified rate. 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 a further disaggregation of portfolio segments based on the risk characteristics of the loans and the Company's method for monitoring and assessing credit risk.

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

	March 31, 2018				December 31, 2017			
	Fixed Rate	Variable Rate	Non-accrual	Total	Fixed Rate	Variable Rate	Non-accrual	Total
Commercial	$2,193,469	$8,594,738	$ 131,460	$10,919,667	$2,217,432	$8,379,240	$ 137,303	$10,733,975
Commercial real estate	538,291	2,966,021	2,470	3,506,782	548,692	2,928,440	2,855	3,479,987
Residential mortgage	1,587,416	312,559	45,794	1,945,769	1,608,655	317,584	47,447	1,973,686
Personal	158,845	806,447	340	965,632	154,517	810,990	269	965,776
Total	$4,478,021	$12,679,765	$ 180,064	$17,337,850	$4,529,296	$12,436,254	$ 187,874	$17,153,424
Accruing loans past due (90 days)[1]				$90				$633

	March 31, 2017			
	Fixed Rate	Variable Rate	Non-accrual	Total
Commercial	$2,201,040	$7,969,245	$ 156,825	$10,327,110
Commercial real estate	590,375	3,276,213	4,475	3,871,063
Residential mortgage	1,616,328	283,865	46,081	1,946,274
Personal	149,312	697,912	235	847,459
Total	$4,557,055	$12,227,235	$ 207,616	$16,991,906
Accruing loans past due (90 days)[1]				$95

[1] Excludes residential mortgage loans guaranteed by agencies of the U.S. government

At March 31, 2018, $5.9 billion or 34 percent of our total loan portfolio is to businesses and individuals attributed to the Texas market and $3.3 billion or 19 percent of the total loan portfolio is to businesses and individuals attributed to the Oklahoma market. These geographic concentrations subject the loan portfolio to the general economic conditions within these areas.

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 ongoing 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 ongoing 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 March 31, 2018, commercial loans attributed to the Texas market totaled $3.7 billion or 34 percent of the commercial loan portfolio segment, commercial loans attributed to the Oklahoma market totaled $1.9 billion or 18

percent of the commercial loan portfolio segment and commercial loans attributed to the Colorado market totaled $1.0 billion or 10 percent of the commercial loan portfolio segment.

The commercial loan portfolio segment is further divided into loan classes. The energy loan class totaled $3.0 billion or 17 percent of total loans at March 31, 2018, including $2.5 billion of outstanding loans to energy producers. Approximately 56 percent of committed production loans are secured by properties primarily producing oil and 44 percent are secured by properties producing natural gas. The services loan class totaled $2.9 billion or 17 percent of total loans at March 31, 2018. Approximately $1.4 billion of loans in the services category consist of loans with individual balances of less than $10 million. Businesses included in the services class include governmental, educational services, commercial services, loans to entities providing services for real estate and construction and consumer services. The healthcare loan class totaled $2.4 billion or 14 percent of total loans at March 31, 2018. 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.

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 March 31, 2018, 34 percent of commercial real estate loans are secured by properties primarily located in the Dallas and Houston areas of Texas. An additional 12 percent of commercial real estate loans are secured by properties located primarily in the Tulsa and Oklahoma City metropolitan areas of 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 unsecured loans. Residential mortgage and personal loans are made in accordance with underwriting policies we believe to be conservative and are fully documented. Loans may be individually underwritten or credit scored based on size and other criteria. 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 percent. Loan-to-value (“LTV”) ratios are tiered from 60 percent to 100 percent, 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 March 31, 2018, residential mortgage loans included $178 million 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 $720 million at March 31, 2018. Approximately 63 percent of the home equity loan portfolio is comprised of first lien loans and 37 percent of the home equity portfolio is comprised of junior lien loans. Junior lien loans are distributed 46 percent to amortizing term loans and 54 percent to revolving lines of credit. Home equity loans generally require a minimum FICO score of 700 and a maximum DTI of 40 percent. 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 a 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.

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 March 31, 2018, outstanding commitments totaled $10.2 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 March 31, 2018, outstanding standby letters of credit totaled $664 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 5, the Company also has separate accruals for 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 appropriateness of the allowance for loan losses and accrual for off-balance sheet credit losses (collectively "allowance for credit losses") is assessed by management based on an ongoing quarterly evaluation of the probable estimated losses inherent in the portfolio, including probable losses on both outstanding loans and unused commitments.

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, risk concentration and related factors. There have been no material changes in the approach or techniques utilized in developing the allowance for loan losses and the accrual for off-balance sheet credit losses for the three months ended March 31, 2018.

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 consumer loans are risk graded based on evaluation of the borrowers' ability to repay. Certain commercial loans and most residential mortgage and consumer 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 or modified in a TDR 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 loans’ 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 are generally not adjusted by the Company. Updated appraisals are obtained at least annually or more frequently if market conditions indicate collateral values have declined. Collateral value of mineral rights is generally determined by our internal staff of engineers based on projected 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 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 gross loss rate for each loan class is determined by the greater of the current gross loss rate based on the most recent twelve months or a ten-year gross loss rate. Recoveries are not directly considered in the estimation of 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, 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 average risk grade. This comparison determines whether credit risk in each loan class is increasing or decreasing. 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 specific loan classes which have not yet been represented in the 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 loan or loan class. These factors include trends in the economy of our primary lending areas, concentrations in large balance loans and other relevant factors.

An accrual for off-balance sheet credit losses is included in Other liabilities in the Consolidated Balance Sheets. The appropriateness of this 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.

The activity in the allowance for loan losses and the allowance for off-balance sheet credit losses related to loan commitments and standby letters of credit for the three months ended March 31, 2018 is summarized as follows (in thousands):

	Commercial	Commercial Real Estate	Residential Mortgage	Personal	Nonspecific Allowance	Total
Allowance for loan losses:						
Beginning balance	$ 124,269	$ 56,621	$ 18,451	$ 9,124	$ 22,217	$ 230,682
Provision for loan losses	(3,111)	266	(162)	(152)	(2,242)	(5,401)
Loans charged off	(1,563)	—	(100)	(1,227)	—	(2,890)
Recoveries	488	183	242	663	—	1,576
Ending balance	$ 120,083	$ 57,070	$ 18,431	$ 8,408	$ 19,975	$ 223,967
Allowance for off-balance sheet credit losses:						
Beginning balance	$ 3,644	$ 45	$ 43	$ 2	$ —	$ 3,734
Provision for off-balance sheet credit losses	383	(1)	19	—	—	401
Ending balance	$ 4,027	$ 44	$ 62	$ 2	$ —	$ 4,135
Total provision for credit losses	$ (2,728)	$ 265	$ (143)	$ (152)	$ (2,242)	$ (5,000)

The activity in the allowance for loan losses and the allowance for off-balance sheet credit losses related to loan commitments and standby letters of credit for the three months ended March 31, 2017 is summarized as follows (in thousands):

	Commercial	Commercial Real Estate	Residential Mortgage	Personal	Nonspecific Allowance	Total
Allowance for loan losses:						
Beginning balance	$ 140,213	$ 50,749	$ 18,224	$ 8,773	$ 28,200	$ 246,159
Provision for loan losses	(3,355)	6,859	(39)	(788)	(873)	1,804
Loans charged off	(424)	—	(236)	(1,493)	—	(2,153)
Recoveries	1,182	735	228	755	—	2,900
Ending balance	$ 137,616	$ 58,343	$ 18,177	$ 7,247	$ 27,327	$ 248,710
Allowance for off-balance sheet credit losses:						
Beginning balance	$ 11,063	$ 123	$ 50	$ 8	$ —	$ 11,244
Provision for off-balance sheet credit losses	(1,775)	(17)	(10)	(2)	—	(1,804)
Ending balance	$ 9,288	$ 106	$ 40	$ 6	$ —	$ 9,440
Total provision for credit losses	$ (5,130)	$ 6,842	$ (49)	$ (790)	$ (873)	$ —

The allowance for loan losses and recorded investment of the related loans by portfolio segment for each impairment measurement method at March 31, 2018 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	$ 10,788,207	$ 106,721	$ 131,460	$ 13,362	$ 10,919,667	$ 120,083
Commercial real estate	3,504,312	57,070	2,470	—	3,506,782	57,070
Residential mortgage	1,899,975	18,431	45,794	—	1,945,769	18,431
Personal	965,292	8,408	340	—	965,632	8,408
Total	17,157,786	190,630	180,064	13,362	17,337,850	203,992
Nonspecific allowance	—	—	—	—	—	19,975
Total	$ 17,157,786	$ 190,630	$ 180,064	$ 13,362	$ 17,337,850	$ 223,967

The allowance for loan losses and recorded investment of the related loans by portfolio segment for each impairment measurement method at December 31, 2017 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	$10,596,672	$115,438	$137,303	$ 8,831	$10,733,975	$124,269
Commercial real estate	3,477,132	56,621	2,855	—	3,479,987	56,621
Residential mortgage	1,926,239	18,451	47,447	—	1,973,686	18,451
Personal	965,507	9,124	269	—	965,776	9,124
Total	16,965,550	199,634	187,874	8,831	17,153,424	208,465
Nonspecific allowance	—	—	—	—	—	22,217
Total	$16,965,550	$199,634	$187,874	$ 8,831	$17,153,424	$230,682

The allowance for loan losses and recorded investment of the related loans by portfolio segment for each impairment measurement method at March 31, 2017 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	$10,170,285	$134,164	$156,825	$ 3,452	$10,327,110	$137,616
Commercial real estate	3,866,588	58,343	4,475	—	3,871,063	58,343
Residential mortgage	1,900,193	18,132	46,081	45	1,946,274	18,177
Personal	847,224	7,247	235	—	847,459	7,247
Total	16,784,290	217,886	207,616	3,497	16,991,906	221,383
Nonspecific allowance	—	—	—	—	—	27,327
Total	$16,784,290	$217,886	$207,616	$ 3,497	$16,991,906	$248,710

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 consumer 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 consumer 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 March 31, 2018 is as follows (in thousands):

	Internally Risk Graded		Non-Graded		Total	
	Recorded Investment	Related Allowance	Recorded Investment	Related Allowance	Recorded Investment	Related Allowance
Commercial	$10,894,979	$ 119,202	$24,688	$ 881	$10,919,667	$ 120,083
Commercial real estate	3,506,782	57,070	—	—	3,506,782	57,070
Residential mortgage	229,996	2,949	1,715,773	15,482	1,945,769	18,431
Personal	880,694	6,570	84,938	1,838	965,632	8,408
Total	15,512,451	185,791	1,825,399	18,201	17,337,850	203,992
Nonspecific allowance	—	—	—	—	—	19,975
Total	$15,512,451	$ 185,791	$1,825,399	$ 18,201	$17,337,850	$ 223,967

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, 2017 is as follows (in thousands):

