BOK FINANCIAL CORP ET AL
Form 10-Q
July 31, 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 June 30, 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: 65,439,090 shares of common stock ($.00006 par value) as of June 30, 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 $114.4 million or $1.75 per diluted share for the second quarter of 2018, compared to $88.1 million or $1.35 per diluted share for the second quarter of 2017 and $105.6 million or $1.61 per diluted share for the first quarter of 2018.

On June 18, 2018, the Company announced the signing of a definitive merger agreement with CoBiz Financial Inc. CoBiz is headquartered in Denver with a presence in Colorado and Arizona and has approximately $3.8 billion in assets. Upon completion of the merger, CoBiz shareholders will receive 0.17 shares of BOK Financial common stock and $5.70 in cash for each share of CoBiz common stock. The merger is subject to customary closing conditions including regulatory approval.

Highlights of the second quarter of 2018 included:

- Net interest revenue totaled $238.6 million, up from $205.2 million in the second quarter of 2017 and $219.7 million in the first quarter of 2018. 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 3.17 percent for the second quarter of 2018. Net interest margin was 2.89 percent for the second quarter of 2017 and 2.99 percent for the first quarter of 2018. Average earning assets were $30.3 billion for the second quarter of 2018 compared to $29.2 billion for the second quarter of 2017.
- Fees and commissions revenue totaled $157.9 million. Adoption of the new revenue recognition accounting standard in the first quarter of 2018 resulted in 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 decreased $9.4 million compared to the second quarter of 2017. Brokerage and trading revenue decreased $5.3 million while mortgage banking revenue decreased $3.9 million, both affected by rising interest rates. Fees and commissions revenue decreased $1.1 million compared to the first quarter of 2018. Modest changes in revenue from other business lines was offset by decreased brokerage and trading revenue.
- Other operating expense totaled $246.5 million, a $5.8 million or 2 percent increase over the second quarter of 2017 on a comparable basis. Personnel expense decreased $4.8 million, primarily due to decreased incentive compensation expense. Non-personnel expense increased $10.6 million due largely to an increase in deposit insurance expense as a result of credits in the second quarter of 2017 along with increased project and acquisition costs. Operating expense increased $2.0 million compared to the first quarter of 2018 on a comparable basis. Personnel expense decreased $1.0 million and non-personnel expense increased $3.0 million. Professional fees and services expense and mortgage banking costs were higher in the second quarter.
- Income tax expense was $33.3 million or 22.4 percent of net income before taxes for the second quarter of 2018 compared to $47.7 million or 34.9 percent for the second 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%.
- The Company recorded no provision for credit losses in the second quarter of 2018. A $5.0 million negative provision for credit losses was recorded in the first quarter of 2018. Net charge-offs totaled $10.5 million or 0.24 percent of average loans on an annualized basis in the second quarter of 2018 compared to net charge-offs of $1.3 million or 0.03 percent of average loans on an annualized basis for the first quarter of 2018. Net charge-offs were $26.9 million or 0.16 percent of average loans over the last four quarters.
- The combined allowance for credit losses totaled $218 million or 1.21 percent of outstanding loans at June 30, 2018 compared to $228 million or 1.32 percent of outstanding loans at March 31, 2018.
- Nonperforming assets that are not guaranteed by U.S. government agencies totaled $186 million or 1.04 percent of outstanding loans and repossessed assets at June 30, 2018 and $195 million or 1.13 percent of outstanding loans and repossessed assets at March 31, 2018. Potential problem loans decreased $82 million to $140 million at June 30, 2018.
- Average loan balances grew by $490 million over the previous quarter, primarily due to growth in commercial and commercial real estate loan balances. Period-end outstanding loan balances totaled $18.0 billion at June 30, 2018, an

increase of more than $665 million over March 31, 2018.

- Average deposits were largely unchanged compared to the previous quarter. Average demand deposit balances increased $72 million, while interest-bearing transaction deposit balances decreased $155 million. Period-end deposits were $22.2 billion at June 30, 2018, a $36 million decrease compared to March 31, 2018.
- The common equity Tier 1 capital ratio at June 30, 2018 was 11.92 percent. Other regulatory capital ratios were Tier 1 capital ratio, 11.92 percent, total capital ratio, 13.26 percent, and leverage ratio, 9.57 percent. At March 31, 2018, the common equity Tier 1 capital ratio was 12.06 percent, the Tier 1 capital ratio was 12.06 percent, total capital ratio was 13.49 percent, and leverage ratio was 9.40 percent.
- The company paid a regular cash dividend of $29.3 million or $0.45 per common share during the second quarter of 2018. On July 24, 2018, the board of directors approved an increase in the quarterly cash dividend to $0.50 per common share payable on or about August 27, 2018 to shareholders of record as of August 13, 2018.
- The company repurchased 8,257 common shares at an average price of $99.84 per share during the second quarter of 2018. The company repurchased 82,583 common shares at an average price of $91.83 per share during the first quarter of 2018.

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 $238.6 million for the second quarter of 2018, up from $205.2 million in the second quarter of 2017 and $219.7 million in the first quarter of 2018. Net interest margin was 3.17 percent for the second quarter of 2018, 2.89 percent for the second quarter of 2017 and 2.99 percent for the first quarter of 2018. Recoveries of foregone interest on nonaccruing loans added $5.3 million or 7 basis points to net interest margin in the second quarter of 2018. Recoveries of foregone interest were not significant in the first quarter of 2018 or the second quarter of 2017. The discussion following excludes the impact of recoveries of foregone interest in the second quarter of 2018 on net interest margin.

In addition to the impact of foregone interest recoveries on the second quarter of 2018, net interest margin was 4 basis points lower in the second quarter of 2018 compared to the second quarter of 2017 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. However, net interest margin was 4 basis points higher in the second quarter of 2018 as we reduced our excess cash balances at the Federal Reserve. Beginning in 2014, the Company increased borrowings from the Federal Home Loan Banks, depositing the excess cash balances in the Federal Reserve to earn a spread. In conjunction with the Federal Reserve's monetary policy normalization, this spread narrowed in the second quarter of 2018.

Tax-equivalent net interest revenue increased $31.0 million over the second 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 $20.5 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 $10.5 million due to growth in average assets. Growth in the average balances of trading securities and loans was partially offset by decreases in interest-bearing cash and cash equivalents.

The tax-equivalent yield on earning assets was 3.84 percent, up 54 basis points over the second 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 65 basis points to 4.68 percent. The yield on interest-bearing cash and cash equivalents increased 82 basis points. The available for sale securities portfolio yield was up 19 basis points to 2.30 percent. Funding costs were up 48 basis points over the second quarter of 2017. The cost of interest-bearing deposits increased 26 basis points and the cost of other borrowed funds increased 82 basis points. The benefit to net interest margin from earning assets funded by non-interest bearing liabilities was 37 basis points for the second quarter of 2018, up 15 basis points over the second quarter of 2017.

Average earning assets for the second quarter of 2018 increased $1.1 billion or 4 percent over the second quarter of 2017. The average balance of trading securities grew by $1.0 billion, primarily due to expansion of U.S. agency residential mortgage-backed securities trading activities. Average loans, net of allowance for loan losses, increased $650 million, due primarily to growth in commercial loans. Restricted equity security balances were up $53 million. Interest-bearing cash and cash equivalent balances decreased $334 million. Available for sale securities decreased

$221 million. Investment securities balances decreased $100 million.

Average deposits decreased $37 million compared to the second quarter of 2017. Demand deposit balances decreased $115 million and time deposit balances decreased $66 million. Interest-bearing transaction account balances increased $102 million and savings account balances increased $42 million. Average borrowed funds increased $1.0 billion over the second quarter of 2017, primarily due to the net impact of increased borrowings from the Federal Home Loan Banks. Funds purchased and repurchase agreement balances also increased over the prior year.

The yield on average earning assets was 3.84 percent, a 23 basis point increase over the prior quarter. The loan portfolio yield also increased 23 basis points to 4.68 percent. The yield on the available for sale securities portfolio increased 7 basis points to 2.30 percent. The yield on interest-bearing cash and cash equivalents increased 29 basis points. Funding costs were 1.11 percent, up 18 basis points. The cost of interest-bearing deposits increased 9 basis points to 0.66 percent. The cost of other borrowed funds was up 34 basis points to 1.84 percent. The benefit to net interest margin from earning assets funded by non-interest bearing liabilities increased 6 basis points over the prior quarter.
Average earning assets increased $423 million over the first quarter of 2018. Trading securities balances increased $549 million. Average loan balances grew by $490 million. Average interest-bearing cash and cash equivalents balances decreased $386 million. Fair value option securities held as an economic hedge of our mortgage servicing rights decreased $139 million. Available for sale securities decreased $74 million.
Average deposits decreased $72 million compared to the previous quarter. Interest-bearing transaction account balances decreased by $155 million. Demand deposit balances increased $72 million. The average balance of borrowed funds increased $231 million over the first quarter of 2018, primarily due to increased borrowings from the Federal Home Loan Banks and funds purchased and repurchase agreement 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 82% 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 June 30, 2018 / 2017			Six Months Ended June 30, 2018 / 2017		
		Change Due To[1]			Change Due To[1]	
	Change	Volume	Yield/Rate	Change	Volume	Yield/Rate
Tax-equivalent interest revenue:						
Interest-bearing cash and cash equivalents	$2,542	$(1,215)	$ 3,757	$6,280	$(1,190)	$ 7,470
Trading securities	9,567	8,625	942	12,007	12,203	(196)
Investment securities:						
Taxable securities	(86)	(24)	(62)	(143)	45	(188)
Tax-exempt securities	(661)	(609)	(52)	(1,346)	(1,160)	(186)
Total investment securities	(747)	(633)	(114)	(1,489)	(1,115)	(374)
Available for sale securities:						
Taxable securities	4,402	247	4,155	7,290	(1,009)	8,299
Tax-exempt securities	(584)	(354)	(230)	(1,119)	(681)	(438)
Total available for sale securities	3,818	(107)	3,925	6,171	(1,690)	7,861
Fair value option securities	388	93	295	2,827	1,725	1,102
Restricted equity securities	1,009	817	192	1,817	1,376	441
Residential mortgage loans held for sale	(53)	(260)	207	(45)	(438)	393
Loans	40,127	6,745	33,382	65,682	8,062	57,620
Total tax-equivalent interest revenue	56,651	14,065	42,586	93,250	18,933	74,317
Interest expense:						
Transaction deposits	7,556	164	7,392	13,836	(29)	13,865
Savings deposits	—	4	(4)	1	9	(8)
Time deposits	785	(193)	978	1,369	(492)	1,861
Funds purchased and repurchase agreements	618	81	537	1,044	39	1,005
Other borrowings	16,637	3,532	13,105	29,831	5,223	24,608
Subordinated debentures	45	(1)	46	23	1	22
Total interest expense	25,641	3,587	22,054	46,104	4,751	41,353
Tax-equivalent net interest revenue	31,010	10,478	20,532	47,146	14,182	32,964
Change in tax-equivalent adjustment	(2,348)			(4,766)		
Net interest revenue	$33,358			$51,912		

[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 $156.4 million for the second quarter of 2018, a $15.6 million decrease compared to the second quarter of 2017 and largely unchanged compared to the first quarter of 2018. Fees and commissions revenue decreased $9.4 million compared to the second quarter of 2017 and was very consistent compared to the prior quarter.

Table 2 – Other Operating Revenue
(In thousands)

	Three Months Ended June 30, 2018	Three Months Ended June 30, 2017	Increase (Decrease)	% Increase (Decrease)	Three Months Ended Mar 31, 2018	Increase (Decrease)	% Increase (Decrease)
Brokerage and trading revenue	$26,488	$31,764	$(5,276)	(17)%	$30,648	$(4,160)	(14)%
Transaction card revenue[1]	20,975	20,009	966	5%	20,990	(15)	—%
Fiduciary and asset management revenue	41,699	41,808	(109)	—%	41,832	(133)	—%
Deposit service charges and fees	27,827	28,422	(595)	(2)%	27,161	666	2%
Mortgage banking revenue	26,346	30,276	(3,930)	(13)%	26,025	321	1%
Other revenue	14,518	14,984	(466)	(3)%	12,330	2,188	18%
Total fees and commissions revenue	157,853	167,263	(9,410)	(6)%	158,986	(1,133)	(1)%
Other gains (losses), net	3,983	6,108	(2,125)	N/A	(664)	4,647	N/A
Loss on derivatives, net	(3,057)	3,241	(6,298)	N/A	(5,685)	2,628	N/A
Loss on fair value option securities, net	(3,341)	1,984	(5,325)	N/A	(17,564)	14,223	N/A
Change in fair value of mortgage servicing rights	1,723	(6,943)	8,666	N/A	21,206	(19,483)	N/A
Gain (loss) on available for sale securities, net	(762)	380	(1,142)	N/A	(290)	(472)	N/A
Total other operating revenue	$156,399	$172,033	$(15,634)	(9)%	$155,989	$410	—%
Non-GAAP Reconciliation:[1]							
Transaction card revenue on income statement	$20,975	$30,228	N/A	N/A	$20,990	N/A	N/A
Netting adjustment	—	(10,219)	N/A	N/A	—	N/A	N/A
Transaction card revenue after netting adjustment	$20,975	$20,009	966	5%	$20,990	(15)	—%

[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 40 percent of total revenue for the second 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

Brokerage and trading revenue, which includes revenues from trading, customer hedging, retail brokerage and investment banking, decreased $5.3 million or 17 percent compared to the second quarter of 2017.