	Internally Risk Graded		Non-Graded		Total	
	Recorded Investment	Related Allowance	Recorded Investment	Related Allowance	Recorded Investment	Related Allowance
Commercial	$10,706,035	$ 123,383	$27,940	$ 886	$10,733,975	$ 124,269
Commercial real estate	3,479,987	56,621	—	—	3,479,987	56,621
Residential mortgage	234,477	2,947	1,739,209	15,504	1,973,686	18,451
Personal	877,390	6,461	88,386	2,663	965,776	9,124
Total	15,297,889	189,412	1,855,535	19,053	17,153,424	208,465
Nonspecific allowance	—	—	—	—	—	22,217
Total	$15,297,889	$ 189,412	$1,855,535	$ 19,053	$17,153,424	$ 230,682

The allowance for loan losses and recorded investment of the related loans by portfolio segment for risk graded and non-risk graded loans at March 31, 2017 is as follows (in thousands):

	Internally Risk Graded		Non-Graded		Total	
	Recorded Investment	Related Allowance	Recorded Investment	Related Allowance	Recorded Investment	Related Allowance
Commercial	$10,302,774	$ 136,672	$24,336	$ 944	$10,327,110	$ 137,616
Commercial real estate	3,871,063	58,343	—	—	3,871,063	58,343
Residential mortgage	211,846	2,958	1,734,428	15,219	1,946,274	18,177
Personal	749,028	5,136	98,431	2,111	847,459	7,247
Total	15,134,711	203,109	1,857,195	18,274	16,991,906	221,383
Nonspecific allowance	—	—	—	—	—	27,327

Total	$15,134,711	$203,109	$1,857,195	$18,274	$16,991,906	$248,710

Loans are considered to be performing if they are in compliance with the original terms of the agreement and currently exhibit no factors that cause management to have doubts about the borrowers' ability to remain in compliance with the original terms of the agreement, which is consistent with the regulatory guideline of “pass.” Performing loans also include past due residential mortgages that are guaranteed by agencies of the U.S. government that continue to accrue interest based on criteria of the guarantors' 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 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 March 31, 2018 by the risk grade categories (in thousands):

	Internally Risk Graded Performing				Non-Graded		
	Pass	Other Loans Especially Mentioned	Accruing Substandard	Nonaccrual	Performing	Nonaccrual	Total
Commercial:							
Energy	$2,745,169	$ 10,750	$ 123,757	$ 89,942	$—	$ —	$2,969,618
Services	2,872,017	23,155	31,013	2,109	—	—	2,928,294
Wholesale/retail	1,507,322	2,705	18,985	2,564	—	—	1,531,576
Manufacturing	540,580	9,047	7,066	3,002	—	—	559,695
Healthcare	2,316,962	—	27,624	15,342	—	—	2,359,928
Other commercial and industrial	516,970	—	10,421	18,477	24,664	24	570,556
Total commercial	10,499,020	45,657	218,866	131,436	24,664	24	10,919,667
Commercial real estate:							
Residential construction and land development	113,894	1,828	123	1,613	—	—	117,458
Retail	728,045	21,993	94	264	—	—	750,396
Office	729,824	7,045	—	275	—	—	737,144
Multifamily	1,008,863	—	40	—	—	—	1,008,903
Industrial	613,608	—	—	—	—	—	613,608
Other commercial real estate	278,955	—	—	318	—	—	279,273
Total commercial real estate	3,473,189	30,866	257	2,470	—	—	3,506,782
Residential mortgage:							
Permanent mortgage	224,232	1,499	3,147	1,118	794,329	23,460	1,047,785
Permanent mortgages guaranteed by U.S. government agencies	—	—	—	—	168,997	8,883	177,880
Home equity	—	—	—	—	707,771	12,333	720,104
Total residential mortgage	224,232	1,499	3,147	1,118	1,671,097	44,676	1,945,769
Personal	880,509	48	55	82	84,680	258	965,632
Total	$15,076,950	$ 78,070	$ 222,325	$ 135,106	$1,780,441	$ 44,958	$17,337,850

The following table summarizes the Company's loan portfolio at December 31, 2017 by the risk grade categories (in thousands):

	Internally Risk Graded Performing				Non-Graded		
	Pass	Other Loans Especially Mentioned	Accruing Substandard	Nonaccrual	Performing	Nonaccrual	Total
Commercial:							
Energy	$2,632,986	$60,288	$144,598	$92,284	$—	$—	$2,930,156
Services	2,943,869	13,927	26,533	2,620	—	—	2,986,949
Wholesale/retail	1,443,917	19,263	5,502	2,574	—	—	1,471,256
Manufacturing	472,869	6,653	11,290	5,962	—	—	496,774
Healthcare	2,253,497	3,186	43,305	14,765	—	—	2,314,753
Other commercial and industrial	478,951	7	8,161	19,028	27,870	70	534,087
Total commercial	10,226,089	103,324	239,389	137,233	27,870	70	10,733,975
Commercial real estate:							
Residential construction and land development	113,190	1,828	395	1,832	—	—	117,245
Retail	686,915	4,243	98	276	—	—	691,532
Office	824,408	7,087	—	275	—	—	831,770
Multifamily	979,969	—	48	—	—	—	980,017
Industrial	573,014	—	—	—	—	—	573,014
Other commercial real estate	285,506	145	286	472	—	—	286,409
Total commercial real estate	3,463,002	13,303	827	2,855	—	—	3,479,987
Residential mortgage:							
Permanent mortgage	232,492	—	822	1,163	784,928	24,030	1,043,435
Permanent mortgages guaranteed by U.S. government agencies	—	—	—	—	188,327	9,179	197,506
Home equity	—	—	—	—	719,670	13,075	732,745
Total residential mortgage	232,492	—	822	1,163	1,692,925	46,284	1,973,686
Personal	875,696	1,548	63	83	88,200	186	965,776
Total	$14,797,279	$118,175	$241,101	$141,334	$1,808,995	$46,540	$17,153,424

The following table summarizes the Company's loan portfolio at March 31, 2017 by the risk grade categories (in thousands):

	Internally Risk Graded Performing				Non-Graded		
	Pass	Other Loans Especially Mentioned	Accruing Substandard	Nonaccrual	Performing	Nonaccrual	Total
Commercial:							
Energy	$1,988,392	$144,157	$294,138	$110,425	$—	$—	$2,537,112
Services	2,960,912	13,931	30,819	7,713	—	—	3,013,375
Wholesale/retail	1,459,703	21,970	13,480	11,090	—	—	1,506,243
Manufacturing	504,824	1,917	30,782	5,907	—	—	543,430
Healthcare	2,196,517	35,704	32,474	909	—	—	2,265,604
Other commercial and industrial	407,317	4,641	4,315	20,737	24,292	44	461,346
Total commercial	9,517,665	222,320	406,008	156,781	24,292	44	10,327,110
Commercial real estate:							
Residential construction and land development	132,127	—	1,251	2,616	—	—	135,994
Retail	738,978	5,754	—	314	—	—	745,046
Office	857,582	2,894	—	413	—	—	860,889
Multifamily	918,542	—	4,425	24	—	—	922,991
Industrial	871,387	—	—	76	—	—	871,463
Other commercial real estate	333,554	—	94	1,032	—	—	334,680
Total commercial real estate	3,852,170	8,648	5,770	4,475	—	—	3,871,063
Residential mortgage:							
Permanent mortgage	207,886	1,710	490	1,760	743,469	22,428	977,743
Permanent mortgages guaranteed by U.S. government agencies	—	—	—	—	194,073	10,108	204,181
Home equity	—	—	—	—	752,565	11,785	764,350
Total residential mortgage	207,886	1,710	490	1,760	1,690,107	44,321	1,946,274
Personal	748,000	49	888	91	98,287	144	847,459
Total	$14,325,721	$232,727	$413,156	$163,107	$1,812,686	$44,509	$16,991,906

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 TDR and all loans repurchased from GNMA pools.

A summary of impaired loans follows (in thousands):

	As of March 31, 2018					For the Three Months Ended March 31, 2018	
		Recorded Investment					
	Unpaid Principal Balance	Total	With No Allowance	With Allowance	Related Allowance	Average Recorded Investment	Interest Income Recognized
Commercial:							
Energy	$111,002	$89,942	$22,816	$ 67,126	$ 12,701	$91,113	$ —
Services	4,865	2,109	2,109	—	—	2,365	—
Wholesale/retail	9,089	2,564	2,564	—	—	2,569	—
Manufacturing	3,111	3,002	2,741	261	261	4,482	—
Healthcare	26,019	15,342	9,107	6,235	400	15,053	—
Other commercial and industrial	27,421	18,501	18,501	—	—	18,799	—
Total commercial	181,507	131,460	57,838	73,622	13,362	134,381	—
Commercial real estate:							
Residential construction and land development	3,059	1,613	1,613	—	—	1,723	—
Retail	498	264	264	—	—	270	—
Office	287	275	275	—	—	275	—
Multifamily	—	—	—	—	—	—	—
Industrial	—	—	—	—	—	—	—
Other commercial real estate	522	318	318	—	—	395	—
Total commercial real estate	4,366	2,470	2,470	—	—	2,663	—
Residential mortgage:							
Permanent mortgage	29,686	24,578	24,578	—	—	24,885	306
Permanent mortgage guaranteed by U.S. government agencies[1]	183,476	177,880	177,880	—	—	199,380	1,848
Home equity	13,898	12,333	12,333	—	—	12,704	—
Total residential mortgage	227,060	214,791	214,791	—	—	236,969	2,154
Personal	381	340	340	—	—	304	—
Total	$413,314	$349,061	$275,439	$ 73,622	$ 13,362	$374,317	$ 2,154

[1] 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 March 31, 2018, $8.9 million of these loans were nonaccruing and $169 million were 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, are recovered.

A summary of impaired loans at December 31, 2017 follows (in thousands):

		Recorded Investment			
	Unpaid Principal Balance	Total	With No Allowance	With Allowance	Related Allowance
Commercial:					
Energy	$111,011	$92,284	$40,968	$ 51,316	$ 8,814
Services	5,324	2,620	2,620	—	—
Wholesale/retail	9,099	2,574	2,574	—	—
Manufacturing	6,073	5,962	5,962	—	—
Healthcare	25,140	14,765	14,765	—	—
Other commercial and industrial	27,957	19,098	19,080	18	17
Total commercial	184,604	137,303	85,969	51,334	8,831
Commercial real estate:					
Residential construction and land development	3,285	1,832	1,832	—	—
Retail	509	276	276	—	—
Office	287	275	275	—	—
Multifamily	—	—	—	—	—
Industrial	—	—	—	—	—
Other commercial real estate	670	472	472	—	—
Total commercial real estate	4,751	2,855	2,855	—	—
Residential mortgage:					
Permanent mortgage	30,435	25,193	25,193	—	—
Permanent mortgage guaranteed by U.S. government agencies[1]	203,814	197,506	197,506	—	—
Home equity	14,548	13,075	13,075	—	—
Total residential mortgage	248,797	235,774	235,774	—	—
Personal	307	269	269	—	—
Total	$438,459	$376,201	$324,867	$ 51,334	$ 8,831

[1] 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, 2017, $9 million of these loans were nonaccruing and $188 million were accruing based on the guarantee by U.S. government agencies.