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 $6.3 million for the second quarter of 2018, a $3.7 million or 37 percent decrease compared to the second quarter of 2017. Rising mortgage interest rates narrowed trading margins and slowed turnover of our trading inventory. However, the longer average hold time of trading securities increased net interest revenue by $3.1 million.

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 $9.8 million for the second quarter of 2018, a $1.8 million or 16 percent decrease compared to the second quarter of 2017.

Revenue earned from retail brokerage transactions decreased $1.2 million or 20 percent compared to the second 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.

Investment banking revenue, which includes fees earned upon completion of underwriting and financial advisory services and loan syndication fees, totaled $5.5 million for the second quarter of 2018, a $1.5 million or 37 percent increase over the second quarter of 2017. Changes in investment banking revenue are primarily related to the timing and volume of completed transactions.

Brokerage and trading revenue decreased $4.2 million compared to the first quarter of 2018, largely driven by a decrease in trading revenue due primarily to customer reaction to higher interest rates.

Transaction Card Revenue

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 $966 thousand or 5 percent over the second quarter of 2017, primarily due to increases in transaction volumes. Transaction card was largely unchanged compared to the first quarter of 2018. The increase in transaction card revenue from the first quarter of 2018 due to an early customer termination fee was matched in the second quarter of 2017 with a seasonal increase in the volume of transactions processed.

Fiduciary and Asset Management Revenue

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 was largely unchanged compared to the second quarter of 2017 and the first quarter of 2018.

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								
	June 30, 2018			June 30, 2017			Mar. 31, 2018		
	Balance	Revenue[1]	Margin[2]	Balance	Revenue[1]	Margin[2]	Balance	Revenue[1]	Margin[2]
Managed fiduciary assets:									
Personal	$7,791,094	$23,307	1.20 %	$7,581,555	$21,698	1.14 %	$7,577,717	22,632	1.19 %
Institutional	13,448,068	5,596	0.17 %	12,265,037	5,475	0.18 %	13,322,472	5,469	0.16 %
Total managed fiduciary assets	21,239,162	28,903	0.54 %	19,846,592	27,173	0.55 %	20,900,189	28,101	0.54 %
Non-managed assets:									
Fiduciary	25,292,738	12,426	0.20 %	25,242,561	14,049	0.22 %	25,748,101	12,997	0.20 %
Non-fiduciary	16,422,810	370	0.01 %	16,579,586	586	0.01 %	16,321,458	734	0.02 %
Safekeeping and brokerage assets under administration	15,918,736	—	— %	16,143,023	—	— %	15,909,241	—	— %
Total non-managed assets	57,634,284	12,796	0.09 %	57,965,170	14,635	0.10 %	57,978,800	13,731	0.09 %
Total assets under management or administration	$78,873,446	$41,699	0.21 %	$77,811,762	$41,808	0.21 %	$78,878,989	$41,832	0.21 %

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 June 30, 2018 and 2017 follows:

Table 4 -- Changes in Assets Under Management or Administration

	Three Months Ended	
	June 30,	
	2018	2017
Beginning balance	$78,878,989	$77,418,956
Net inflows (outflows)	(746,477)	(918,076)
Net change in fair value	740,934	1,310,882
Ending balance	$78,873,446	$77,811,762

Mortgage Banking Revenue

Mortgage banking revenue decreased $3.9 million or 13 percent compared to the second quarter of 2017 due to a decrease in mortgage production revenue. Mortgage loan production volumes decreased $157 million or 18 percent. Production volumes decreased compared to the prior year as average primary mortgage interest rates were up 56 basis points over the second quarter of 2017. Mortgage servicing revenue was relatively consistent compared to the second quarter of 2017. The outstanding principal balance of mortgage loans serviced for others totaled $22.0 billion, consistent with the second quarter of 2017.

Table 5 – Mortgage Banking Revenue
(In thousands)

	Three Months Ended June 30, 2018	2017	Increase (Decrease)	% Increase (Decrease)	Three Months Ended Mar. 31, 2018	Increase (Decrease)	% Increase (Decrease)
Mortgage production revenue	$9,915	$13,840	$(3,925)	(28)%	$9,452	$463	5 %
Mortgage loans funded for sale	$773,910	$902,978			$664,958		
Add: Current period end outstanding commitments	251,231	362,088			298,318		
Less: Prior period end outstanding commitments	298,318	381,732			222,919		
Total mortgage production volume	$726,823	$883,334	$(156,511)	(18)%	$740,357	$(13,534)	(2)%
Mortgage loan refinances to mortgage loans funded for sale	22 %	33 %	(1,100) bps		42 %	(2,000) bps	
Gains on sale margin	1.36 %	1.57 %	(21) bps		1.28 %	8 bps	
Primary mortgage interest rates:							
Average	4.54 %	3.98 %	56 bps		4.28 %	26 bps	
Period end	4.55 %	3.88 %	67 bps		4.44 %	11 bps	
Mortgage servicing revenue	$16,431	$16,436	$(5)	— %	$16,573	$(142)	(1)%
Average outstanding principal balance of mortgage loans serviced for others	21,986,065	22,055,127	(69,062)	— %	22,027,726	(41,661)	— %
Average mortgage servicing revenue rates	0.30 %	0.30 %	—		0.31 %	(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 gains totaled $4.0 million in the second quarter of 2018 compared to net gains of $6.1 million in the second quarter of 2017. The second quarter of 2017 included the sale of a merchant banking investment. Other net losses totaled $664 thousand in the first quarter of 2018.

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.

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

	Three Months Ended		
	June 30, 2018	Mar. 31, 2018	June 30, 2017
Gain (loss) on mortgage hedge derivative contracts, net	$(3,070)	$(5,698)	$3,241
Gain (loss) on fair value option securities, net	(3,341)	(17,564)	1,984
Gain (loss) on economic hedge of mortgage servicing rights, net	(6,411)	(23,262)	5,225
Gain (loss) on change in fair value of mortgage servicing rights	1,723	21,206	(6,943)
Loss on changes in fair value of mortgage servicing rights, net of economic hedges included in other operating revenue	(4,688)	(2,056)	(1,718)
Net interest revenue on fair value option securities[1]	1,203	1,800	1,965
Total economic benefit (cost) of changes in the fair value of mortgage servicing rights, net of economic hedges	$(3,485)	$(256)	$247

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

During the second quarter of 2018, we changed certain assumptions used in our prepayment speed model to better align with current market expectations. During the second quarter of 2018 the fair value of our mortgage servicing rights was reduced by $3.7 million due primarily to an update of assumptions in our prepayment model designed to better align our model with current market behavior and observed portfolio performance.

Other Operating Expense

Other operating expense for the second quarter of 2018 totaled $246.5 million, an increase of $5.8 million or 2 percent compared to the second quarter of 2017. Personnel expense decreased $4.8 million or 3 percent. Non-personnel expense increased $10.6 million or 11 percent compared to the prior year.

Other operating expense increased $2.0 million over the previous quarter. Personnel expense decreased $1.0 million and non-personnel expense increased $3.0 million.

Table 7 – Other Operating Expense
(In thousands)

	Three Months Ended June 30, 2018	2017	Increase (Decrease)	% Increase (Decrease)	Three Months Ended Mar. 31, 2018	Increase (Decrease)	% Increase (Decrease)
Regular compensation	$86,231	$83,630	$ 2,601	3 %	$84,991	$ 1,240	1 %
Incentive compensation:							
Cash-based	31,933	29,954	1,979	7 %	29,549	2,384	8 %
Share-based	(1,361)	7,380	(8,741)	(118)%	2,902	(4,263)	(147)%
Deferred compensation	900	1,000	(100)	N/A	44	856	N/A
Total incentive compensation	31,472	38,334	(6,862)	(18)%	32,495	(1,023)	(3)%
Employee benefits	21,244	21,780	(536)	(2)%	22,461	(1,217)	(5)%
Total personnel expense	138,947	143,744	(4,797)	(3)%	139,947	(1,000)	(1)%
Business promotion	7,686	7,738	(52)	(1)%	6,010	1,676	28 %
Professional fees and services	14,978	12,419	2,559	21 %	10,200	4,778	47 %
Net occupancy and equipment	22,761	21,125	1,636	8 %	24,046	(1,285)	(5)%
Insurance	6,245	689	5,556	806 %	6,593	(348)	(5)%
Data processing and communications[1]	27,739	26,111	1,628	6 %	27,817	(78)	— %
Printing, postage and supplies	4,011	4,140	(129)	(3)%	4,089	(78)	(2)%
Net losses (gains) and operating expenses of repossessed assets	2,722	2,267	455	20 %	7,705	(4,983)	(65)%
Amortization of intangible assets	1,386	1,803	(417)	(23)%	1,300	86	7 %
Mortgage banking costs	12,890	12,072	818	7 %	10,149	2,741	27 %
Other expense	7,111	8,558	(1,447)	(17)%	6,574	537	8 %
Total other operating expense	$246,476	$240,666	$ 5,810	2 %	$244,430	$ 2,046	1 %
Average number of employees (full-time equivalent)	4,875	4,910	(35)	(1)%	4,899	(24)	— %
Non-GAAP Reconciliation:[1]							
Data processing and communications expense on income statement	27,739	36,330	N/A	N/A	27,817	N/A	N/A
Netting adjustment	—	(10,219)	N/A	N/A	—	N/A	N/A
Data processing and communications expense after netting adjustment	27,739	26,111	N/A	N/A	27,817	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 $2.6 million or 3 percent over the second 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 decreased $6.9 million or 18 percent compared to the second quarter of 2017, primarily due to decreased share-based compensation expense based on changes in assumptions of certain performance-based equity awards. 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 are 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 $2.0 million or 7 percent over the second quarter of 2017.

Employee benefits expense decreased $536 thousand or 2 percent compared to the second quarter of 2017.
Personnel expense decreased $1.0 million compared to the first quarter of 2018. Incentive compensation expense decreased $1.0 million. Regular compensation expense increased $1.2 million. A $2.3 million seasonal decrease in payroll tax expense was partially offset by a $1.3 million increase in employee healthcare costs. The Company is self-insured and these costs may be volatile.

Non-personnel operating expense

Non-personnel operating expense increased $10.6 million or 11 percent compared to the second quarter of 2017.

Deposit insurance expense increased $5.6 million over the second quarter of 2017. The second quarter of 2017 included $5.1 million in credits related to the revision of certain inputs to the assessment calculation filed for years 2013 through 2016.

Professional fees and services expense increased $2.6 million or 21 percent mainly due to the inclusion of CoBiz acquisition costs and an increase in Consumer Banking related project costs in the second quarter of 2018.

Data processing and communications expense increased $1.6 million or 6 percent. Occupancy and equipment expense increased $1.6 million or 8 percent. These increases were primarily related to increased project costs and data processing transaction activity.
Non-personnel expense increased $3.0 million compared to the first quarter of 2018. Professional fees and services expense increased $4.8 million mainly due to expenses related to project costs of $1.8 million, CoBiz acquisition expenses of $1.0 million and $953 thousand in seasonal tax preparation charges from trust operations. Mortgage banking costs increased $2.7 million primarily due to a $1.9 million increase in accruals related to default servicing and loss mitigation costs on loans serviced for others.
Net losses and operating expenses of repossessed assets decreased $5.0 million, primarily due to a write-down of a set of repossessed oil and gas properties in the first quarter of 2018.

Income Taxes

The Company's income tax expense was $33.3 million or 22.4 percent of net income before taxes for the second quarter of 2018 compared to $47.7 million or 34.9 percent of net income before taxes for the second quarter of 2017 and $30.9 million or 22.7 percent of net income before taxes for the first quarter of 2018.

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 initially recorded provisional adjustments of $11.7 million as a charge to income tax expense in the fourth quarter of 2017. We recorded an additional $1.9 million of net income tax expense for changes in provisional adjustments identified in the first quarter of 2018. No adjustments to provisional amounts were made during the second quarter of 2018.

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 June 30, 2018, $20 million at March 31, 2018 and $17 million at June 30, 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 $20.4 million or 22% percent over the second quarter of 2017. Net interest revenue grew by $25.6 million over the prior year, primarily due to loan growth. Other operating revenue decreased by $12.4 million primarily due to decreased mortgage banking revenue and brokerage and trading revenue. The second quarter of 2017 included a gain on a merchant banking investment. Operating expense decreased by $153 thousand. Income tax expense attributable to the lines of business was down $23 million, primarily due to lower corporate tax rates related to tax reform.