A summary of impaired loans at March 31, 2017 follows (in thousands):

	As of March 31, 2017					For the Three Months Ended March 31, 2017	
		Recorded Investment					
	Unpaid Principal Balance	Total	With No Allowance	With Allowance	Related Allowance	Average Recorded Investment	Interest Income Recognized
Commercial:							
Energy	$125,579	$110,425	$58,324	$ 52,101	$ 3,435	$121,462	$ —
Services	11,542	7,713	7,713	—	—	7,943	—
Wholesale/retail	17,582	11,090	11,090	—	—	11,248	—
Manufacturing	6,377	5,907	5,907	—	—	5,419	—
Healthcare	1,379	909	909	—	—	867	—
Other commercial and industrial	28,876	20,781	20,764	17	17	20,950	—
Total commercial	191,335	156,825	104,707	52,118	3,452	167,889	—
Commercial real estate:							
Residential construction and land development	4,126	2,616	2,616	—	—	3,024	—
Retail	523	314	314	—	—	320	—
Office	515	413	413	—	—	420	—
Multifamily	1,000	24	24	—	—	31	—
Industrial	76	76	76	—	—	76	—
Other commercial real estate	1,213	1,032	1,032	—	—	1,127	—
Total commercial real estate	7,453	4,475	4,475	—	—	4,998	—
Residential mortgage:							
Permanent mortgage	29,355	24,188	24,143	45	45	23,521	291
Permanent mortgage guaranteed by U.S. government agencies[1]	210,237	204,181	204,181	—	—	207,396	1,904
Home equity	13,008	11,785	11,785	—	—	11,652	—
Total residential mortgage	252,600	240,154	240,109	45	45	242,569	2,195
Personal	265	235	235	—	—	262	—
Total	$451,653	$401,689	$349,526	$ 52,163	$ 3,497	$415,718	$ 2,195

[1] 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 March 31, 2017, $10 million of these loans were nonaccruing and $194 million were accruing based on the guarantee by U.S. government agencies.

Troubled Debt Restructurings

At March 31, 2018 the Company had $149 million in troubled debt restructurings (TDRs), of which $74 million were accruing residential mortgage loans guaranteed by U.S. government agencies. Approximately $61 million of TDRs were performing in accordance with the modified terms.

At December 31, 2017, the Company had $126 million in TDRs, of which $74 million were accruing residential mortgage loans guaranteed by U.S. government agencies. Approximately $48 million of TDRs were performing in accordance with the modified terms.

At March 31, 2017, TDRs totaled $160 million, of which $84 million were accruing residential mortgage loans guaranteed by U.S. government agencies. Approximately $87 million of TDRs were performing in accordance with the modified terms.

TDRs generally consist of interest rate concessions, payment stream concessions or a combination of concessions to distressed borrowers. During the quarter ended March 31, 2018, $37 million of loans were restructured and $71 thousand of loans designated as TDRs were charged off. During the quarter ended March 31, 2017, $22 million of loans were restructured and $21 thousand of loans designated as TDRs were charged off.

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 March 31, 2018 is as follows (in thousands):

		Past Due				
	Current	30 to 59 Days	60 to 89 Days	90 Days or More	Nonaccrual	Total
Commercial:						
Energy	$2,870,711	$265	$8,700	$—	$ 89,942	$2,969,618
Services	2,922,639	3,487	59	—	2,109	2,928,294
Wholesale/retail	1,528,343	234	435	—	2,564	1,531,576
Manufacturing	556,693	—	—	—	3,002	559,695
Healthcare	2,344,134	113	339	—	15,342	2,359,928
Other commercial and industrial	551,989	40	20	6	18,501	570,556
Total commercial	10,774,509	4,139	9,553	6	131,460	10,919,667
Commercial real estate:						
Residential construction and land development	115,845	—	—	—	1,613	117,458
Retail	750,132	—	—	—	264	750,396
Office	736,869	—	—	—	275	737,144
Multifamily	1,008,903	—	—	—	—	1,008,903
Industrial	613,608	—	—	—	—	613,608
Other commercial real estate	278,955	—	—	—	318	279,273
Total commercial real estate	3,504,312	—	—	—	2,470	3,506,782
Residential mortgage:						
Permanent mortgage	1,020,885	2,322	—	—	24,578	1,047,785
Permanent mortgages guaranteed by U.S. government agencies	36,272	26,137	—	106,588	8,883	177,880
Home equity	705,986	1,377	386	22	12,333	720,104
Total residential mortgage	1,763,143	29,836	386	106,610	45,794	1,945,769
Personal	964,422	794	14	62	340	965,632
Total	$17,006,386	$34,769	$9,953	$106,678	$ 180,064	$17,337,850

A summary of loans currently performing, loans past due and accruing and nonaccrual loans as of December 31, 2017 is as follows (in thousands):

	Current	Past Due			Nonaccrual	Total
		30 to 59 Days	60 to 89 Days	90 Days or More		
Commercial:						
Energy	$2,833,668	$—	4,204	$—	$ 92,284	$2,930,156
Services	2,983,222	514	486	107	2,620	2,986,949
Wholesale/retail	1,468,284	398	—	—	2,574	1,471,256
Manufacturing	490,739	—	73	—	5,962	496,774
Healthcare	2,284,770	15,218	—	—	14,765	2,314,753
Other commercial and industrial	514,701	85	78	125	19,098	534,087
Total commercial	10,575,384	16,215	4,841	232	137,303	10,733,975
Commercial real estate:						
Residential construction and land development	115,213	200	—	—	1,832	117,245
Retail	691,256	—	—	—	276	691,532
Office	831,118	254	—	123	275	831,770
Multifamily	979,625	22	370	—	—	980,017
Industrial	573,014	—	—	—	—	573,014
Other commercial real estate	285,937	—	—	—	472	286,409
Total commercial real estate	3,476,163	476	370	123	2,855	3,479,987
Residential mortgage:						
Permanent mortgage	1,014,588	3,435	219	—	25,193	1,043,435
Permanent mortgages guaranteed by U.S. government agencies	22,692	18,978	13,468	133,189	9,179	197,506
Home equity	717,007	2,206	440	17	13,075	732,745
Total residential mortgage	1,754,287	24,619	14,127	133,206	47,447	1,973,686
Personal	964,374	681	191	261	269	965,776
Total	$16,770,208	$41,991	19,529	$133,822	$ 187,874	$17,153,424

A summary of loans currently performing, loans past due and accruing and nonaccrual loans as of March 31, 2017 is as follows (in thousands):

		Past Due				
	Current	30 to 59 Days	60 to 89 Days	90 Days or More	Nonaccrual	Total
Commercial:						
Energy	$2,426,100	$437	150	$—	$ 110,425	$2,537,112
Services	3,002,984	2,395	234	49	7,713	3,013,375
Wholesale/retail	1,495,023	130	—	—	11,090	1,506,243
Manufacturing	537,168	115	240	—	5,907	543,430
Healthcare	2,264,266	—	429	—	909	2,265,604
Other commercial and industrial	440,484	—	81	—	20,781	461,346
Total commercial	10,166,025	3,077	1,134	49	156,825	10,327,110
Commercial real estate:						
Residential construction and land development	133,064	314	—	—	2,616	135,994
Retail	744,732	—	—	—	314	745,046
Office	860,476	—	—	—	413	860,889
Multifamily	922,952	15	—	—	24	922,991
Industrial	871,362	25	—	—	76	871,463
Other commercial real estate	333,648	—	—	—	1,032	334,680
Total commercial real estate	3,866,234	354	—	—	4,475	3,871,063
Residential mortgage:						
Permanent mortgage	948,191	5,364	—	—	24,188	977,743
Permanent mortgages guaranteed by U.S. government agencies	45,643	29,853	—	118,577	10,108	204,181
Home equity	750,914	1,376	266	9	11,785	764,350
Total residential mortgage	1,744,748	36,593	266	118,586	46,081	1,946,274
Personal	846,652	430	105	37	235	847,459
Total	$16,623,659	$40,454	1,505	$118,672	$ 207,616	$16,991,906

(5) 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 retained for investment. Residential mortgage loans originated for sale by the Company are carried at fair value based on sales commitments and market quotes. Changes in the fair value of mortgage loans held for sale are included in Other operating revenue – Mortgage banking revenue. Residential mortgage loans held for sale also includes the fair value of residential mortgage loan commitments and forward sales commitments, which are considered derivative contracts that have not been designated as hedging instruments for accounting purposes. 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):

	March 31, 2018		December 31, 2017		March 31, 2017	
	Unpaid Principal Balance/ Notional	Fair Value	Unpaid Principal Balance/ Notional	Fair Value	Unpaid Principal Balance/ Notional	Fair Value
Residential mortgage loans held for sale	$215,803	$217,022	$212,525	$215,113	$237,811	$237,695
Residential mortgage loan commitments	298,318	8,597	222,919	6,523	381,732	14,267
Forward sales contracts	432,812	(429)	380,159	(258)	586,517	(3,255)
		$225,190		$221,378		$248,707

No residential mortgage loans held for sale were 90 days or more past due or considered impaired as of March 31, 2018, December 31, 2017 or March 31, 2017. No credit losses were recognized on residential mortgage loans held for sale for the three month period ended March 31, 2018 and 2017.

Mortgage banking revenue was as follows (in thousands):

	Three Months Ended March 31,	
	2018	2017
Production revenue:		
Net realized gains on sale of mortgage loans	$8,918	$12,703
Net change in unrealized gain on mortgage loans held for sale	(1,369)	(246)
Net change in the fair value of mortgage loan commitments	2,074	4,534
Net change in the fair value of forward sales contracts	(171)	(8,448)

Total production revenue	9,452	8,543
Servicing revenue	16,573	16,648
Total mortgage banking revenue	$26,025	$25,191

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 for accounting purposes 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

Mortgage servicing rights may be originated or purchased. Both originated and purchased mortgage servicing rights are initially recognized at fair value. The Company has elected to carry all mortgage servicing rights at fair value. Changes in the fair value are recognized in earnings as they occur. 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):

	March 31, 2018	December 31, 2017	March 31, 2017
Number of residential mortgage loans serviced for others	135,846	136,528	138,778
Outstanding principal balance of residential mortgage loans serviced for others	$22,008,820	$22,046,632	$22,015,021
Weighted average interest rate	3.94 %	3.94 %	3.96 %
Remaining term (in months)	296	297	300

Activity in capitalized mortgage servicing rights during the three months ended March 31, 2018 was as follows (in thousands):

Balance, December 31, 2017	$252,867
Additions, net	8,900
Change in fair value due to principal payments	(7,995)
Change in fair value due to market assumption changes	21,206
Balance, March 31, 2018	$274,978

Activity in capitalized mortgage servicing rights during the three months ended March 31, 2017 was as follows (in thousands):

Balance, December 31, 2016	$247,073
Additions, net	8,436
Change in fair value due to principal payments	(7,962)
Change in fair value due to market assumption changes	1,856
Balance, March 31, 2017	$249,403

Changes in the fair value of mortgage servicing rights due to market assumption changes are included in Other operating revenue in the Consolidated Statements of Earnings. Changes in fair value due to principal payments are included in Mortgage banking costs.