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

	Three Months Ended		Six Months Ended	
	June 30,		June 30,	
	2018	2017	2018	2017
Commercial Banking	$87,577	$71,345	$166,822	$139,756
Consumer Banking	6,102	6,332	15,478	9,577
Wealth Management	20,119	15,689	39,728	29,848
Subtotal	113,798	93,366	222,028	179,181
Funds Management and other	574	(5,219)	(2,094)	(2,678)
Total	$114,372	$88,147	$219,934	$176,503

Commercial Banking

Commercial Banking contributed $87.6 million to consolidated net income in the second quarter of 2018, an increase of $16.2 million or 23 percent over the second quarter of 2017. Growth in net interest revenue was partially offset by higher net charge-offs. In addition, the second quarter of 2017 included a $5.6 million gain on the sale of a merchant banking investment.

Table 9 -- Commercial Banking
(Dollars in thousands)

	Three Months Ended June 30, 2018	Three Months Ended June 30, 2017	Increase (Decrease)	Six Months Ended June 30, 2018	Six Months Ended June 30, 2017	Increase (Decrease)
Net interest revenue from external sources	$182,127	$154,377	$27,750	$342,541	$301,753	$40,788
Net interest expense from internal sources	(37,102)	(21,715)	(15,387)	(65,445)	(39,831)	(25,614)
Total net interest revenue	145,025	132,662	12,363	277,096	261,922	15,174
Net loans charged off (recovered)	10,108	1,228	8,880	10,735	(236)	10,971
Net interest revenue after net loans charged off (recovered)	134,917	131,434	3,483	266,361	262,158	4,203
Fees and commissions revenue[1]	42,874	40,303	2,571	82,891	76,303	6,588
Other gains (losses), net	173	5,831	(5,658)	(169)	7,473	(7,642)
Other operating revenue	43,047	46,134	(3,087)	82,722	83,776	(1,054)
Personnel expense	29,584	28,271	1,313	58,505	55,633	2,872
Non-personnel expense[1]	17,899	21,021	(3,122)	35,445	37,361	(1,916)
Other operating expense	47,483	49,292	(1,809)	93,950	92,994	956
Net direct contribution	130,481	128,276	2,205	255,133	252,940	2,193
Gain on financial instruments, net	9	3	6	16	41	(25)
Gain (loss) on repossessed assets, net	(67)	1,403	(1,470)	(4,232)	1,398	(5,630)
Corporate expense allocations	11,269	8,955	2,314	23,776	17,674	6,102
Income before taxes	119,154	120,727	(1,573)	227,141	236,705	(9,564)
Federal and state income tax	31,577	49,382	(17,805)	60,319	96,949	(36,630)
Net income	$87,577	$71,345	$16,232	$166,822	$139,756	$27,066
Average assets	$18,072,155	$17,791,671	$280,484	$17,933,756	$17,716,738	$217,018
Average loans	14,900,918	14,390,452	510,466	14,665,144	14,297,634	367,510
Average deposits	8,379,584	8,696,691	(317,107)	8,521,231	8,688,028	(166,797)
Average invested capital	1,345,840	1,290,167	55,673	1,352,648	1,313,997	38,651

1 Fees and commission revenue for 2017 has been adjusted on a comparable basis with 2018 (Non-GAAP measure) to net $10.2 million and $19.4 million of interchange fees paid to issuing banks on card transactions processed by our TransFund merchant processing services for the three and six months ended June 30, 2017, respectively. The discussion following is based on this comparable basis.

Net interest revenue increased $12.4 million or 9 percent over the prior year. Growth in net interest revenue was primarily due to yields on commercial loans rising in excess of funding costs and a $510 million or 4 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. Net loans charged-off increased $8.9 million. Over half of 2018 net charge-offs was from an energy loan previously identified as impaired and appropriately reserved.

Fees and commissions revenue increased $2.6 million or 6 percent over the second quarter of 2017, primarily due to increases in transaction card volumes. In addition, loan syndication fees and commercial deposit service charges and fees were up over the prior year.

Operating expenses decreased $1.8 million or 4 percent percent compared to the second quarter of 2017. Personnel expense increased $1.3 million or 5 percent, primarily due to incentive compensation expense. Non-personnel expense decreased $3.1 million or 15 percent.

Corporate expense allocations were up $2.3 million or 26 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 $510 million or 4 percent over the second quarter of 2017 to $14.9 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 $8.4 billion for the second quarter of 2018, a 4% decrease compared to the second 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 $6.1 million to consolidated net income for the second quarter of 2018, a decrease of $230 thousand compared to the second quarter of 2017. Growth in net interest revenue was partially offset by decreased mortgage banking revenue. Changes in the fair value of mortgage servicing rights, net of economic hedges, decreased pre-tax net income for second quarter of 2018 $4.7 million compared to a $1.7 million decrease in pre-tax net income in the second quarter of 2017.

Table 10 -- Consumer Banking
(Dollars in thousands)

	Three Months Ended June 30, 2018	2017	Increase (Decrease)	Six Months Ended June 30, 2018	2017	Increase (Decrease)
Net interest revenue from external sources	$21,746	$20,756	$990	$43,499	$39,348	$4,151
Net interest revenue from internal sources	17,548	13,447	4,101	32,772	25,864	6,908
Total net interest revenue	39,294	34,203	5,091	76,271	65,212	11,059
Net loans charged off	1,139	926	213	2,440	2,199	241
Net interest revenue after net loans charged off	38,155	33,277	4,878	73,831	63,013	10,818
Fees and commissions revenue	46,332	50,745	(4,413)	91,296	95,939	(4,643)
Other losses, net	(12)	(1)	(11)	(27)	(60)	33
Other operating revenue	46,320	50,744	(4,424)	91,269	95,879	(4,610)
Personnel expense	24,995	25,133	(138)	49,336	50,052	(716)
Non-personnel expense	30,911	29,992	919	56,424	57,939	(1,515)
Total other operating expense	55,906	55,125	781	105,760	107,991	(2,231)
Net direct contribution	28,569	28,896	(327)	59,340	50,901	8,439
Gain (loss) on financial instruments, net	(6,411)	5,224	(11,635)	(29,672)	3,557	(33,229)
Change in fair value of mortgage servicing rights	1,723	(6,943)	8,666	22,929	(5,087)	28,016
Gain (loss) on repossessed assets, net	174	98	76	66	(39)	105
Corporate expense allocations	15,867	16,912	(1,045)	31,897	33,658	(1,761)
Income before taxes	8,188	10,363	(2,175)	20,766	15,674	5,092
Federal and state income tax	2,086	4,031	(1,945)	5,288	6,097	(809)
Net income	$6,102	$6,332	$(230)	$15,478	$9,577	$5,901
Average assets	$8,353,558	$8,441,831	$(88,273)	$8,410,513	$8,360,022	$50,491
Average loans	1,716,259	1,733,165	(16,906)	1,731,115	1,736,870	(5,755)
Average deposits	6,579,635	6,618,958	(39,323)	6,558,980	6,576,664	(17,684)

Average invested capital	293,420	298,165	(4,745)	284,797	300,990	(16,193)

Net interest revenue from Consumer Banking activities grew by $5.1 million or 15 percent over the the second quarter of 2017, primarily due to increased rates received on deposit balances sold to the Funds Management unit.

Fees and commissions revenue decreased $4.4 million or 9 percent compared to the second quarter of 2017. Higher interest rates in the second quarter of 2018 decreased mortgage loan production volumes and gains on sale margin were lower compared to the prior year.

Operating expenses increased $781 thousand or 1 percent over the second quarter of 2017. Personnel expenses were largely unchanged compared to the second quarter of 2017. Non-personnel expenses increased $919 thousand or 3 percent over the prior year. Professional fees increased $904 thousand. Mortgage banking costs were up $818 thousand, primarily due to a decrease in accruals related to default servicing and loss mitigation costs on loans serviced for others. These increases were partially offset by lower data processing and communications expense and miscellaneous expense.

Corporate expense allocations were $1.0 million or 6 percent lower than the prior year.

Average consumer deposits were largely unchanged compared to the second quarter of 2017. Demand deposit balances grew by $126 million or 7 percent and savings deposit balances were up $42 million or 10 percent. Higher-costing time deposit balances decreased $129 million or 13 percent and interest-bearing transaction account balances decreased $79 million or 2 percent.

Wealth Management

Wealth Management contributed $20.1 million to consolidated net income in the second quarter of 2018, up $4.4 million or 28 percent over the second quarter of 2017. Growth in net interest revenue was partially offset by a decrease in brokerage and trading revenue.

Table 11 -- Wealth Management
(Dollars in thousands)

	Three Months Ended June 30, 2018	2017	Increase (Decrease)	Six Months Ended June 30, 2018	2017	Increase (Decrease)
Net interest revenue from external sources	$18,754	$10,475	$8,279	$34,161	$21,960	$12,201
Net interest revenue from internal sources	10,232	10,325	(93)	20,164	19,181	983
Total net interest revenue	28,986	20,800	8,186	54,325	41,141	13,184
Net loans charged off (recovered)	(105)	(92)	(13)	(153)	(53)	(100)
Net interest revenue after net loans charged off (recovered)	29,091	20,892	8,199	54,478	41,194	13,284
Fees and commissions revenue	70,489	75,553	(5,064)	145,296	149,474	(4,178)
Other gains, net	153	16	137	113	253	(140)
Other operating revenue	70,642	75,569	(4,927)	145,409	149,727	(4,318)
Personnel expense	45,653	45,477	176	92,600	90,264	2,336
Non-personnel expense	15,838	15,139	699	31,695	30,761	934
Other operating expense	61,491	60,616	875	124,295	121,025	3,270
Net direct contribution	38,242	35,845	2,397	75,592	69,896	5,696
Corporate expense allocations	11,142	9,947	1,195	22,097	20,619	1,478
Income before taxes	27,100	25,898	1,202	53,495	49,277	4,218
Federal and state income tax	6,981	10,209	(3,228)	13,767	19,429	(5,662)
Net income	$20,119	$15,689	$4,430	$39,728	$29,848	$9,880
Average assets	$8,495,557	$6,960,872	$1,534,685	$8,296,780	$6,960,872	$1,335,908
Average loans	1,413,170	1,289,846	123,324	1,401,613	1,289,846	111,767
Average deposits	5,834,669	5,556,680	277,989	5,749,045	5,556,680	192,365
Average invested capital	248,367	230,228	18,139	249,827	230,228	19,599

Net interest revenue increased $8.2 million or 39 percent over the second quarter of 2017. Average trading securities increased $1.0 billion and average loans attributed to the Wealth Management segment increased $123 million or 10 percent. Average deposit balances increased by $278 million or 5 percent over the second quarter of 2017, primarily due to a $217 million or 6 percent increase in interest-bearing transaction account balances and a $75 million or 10 percent increase in time deposit balances.

Fees and commissions revenue decreased $5.1 million or 7 percent compared to the second quarter of 2017. Rising mortgage interest rates narrowed margins on securities and slowed turnover of our trading inventory.

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 second quarter of 2018, the Wealth Management division participated in 93 state and municipal bond underwritings that totaled $1.3 billion. As a participant, the Wealth Management division was responsible for facilitating the sale of approximately $493 million of these underwritings. The Wealth Management division also participated in 6 corporate debt underwritings that totaled $3.0 billion. Our interest in these underwritings was $55 million. In the second quarter of 2017, the Wealth Management division participated in 74 state and municipal bond underwritings that totaled approximately $1.4 billion. Our interest in these underwritings totaled approximately $397 million. The Wealth Management division also participated in 6 corporate debt underwritings that totaled $2.3 billion. Our interest in these underwritings was $47 million.

Operating expense increased $875 thousand or 1 percent over the second quarter of 2017. Personnel expense was largely unchanged compared to the prior year. Non-personnel expense increased $699 thousand or 5 percent.

Corporate expense allocations were up $1.2 million or 12 percent over the prior year.

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 June 30, 2018, December 31, 2017 and June 30, 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 $617 million to $1.9 billion during the second quarter of 2018 in response to expanded relationships with mortgage loan originator clients as well as slower inventory turnover rates. 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 June 30, 2018, the carrying value of investment (held-to-maturity) securities was $392 million and the fair value was $403 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 $8.3 billion at June 30, 2018, a $54 million decrease compared to March 31, 2018. At June 30, 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 June 30, 2018 is 3.5 years. Management estimates the duration extends to 4.2 years assuming an immediate 200 basis point upward shock. The estimated duration contracts to 3.2 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 $205 million at June 30, 2018, compared to $177 million at March 31, 2018. 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 second 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 $18.0 billion at June 30, 2018, up more than $665 million over March 31, 2018, primarily due to growth in commercial and commercial real estate loan balances. Personal loan balances grew slightly while residential mortgage loans were largely unchanged.