Mortgage servicing rights are not traded in active markets. Fair value is determined by discounting the projected net cash flows. Significant market assumptions used to determine fair value based on significant unobservable inputs were as follows:

	March 31, 2018	December 31, 2017	March 31, 2017
Discount rate – risk-free rate plus a market premium	9.84%	9.84%	10.08%
Prepayment rate - based upon loan interest rate, original term and loan type	8.10% - 15.73%	8.72% - 15.16%	8.66% - 18.17%
Loan servicing costs – annually per loan based upon loan type:			
Performing loans	$65 - $88	$65 - $88	$63 - $120
Delinquent loans	$150 - $500	$150 - $500	$150 - $500
Loans in foreclosure	$1,000 - $4,000	$1,000 - $4,000	$650 - $4,250

Escrow earnings rate – indexed to rates paid on deposit accounts with comparable average life	2.71%	2.24%	2.06%
Primary/secondary mortgage rate spread	105 bps	105 bps	105 bps

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 aging status of our mortgage loans serviced for others by investor at March 31, 2018 follows (in thousands):

	Current	Past Due 30 to 59 Days	60 to 89 Days	90 Days or More	Total
FHLMC	$7,976,244	$66,368	$11,988	$26,817	$8,081,417
FNMA	6,564,941	61,463	9,918	23,897	6,660,219
GNMA	6,600,444	162,994	40,317	11,888	6,815,643
Other	445,110	3,696	1,126	1,609	451,541
Total	$21,586,739	$294,521	$63,349	$64,211	$22,008,820

(6) 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 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 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 (now estimated to be approximately$48 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 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. Two separate small groups of bondholders have filed arbitration complaints with the Financial Institutions Regulatory Association respecting the bonds and other bonds for which the Bank served as indenture trustee. Management has been advised by counsel that the Bank has valid defenses to the claims.

On September 15, 2017, the principal of the bond issuances filed for protection under Chapter 11 of the United States Bankruptcy Code in the United States Bankruptcy Court for the Northern District of Georgia. The principal subsequently sought and obtained an order dismissing the Chapter 11 proceeding. The obligation of the principal to pay all principal and interest on the bonds is non-dischargeable in bankruptcy. 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.

On March 5, 2018, the Bank was sued in the Fulton, Georgia County District Court by the administratrix of a deceased resident who had sued for and obtained a judgment for wrongful death against one of the operators of a nursing home financed by one of the bonds which are the subject of the litigation discussed above. The judgment is alleged to total approximately $8 million in principal and interest at this time. Plaintiff alleges that BOKF, in its capacity as indenture trustee for the bonds, colluded with the borrower and others to defraud creditors of the nursing

home by misleading the public about the solvency of the nursing home. Plaintiff alleges that this conduct has prevented her from collecting on her judgment. The Bank is advised by counsel that the Bank has valid defenses to the plaintiffs' claims.

On March 14, 2017, the Bank was sued in the United States District Court for the Northern District of Oklahoma by bondholders in a second putative class action representing a different set of municipal securities. The bondholders in this second action allege two individuals purchased facilities from the principals who are the subject of the SEC New Jersey proceedings by means of the fraudulent sale of $60 million of municipal securities for which the Bank also served as indenture trustee. The bondholders allege the Bank failed to disclose that the seller of the purchased facilities had engaged in the conduct complained of in the New Jersey action. The Bank properly performed all duties as indenture trustee of this second set of municipal securities, timely commenced proceedings against the issuer of the securities when default occurred, is cooperating with the SEC in actions against the two principals, is not a target of the SEC proceedings, and has been advised by counsel that

the Bank has valid defenses to the claims of these bondholders. It is the opinion of management that no loss is probable at this time.

On March 7, 2017, a plaintiff filed a putative class action in the United States District Court for the Northern District of Texas alleging an extended overdraft fee charged by the Bank is interest and exceeds permitted rates. The Bank was previously sued in a class action in the United States District Court for the Northern District of Oklahoma making the same allegations. Pursuant to a motion to dismiss, the Northern District of Oklahoma Court action was dismissed. Other courts considering the question whether extended overdraft fees are interest have likewise determined such fees are not interest. The Bank has moved to dismiss the action. The Northern District of Texas Action was dismissed upon motion by the Bank with leave granted the plaintiff to file an amended complaint. The plaintiff filed an amended complaint. The Bank has again moved to dismiss the complaint, which motion to dismiss is pending before the Court. Management is advised by counsel that a loss is not probable and that the loss, if any, cannot be reasonably estimated.

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 $3.4 million at March 31, 2018. 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 types of investments.

Consolidated tax credit investment entities represent the Company's interest in entities earning federal new market tax credits related to qualifying loans. 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.

Other consolidated alternative investments include entities held under merchant banking authority. While the Company owns a majority of the voting interest in these entities, its ability to manage daily operations is limited by applicable banking regulations. Consolidated other assets includes total tangible assets, identifiable intangible assets and goodwill held by these entities.

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 primarily 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 March 31, 2018, December 31, 2017 and March 31, 2017 is as follows (in thousands):

	March 31, 2018				
	Loans	Other assets	Other liabilities	Other borrowings	Non-controlling interests
Consolidated:					
Private equity funds	$—	$13,861	$—	$ —	$ 10,958
Tax credit entities	10,000	10,964	—	10,964	10,000
Other	—	1,040	—	—	1,355
Total consolidated	$10,000	$25,865	$—	$ 10,964	$ 22,313
Unconsolidated:					
Tax credit entities	$57,176	$150,778	$52,122	$ —	$ —
Other	—	43,148	22,438	—	—
Total unconsolidated	$57,176	$193,926	$74,560	$ —	$ —

	December 31, 2017				
	Loans	Other assets	Other liabilities	Other borrowings	Non-controlling interests
Consolidated:					
Private equity funds	$—	$14,783	$—	$ —	$ 11,927
Tax credit entities	10,000	10,964	—	10,964	10,000
Other	—	1,040	—	—	1,040
Total consolidated	$10,000	$26,787	$—	$ 10,964	$ 22,967
Unconsolidated:					
Tax credit entities	$52,852	$153,506	$47,859	$ —	$ —
Other	—	38,397	22,968	—	—
Total unconsolidated	$52,852	$191,903	$70,827	$ —	$ —

	March 31, 2017				
	Loans	Other assets	Other liabilities	Other borrowings	Non-controlling interests
Consolidated:					
Private equity funds	$—	$17,816	$—	$ —	$ 14,119
Tax credit entities	10,000	11,430	—	10,964	10,000
Other	—	16,475	1,408	847	5,031
Total consolidated	$10,000	$45,721	$1,408	$ 11,811	$ 29,150
Unconsolidated:					
Tax credit entities	$53,000	$141,231	$59,649	$ —	$ —
Other	—	29,611	14,045	—	—
Total unconsolidated	$53,000	$170,842	$73,694	$ —	$ —

(7) Shareholders' Equity

On April 24, 2018, the Company declared a quarterly cash dividend of $0.45 per common share payable on or about May 25, 2018 to shareholders of record as of May 11, 2018.

Dividends declared were $0.45 per share during the three months ended March 31, 2018 and $0.44 per share during the three months ended March 31, 2017.

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. 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. 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	Employee Benefit Plans	Total
Balance, December 31, 2016	$(9,087)	$(1,880)	$(10,967)
Net change in unrealized gain (loss)	11,411	—	11,411
Reclassification adjustments included in earnings:			
Gain on available for sale securities, net	(2,049)	—	(2,049)
Other comprehensive income (loss), before income taxes	9,362	—	9,362
Federal and state income taxes[1]	3,616	—	3,616
Other comprehensive income (loss), net of income taxes	5,746	—	5,746
Balance, March 31, 2017	$(3,341)	$(1,880)	$(5,221)
Balance, December 31, 2017	$(35,385)	$(789)	$(36,174)
Transition adjustment for net unrealized gains on equity securities	(2,709)	—	(2,709)
Net change in unrealized gain (loss)	(97,406)	—	(97,406)
Reclassification adjustments included in earnings:			
Loss on available for sale securities, net	290	—	290
Other comprehensive income (loss), before income taxes	(97,116)	—	(97,116)
Federal and state income taxes[2]	(24,808)	—	(24,808)
Other comprehensive income (loss), net of income taxes	(72,308)	—	(72,308)
Balance, March 31, 2018	$(110,402)	$(789)	$(111,191)

[1] Calculated using a 39 percent effective tax rate.

[2] Calculated using a 25 percent effective tax rate.

(8) Earnings Per Share

(In thousands, except share and per share amounts)	Three Months Ended March 31,	
	2018	2017
Numerator:		
Net income attributable to BOK Financial Corp. shareholders	$105,562	$ 88,356
Less: Earnings allocated to participating securities	1,022	1,003
Numerator for basic earnings per share – income available to common shareholders	104,540	87,353
Effect of reallocating undistributed earnings of participating securities	—	—
Numerator for diluted earnings per share – income available to common shareholders	$104,540	$ 87,353
Denominator:		
Weighted average shares outstanding	65,479,482	65,457,772
Less: Participating securities included in weighted average shares outstanding	632,148	741,808
Denominator for basic earnings per common share	64,847,334	64,715,964
Dilutive effect of employee stock compensation plans[1]	40,699	67,773
Denominator for diluted earnings per common share	64,888,033	64,783,737
Basic earnings per share	$1.61	$ 1.35
Diluted earnings per share	$1.61	$ 1.35
[1] Excludes employee stock options with exercise prices greater than current market price.	—	—

(9) Reportable Segments

Reportable segments reconciliation to the Consolidated Financial Statements for the three months ended March 31, 2018 is as follows (in thousands):

	Commercial	Consumer	Wealth Management	Funds Management and Other	BOK Financial Consolidated
Tax-equivalent net interest revenue from external sources	$160,413	$21,755	$15,407	$ 22,161	$219,736
Tax-equivalent net interest revenue (expense) from internal sources	(28,343)	15,224	9,932	3,187	—
Net interest revenue	132,070	36,979	25,339	25,348	219,736
Provision for credit losses	627	1,301	(48)	(6,880)	(5,000)
Net interest revenue after provision for credit losses	131,443	35,678	25,387	32,228	224,736
Other operating revenue	39,676	44,948	74,766	(3,401)	155,989
Other operating expense	46,469	49,813	62,802	85,346	244,430
Net direct contribution	124,650	30,813	37,351	(56,519)	136,295
Gain (loss) on financial instruments, net	7	(23,262)	—	23,255	—
Change in fair value of mortgage servicing rights	—	21,206	—	(21,206)	—
Loss on repossessed assets, net	(4,166)	(108)	—	4,274	—
Corporate expense allocations	12,507	16,029	10,955	(39,491)	—
Net income before taxes	107,984	12,620	26,396	(10,705)	136,295
Federal and state income taxes	28,741	3,214	6,787	(7,794)	30,948
Net income	79,243	9,406	19,609	(2,911)	105,347
Net loss attributable to non-controlling interests	—	—	—	(215)	(215)
Net income attributable to BOK Financial Corp. shareholders	$79,243	$9,406	$19,609	$ (2,696)	$105,562
Average assets	$17,793,820	$8,468,101	$8,095,794	$ (632,763)	$33,724,952