Table 12 -- Loans
(In thousands)

	June 30, 2018	Mar. 31, 2018	Dec. 31, 2017	Sept. 30, 2017	June 30, 2017
Commercial:					
Energy	$3,147,219	$2,969,618	$2,930,156	$2,867,981	$2,847,240
Services	2,944,499	2,928,294	2,986,949	2,967,513	2,958,827
Healthcare	2,353,722	2,359,928	2,314,753	2,239,451	2,221,518
Wholesale/retail	1,699,554	1,531,576	1,471,256	1,658,098	1,543,695
Manufacturing	647,816	559,695	496,774	519,446	546,137
Other commercial and industrial	556,229	570,556	534,087	543,445	520,538
Total commercial	11,349,039	10,919,667	10,733,975	10,795,934	10,637,955
Commercial real estate:					
Multifamily	1,056,984	1,008,903	980,017	999,009	952,380
Office	820,127	737,144	831,770	797,089	862,973
Retail	768,024	750,396	691,532	725,865	722,805
Industrial	653,384	613,608	573,014	591,080	693,635
Residential construction and land development	118,999	117,458	117,245	112,102	141,592
Other commercial real estate	294,702	279,273	286,409	292,997	315,207
Total commercial real estate	3,712,220	3,506,782	3,479,987	3,518,142	3,688,592
Residential mortgage:					
Permanent mortgage	1,068,412	1,047,785	1,043,435	1,013,965	989,040
Permanent mortgages guaranteed by U.S. government agencies	169,653	177,880	197,506	187,370	191,729
Home equity	704,185	720,104	732,745	744,415	758,429
Total residential mortgage	1,942,250	1,945,769	1,973,686	1,945,750	1,939,198
Personal	1,000,187	965,632	965,776	947,008	917,900
Total	$18,003,696	$17,337,850	$17,153,424	$17,206,834	$17,183,645

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 $11.3 billion or 63 percent of the loan portfolio at June 30, 2018, an increase of $429 million over March 31, 2018. Energy loan balances grew by $178 million. Wholesale/retail sector loan balances grew by $168 million. Manufacturing sector loan balances were up $88 million. Service sector loans increased $16 million, mostly offset by a $14 million decrease in other commercial and industrial loans.

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	$632,907	$1,709,471	$40,449	$2,926	$340,671	$3,966	$72,024	$344,805	$3,147,219
Services	716,767	781,431	169,346	9,984	346,505	235,767	303,911	380,788	2,944,499
Healthcare	247,040	344,481	112,149	79,734	161,539	109,858	259,972	1,038,949	2,353,722
Wholesale/retail	403,298	598,929	41,197	29,880	92,243	63,295	80,879	389,833	1,699,554
Manufacturing	86,310	197,925	157	4,638	95,007	91,147	90,100	82,532	647,816
Other commercial and industrial	107,355	142,321	2,504	61,951	8,341	1,288	61,947	170,522	556,229
Total commercial loans	$2,193,677	$3,774,558	$365,802	$189,113	$1,044,306	$505,321	$868,833	$2,407,429	$11,349,039

The majority of the collateral securing our commercial loan portfolio is located within our geographical footprint with 33 percent concentrated in the Texas market and 19 percent concentrated in the Oklahoma market. At June 30, 2018, the Other category is primarily composed of California - $287 million or 3 percent of the commercial loan portfolio, Florida - $228 million or 2 percent of the commercial loan portfolio, Louisiana - $160 million or 1 percent of the commercial loan portfolio, Pennsylvania - $142 million or 1 percent of the commercial loan portfolio, Ohio - $125 million or 1 percent of the commercial loan portfolio and North Carolina - $111 million or 1 percent of the commercial loan portfolio. All other states individually represent less than one percent 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 $3.1 billion or 17 percent of total loans at June 30, 2018. Unfunded energy loan commitments were $3.0 billion at June 30, 2018, up $80 million over March 31, 2018. Approximately $2.6 billion of energy loans were to oil and gas producers, growing $104 million over March 31, 2018. 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 $370 million at June 30, 2018, an increase of $71 million over March 31, 2018. Loans to borrowers that provide services to the energy industry totaled $139 million at June 30, 2018, up $26 million over the prior quarter. Loans to other energy borrowers, including those engaged in wholesale or retail energy sales, totaled $36 million, a $23 million decrease compared to the prior quarter.

The services sector of the loan portfolio totaled $2.9 billion or 16 percent of total loans and consists of a large number of loans to a variety of businesses, including governmental, educational services, consumer services, financial services and loans to entities providing services for real estate and construction. Service sector loans increased by $16 million over March 31, 2018. Loans to governmental entities totaled $537 million at June 30, 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 13 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 June 30, 2018, the outstanding principal balance of these loans totaled $3.9 billion. Substantially all of these loans are to borrowers with local market relationships. We serve as the agent lender in approximately 16 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 33% and 12% of the total commercial real estate portfolio at June 30, 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 $3.7 billion or 21% of the loan portfolio at June 30, 2018. The outstanding balance of commercial real estate loans increased $205 million during the second quarter of 2018. Loans secured by office buildings increased $83 million. Multifamily residential loans increased $48 million. Loans secured by industrial properties grew by $40 million. Loans secured by retail facilities and other commercial real estate loans increased $18 million and $15 million, respectively. 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
Multifamily	$127,373	$485,735	$26,653	$26,641	$81,571	$66,414	$ 129,248	$113,349	$1,056,984
Office	106,169	222,686	88,374	12,870	31,988	72,274	40,348	245,418	820,127
Retail	56,301	284,347	121,079	7,338	42,941	29,617	15,620	210,781	768,024
Industrial	71,500	180,920	23,278	104	9,087	7,142	43,777	317,576	653,384
Residential construction and land development	18,049	20,601	18,216	2,102	23,817	2,026	12,908	21,280	118,999
Other commercial real estate	51,810	35,019	10,956	1,580	12,102	24,035	20,183	139,017	294,702
Total commercial	$431,202	$1,229,308	$288,556	$50,635	$201,506	$201,508	$ 262,084	$1,047,421	$3,712,220

real estate
loans

The Other category is primarily composed of California - $203 million or 5 percent of the commercial real estate portfolio, Florida - $114 million or 3 percent of the commercial real estate portfolio and Utah - $103 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 $3.5 million compared to March 31, 2018. 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 95% 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 June 30, 2018, $170 million of permanent residential mortgage loans are guaranteed by U.S. government agencies. We have limited 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 $8.2 million compared to March 31, 2018.

Home equity loans totaled $704 million at June 30, 2018, a $16 million decrease compared to March 31, 2018. 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 June 30, 2018 by lien position and amortizing status follows in Table 15.

Table 15 -- Home Equity Loans
(In thousands)

	Revolving	Amortizing	Total
First lien	$ 69,587	$ 363,904	$ 433,491

Junior lien	149,676	121,018	270,694
Total home equity	$ 219,263	$ 484,922	$ 704,185

The distribution of residential mortgage and personal loans at June 30, 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	$170,130	$434,582	$52,890	$13,430	$186,125	$100,536	$ 61,394	$49,325	$1,068,412
Permanent mortgages guaranteed by U.S. government agencies	42,443	31,875	33,138	7,374	3,781	843	11,065	39,134	169,653
Home equity	373,250	132,689	85,643	5,794	39,189	9,921	55,093	2,606	704,185
Total residential mortgage	$585,823	$599,146	$171,671	$26,598	$229,095	$111,300	$ 127,552	$91,065	$1,942,250
Personal	$316,308	$420,736	$11,251	$12,480	$62,136	$59,626	$ 64,596	$53,054	$1,000,187

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 Company are centrally managed by the Bank of Oklahoma.

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

	June 30, 2018	Mar. 31, 2018	Dec. 31, 2017	Sept. 30, 2017	June 30, 2017
Bank of Oklahoma:					
Commercial	$3,465,407	$3,265,013	$3,238,720	$3,408,973	$3,369,967
Commercial real estate	662,665	668,031	682,037	712,915	667,932
Residential mortgage	1,403,658	1,419,281	1,435,432	1,405,900	1,398,021
Personal	362,846	353,128	342,212	322,320	318,016
Total Bank of Oklahoma	5,894,576	5,705,453	5,698,401	5,850,108	5,753,936
Bank of Texas:					
Commercial	4,922,451	4,715,841	4,520,401	4,434,595	4,339,634
Commercial real estate	1,336,101	1,254,421	1,261,864	1,236,702	1,360,164
Residential mortgage	243,400	229,761	233,675	229,993	232,074
Personal	394,021	363,608	375,084	375,173	354,222
Total Bank of Texas	6,895,973	6,563,631	6,391,024	6,276,463	6,286,094
Bank of Albuquerque:					
Commercial	305,167	315,701	343,296	367,747	369,370
Commercial real estate	386,878	348,485	341,282	319,208	324,405
Residential mortgage	90,581	93,490	98,018	101,983	103,849
Personal	11,107	11,667	11,721	12,953	12,439
Total Bank of Albuquerque	793,733	769,343	794,317	801,891	810,063
Bank of Arkansas:					
Commercial	93,217	94,430	95,644	91,051	85,020
Commercial real estate	90,807	88,700	87,393	80,917	73,943
Residential mortgage	6,927	7,033	6,596	6,318	6,395
Personal	12,331	9,916	9,992	10,388	11,993
Total Bank of Arkansas	203,282	200,079	199,625	188,674	177,351
Colorado State Bank & Trust:					
Commercial	1,165,721	1,180,655	1,130,714	1,124,200	1,065,780
Commercial real estate	267,065	210,801	174,201	186,427	255,379
Residential mortgage	64,839	64,530	63,350	63,734	63,346
Personal	60,504	63,118	63,115	60,513	56,187
Total Colorado State Bank & Trust	1,558,129	1,519,104	1,431,380	1,434,874	1,440,692
Bank of Arizona:					
Commercial	681,852	624,106	687,792	634,809	617,759
Commercial real estate	710,784	672,319	660,094	706,188	705,858
Residential mortgage	47,010	39,227	41,771	40,730	37,034
Personal	65,541	57,023	57,140	55,050	55,528

Total Bank of Arizona	1,505,187	1,392,675	1,446,797	1,436,777	1,416,179
Mobank (Kansas City):					
Commercial	715,224	723,921	717,408	734,559	790,425
Commercial real estate	257,920	264,025	273,116	275,785	300,911
Residential mortgage	85,835	92,447	94,844	97,092	98,479
Personal	93,837	107,172	106,512	110,611	109,515
Total Mobank (Kansas City)	1,152,816	1,187,565	1,191,880	1,218,047	1,299,330
Total BOK Financial loans	$18,003,696	$17,337,850	$17,153,424	$17,206,834	$17,183,645

Loan Commitments

We enter into certain off-balance sheet arrangements in the normal course of business as shown in Table 18. 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.

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

	June 30, 2018	Mar. 31, 2018	Dec. 31, 2017	Sept. 30, 2017	June 30, 2017
Loan commitments	$10,294,211	$10,249,729	$9,958,080	$9,693,489	$9,632,911
Standby letters of credit	659,867	664,342	647,653	665,513	614,852
Mortgage loans sold with recourse	116,269	121,197	125,127	128,681	133,896

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 $70 million to borrowers in Oklahoma, $12 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 $3.5 million at June 30, 2018 and 3.7 million at March 31, 2018 and $3.9 million at June 30, 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 second quarter of 2018 combined, approximately 17% of repurchase requests have currently resulted in actual repurchases or indemnification by the Company. There were no loans repurchased from the agencies during the second quarter of 2018. There were no loans with indemnification paid during the second quarter of 2018.

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

	June 30, 2018		2017	
Number of unresolved deficiency requests	179		206	
Aggregate outstanding principal balance subject to unresolved deficiency requests	$	8,394	$	13,370

Unpaid principal balance subject to indemnification by the Company	4,741	5,074

The accrual for potential loan repurchases under representations and warranties totaled $1.1 million at June 30, 2018, $1.2 million at March 31, 2018, and $1.6 million at June 30, 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 June 30, 2018, the net fair values of derivative contracts, before consideration of cash margin, reported as assets under these programs totaled $382 million compared to $292 million at March 31, 2018. At June 30, 2018, the net fair value of our derivative contracts included $171 million for foreign exchange contracts, $131 million for energy contracts, $41 million for interest rate swaps and $35 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 $364 million at June 30, 2018 and $280 million at March 31, 2018.

At June 30, 2018, total derivative assets were reduced by $13 million of cash collateral received from counterparties and total derivative liabilities were reduced by $150 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 June 30, 2018 follows in Table 19.

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

Customers	$253,096
Banks and other financial institutions	96,206
Exchanges and clearing organizations	19,724
Fair value of customer risk management program asset derivative contracts, net	$369,026

At June 30, 2018, our largest derivative exposure was to an exchange for interest rate swap derivative contracts of $19 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 $34.26 per barrel of oil would decrease the fair value of derivative assets by $106 million. An increase in prices equivalent to $84.27 per barrel of oil would increase the fair value of derivative assets by $118 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 June 30, 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 June 30, 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 June 30, 2018, the combined allowance for loan losses and off-balance sheet credit losses totaled $218 million or 1.21 percent of outstanding loans and 138 percent of nonaccruing loans, excluding loans guaranteed by U.S. government agencies. The allowance for loan losses was $215 million and the accrual for off-balance sheet credit losses was $2.4 million. At March 31, 2018, the combined allowance for credit losses was $228 million or 1.32 percent of outstanding loans and 133 percent 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.