Reportable segments reconciliation to the Consolidated Financial Statements for the three months ended March 31, 2017 is as follows (in thousands):

	Commercial	Consumer	Wealth Management	Funds Management and Other	BOK Financial Consolidated
Net interest revenue from external sources	$147,376	$18,593	$11,485	$23,728	$201,182
Net interest revenue (expense) from internal sources	(18,115)	12,418	8,856	(3,159)	—
Net interest revenue	129,261	31,011	20,341	20,569	201,182
Provision for credit losses	(1,463)	1,273	39	151	—
Net interest revenue after provision for credit losses	130,724	29,738	20,302	20,418	201,182
Other operating revenue	46,844	45,134	74,158	4,160	170,296
Other operating expense	52,905	52,866	60,410	78,530	244,711
Net direct contribution	124,663	22,006	34,050	(53,952)	126,767
Gain (loss) on financial instruments, net	38	(1,668)	—	1,630	—
Change in fair value of mortgage servicing rights	—	1,856	—	(1,856)	—
Loss on repossessed assets, net	(5)	(136)	—	141	—
Corporate expense allocations	8,719	16,746	10,672	(36,137)	—
Net income before taxes	115,977	5,312	23,378	(17,900)	126,767
Federal and state income taxes	47,568	2,066	9,219	(20,750)	38,103
Net income	68,409	3,246	14,159	2,850	88,664
Net income attributable to non-controlling interests	—	—	—	308	308
Net income (loss) attributable to BOK Financial Corp. shareholders	$68,409	$3,246	$14,159	$2,542	$88,356
Average assets	$17,640,973	$8,277,304	$7,160,849	$(124,137)	$32,954,989

(10) Fees and Commissions Revenue

Fees and commissions revenue is generated through the sales of products, consisting primarily of financial instruments, and the performance of services for customers under contractual obligations. Revenue from providing services for customers is recognized at the time services are provided in an amount that reflects the consideration we expect to be entitled to for those services. Revenue is recognized based on the application of five steps:

- Identify the contract with a customer
- Identify the performance obligations in the contract
- Determine the transaction price
- Allocate the transaction price to the performance obligations in the contract
- Recognize revenue when (or as) the Company satisfies a performance obligation

For contracts with multiple performance obligations, individual performance obligations are accounted for separately if the customer can benefit from the good or service on its own or with other resources readily available to the customer and the promise to transfer goods and services to the customer is separately identifiable in the contract. The transaction price is allocated to the performance obligations based on relative standalone selling prices.

Revenue is recognized on a gross basis whenever we have primary responsibility and risk in providing the services or products to our customers and have discretion in establishing the price for the services or products. Revenue is recognized on a net basis whenever we act as an agent for products or services of others.

Brokerage and trading revenue includes revenues from trading, customer hedging, retail brokerage and investment banking. Trading revenue includes net realized and unrealized gains primarily related to sales of securities to institutional customers and related derivative contracts. Customer hedging revenue includes realized and unrealized changes in the fair value of derivative contracts held for customer risk management programs including credit valuation adjustments, as necessary. We offer commodity, interest rate, foreign exchange and equity derivatives to our customers. These customer contracts are offset with contracts with selected counterparties and exchanges to minimize changes in market risk from changes in commodity prices, interest rates or foreign exchange rates. Retail brokerage revenue represents fees and commissions earned on sales of fixed income securities, annuities, mutual funds and other financial instruments to retail customers. Investment banking revenue includes fees earned upon completion of underwriting and financial advisory services. Investment banking revenue also includes fees earned in conjunction with loan syndications.

Transaction card revenue includes merchant discount fees and electronic funds transfer network fees, net of interchange fees paid to card issuers and assessments paid to card networks. Merchant discount fees represent fees paid by customers for account management and electronic processing of card 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 the Bank. Electronic funds transfer fees are recognized as electronic transactions processed on behalf of its members.

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 include commercial account service charges, overdraft fees, check card fee revenue and automated service charge and other deposit service fees. Fees are recognized at least quarterly in accordance with 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. 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.

Mortgage banking revenue includes revenues recognized in conjunction with the origination, marketing and servicing of conventional and government-sponsored residential mortgage loans. Mortgage production revenue includes net realized gains (losses) on sales of residential mortgage loans in the secondary market and the net change in unrealized gains (losses) on residential mortgage loans held for sale. Mortgage production revenue also includes changes in the fair value of derivative contracts not designated as hedging instruments related to residential mortgage loan commitments and forward sales contracts. Mortgage servicing revenue includes servicing fee income and late charges on loans serviced for others.

Fees and commissions revenue by reportable segment and primary service line is as follows for the three months ended March 31, 2018.

	Commercial	Consumer	Wealth Management	Funds Management & Other	Consolidated	Out of Scope[1]	In Scope[2]
Trading revenue	$ —	$ —	$ 10,394	$ —	$ 10,394	$ 10,394	$ —
Customer hedging revenue	2,022	—	6,965	1,920	10,907	10,907	—
Retail brokerage revenue	—	—	4,852	(98)	4,754	—	4,754
Investment banking revenue	1,061	—	3,532	—	4,593	1,061	3,532
Brokerage and trading revenue	3,083	—	25,743	1,822	30,648	22,362	8,286
TransFund EFT network revenue	18,202	987	(19)	1	19,171	—	19,171
Merchant services revenue	1,804	15	—	—	1,819	—	1,819
Transaction card revenue	20,006	1,002	(19)	1	20,990	—	20,990
Personal trust revenue	—	—	20,100	—	20,100	—	20,100
Corporate trust revenue	—	—	5,641	—	5,641	—	5,641
Institutional trust & retirement plan services revenue	—	—	11,450	—	11,450	—	11,450
Investment management services and other	—	—	4,689	(48)	4,641	—	4,641
Fiduciary and asset management revenue	—	—	41,880	(48)	41,832	—	41,832
Commercial account service charge revenue	10,944	359	605	—	11,908	—	11,908
Overdraft fee revenue	90	8,484	34	4	8,612	—	8,612
Check card revenue	—	4,918	—	—	4,918	—	4,918
Automated service charge and other deposit fee revenue	37	1,659	26	1	1,723	—	1,723
Deposit service charges and fees	11,071	15,420	665	5	27,161	—	27,161
Mortgage production revenue	—	17,027	—	(454)	16,573	16,573	—
Mortgage servicing revenue	—	9,452	—	—	9,452	9,452	—
Mortgage banking revenue	—	26,479	—	(454)	26,025	26,025	—
Other revenue	5,857	2,063	6,538	(2,128)	12,330	8,356	3,974
Total fees and commissions revenue	$ 40,017	$ 44,964	$ 74,807	$ (802)	$ 158,986	$ 56,743	$ 102,243

[1] Out of scope revenue generally relates to financial instruments or contractual rights and obligations within the scope of other applicable accounting guidance.

[2] In scope revenue represents revenue subject to FASB ASC Topic 606, Revenue from Contracts with Customers.

(11) Federal and State Income Taxes

The Tax Cuts and Jobs Act (the "Act") enacted on December 22, 2017, reduced the federal corporate income tax rate from 35% to 21% beginning January 1, 2018. We recognized reasonable estimates of the Act's impact on net deferred tax assets and recorded a provisional adjustment of $9.5 million, including $6.4 million of net deferred tax assets resulting from temporary differences recognized in Accumulated Other Comprehensive Income in 2017. We also recognized a provisional adjustment of $2.2 million for deferred tax assets resulting from executive compensation that may no longer be deductible.

Provisions of the Act are broad and complex, and we continue to evaluate its effect on the Company's financial statements. Results of this evaluation did not significantly impact the Company's financial position or results of operations for the first quarter of 2018.

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):

	Three Months Ended March 31,	
	2018	2017
Amount:		
Federal statutory tax	$28,622	$44,368
Tax exempt revenue	(1,812)	(3,111)
Effect of state income taxes, net of federal benefit	3,657	2,445
Utilization of tax credits, net of proportional amortization of low-income housing limited partnership investments	(1,333)	(2,087)
Share-based compensation	(1,620)	(3,937)
Adjustment to provisional amounts related to tax reform	1,895	—
Other, net	1,539	425
Total income tax expense	$30,948	$38,103

	Three Months Ended March 31,	
	2018	2017
Percent of pretax income:		
Federal statutory tax	21.0 %	35.0 %
Tax exempt revenue	(1.3)	(2.5)
Effect of state income taxes, net of federal benefit	2.7	1.9
Utilization of tax credits, net of proportional amortization of low-income housing limited partnership investments	(1.0)	(1.6)
Share-based compensation	(1.2)	(3.1)
Adjustment to provisional amounts related to tax reform	1.4	—
Other, net	1.1	0.4
Total	22.7 %	30.1 %

(12) 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 three months ended March 31, 2018 and 2017, respectively. Transfers between significant other observable inputs and significant unobservable inputs during the three months ended March 31, 2018 and 2017 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 March 31, 2018, December 31, 2017 or March 31, 2017.

Assets and Liabilities Measured at Fair Value on a Recurring Basis

The fair value of financial assets and liabilities measured on a recurring basis was as follows as of March 31, 2018 (in thousands):

	Total	Quoted Prices in Active Markets for Identical Instruments (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Assets:				
Trading securities:				
U.S. government agency debentures	$ 37,115	$ —	$ 37,115	$ —
U.S. government agency residential mortgage-backed securities	1,078,085	—	1,078,085	—
Municipal and other tax-exempt securities	72,013	—	72,013	—
Asset-backed securities	94,734	—	94,734	—
Other trading securities	10,485	—	10,485	—
Total trading securities	1,292,432	—	1,292,432	—
Available for sale securities:				
U.S. Treasury	491	491	—	—
Municipal and other tax-exempt securities	20,414	—	18,523	1,891
U.S. government agency residential mortgage-backed securities	5,379,921	—	5,379,921	—
Privately issued residential mortgage-backed securities	90,160	—	90,160	—
Commercial mortgage-backed securities guaranteed by U.S. government agencies	2,732,966	—	2,732,966	—
Other debt securities	25,480	—	25,008	472
Total available for sale securities	8,249,432	491	8,246,578	2,363
Fair value option securities – U.S. government agency residential mortgage-backed securities	513,668	—	513,668	—
Residential mortgage loans held for sale	225,190	—	211,319	13,871
Mortgage servicing rights[1]	274,978	—	—	274,978
Derivative contracts, net of cash collateral[2]	286,687	21,373	265,314	—
Liabilities:				
Derivative contracts, net of cash collateral[2]	233,202	16,497	216,705	—

[1] 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 5, Mortgage Banking Activities.

[2] See Note 3 for detail of fair value of derivative contracts by contract type. Derivative contracts in asset positions that were valued based on quoted prices in active markets for identical instruments (Level 1) are primarily exchange-traded interest rate and agricultural derivative contacts. Derivative contacts in liability positions that were valued using quoted prices in active markets for identical instruments are exchange-traded interest rate and energy derivative contracts, net of cash margin.