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 overall loan growth, the continued trend of improvements in nonaccruing and potential problem loans, and net charge-offs, the Company determined that no provision for credit losses was appropriate for the second quarter of 2018. The Company recorded a $5.0 million negative provision for the first quarter of 2018.

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

	Three Months Ended June 30, 2018	Mar. 31, 2018	Dec. 31, 2017	Sept. 30, 2017	June 30, 2017
Allowance for loan losses:					
Beginning balance	$223,967	$230,682	$247,703	$250,061	$248,710
Loans charged off:					
Commercial	(13,775)	(1,563)	(13,254)	(4,429)	(1,703)
Commercial real estate	—	—	—	—	(76)
Residential mortgage	(135)	(100)	(205)	(168)	(40)
Personal	(1,195)	(1,227)	(1,290)	(1,228)	(1,053)
Total	(15,105)	(2,890)	(14,749)	(5,825)	(2,872)
Recoveries of loans previously charged off:					
Commercial	298	488	1,982	1,014	283
Commercial real estate	3,097	183	258	739	208
Residential mortgage	505	242	229	134	169
Personal	678	663	592	550	554
Total	4,578	1,576	3,061	2,437	1,214
Net loans recovered (charged off)	(10,527)	(1,314)	(11,688)	(3,388)	(1,658)
Provision for loan losses	1,702	(5,401)	(5,333)	1,030	3,009
Ending balance	$215,142	$223,967	$230,682	$247,703	$250,061
Accrual for off-balance sheet credit losses:					
Beginning balance	$4,135	$3,734	$5,401	$6,431	$9,440
Provision for off-balance sheet credit losses	(1,702)	401	(1,667)	(1,030)	(3,009)
Ending balance	$2,433	$4,135	$3,734	$5,401	$6,431
Total combined provision for credit losses	$—	$(5,000)	$(7,000)	$—	$—
Allowance for loan losses to loans outstanding at period-end	1.19%	1.29%	1.34%	1.44%	1.46%
Net charge-offs (recoveries) (annualized) to average loans	0.24%	0.03%	0.27%	0.08%	0.04%
Total provision for credit losses (annualized) to average loans	—%	(0.12)%	(0.16)%	—%	—%
Recoveries to gross charge-offs	30.31%	54.53%	20.75%	41.84%	42.27%
Accrual for off-balance sheet credit losses to off-balance sheet credit commitments	0.02%	0.04%	0.04%	0.05%	0.06%
Combined allowance for credit losses to loans outstanding at period-end	1.21%	1.32%	1.37%	1.47%	1.49%

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 June 30, 2018, impaired loans totaled $328 million, including $60 million with specific allowances of $15 million and $268 million with no specific allowances. At March 31, 2018, impaired loans totaled $349 million, including $74 million of impaired loans with specific allowances of $13 million and $275 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 $184 million at June 30, 2018. The general allowance for unimpaired loans decreased $6.2 million compared to March 31, 2018, primarily related to the commercial loan segment, partially offset by an increase related to the commercial real estate 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 $15 million at June 30, 2018, a $4.5 million decrease compared to March 31, 2018. The nonspecific allowance decreased related to the reversal of the nonspecific allowance related to the estimated long-term impact of Hurricane Harvey in 2017 on the Houston, Texas market as this impact is now fully reflected in estimated loss rates.

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 $140 million at June 30, 2018 and were primarily composed of $93 million or 3 percent of energy loans, $17 million or 3 percent of manufacturing sector loans and $17 million or 1 percent of healthcare sector loans. Potential problem loans totaled $222 million at March 31, 2018.

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 $124 million at June 30, 2018 and were composed primarily of $52 million or 2 percent of outstanding energy loans, $31 million or 1 percent of service sector loans and $21 million or 3 percent of commercial real estate loans secured by retail facilities. Other loans especially mentioned totaled $78 million at March 31, 2018.

We updated our semi-annual energy loan portfolio stress test at June 30, 2018 to estimate how the energy portfolio may respond in a prolonged low-price environment. Stress test assumptions applied the five year forward pricing curve which decreases from a starting price of $2.29 per million BTUs for natural gas and $51.70 per barrel of oil to $2.17 per million BTUs for natural gas and $43.37 per barrel of oil in year 5 and then escalated 3 percent annually for years six through ten to a maximum of $2.50 and $49.99, respectively. Results of the stress test were considered in conjunction with the determination of the allowance for credit losses.

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 $10.5 million in the second quarter of 2018, compared to net charge-offs of $1.3 million in the first quarter of 2018 and a net charge-offs of $1.7 million in the second quarter of 2017. The ratio of net loans charged off to average loans on an annualized basis was 0.24 percent for the second quarter of 2018, compared with 0.03 percent for the first quarter of 2018 and 0.04 percent for the second quarter of 2017.

Net charge-offs of commercial loans were $13.5 million in the second quarter of 2018, primarily related to a single energy production borrower and single healthcare sector borrower. Net commercial real estate loan recoveries were $3.1 million in the second quarter of 2018. Net charge-offs of residential mortgage loans were $370 thousand and net charge-offs of personal loans were $517 thousand for the second quarter. Personal loan net charge-offs include deposit account overdraft losses.

Nonperforming Assets

Table 21 -- Nonperforming Assets
(In thousands)

	June 30, 2018	Mar. 31, 2018	Dec. 31, 2017	Sept. 30, 2017	June 30, 2017
Nonaccruing loans:					
Commercial	$120,978	$131,460	$137,303	$176,900	$197,157
Commercial real estate	1,996	2,470	2,855	2,975	3,775
Residential mortgage	42,343	45,794	47,447	45,506	44,235
Personal	340	340	269	255	272
Total nonaccruing loans	165,657	180,064	187,874	225,636	245,439
Accruing renegotiated loans guaranteed by U.S. government agencies	75,374	74,418	73,994	69,440	80,624
Real estate and other repossessed assets	27,891	23,652	28,437	32,535	39,436
Total nonperforming assets	$268,922	$278,134	$290,305	$327,611	$365,499
Total nonperforming assets excluding those guaranteed by U.S. government agencies	$185,981	$194,833	$207,132	$249,280	$275,823
Nonaccruing loans by loan portfolio segment and class:					
Commercial:					
Energy	$65,597	$89,942	$92,284	$110,683	$123,992
Services	4,377	2,109	2,620	1,174	7,754
Healthcare	16,125	15,342	14,765	24,446	24,505
Wholesale/retail	14,095	2,564	2,574	1,893	10,620
Manufacturing	2,991	3,002	5,962	9,059	9,656
Other commercial and industrial	17,793	18,501	19,098	29,645	20,630
Total commercial	120,978	131,460	137,303	176,900	197,157
Commercial real estate:					
Multifamily	—	—	—	—	10
Retail	1,068	264	276	289	301
Office	275	275	275	275	396
Industrial	—	—	—	—	—
Residential construction and land development	350	1,613	1,832	1,924	2,051
Other commercial real estate	303	318	472	487	1,017
Total commercial real estate	1,996	2,470	2,855	2,975	3,775
Residential mortgage:					
Permanent mortgage	23,105	24,578	25,193	24,623	23,415
Permanent mortgage guaranteed by U.S. government agencies	7,567	8,883	9,179	8,891	9,052
Home equity	11,671	12,333	13,075	11,992	11,768
Total residential mortgage	42,343	45,794	47,447	45,506	44,235
Personal	340	340	269	255	272
Total nonaccruing loans	$165,657	$180,064	$187,874	$225,636	$245,439
Ratios:					
Allowance for loan losses to nonaccruing loans[1]	136.09 %	130.84 %	129.09 %	114.28 %	105.78 %

Accruing loans 90 days or more past due[1]	$879	$90	$633	$253	$1,414

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

Nonperforming assets totaled $269 million or 1.49 percent of outstanding loans and repossessed assets at June 30, 2018. Nonaccruing loans totaled $166 million, accruing renegotiated residential mortgage loans totaled $75 million and real estate and other repossessed assets totaled $28 million. All accruing renegotiated residential mortgage loans and $7.6 million of nonaccruing loans are guaranteed by U.S. government agencies. Excluding assets guaranteed by U.S. government agencies, nonperforming assets decreased $8.9 million compared to the first quarter, primarily due to a decrease in nonaccruing energy and wholesale/retail sector 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 currently 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. 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 currently 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 and six months ended June 30, 2018 follows in Table 22.

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

	Three Months Ended June 30, 2018			
	Nonaccruing Loans	Renegotiated Loans	Real Estate and Other Repossessed Assets	Total Nonperforming Assets
Balance, March 31, 2018	$180,064	$ 74,418	$ 23,652	$ 278,134
Additions	41,728	13,600	—	55,328
Payments	(31,099)	(707)	—	(31,806)
Charge-offs	(15,105)	—	—	(15,105)
Net gains, losses and write-downs	—	—	180	180
Foreclosure of nonperforming loans	(6,587)	—	6,587	—
Foreclosure of loans guaranteed by U.S. government agencies	(1,658)	(1,964)	—	(3,622)
Proceeds from sales	—	(10,362)	(3,069)	(13,431)
Net transfers to nonaccruing loans	153	(153)	—	—

Return to accrual status	(1,839)	—	—	(1,839)
Other, net	—	542	541	1,083
Balance, June 30, 2018	$165,657	$ 75,374	$ 27,891	$ 268,922

	Six Months Ended June 30, 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	52,148	30,621	—	82,769
Payments	(43,538)	(1,375)	—	(44,913)
Charge-offs	(17,995)	—	—	(17,995)
Net gains, losses and write-downs	—	—	(4,006)	(4,006)
Foreclosure of nonperforming loans	(8,743)	—	8,743	—
Foreclosure of loans guaranteed by U.S. government agencies	(3,186)	(3,791)	—	(6,977)
Proceeds from sales	—	(24,085)	(5,516)	(29,601)
Net transfers to nonaccruing loans	936	(936)	—	—
Return to accrual status	(1,839)	—	—	(1,839)
Other, net	—	946	233	1,179
Balance, June 30, 2018	$165,657	$ 75,374	$ 27,891	$ 268,922

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

Commercial

Nonaccruing commercial loans totaled $121 million or 1.07 percent of total commercial loans at June 30, 2018 and $131 million or 1.20 percent of commercial loans at March 31, 2018. There were $36 million in newly identified nonaccruing commercial loans during the quarter, offset by $26 million in payments $14 million of charge-offs and $4.9 million foreclosures of nonaccruing commercial loans during the second quarter.

Nonaccruing commercial loans at June 30, 2018 were primarily composed of $66 million or 2.08 percent of total energy loans, $18 million or 3.20 percent of total other commercial and industrial sector loans, $16 million or 0.69 percent of total healthcare sector loans and $14 million or 0.83 percent of total wholesale/retail sector loans.

Commercial Real Estate

Nonaccruing commercial real estate loans totaled $2.0 million or 0.05 percent of outstanding commercial real estate loans at June 30, 2018, compared to $2.5 million or 0.07 percent of outstanding commercial real estate loans at March 31, 2018. Newly identified nonaccruing commercial real estate loans of $902 thousand were offset by $1.3 million of cash payments received and $1.8 million of loans returned to accruing status. There were no charge-offs or foreclosures of nonaccruing commercial real estate loans during the second quarter.

Nonaccruing commercial real estate loans were primarily composed of $1.1 million or 0.14 percent of loans secured by retail facilities.

Residential Mortgage and Personal

Nonaccruing residential mortgage loans totaled $42 million or 2.18 percent of outstanding residential mortgage loans at June 30, 2018, a $3.5 million decrease compared to March 31, 2018. Newly identified nonaccruing residential mortgage loans totaling $3.2 million were offset by $3.3 million of foreclosures, $3.3 million of payments and $135 thousand of loans charged off during the quarter.

Nonaccruing residential mortgage loans primarily consist of non-guaranteed permanent residential mortgage loans, which totaled $23 million or 2.16 percent of outstanding non-guaranteed permanent residential mortgage loans at June 30, 2018. Nonaccruing home equity loans totaled $12 million or 1.66 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 increased $481 thousand in the second quarter to $4.2 million at June 30, 2018. Residential mortgage loans 60 to 89 days past due increased by $504 thousand. Personal loans past due 30 to 59 days decreased by $616 thousand and personal loans 60 to 89 days increased $136 thousand.

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

	June 30, 2018			March 31, 2018		
	90 Days or More	60 to 89 Days	30 to 59 Days	90 Days or More	60 to 89 Days	30 to 59 Days
Residential mortgage:						
Permanent mortgage[1]	$84	$796	$2,568	$—	$—	$2,322
Home equity	65	94	1,612	22	386	1,377
Total residential mortgage	$149	$890	$4,180	22	$386	$3,699
Personal	$—	$150	$178	$62	$14	$794

[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 $28 million at June 30, 2018, composed primarily of $12 million of oil and gas properties, $6.0 million of 1-4 family residential properties, $5.4 million of developed commercial real estate and $4.5 million of undeveloped land primarily zoned for commercial development. Real estate and other repossessed assets totaled $24 million at March 31, 2018.

Liquidity and Capital

Based on the average balances for the second quarter of 2018, approximately 65 percent of our funding was provided by deposit accounts, 21 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 ExpressBank 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 second quarter of 2018 totaled $22.1 billion, largely unchanged compared to the first quarter of 2018. Demand deposit balances increased $72 million and saving account balances were up $24 million. This growth was offset by a $155 million decrease in interest-bearing transaction account balances and a $12 million decrease in time deposits.

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

	Three Months Ended				
	June 30, 2018	Mar. 31, 2018	Dec. 31, 2017	Sept. 30, 2017	June 30, 2017
Commercial Banking	$8,379,584	$8,664,452	$8,799,166	$8,727,221	$8,696,691
Consumer Banking	6,579,635	6,538,096	6,622,149	6,663,969	6,618,958
Wealth Management	5,834,669	5,662,470	5,457,566	5,495,250	5,531,091
Subtotal	20,793,888	20,865,018	20,878,881	20,886,440	20,846,740
Funds Management and other	1,261,344	1,261,877	1,282,179	1,232,881	1,245,591
Total	$22,055,232	$22,126,895	$22,161,060	$22,119,321	$22,092,331

Average Commercial Banking deposit balances decreased $285 million compared to the first quarter of 2018. Interest-bearing transaction account balances decreased $231 million and demand deposit balances decreased $55 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 as the economic outlook continues to improve 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 increased $42 million over the prior quarter. Demand deposit balances grew by $81 million and savings deposit balances were up $22 million. This growth was offset by a $55 million decrease in time deposits. Interest-bearing transaction deposit balances were largely unchanged.

Average Wealth Management deposits increased $172 million over the first quarter of 2018. Interest-bearing transaction account balances grew by $90 million, time deposits balances were up $45 million, and demand deposit balances increased $36 million.

Average time deposits for the second quarter of 2018 included $252 million of brokered deposits, a decrease of $406 million compared to the first quarter of 2018. Average interest-bearing transaction accounts for the second quarter included $828 million of brokered deposits, a decrease of $783 million compared to the first quarter of 2018. The decrease in average brokered deposits balances was largely driven by a change in the regulatory definition of brokered deposits in the second quarter of 2018.

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)

	June 30, 2018	Mar. 31, 2018	Dec. 31, 2017	Sept. 30, 2017	June 30, 2017
Bank of Oklahoma:					
Demand	$3,867,933	$4,201,842	$3,885,008	$4,061,612	$4,353,421
Interest-bearing:					
Transaction	5,968,460	6,051,302	5,901,293	5,909,259	5,998,787
Savings	289,202	289,351	265,870	265,023	263,664
Time	1,207,471	1,203,534	1,092,133	1,131,547	1,170,014
Total interest-bearing	7,465,133	7,544,187	7,259,296	7,305,829	7,432,465
Total Bank of Oklahoma	11,333,066	11,746,029	11,144,304	11,367,441	11,785,886
Bank of Texas:					
Demand	3,317,656	3,015,869	3,239,098	3,094,184	3,121,890
Interest-bearing:					
Transaction	2,168,488	2,208,480	2,397,071	2,272,987	2,272,185
Savings	97,809	98,852	93,620	93,400	91,491
Time	445,500	475,967	502,879	521,072	502,128
Total interest-bearing	2,711,797	2,783,299	2,993,570	2,887,459	2,865,804
Total Bank of Texas	6,029,453	5,799,168	6,232,668	5,981,643	5,987,694
Bank of Albuquerque:					
Demand	770,974	695,060	663,353	659,793	612,117
Interest-bearing:					
Transaction	586,593	555,414	552,393	551,884	558,523
Savings	59,415	60,596	55,647	53,532	54,136
Time	212,689	216,306	216,743	224,773	229,616
Total interest-bearing	858,697	832,316	824,783	830,189	842,275
Total Bank of Albuquerque	1,629,671	1,527,376	1,488,136	1,489,982	1,454,392
Bank of Arkansas:					
Demand	39,896	35,291	30,384	31,442	40,511
Interest-bearing:					
Transaction	143,298	94,206	85,095	126,746	129,848
Savings	1,885	1,960	1,881	1,876	2,135
Time	10,771	11,878	14,045	14,434	14,876
Total interest-bearing	155,954	108,044	101,021	143,056	146,859
Total Bank of Arkansas	195,850	143,335	131,405	174,498	187,370

	June 30, 2018	Mar. 31, 2018	Dec. 31, 2017	Sept. 30, 2017	June 30, 2017
Colorado State Bank & Trust:					
Demand	529,912	521,963	633,714	540,300	577,617
Interest-bearing:					
Transaction	701,362	687,785	657,629	628,807	626,343
Savings	38,176	37,232	35,223	34,776	35,651
Time	208,049	215,330	224,962	231,927	228,458
Total interest-bearing	947,587	940,347	917,814	895,510	890,452
Total Colorado State Bank & Trust	1,477,499	1,462,310	1,551,528	1,435,810	1,468,069
Bank of Arizona:					
Demand	387,952	330,196	334,701	335,740	366,866
Interest-bearing:					
Transaction	194,353	248,337	274,846	174,010	154,457
Savings	3,935	4,116	3,343	4,105	3,638
Time	22,447	21,009	20,394	20,831	19,911
Total interest-bearing	220,735	273,462	298,583	198,946	178,006
Total Bank of Arizona	608,687	603,658	633,284	534,686	544,872
Mobank (Kansas City):					
Demand	459,636	505,802	457,080	462,410	496,473
Interest-bearing:					
Transaction	401,545	381,447	382,066	361,391	346,996
Savings	13,052	13,845	13,574	12,513	13,603
Time	20,805	22,230	27,260	27,705	31,119
Total interest-bearing	435,402	417,522	422,900	401,609	391,718
Total Mobank (Kansas City)	895,038	923,324	879,980	864,019	888,191
Total BOK Financial deposits	$22,169,264	$22,205,200	$22,061,305	$21,848,079	$22,316,474

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 $200 million at June 30, 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 $6.5 billion during the quarter, up from $6.3 billion in the first quarter of 2018.

At June 30, 2018, the estimated unused credit available to BOKF, NA from collateralized sources was approximately $6.5 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 June 30, 2018				Three Months Ended March 31, 2018			
	Jun 30, 2018	Average Balance During the Quarter	Rate	Maximum Outstanding At Any Month End During the Quarter	Mar 31, 2018	Average Balance During the Quarter	Rate	Maximum Outstanding At Any Month End During the Quarter
Parent Company and Other Non-Bank Subsidiaries:								
Subordinated debentures	144,697	144,692	5.67 %	$ 144,697	144,687	144,682	5.61 %	144,687
BOKF, NA:								
Funds purchased	305,668	133,064	1.44 %	305,668	130,561	106,362	1.20 %	160,087
Repurchase agreements	574,359	460,186	0.26 %	574,359	415,763	426,051	0.20 %	415,763
Other borrowings:								
Federal Home Loan Bank advances	5,900,000	6,470,330	1.96 %	6,500,000	5,700,000	6,295,556	1.58 %	5,700,000
GNMA repurchase liability	14,386	11,658	4.47 %	14,386	12,020	16,434	4.64 %	15,011
Other	15,059	15,032	2.35 %	15,059	15,005	14,977	2.33 %	15,005
Total other borrowings	5,929,445	6,497,020	1.96 %		5,727,025	6,326,967	1.60 %	
Total BOKF, NA	6,809,472	7,090,270	1.84 %		6,273,349	6,859,380	1.50 %	
Total other borrowed funds and subordinated debentures	$6,954,169	$7,234,962	1.92 %		$6,418,036	$7,004,062	1.59 %	

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 June 30, 2018, cash and interest-bearing cash and cash equivalents held by the parent company totaled $241 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 June 30, 2018, based upon the most restrictive limitations as well as management's internal capital policy, the bank could declare up to $248 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 June 30, 2018 was $3.6 billion, a $58 million increase over March 31, 2018. Net income less cash dividends paid increased equity $85 million during the second quarter of 2018. Changes in interest rates resulted in an increase in the accumulated other comprehensive loss to $135 million at June 30, 2018, compared to $111 million at March 31, 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 June 30, 2018, a cumulative total of 3,050,083 shares have been repurchased under this authorization. The Company repurchased 8,257 shares in the second quarter of 2018 at an average of $99.84 per share. The Company repurchased 82,583 shares in the first quarter of 2018 at an average price of $91.83 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	June 30, 2018	Mar. 31, 2018	June 30, 2017
Risk-based capital:						
Common equity Tier 1	4.50 %	2.50 %	7.00 %	11.92 %	12.06 %	11.76 %
Tier 1 capital	6.00 %	2.50 %	8.50 %	11.92 %	12.06 %	11.76 %
Total capital	8.00 %	2.50 %	10.50 %	13.26 %	13.49 %	13.36 %
Tier 1 Leverage	4.00 %	N/A	4.00 %	9.57 %	9.40 %	9.27 %
Average total equity to average assets				10.36 %	10.31 %	10.53 %
Tangible common equity ratio				9.21 %	9.18 %	9.24 %

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 imposes additional modeling, systems, oversight and reporting requirements effective for the second quarter of 2018 and results in an increase in risk weighted assets associated with trading.

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)

	June 30, 2018	Mar. 31, 2018	Dec. 31, 2017	Sept. 30, 2017	June 30, 2017
Tangible common equity ratio:					
Total shareholders' equity	$3,553,431	$3,495,029	$3,495,367	$3,488,814	$3,422,469
Less: Goodwill and intangible assets, net	481,366	477,088	476,088	485,710	487,452
Tangible common equity	3,072,065	3,017,941	3,019,279	3,003,104	2,935,017
Total assets	33,833,107	33,361,492	32,272,160	33,005,515	32,263,532
Less: Goodwill and intangible assets, net	481,366	477,088	476,088	485,710	487,452
Tangible assets	$33,351,741	$32,884,404	$31,796,072	$32,519,805	$31,776,080
Tangible common equity ratio	9.21 %	9.18 %	9.50 %	9.23 %	9.24 %

Off-Balance Sheet Arrangements

See Note 7 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		50 bp Decrease	
	June 30,		June 30,	
	2018	2017	2018	2017
Anticipated impact over the next twelve months on net interest revenue	$1,118	$(104)	$(17,227)	$(17,632)
	0.11 %	(0.01)%	(1.75)%	(2.07)%

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)

	June 30, 2018		2017	
	Up 50 bp	Down 50 bp	Up 50 bp	Down 50 bp
MSR Asset	$22,858	$(25,967)	$25,977	$(31,851)
MSR Hedge	(23,730)	21,281	(31,507)	32,312
Net Exposure	(872)	(4,686)	(5,530)	461

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 June 30, 2018		2017		Six Months Ended June 30, 2018		2017	
	Up 50 bp	Down 50 bp	Up 50 bp	Down 50 bp	Up 50 bp	Down 50 bp	Up 50 bp	Down 50 bp
Average[1]	$663	$(1,240)	$(3)	$(1,439)	$422	$(932)	$117	$(1,316)
Low[2]	2,077	(567)	1,030	(679)	2,077	699	1,030	(398)
High[3]	(374)	(2,447)	(810)	(2,377)	(1,015)	(2,447)	(810)	(2,377)
Period End	216	(678)	(263)	(1,025)	216	(678)	(263)	(1,025)

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 June 30,				Six Months Ended June 30,			
	2018		2017		2018		2017	
	Up 50 bp	Down 50 bp	Up 50 bp	Down 50 bp	Up 50 bp	Down 50 bp	Up 50 bp	Down 50 bp
Average[1]	$(1,566)	$1,405	$(1,359)	$1,592	$(1,062)	$874	$(1,991)	$2,241
Low[2]	1,518	4,333	(219)	3,833	1,518	4,333	86	5,210
High[3]	(4,242)	(2,472)	(2,916)	91	(4,242)	(2,472)	(4,386)	2
Period End	(2,602)	2,719	(1,842)	1,727	(2,602)	2,719	(1,842)	1,727

[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 within the meaning of the Private Securities Litigation Reform Act of 1995 including, but not limited to, CoBiz Financial Inc.’s and BOK Financial Corporation’s expectations or predictions of future financial or business performance or conditions. Forward-looking statements are typically identified by words such as “believe,” “expect,” “anticipate,” “intend,” “target,” “estimate,” “continue,” “positions,” “plan,” “predict,” “proj “guidance,” “goal,” “objective,” “prospects,” “possible” or “potential,” by future conditional verbs such as “assume,” “will,” “ “should,” “could” or “may”, or by variations of such words or by similar expressions. These forward-looking statements are subject to numerous assumptions, risks and uncertainties, which change over time. Forward-looking statements speak only as of the date they are made and we assume no duty to update forward-looking statements. Actual results may differ materially from current projections.