The fair value of financial assets and liabilities measured on a recurring basis was as follows as of December 31, 2017 (in thousands):

	Total	Quoted Prices in Active Markets for Identical Instruments (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Assets:				
Trading securities:				
U.S. government agency debentures	$ 21,196	$ —	$ 21,196	$ —
U.S. government agency residential mortgage-backed securities	392,673	—	392,673	—
Municipal and other tax-exempt securities	13,559	—	13,559	—
Asset-backed securities	23,885	—	23,885	—
Other trading securities	11,363	—	11,363	—
Total trading securities	462,676	—	462,676	—
Available for sale securities:				
U.S. Treasury	1,000	1,000	—	—
Municipal and other tax-exempt securities	27,080	—	22,278	4,802
U.S. government agency residential mortgage-backed securities	5,309,152	—	5,309,152	—
Privately issued residential mortgage-backed securities	93,221	—	93,221	—
Commercial mortgage-backed securities guaranteed by U.S. government agencies	2,834,961	—	2,834,961	—
Other debt securities	25,481	—	25,009	472
Perpetual preferred stock	15,767	—	15,767	—
Equity securities and mutual funds	14,916	—	14,916	—
Total available for sale securities	8,321,578	1,000	8,315,304	5,274
Fair value option securities – U.S. government agency residential mortgage-backed securities	755,054	—	755,054	—
Residential mortgage loans held for sale	221,378	—	209,079	12,299
Mortgage servicing rights[1]	252,867	—	—	252,867
Derivative contracts, net of cash collateral[2]	220,502	8,179	212,323	—
Liabilities:				
Derivative contracts, net of cash collateral[2]	171,963	—	171,963	—

[1] 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 5, Mortgage Banking Activities.

[2] See Note 3 for detail of fair value of derivative contracts by contract type. Derivative contracts based on quoted prices in active markets for identical instruments (Level 1) are exchange-traded interest rate, energy and agricultural derivative contacts. Derivative contracts in liability positions that were valued using quoted prices in active markets for identical instruments (Level 1) are exchange-traded interest rate and energy derivative contracts, fully offset by cash margin.

The fair value of financial assets and liabilities measured on a recurring basis was as follows as of March 31, 2017 (in thousands):

	Total	Quoted Prices in Active Markets for Identical Instruments (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Assets:				
Trading securities:				
U.S. government agency debentures	$ 18,365	$ —	$ 18,365	$ —
U.S. government agency residential mortgage-backed securities	578,977	—	578,977	—
Municipal and other tax-exempt securities	45,114	—	45,114	—
Other trading securities	34,700	—	34,700	—
Total trading securities	677,156	—	677,156	—
Available for sale securities:				
U.S. Treasury	999	999	—	—
Municipal and other tax-exempt securities	35,453	—	29,731	5,722
U.S. government agency residential mortgage-backed securities	5,372,916	—	5,372,916	—
Privately issued residential mortgage-backed securities	108,626	—	108,626	—
Commercial mortgage-backed securities guaranteed by U.S. government agencies	2,877,028	—	2,877,028	—
Other debt securities	4,153	—	—	4,153
Perpetual preferred stock	19,272	—	19,272	—
Equity securities and mutual funds	18,844	3,906	14,938	—
Total available for sale securities	8,437,291	4,905	8,422,511	9,875
Fair value option securities – U.S. government agency residential mortgage-backed securities	441,714	—	441,714	—
Residential mortgage loans held for sale	248,707	—	236,028	12,679
Mortgage servicing rights[1]	249,403	—	—	249,403
Derivative contracts, net of cash collateral[2]	304,727	12,631	292,096	—
Liabilities:				
Derivative contracts, net of cash collateral[2]	276,422	15,455	260,967	—

[1] 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 5, Mortgage Banking Activities.

[2] See Note 3 for detail of fair value of derivative contracts by contract type. Derivative contracts based on quoted prices in active markets for identical instruments (Level 1) are exchange-traded interest rate and energy derivative contacts. Derivative contracts in liability positions that were valued using quoted prices in active markets for identical instruments (Level 1) are exchange-traded interest rate and agricultural derivative contracts, net 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 references 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 assesses 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 current fair value, probability of default and loss given default.

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.

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 residential mortgage loans held for sale are based upon quoted market prices of such loans sold in securitization transactions, including related unfunded loan commitments and forward sales contracts. The fair value of mortgage loans that were unable to be sold to U.S. government agencies were determined using quoted prices of loans that are sold in securitization transactions with a liquidity discount applied.

The following represents the changes for the three months ended March 31, 2018 related to assets measured at fair value on a recurring basis using significant unobservable inputs (in thousands):

	Available for Sale Securities		
	Municipal and other tax-exempt securities	Other debt securities	Residential mortgage loans held for sale
Balance, December 31, 2017	$4,802	$ 472	$ 12,299
Transfer to Level 3 from Level 2[1]	—	—	2,156
Purchases	—	—	—
Proceeds from sales	—	—	(324)
Redemptions and distributions	(3,045)	—	—
Gain (loss) recognized in earnings:			
Mortgage banking revenue	—	—	(260)
Other comprehensive income:			
Net change in unrealized gain	134	—	—
Balance, March 31, 2018	$1,891	$ 472	$ 13,871

[1] 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.

The following represents the changes for the three months ended March 31, 2017 related to assets measured at fair value on a recurring basis using significant unobservable inputs (in thousands):

	Available for Sale Securities		
	Municipal and other tax-exempt securities	Other debt securities	Residential mortgage loans held for sale
Balance, December 31, 2016	$5,789	$ 4,152	$ 11,617
Transfer to Level 3 from Level 2[1]	—	—	1,887
Purchases	—	—	—
Proceeds from sales	—	—	(589)
Redemptions and distributions	—	—	—
Gain (loss) recognized in earnings:			
Mortgage banking revenue	—	—	(236)
Other comprehensive income (loss):			
Net change in unrealized gain (loss)	(67)	1	—
Balance, March 31, 2017	$5,722	$ 4,153	$ 12,679

[1] 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 March 31, 2018 follows (in thousands):

	Par Value	Amortized Cost/Unpaid Principal Balance	Fair Value	Valuation Technique(s)	Unobservable Input	Range (Weighted Average)	
Available for sale securities							
Municipal and other tax-exempt securities	$2,050	$ 2,033	$1,891	Discounted cash flows	[1] Interest rate spread	6.72%-6.72% (6.72%) 92.25%-92.25% (92.25%)	[2] [3]
Other debt securities	500	500	472	Discounted cash flows	[1] Interest rate spread	6.37%-6.37% (6.37%) 94.36% - 94.36 (94.36%)	[4] [3]
Residential mortgage loans held for sale	N/A	14,813	13,871	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.	93.64%	

[1] 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.

[2] Interest rate yields used to value investment grade tax-exempt securities represent a spread of 457 basis points over average yields for comparable tax-exempt securities.

[3] Represents fair value as a percentage of par value.

[4] Interest rate yields used to value investment grade taxable securities based on comparable short-term taxable securities which are generally yielding less than 3 percent.

A summary of quantitative information about Recurring Fair Value Measurements based on Significant Unobservable Inputs (Level 3) as of December 31, 2017 follows (in thousands):

	Par Value	Amortized Cost/Unpaid Principal Balance	Fair Value	Valuation Technique(s)	Unobservable Input	Range (Weighted Average)	
Available for sale securities							
Municipal and other tax-exempt securities	$5,095	$ 5,068	$4,802	Discounted cash flows	[1] Interest rate spread	6.60%-6.60% (6.60%) 92.25%-94.76% (93.75%)	[2] [3]
Other debt securities	500	500	472	Discounted cash flows	[1] Interest rate spread	6.85%-6.85% (6.85%)	[4] [3]

						94.39% - 94.39 (94.39%)
Residential mortgage loans held for sale	N/A	12,981	12,299	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.	94.75%

[1] 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.

[2] Interest rate yields used to value investment grade tax-exempt securities represent a spread of 372 to 466 basis points over average yields for comparable tax-exempt securities.

[3] Represents fair value as a percentage of par value.

[4] Interest rate yields used to value investment grade taxable securities based on comparable short-term taxable securities which are generally yielding less than 3 percent.

A summary of quantitative information about Recurring Fair Value Measurements based on Significant Unobservable Inputs (Level 3) as of March 31, 2017 follows (in thousands):

	Par Value	Amortized Cost	Fair Value	Valuation Technique(s)		Unobservable Input	Range (Weighted Average)	
Available for sale securities								
Municipal and other tax-exempt securities	$6,195	$ 6,163	$5,722	Discounted cash flows	[1]	Interest rate spread	7.64%-7.94% (7.89%)	[2]
							90.00%-91.22% (90.75%)	[3]
Other debt securities	4,400	4,400	4,153	Discounted cash flows	[1]	Interest rate spread	6.00%-6.84% (6.75%)	[4]
							94.34% - 94.39 (94.38%)	[3]
Residential mortgage loans held for sale	N/A	13,623	12,679	Quoted prices of loans sold in securitization transactions, with a liquidity discount applied		Liquidity discount applied to the market value of a mortgage loans qualifying for sale to U.S. government agencies.	93.07%	

[1] 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.

[2] Interest rate yields used to value investment grade tax-exempt securities represent a spread of 632 to 685 basis points over average yields for comparable tax-exempt securities.

[3] Represents fair value as a percentage of par value.

[4] Interest rate yields used to value investment grade taxable securities based on comparable short-term taxable securities which are generally yielding less than 3 percent.

Fair Value of Assets and Liabilities Measured on a Non-Recurring Basis

Assets measured at fair value on a non-recurring basis include 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.

The following represents the carrying value of assets measured at fair value on a non-recurring basis (and related losses) during the period. The carrying value represents only those assets with a balance at March 31, 2018 for which the fair value was adjusted during the three months ended March 31, 2018:

	Carrying Value at March 31, 2018			Fair Value Adjustments for the Three Months Ended March 31, 2018 Recognized in:	
	Quoted Prices in Active Markets	Significant Other Observable Inputs	Significant Unobservable Inputs	Gross charge-offs against allowance	Net losses and expenses of repossessed

	Markets for Identical Instruments		for loan losses	assets, net
Impaired loans	$—$ 32	$ 410	$ 497	$ —
Real estate and other repossessed assets	—863	7,094	—	5,192

The following represents the carrying value of assets measured at fair value on a non-recurring basis (and related losses) during the period. The carrying value represents only those assets with a balance at March 31, 2017 for which the fair value was adjusted during the three months ended March 31, 2017:

	Carrying Value at March 31, 2017			Fair Value Adjustments for the Three Months Ended March 31, 2017 Recognized in:	
	Quoted Prices in Active Markets for Identical Instruments	Other Observable Inputs	Significant Unobservable Inputs	Gross charge-offs against allowance for loan losses	Net losses and expenses of repossessed assets, net
Impaired loans	$—	$ 462	$ 1,614	$ 444	$ —
Real estate and other repossessed assets	—	777	418	—	293

The fair value of collateral-dependent impaired loans secured by real estate 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 the same or 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 March 31, 2018 follows (in thousands):

	Fair Value	Valuation Technique(s)	Unobservable Input	Range (Weighted Average)
Impaired loans	$ 410	Discounted cash flows	Recoverable oil and gas reserves, forward-looking commodity prices, estimated operating costs	45% - 45% (45%)[1]
Real estate and other repossessed assets	7,094	Discounted cash flows	Recoverable oil and gas reserves, forward-looking commodity prices, estimated operating costs	N/A

[1] Represents fair value as a percentage of the unpaid principal balance.