In addition to factors previously disclosed in CoBiz Financial Inc.’s and BOK Financial Corporation’s reports filed with the SEC and those identified elsewhere in this communication, the following factors, among others, could cause actual results to differ materially from forward-looking statements or historical performance: the ability to obtain regulatory approvals and meet other closing conditions to the merger, including approval by CoBiz Financial Inc.’s shareholders on the expected terms and schedule, including the risk that regulatory approvals required for the merger are not obtained or are obtained subject to conditions that are not anticipated; delay in closing the merger; difficulties and delays in integrating CoBiz Financial Inc.'s business or fully realizing cost savings and other benefits; business disruption following the merger; changes in asset quality and credit risk; the inability to sustain revenue and earnings growth; changes in interest rates and capital markets; inflation; customer acceptance of BOK Financial Corporation's products and services; customer borrowing, repayment, investment and deposit practices; customer disintermediation; the introduction, withdrawal, success and timing of business initiatives; competitive conditions; the inability to realize cost savings or revenues or to implement integration plans and other consequences associated with mergers, acquisitions and divestitures; economic conditions; and the impact, extent and timing of technological changes, capital management activities, and other actions of the Federal Reserve Board and legislative and regulatory actions and reforms.

Annualized, pro forma, projected and estimated numbers are used for illustrative purpose only, are not forecasts and may not reflect actual results.

In this report we may sometimes use non-GAAP Financial information. Please note that although non-GAAP financial measures provide useful insight to analysts, investors and regulators, they should not be considered in isolation or relied upon as a substitute for analysis using GAAP measures. If applicable, we provide GAAP reconciliations for non-GAAP financial measures.

IMPORTANT ADDITIONAL INFORMATION AND WHERE TO FIND IT

In connection with the proposed merger, BOK Financial Corporation has filed with the SEC a Registration Statement on Form S-4 that will include the Proxy Statement of CoBiz Financial Inc. and a Prospectus of BOK Financial Corporation, as well as other relevant documents concerning the proposed transaction. This communication does not constitute an offer to sell or the solicitation of an offer to buy any securities or a solicitation of any vote or approval. INVESTORS AND SHAREHOLDERS ARE URGED TO READ THE REGISTRATION STATEMENT AND THE PROXY STATEMENT/PROSPECTUS REGARDING THE MERGER E AND ANY OTHER RELEVANT DOCUMENTS FILED WITH THE SEC, AS WELL AS ANY AMENDMENTS OR SUPPLEMENTS TO THOSE DOCUMENTS, BECAUSE THEY WILL CONTAIN IMPORTANT INFORMATION.

A free copy of the Proxy Statement/Prospectus, as well as other filings containing information about BOK Financial Corporation and CoBiz Financial Inc., may be obtained at the SEC’s Internet site (http://www.sec.gov). You will also be able to obtain these documents, free of charge, from CoBiz Financial Inc. at ir.cobizfinancial.com or from BOK Financial Corporation by accessing BOK Financial Corporation’s website at www.bokf.com. Copies of the Proxy Statement/Prospectus can also be obtained, free of charge, by directing a request to CoBiz Financial Inc. Investor Relations at CoBiz Financial Inc. Investor Relations, 1401 Lawrence Street, Suite 1200, Denver, CO, by calling (303) 312-3412, or by sending an e-mail to info@cobizfinancial.com or to BOK Financial Corporation Investor Relations at Bank of Oklahoma Tower, Boston Avenue at Second Street, Tulsa, Oklahoma, by calling (918) 588-6000 or by sending an e-mail to investorrelations@bokf.com.

CoBiz Financial Inc. and BOK Financial Corporation and certain of their respective directors and executive officers may be deemed to be participants in the solicitation of proxies from the shareholders of CoBiz Financial Inc. in respect of the transaction described in the Proxy Statement/Prospectus. Information regarding CoBiz Financial Inc.’s directors and executive officers is contained in CoBiz Financial Inc.’s Annual Report on Form 10-K for the year ended December 31, 2017 and its Proxy Statement on Schedule 14A, dated March 9, 2018, which are filed with the SEC. Information regarding BOK Financial Corporation’s directors and executive officers is contained in BOK Financial Corporation’s Annual Report on Form 10-K for the year ended December 31, 2017 and its Proxy Statement on Schedule 14A, dated March 15, 2018, which are filed with the SEC. Additional information regarding the interests of those participants and other persons who may be deemed participants in the transaction may be obtained by reading the Proxy Statement/Prospectus regarding the proposed merger when it becomes available. Free copies of this document may be obtained as described in the preceding paragraph.

Consolidated Statements of Earnings (Unaudited)

(In thousands, except share and per share data)	Three Months Ended June 30,		Six Months Ended June 30,	
Interest revenue	2018	2017	2018	2017
Loans	$210,694	$168,952	$398,785	$329,847
Residential mortgage loans held for sale	2,333	2,386	4,177	4,222
Trading securities	12,988	3,339	20,726	8,522
Investment securities	3,663	4,005	7,520	8,176
Available for sale securities	47,427	43,363	93,386	86,735
Fair value option securities	3,927	3,539	8,746	5,919
Restricted equity securities	5,408	4,399	10,525	8,708
Interest-bearing cash and cash equivalents	7,740	5,198	15,722	9,442
Total interest revenue	294,180	235,181	559,587	461,571
Interest expense				
Deposits	20,963	12,622	39,182	23,976
Borrowed funds	32,607	15,352	58,056	27,181
Subordinated debentures	2,048	2,003	4,051	4,028
Total interest expense	55,618	29,977	101,289	55,185
Net interest revenue	238,562	205,204	458,298	406,386
Provision for credit losses	—	—	(5,000)	—
Net interest revenue after provision for credit losses	238,562	205,204	463,298	406,386
Other operating revenue				
Brokerage and trading revenue	26,488	31,764	57,136	65,387
Transaction card revenue	20,975	30,228	41,965	57,608
Fiduciary and asset management revenue	41,699	41,808	83,531	80,439
Deposit service charges and fees	27,827	28,422	54,988	56,199
Mortgage banking revenue	26,346	30,276	52,371	55,467
Other revenue	14,518	14,984	26,848	26,736
Total fees and commissions	157,853	177,482	316,839	341,836
Other gains, net	3,983	6,108	3,319	9,735
Gain (loss) on derivatives, net	(3,057)	3,241	(8,742)	2,791
Gain (loss) on fair value option securities, net	(3,341)	1,984	(20,905)	844
Change in fair value of mortgage servicing rights	1,723	(6,943)	22,929	(5,087)
Gain (loss) on available for sale securities, net	(762)	380	(1,052)	2,429
Total other operating revenue	156,399	182,252	312,388	352,548
Other operating expense				
Personnel	138,947	143,744	278,894	280,169
Business promotion	7,686	7,738	13,696	14,455
Professional fees and services	14,978	12,419	25,178	23,836
Net occupancy and equipment	22,761	21,125	46,807	42,749
Insurance	6,245	689	12,838	7,093
Data processing and communications	27,739	36,330	55,556	71,232
Printing, postage and supplies	4,011	4,140	8,100	7,991
Net losses and operating expenses of repossessed assets	2,722	2,267	10,427	3,276
Amortization of intangible assets	1,386	1,803	2,686	3,605
Mortgage banking costs	12,890	12,072	23,039	25,075
Other expense	7,111	8,558	13,685	16,115
Total other operating expense	246,476	250,885	490,906	495,596

Net income before taxes	148,485	136,571	284,780	263,338
Federal and state income taxes	33,330	47,705	64,278	85,808
Net income	115,155	88,866	220,502	177,530
Net income attributable to non-controlling interests	783	719	568	1,027
Net income attributable to BOK Financial Corporation shareholders	$114,372	$88,147	$219,934	$176,503
Earnings per share:				
Basic	$1.75	$1.35	$3.36	$2.70
Diluted	$1.75	$1.35	$3.36	$2.69
Average shares used in computation:				
Basic	64,901,975	64,729,752	64,874,567	64,722,744
Diluted	64,937,226	64,793,134	64,912,552	64,788,322
Dividends declared per share	$0.45	$0.44	$0.90	$0.88

See accompanying notes to consolidated financial statements.

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

	Three Months Ended June 30,		Six Months Ended June 30,	
	2018	2017	2018	2017
Net income	$115,155	$88,866	$220,502	$177,530
Other comprehensive income (loss) before income taxes:				
Net change in unrealized gain (loss)	(33,117)	21,958	(130,523)	33,369
Reclassification adjustments included in earnings:				
Loss (gain) on available for sale securities, net	762	(380)	1,052	(2,429)
Other comprehensive income (loss) before income taxes	(32,355)	21,578	(129,471)	30,940
Federal and state income taxes	(8,241)	8,393	(33,049)	12,009
Other comprehensive income (loss), net of income taxes	(24,114)	13,185	(96,422)	18,931
Comprehensive income	91,041	102,051	124,080	196,461
Comprehensive income attributable to non-controlling interests	783	719	568	1,027
Comprehensive income attributable to BOK Financial Corp. shareholders	$90,258	$101,332	$123,512	$195,434

See accompanying notes to consolidated financial statements.

Consolidated Balance Sheets
(In thousands, except share data)

	June 30, 2018	Dec. 31, 2017	June 30, 2017
	(Unaudited)	(Footnote 1)	(Unaudited)
Assets			
Cash and due from banks	$585,801	$602,510	$561,587
Interest-bearing cash and cash equivalents	872,999	1,714,544	2,078,831
Trading securities	1,909,615	462,676	441,414
Investment securities (fair value: June 30, 2018 – $403,384; December 31, 2017 – $480,035 ; June 30, 2017 – $515,675)	392,013	461,793	490,426
Available for sale securities	8,162,866	8,321,578	8,341,041
Fair value option securities	482,227	755,054	445,169
Restricted equity securities	347,721	320,189	311,033
Residential mortgage loans held for sale	223,301	221,378	287,259
Loans	18,003,696	17,153,424	17,183,645
Allowance for loan losses	(215,142)	(230,682)	(250,061)
Loans, net of allowance	17,788,554	16,922,742	16,933,584
Premises and equipment, net	320,810	317,335	321,038
Receivables	212,893	178,800	170,094
Goodwill	453,093	447,430	446,697
Intangible assets, net	28,273	28,658	40,755
Mortgage servicing rights	278,719	252,867	245,239
Real estate and other repossessed assets, net of allowance (June 30, 2018 – $17,656; December 31, 2017 – $12,648; June 30, 2017 – $8,576)	27,891	28,437	39,436
Derivative contracts, net	373,373	220,502	280,289
Cash surrender value of bank-owned life insurance	321,024	316,498	312,774
Receivable on unsettled securities sales	604,552	340,077	158,125
Other assets	447,382	359,092	358,741
Total assets	$33,833,107	$32,272,160	$32,263,532
Liabilities and Equity			
Liabilities:			
Noninterest-bearing demand deposits	$9,373,959	$9,243,338	$9,568,895
Interest-bearing deposits:			
Transaction	10,164,099	10,250,393	10,087,139
Savings	503,474	469,158	464,318
Time	2,127,732	2,098,416	2,196,122
Total deposits	22,169,264	22,061,305	22,316,474
Funds purchased and repurchase agreements	880,027	574,964	464,323
Other borrowings	5,929,445	5,134,897	5,232,343
Subordinated debentures	144,697	144,677	144,658
Accrued interest, taxes and expense	160,568	164,895	133,198
Derivative contracts, net	234,856	171,963	285,819
Due on unsettled securities purchases	571,034	338,745	31,214
Other liabilities	167,171	162,380	205,958
Total liabilities	30,257,062	28,753,826	28,813,987
Shareholders' equity:			
	4	4	4

Common stock ($.00006 par value; 2,500,000,000 shares authorized; shares issued and outstanding: June 30, 2018 – 75,313,559; December 31, 2017 – 75,147,686; June 30, 2017 – 75,089,152)			
Capital surplus	1,040,202	1,035,895	1,017,495
Retained earnings	3,212,653	3,048,487	2,942,447
Treasury stock (shares at cost: June 30, 2018 – 9,874,469; December 31, 2017 – 9,752,749; June 30, 2017 – 9,672,749)	(564,123)	(552,845)	(545,441)
Accumulated other comprehensive gain (loss)	(135,305)	(36,174)	7,964
Total shareholders' equity	3,553,431	3,495,367	3,422,469
Non-controlling interests	22,614	22,967	27,076
Total equity	3,576,045	3,518,334	3,449,545
Total liabilities and equity	$33,833,107	$32,272,160	$32,263,532

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	—	—	—	176,503	—	—	—	176,503	1,027	177,530
Other comprehensive income	—	—	—	—	—	—	18,931	18,931	—	18,931
Share-based compensation plans:										
Stock options exercised	41	—	1,977	—	—	—	—	1,977	—	1,977
Non-vested shares awarded, net	55	—	—	—	—	—	—	—	—	—
Vesting of non-vested shares	—	—	—	—	17	(1,389)	—	(1,389)	—	(1,389)
Share-based compensation	—	—	8,983	—	—	—	—	8,983	—	8,983
Cash dividends on common stock	—	—	—	(57,390)	—	—	—	(57,390)	—	(57,390)
Capital calls and distributions, net	—	—	—	—	—	—	—	—	(5,454)	(5,454)
Balance, June 30, 2017	75,089	$4	$1,017,495	$2,942,447	9,673	$(545,441)	$7,964	$3,422,469	$27,076	$3,449,545
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)	—	—	—	219,934	—	—	—	219,934	568	220,502
Other comprehensive loss	—	—	—	—	—	—	(96,422)	(96,422)	—	(96,422)
Repurchase of common stock	—	—	—	—	90	(8,408)	—	(8,408)	—	(8,408)
Share-based compensation plans:										
Stock options exercised	46	—	2,426	—	—	—	—	2,426	—	2,426
Non-vested shares awarded, net	120	—	—	—	—	—	—	—	—	—
Vesting of non-vested shares	—	—	—	—	31	(2,870)	—	(2,870)	—	(2,870)
Share-based compensation	—	—	1,881	—	—	—	—	1,881	—	1,881
Cash dividends on common stock	—	—	—	(58,477)	—	—	—	(58,477)	—	(58,477)
Capital calls and distributions, net	—	—	—	—	—	—	—	—	(921)	(921)
Balance, June 30, 2018	75,314	4	1,040,202	3,212,653	9,874	(564,123)	(135,305)	3,553,431	22,614	3,576,045

See accompanying notes to consolidated financial statements.