A summary of quantitative information about Non-recurring Fair Value Measurements based on Significant Unobservable Inputs (Level 3) as of March 31, 2017 follows (in thousands):

	Fair Value	Valuation Technique(s)	Unobservable Input	Range (Weighted Average)
Impaired loans	$1,614	Discounted cash flows	Recoverable oil and gas reserves, forward-looking commodity prices, estimated operating costs	76% - 81% (77%)[1]
Real estate and other repossessed assets	418	Appraised value, as adjusted	Marketability adjustments off appraised value2	65% - 86% (78%)

[1] Represents fair value as a percentage of the unpaid principal balance.

[2] Marketability adjustments include consideration of estimated costs to sell which is approximately 10% of the fair value.

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 basis as of March 31, 2018 (dollars in thousands):

	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	$544,534	$544,534	$544,534	$—	$—
Interest-bearing cash and cash equivalents	2,054,899	2,054,899	2,054,899	—	—
Trading securities:					
U.S. government agency debentures	37,115	37,115	—	37,115	—
U.S. government agency residential mortgage-backed securities	1,078,085	1,078,085	—	1,078,085	—
Municipal and other tax-exempt securities	72,013	72,013	—	72,013	—
Asset-backed securities	94,734	94,734	—	94,734	—
Other trading securities	10,485	10,485	—	10,485	—
Total trading securities	1,292,432	1,292,432	—	1,292,432	—
Investment securities:					
Municipal and other tax-exempt securities	197,238	198,254	—	198,254	—
U.S. government agency residential mortgage-backed securities	14,967	15,112	—	15,112	—
Other debt securities	204,467	215,495	—	215,495	—
Total investment securities	416,672	428,861	—	428,861	—
Available for sale securities:					
U.S. Treasury	491	491	491	—	—
Municipal and other tax-exempt securities	20,414	20,414	—	18,523	1,891
U.S. government agency residential mortgage-backed securities	5,379,921	5,379,921	—	5,379,921	—
Privately issued residential mortgage-backed securities	90,160	90,160	—	90,160	—
Commercial mortgage-backed securities guaranteed by U.S. government agencies	2,732,966	2,732,966	—	2,732,966	—
Other debt securities	25,480	25,480	—	25,008	472
Total available for sale securities	8,249,432	8,249,432	491	8,246,578	2,363
Fair value option securities – U.S. government agency residential mortgage-backed securities	513,668	513,668	—	513,668	—
Residential mortgage loans held for sale	225,190	225,190	—	211,319	13,871
Loans:					
Commercial	10,919,667	10,682,395	—	—	10,682,395
Commercial real estate	3,506,782	3,437,850	—	—	3,437,850
Residential mortgage	1,945,769	1,926,787	—	—	1,926,787
Personal	965,632	956,570	—	—	956,570
Total loans	17,337,850	17,003,602	—	—	17,003,602
Allowance for loan losses	(223,967)	—	—	—	—
Loans, net of allowance	17,113,883	17,003,602	—	—	17,003,602

Mortgage servicing rights	274,978	274,978	—	—	274,978
Derivative instruments with positive fair value, net of cash collateral	286,687	286,687	21,373	265,314	—
Deposits with no stated maturity	20,038,946	20,038,946	—	—	20,038,946
Time deposits	2,166,254	2,115,757	—	—	2,115,757
Other borrowed funds	6,273,349	6,236,468	—	—	6,236,468
Subordinated debentures	144,687	144,976	—	144,976	—
Derivative instruments with negative fair value, net of cash collateral	233,202	233,202	16,497	216,705	—

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 basis as of December 31, 2017 (dollars in thousands):

	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	$602,510	$602,510	$602,510	$—	$—
Interest-bearing cash and cash equivalents	1,714,544	1,714,544	1,714,544	—	—
Trading securities:					
U.S. government agency debentures	21,196	21,196	—	21,196	—
U.S. government agency residential mortgage-backed securities	392,673	392,673	—	392,673	—
Municipal and other tax-exempt securities	13,559	13,559	—	13,559	—
Asset-backed securities	23,885	23,885	—	23,885	—
Other trading securities	11,363	11,363	—	11,363	—
Total trading securities	462,676	462,676	—	462,676	—
Investment securities:					
Municipal and other tax-exempt securities	228,186	230,349	—	230,349	—
U.S. government agency residential mortgage-backed securities	15,891	16,242	—	16,242	—
Other debt securities	217,716	233,444	—	233,444	—
Total investment securities	461,793	480,035	—	480,035	—
Available for sale securities:					
U.S. Treasury	1,000	1,000	1,000	—	—
Municipal and other tax-exempt securities	27,080	27,080	—	22,278	4,802
U.S. government agency residential mortgage-backed securities	5,309,152	5,309,152	—	5,309,152	—
Privately issued residential mortgage-backed securities	93,221	93,221	—	93,221	—
Commercial mortgage-backed securities guaranteed by U.S. government agencies	2,834,961	2,834,961	—	2,834,961	—
Other debt securities	25,481	25,481	—	25,009	472
Perpetual preferred stock	15,767	15,767	—	15,767	—
Equity securities and mutual funds	14,916	14,916	—	14,916	—
Total available for sale securities	8,321,578	8,321,578	1,000	8,315,304	5,274
Fair value option securities – U.S. government agency residential mortgage-backed securities	755,054	755,054	—	755,054	—
Residential mortgage loans held for sale	221,378	221,378	—	208,946	12,432
Loans:					
Commercial	10,733,975	10,524,627	—	—	10,524,627
Commercial real estate	3,479,987	3,428,733	—	—	3,428,733
Residential mortgage	1,973,686	1,977,721	—	—	1,977,721
Personal	965,776	956,706	—	—	956,706
Total loans	17,153,424	16,887,787	—	—	16,887,787
Allowance for loan losses	(230,682)	—	—	—	—
Loans, net of allowance	16,922,742	16,887,787	—	—	16,887,787

Mortgage servicing rights	252,867	252,867	—	—	252,867
Derivative instruments with positive fair value, net of cash collateral	220,502	220,502	8,179	212,323	—
Deposits with no stated maturity	19,962,889	19,962,889	—	—	19,962,889
Time deposits	2,098,416	2,064,558	—	—	2,064,558
Other borrowed funds	5,709,860	5,703,121	—	—	5,703,121
Subordinated debentures	144,677	148,207	—	148,207	—
Derivative instruments with negative fair value, net of cash collateral	171,963	171,963	—	171,963	—

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 basis as of March 31, 2017 (dollars in thousands):

	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	$546,575	$546,575	$546,575	$—	$—
Interest-bearing cash and cash equivalents	2,220,640	2,220,640	2,220,640	—	—
Trading securities:					
U.S. government agency debentures	18,365	18,365	—	18,365	—
U.S. government agency residential mortgage-backed securities	578,977	578,977	—	578,977	—
Municipal and other tax-exempt securities	45,114	45,114	—	45,114	—
Other trading securities	34,700	34,700	—	34,700	—
Total trading securities	677,156	677,156	—	677,156	—
Investment securities:					
Municipal and other tax-exempt securities	298,811	301,128	—	301,128	—
U.S. government agency residential mortgage-backed securities	19,378	19,967	—	19,967	—
Other debt securities	201,213	219,568	—	219,568	—
Total investment securities	519,402	540,663	—	540,663	—
Available for sale securities:					
U.S. Treasury	999	999	999	—	—
Municipal and other tax-exempt securities	35,453	35,453	—	29,731	5,722
U.S. government agency residential mortgage-backed securities	5,372,916	5,372,916	—	5,372,916	—
Privately issued residential mortgage-backed securities	108,626	108,626	—	108,626	—
Commercial mortgage-backed securities guaranteed by U.S. government agencies	2,877,028	2,877,028	—	2,877,028	—
Other debt securities	4,153	4,153	—	—	4,153
Perpetual preferred stock	19,272	19,272	—	19,272	—
Equity securities and mutual funds	18,844	18,844	3,906	14,938	—
Total available for sale securities	8,437,291	8,437,291	4,905	8,422,511	9,875
Fair value option securities – U.S. government agency residential mortgage-backed securities	441,714	441,714	—	441,714	—
Residential mortgage loans held for sale	248,707	248,707	—	236,028	12,679
Loans:					
Commercial	10,327,110	10,088,885	—	—	10,088,885
Commercial real estate	3,871,063	3,816,898	—	—	3,816,898
Residential mortgage	1,946,274	1,957,635	—	—	1,957,635
Personal	847,459	838,964	—	—	838,964
Total loans	16,991,906	16,702,382	—	—	16,702,382
Allowance for loan losses	(248,710)	—	—	—	—
Loans, net of allowance	16,743,196	16,702,382	—	—	16,702,382
Mortgage servicing rights	249,403	249,403	—	—	249,403

Derivative instruments with positive fair value, net of cash collateral	304,727	304,727	23,128	281,599	—
Deposits with no stated maturity	20,331,511	20,331,511	—	—	20,331,511
Time deposits	2,243,848	2,207,968	—	—	2,207,968
Other borrowed funds	5,794,928	5,790,533	—	—	5,790,533
Subordinated debentures	144,649	140,888	—	140,888	—
Derivative instruments with negative fair value, net of cash collateral	276,422	276,422	11,628	264,794	—

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.

Fair Value Election

As more fully disclosed in Note 2 and Note 5 to the Consolidated Financial Statements, the Company has elected to carry all residential mortgage-backed securities guaranteed by U.S. government agencies 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.

(13) Subsequent Events

The Company evaluated events from the date of the consolidated financial statements on March 31, 2018 through the issuance of those consolidated financial statements included in this Quarterly Report on Form 10-Q. No events were identified requiring recognition in and/or disclosure in the consolidated financial statements.

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Quarterly Financial Summary – Unaudited
Consolidated Daily Average Balances, Average Yields and Rates

(In Thousands, Except Per Share Data)	Three Months Ended March 31, 2018			December 31, 2017		
	Average Balance	Revenue/ Expense	Yield/ Rate	Average Balance	Revenue/ Expense	Yield/ Rate
Assets						
Interest-bearing cash and cash equivalents	$2,059,517	$7,982	1.57%	$1,976,395	$6,311	1.27%
Trading securities	933,404	7,809	3.40%	560,321	4,629	3.38%
Investment securities						
Taxable	226,877	2,956	5.21%	228,388	3,029	5.31%
Tax-exempt	214,330	1,208	2.25%	234,481	1,577	2.69%
Total investment securities	441,207	4,164	3.78%	462,869	4,606	3.98%
Available for sale securities						
Taxable	8,213,346	45,815	2.22%	8,392,231	45,078	2.19%
Tax-exempt	23,592	193	3.26%	43,685	545	5.41%
Total available for sale securities	8,236,938	46,008	2.23%	8,435,916	45,623	2.21%
Fair value option securities	626,251	4,819	2.95%	792,647	5,770	2.90%
Restricted equity securities	349,176	5,117	5.86%	337,673	4,956	5.87%
Residential mortgage loans held for sale	199,380	1,844	3.71%	257,927	2,389	3.72%
Loans	17,261,481	189,674	4.45%	17,181,007	185,614	4.29%
Allowance for loan losses	(228,996)			(246,143)		
Loans, net of allowance	17,032,485	189,674	4.51%	16,934,864	185,614	4.35%
Total earning assets	29,878,358	267,417	3.61%	29,758,612	259,898	3.49%
Receivable on unsettled securities sales	51,549			49,219		
Cash and other assets	3,795,045			3,644,284		
Total assets	$33,724,952			$33,452,115		
Liabilities and equity						
Interest-bearing deposits:						
Transaction	$10,344,469	$11,494	0.45%	$10,142,744	$8,914	0.35%
Savings	480,110	88	0.07%	466,496	87	0.07%
Time	2,151,044	6,637	1.25%	2,134,469	6,296	1.17%
Total interest-bearing deposits	12,975,623	18,219	0.57%	12,743,709	15,297	0.48%
Funds purchased	106,361	315	1.20%	63,713	145	0.90%
Repurchase agreements	426,051	207	0.20%	424,617	195	0.18%
Other borrowings	6,326,967	24,927	1.60%	6,209,903	21,242	1.36%
Subordinated debentures	144,682	2,003	5.61%	144,673	2,025	5.55%
Total interest-bearing liabilities	19,979,684	45,671	0.93%	19,586,615	38,904	0.79%
Non-interest bearing demand deposits	9,151,272			9,417,351		
Due on unsettled securities purchases	144,077			218,684		
Other liabilities	971,345			714,075		
Total equity	3,478,574			3,515,390		
Total liabilities and equity	$33,724,952			$33,452,115		
Tax-equivalent Net Interest Revenue		$221,746	2.68%		$220,994	2.70%
Tax-equivalent Net Interest Revenue to Earning Assets			2.99%			2.97%
Less tax-equivalent adjustment		2,010			4,131	
Net Interest Revenue		219,736			216,863	
Provision for credit losses		(5,000)			(7,000)	

Other operating revenue	155,989	166,836
Other operating expense	244,430	263,987
Income before taxes	136,295	126,712
Federal and state income taxes	30,948	54,347
Net income	105,347	72,365
Net income (loss) attributable to non-controlling interests	(215)	(127)
Net income attributable to BOK Financial Corp. shareholders	$105,562	$72,492
Earnings Per Average Common Share Equivalent:		
Basic	$1.61	$1.11
Diluted	$1.61	$1.11

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 includes 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.

Three Months Ended								
September 30, 2017			June 30, 2017			March 31, 2017		
Average Balance	Revenue /Expense	Yield / Rate	Average Balance	Revenue / Expense	Yield / Rate	Average Balance	Revenue / Expense	Yield / Rate
$1,965,645	$6,375	1.29%	$2,007,746	$5,198	1.04%	$2,087,964	$4,244	0.82%
491,613	4,122	3.47%	456,028	3,517	3.23%	579,549	5,369	3.87%
221,609	2,942	5.31%	219,385	2,931	5.34%	221,684	3,013	5.44%
254,096	1,650	2.60%	279,987	1,757	2.51%	309,252	1,893	2.45%
475,705	4,592	3.86%	499,372	4,688	3.76%	530,936	4,906	3.70%
8,381,536	44,579	2.16%	8,332,709	42,920	2.09%	8,509,423	42,927	2.02%
46,817	566	5.27%	51,348	725	6.09%	57,626	728	5.37%
8,428,353	45,145	2.17%	8,384,057	43,645	2.11%	8,567,049	43,655	2.05%
684,571	5,066	2.97%	476,102	3,539	2.92%	416,524	2,380	2.27%
328,677	4,826	5.87%	295,743	4,399	5.95%	312,498	4,309	5.52%
256,343	2,095	3.36%	245,401	2,386	3.92%	220,325	1,836	3.35%
17,256,663	187,506	4.31%	17,129,533	172,139	4.03%	17,135,825	164,119	3.88%
(250,590)			(251,632)			(249,379)		
17,006,073	187,506	4.38%	16,877,901	172,139	4.09%	16,886,446	164,119	3.94%
29,636,980	259,727	3.50%	29,242,350	239,511	3.30%	29,601,291	230,818	3.15%
76,622			79,248			62,641		
3,294,568			3,046,973			3,291,057		
$33,008,170			$32,368,571			$32,954,989		
$10,088,522	$8,062	0.32%	$10,087,640	$6,437	0.26%	$10,567,475	$5,214	0.20%
464,130	90	0.08%	461,586	95	0.08%	441,254	87	0.08%
2,176,820	6,378	1.16%	2,204,422	6,090	1.11%	2,258,930	6,053	1.09%
12,729,472	14,530	0.45%	12,753,648	12,622	0.40%	13,267,659	11,354	0.35%
49,774	116	0.92%	63,263	96	0.61%	55,508	64	0.47%
361,512	140	0.15%	427,353	68	0.06%	523,561	32	0.02%
6,162,641	20,105	1.29%	5,572,031	15,188	1.09%	5,737,955	11,733	0.83%
144,663	2,070	5.68%	144,654	2,003	5.55%	144,644	2,025	5.68%
19,448,062	36,961	0.75%	18,960,949	29,977	0.63%	19,729,327	25,208	0.52%
9,389,849			9,338,683			9,101,763		
145,155			157,438			91,529		
540,463			502,068			704,978		
3,484,641			3,409,433			3,327,392		
$33,008,170			$32,368,571			$32,954,989		
	$222,766	2.75%		$209,534	2.67%		$205,610	2.63%
		3.01%			2.89%			2.81%
	4,314			4,330			4,428	
	218,452			205,204			201,182	
	—			—			—	
	175,710			182,252			170,296	
	265,934			250,885			244,711	
	128,228			136,571			126,767	

42,438	47,705	38,103
85,790	88,866	88,664
141	719	308
$85,649	$88,147	$88,356
$1.31	$1.35	$1.35
$1.31	$1.35	$1.35

Quarterly Earnings Trends – Unaudited
(In thousands, except share and per share data)

	Three Months Ended				
	Mar. 31, 2018	Dec. 31, 2017	Sept. 30, 2017	June 30, 2017	Mar. 31, 2017
Interest revenue	$265,407	$255,767	$255,413	$235,181	$226,390
Interest expense	45,671	38,904	36,961	29,977	25,208
Net interest revenue	219,736	216,863	218,452	205,204	201,182
Provision for credit losses	(5,000)	(7,000)	—	—	—
Net interest revenue after provision for credit losses	224,736	223,863	218,452	205,204	201,182
Other operating revenue					
Brokerage and trading revenue	30,648	33,045	33,169	31,764	33,623
Transaction card revenue[1]	20,990	20,028	22,929	20,009	18,177
Fiduciary and asset management revenue	41,832	41,767	40,687	41,808	38,631
Deposit service charges and fees	27,161	27,685	28,191	28,422	27,777
Mortgage banking revenue	26,025	24,362	24,890	30,276	25,191
Other revenue	12,330	11,762	13,670	14,984	11,752
Total fees and commissions	158,986	158,649	163,536	167,263	155,151
Other gains, net	(664)	552	(1,283)	6,108	3,627
Gain (loss) on derivatives, net	(5,685)	(3,045)	1,033	3,241	(450)
Gain (loss) on fair value option securities, net	(17,564)	(4,238)	661	1,984	(1,140)
Change in fair value of mortgage servicing rights	21,206	5,898	(639)	(6,943)	1,856
Gain (loss) on available for sale securities, net	(290)	(488)	2,487	380	2,049
Total other operating revenue	155,989	157,328	165,795	172,033	161,093
Other operating expense					
Personnel	139,947	145,329	147,910	143,744	136,425
Business promotion	6,010	7,317	7,105	7,738	6,717
Charitable contributions to BOKF Foundation	—	2,000	—	—	—
Professional fees and services	10,200	15,344	11,887	12,419	11,417
Net occupancy and equipment	24,046	22,403	21,325	21,125	21,624
Insurance	6,593	6,555	6,005	689	6,404
Data processing and communications[1]	27,817	28,903	27,412	26,111	25,699
Printing, postage and supplies	4,089	3,781	3,917	4,140	3,851
Net losses (gains) and operating expenses of repossessed assets	7,705	340	6,071	2,267	1,009
Amortization of intangible assets	1,300	1,430	1,744	1,803	1,802
Mortgage banking costs	10,149	14,331	13,450	12,072	13,003
Other expense	6,574	6,746	9,193	8,558	7,557
Total other operating expense	244,430	254,479	256,019	240,666	235,508
Net income before taxes	136,295	126,712	128,228	136,571	126,767
Federal and state income taxes	30,948	54,347	42,438	47,705	38,103
Net income	105,347	72,365	85,790	88,866	88,664
Net income (loss) attributable to non-controlling interests	(215)	(127)	141	719	308
Net income attributable to BOK Financial Corporation shareholders	$105,562	$72,492	$85,649	$88,147	$88,356
Earnings per share:					
Basic	$1.61	$1.11	$1.31	$1.35	$1.35

Diluted	$1.61	$1.11	$1.31	$1.35	$1.35
Average shares used in computation:					
Basic	64,847,334	64,793,005	64,742,822	64,729,752	64,715,964
Diluted	64,888,033	64,843,179	64,805,172	64,793,134	64,783,737

1 Non-GAAP measure to net interchange charges from prior quarters between transaction card revenue and data processing and communications expense. This measure has no effect on net income or earnings per share.

PART II. Other Information

Item 1. Legal Proceedings

See discussion of legal proceedings at Note 6 to the Consolidated Financial Statements.

Item 2. Unregistered Sales of Equity Securities and Use of Proceeds

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 March 31, 2018.

Period	Total Number of Shares Purchased[2]	Average Price Paid per Share	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs[1]	Maximum Number of Shares that May Yet Be Purchased Under the Plans
January 1 to January 31, 2018	23,251	$ 93.44	—	2,040,757
February 1 to February 28, 2018	82,583	$ 91.83	82,583	1,958,174
March 1 to March 31, 2018	—	$ —	—	1,958,174
Total	105,834		82,583	

1 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 March 31, 2018, the Company had repurchased 3,041,826 shares under this plan. Future repurchases of the Company's common stock will vary based on market conditions, regulatory limitations and other factors.

2 The Company routinely repurchases mature shares from employees to cover the exercise price and taxes in connection with employee equity compensation.

Item 6. Exhibits

31.1 Certification of Chief Executive Officer Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002

31.2 Certification of Chief Financial Officer Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002

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

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 Consolidated Financial Statements

Items 1A, 3, 4 and 5 are not applicable and have been omitted.

Signatures

Pursuant to the requirements 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
(Registrant)

Date: April 27, 2018

/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