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

	Six Months Ended June 30, 2018	2017
Cash Flows From Operating Activities:		
Net income	$220,502	$177,530
Adjustments to reconcile net income to net cash provided by (used in) operating activities:		
Provision for credit losses	(5,000)	—
Change in fair value of mortgage servicing rights due to market changes	(22,929)	5,087
Change in the fair value of mortgage servicing rights due to principal payments	16,797	16,261
Net unrealized losses (gains) from derivative contracts	6,674	(5,928)
Share-based compensation	1,881	8,983
Depreciation and amortization	27,459	25,864
Net amortization of securities discounts and premiums	12,855	15,377
Net losses (gains) on financial instruments and other losses (gains), net	4,530	(4,351)
Net gain on mortgage loans held for sale	(19,314)	(25,229)
Mortgage loans originated for sale	(1,438,868)	(1,613,997)
Proceeds from sale of mortgage loans held for sale	1,456,312	1,651,018
Capitalized mortgage servicing rights	(19,720)	(19,514)
Change in trading and fair value option securities	(1,174,526)	(472,682)
Change in receivables	(335,369)	479,774
Change in other assets	1,737	(17,548)
Change in accrued interest, taxes and expense	(4,327)	(19,703)
Change in other liabilities	334,765	27,420
Net cash provided by (used in) operating activities	(936,541)	228,362
Cash Flows From Investing Activities:		
Proceeds from maturities or redemptions of investment securities	71,722	71,654
Proceeds from maturities or redemptions of available for sale securities	819,596	899,096
Purchases of investment securities	(3,968)	(18,802)
Purchases of available for sale securities	(1,020,018)	(1,242,070)
Proceeds from sales of available for sale securities	187,533	700,412
Change in amount receivable on unsettled available for sale securities transactions	38,075	(25,989)
Loans originated, net of principal collected	(847,351)	(159,924)
Net payments on derivative asset contracts	(70,987)	420,996
Acquisitions, net of cash acquired	(13,870)	—
Proceeds from disposition of assets	97,027	127,699
Purchases of assets	(121,889)	(106,362)
Net cash provided by (used in) investing activities	(864,130)	666,710
Cash Flows From Financing Activities:		
Net change in demand deposits, transaction deposits and savings accounts	78,643	(405,943)
Net change in time deposits	29,316	(25,678)
Net change in other borrowed funds	1,057,118	64,833
Net proceeds on derivative liability contracts	64,144	(422,016)
Net change in derivative margin accounts	(118,628)	27,327
Change in amount due on unsettled available for sale securities transactions	(100,847)	26,128
Issuance of common and treasury stock, net	(444)	588
Repurchase of common stock	(8,408)	—
Dividends paid	(58,477)	(57,390)

Net cash provided by (used in) financing activities	942,417	(792,151)
Net increase (decrease) in cash and cash equivalents	(858,254)	102,921
Cash and cash equivalents at beginning of period	2,317,054	2,537,497
Cash and cash equivalents at end of period	$1,458,800	$2,640,418
Supplemental Cash Flow Information:		
Cash paid for interest	$100,532	$54,881
Cash paid for taxes	$29,623	$60,654
Net loans and bank premises transferred to repossessed real estate and other assets	$3,886	$2,049
Residential mortgage loans guaranteed by U.S. government agencies that became eligible for repurchase during the period	$42,493	$59,171
Conveyance of other real estate owned guaranteed by U.S. government agencies	$23,845	$22,602

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 six-month period ended June 30, 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.

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, net unrealized gains 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 has established a CECL implementation team in order to evaluate the impact the adoption of ASU 2016-13 will have on the Company's financial statements. The CECL implementation team, overseen by the Chief Credit Officer, Chief Financial Officer, and Chief Risk Officer, has developed a project plan that incorporates input from various departments within the bank including Credit, Financial Reporting, Risk, and Information Technology among others. Key implementation activities for 2018 include portfolio segmentation, model development, as well as process and information systems enhancements.

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):

	June 30, 2018		December 31, 2017		June 30, 2017	
	Fair Value	Net Unrealized Gain (Loss)	Fair Value	Net Unrealized Gain (Loss)	Fair Value	Net Unrealized Gain (Loss)
U.S. government agency debentures	$28,750	$ 10	$21,196	$ 8	$20,954	$ (9)
U.S. government agency residential mortgage-backed securities	1,605,001	1,923	392,673	(517)	365,171	(1,032)
Municipal and other tax-exempt securities	70,606	231	13,559	83	45,444	230
Asset-backed securities	193,271	250	23,885	(26)	—	—
Other trading securities	11,987	32	11,363	4	9,845	(175)
Total trading securities	$1,909,615	$ 2,446	$462,676	$ (448)	$441,414	$ (986)

Investment Securities

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

	June 30, 2018			
	Amortized Cost	Fair Value	Gross Unrealized Gain	Gross Unrealized Loss
Municipal and other tax-exempt	$173,097	$174,205	$1,779	$(671)
U.S. government agency residential mortgage-backed securities	13,989	13,984	232	(237)
Other debt securities	204,927	215,195	12,259	(1,991)
Total investment securities	$392,013	$403,384	$14,270	$(2,899)

	December 31, 2017			
	Amortized Cost	Fair Value	Gross Unrealized Gain	Gross Unrealized Loss
Municipal and other tax-exempt	$228,186	$230,349	$2,967	$(804)
U.S. government agency residential mortgage-backed securities	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)

	June 30, 2017			
	Amortized Cost	Fair Value	Gross Unrealized Gain	Gross Unrealized Loss
Municipal and other tax-exempt	$267,375	$270,531	$3,384	$(228)
U.S. government agency residential mortgage-backed securities	18,035	18,642	668	(61)
Other debt securities	205,016	226,502	22,040	(554)
Total investment securities	$490,426	$515,675	$26,092	$(843)

The amortized cost and fair values of investment securities at June 30, 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	$60,535	$62,005	$28,117	$22,440	$173,097	4.02
Fair value	60,487	61,736	29,038	22,944	174,205	
Nominal yield[1]	2.07 %	2.58 %	5.81 %	5.12 %	3.25 %	
Other debt securities:						
Amortized cost	14,877	52,170	123,762	14,118	204,927	5.99
Fair value	15,023	54,233	132,912	13,027	215,195	
Nominal yield	3.99 %	4.69 %	5.67 %	4.34 %	5.21 %	
Total fixed maturity securities:						
Amortized cost	$75,412	$114,175	$151,879	$36,558	$378,024	5.08
Fair value	75,510	115,969	161,950	35,971	389,400	
Nominal yield	2.45 %	3.54 %	5.69 %	4.82 %	4.31 %	
Residential mortgage-backed securities:						
Amortized cost					$13,989	[3]
Fair value					13,984	
Nominal yield[4]					2.76 %	
Total investment securities:						
Amortized cost					$392,013	
Fair value					403,384	
Nominal yield					4.26 %	

[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 5.0 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):

	June 30, 2018				
	Amortized	Fair	Gross Unrealized		
	Cost	Value	Gain	Loss	OTTI
U.S. Treasury	$494	$490	$—	$(4)	$—
Municipal and other tax-exempt	10,590	10,697	111	(4)	—
Residential mortgage-backed securities:					
U. S. government agencies:					
FNMA	3,088,585	3,007,885	2,774	(83,474)	—
FHLMC	1,580,185	1,538,582	738	(42,341)	—
GNMA	772,785	758,093	915	(15,607)	—
Total U.S. government agencies	5,441,555	5,304,560	4,427	(141,422)	—
Private issue	65,376	83,224	18,221	—	(373)
Total residential mortgage-backed securities	5,506,931	5,387,784	22,648	(141,422)	(373)
Commercial mortgage-backed securities guaranteed by U.S. government agencies	2,799,953	2,738,451	1,815	(63,317)	—
Other debt securities	25,500	25,444	12	(68)	—
Total available for sale securities	$8,343,468	$8,162,866	$24,586	$(204,815)	$(373)

	December 31, 2017				
	Amortized	Fair	Gross Unrealized		
	Cost	Value	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)

	June 30, 2017				
	Amortized	Fair	Gross Unrealized		
	Cost	Value	Gain	Loss	OTTI
U.S. Treasury	$1,000	$998	$—	$(2)	$ —
Municipal and other tax-exempt	32,885	32,765	293	(413)	—
Residential mortgage-backed securities:					
U. S. government agencies:					
FNMA	3,005,920	3,008,531	24,213	(21,602)	—
FHLMC	1,412,376	1,412,472	7,785	(7,689)	—
GNMA	938,086	936,365	3,641	(5,362)	—
Other	25,000	25,009	52	(43)	—
Total U.S. government agencies	5,381,382	5,382,377	35,691	(34,696)	—
Private issue	86,656	103,383	16,727	—	—
Total residential mortgage-backed securities	5,468,038	5,485,760	52,418	(34,696)	—
Commercial mortgage-backed securities guaranteed by U.S. government agencies	2,788,543	2,782,070	7,804	(14,277)	—
Other debt securities	4,400	4,152	—	(248)	—
Perpetual preferred stock	12,562	16,568	4,006	—	—
Equity securities and mutual funds	17,572	18,728	1,219	(63)	—
Total available for sale securities	$8,325,000	$8,341,041	$65,740	$(49,699)	$ —

The amortized cost and fair values of available for sale securities at June 30, 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	$—		$494		$—		$—		$494		1.59
Fair value	—		490		—		—		490		
Nominal yield	—	%	1.99	%	—	%	—	%	1.99	%	
Municipal and other tax-exempt:											
Amortized cost	$4,574		$2,303		$—		$3,713		$10,590		6.53
Fair value	4,580		2,401		—		3,716		10,697		
Nominal yield[1]	3.45	%	6.27	%	—	%	3.98	%[5]	4.25	%	
Commercial mortgage-backed securities:											
Amortized cost	$8,070		$987,244		$1,548,520		$256,119		$2,799,953		6.89
Fair value	8,041		968,540		1,512,106		249,764		2,738,451		
Nominal yield	1.67	%	1.96	%	2.17	%	2.20	%	2.10	%	
Other debt securities:											
Amortized cost	$—		$—		$—		$25,500		$25,500		14.18
Fair value	—		—		—		25,444		25,444		
Nominal yield	—	%	—	%	—	%	1.59	%[5]	1.59	%	
Total fixed maturity securities:											
Amortized cost	$12,644		$990,041		$1,548,520		$285,332		$2,836,537		6.95
Fair value	12,621		971,431		1,512,106		278,924		2,775,082		
Nominal yield	2.31	%	1.97	%	2.17	%	2.17	%	2.10	%	
Residential mortgage-backed securities:											
Amortized cost									$5,506,931		[2]
Fair value									5,387,784		
Nominal yield[3]									2.16	%	
Total available-for-sale securities:											
Amortized cost									$8,343,468		
Fair value									8,162,866		
Nominal yield									2.14	%	

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.

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

	Three Months Ended June 30,		Six Months Ended June 30,	
	2018	2017	2018	2017

Proceeds	$142,743	$460,402	$187,533	$700,412
Gross realized gains	257	2,763	450	4,855
Gross realized losses	(1,019)	(2,383)	(1,502)	(2,426)
Related federal and state income tax expense (benefit)	(194)	148	(268)	945

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):

	June 30, 2018	Dec. 31, 2017	June 30, 2017
Investment:			
Amortized cost	$172,906	$226,852	$251,684
Fair value	174,240	229,429	255,097
Available for sale:			
Amortized cost	6,821,287	7,151,468	6,327,666
Fair value	6,653,875	7,089,346	6,317,623

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

At June 30, 2018, trading securities and receivables collateralized by securities with a fair value of $889 million were pledged as collateral at the Federal Home Loan Bank (FHLB) for the trading activities. No trading securities were pledged as collateral as of December 31, 2017 and no trading securities were pledged as collateral at June 30, 2017.

Temporarily Impaired Securities as of June 30, 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	84	$98,325	$ 484	$5,007	$ 187	$103,332	$ 671
U.S. government agency residential mortgage-backed securities	3	6,979	110	2,809	127	9,788	237
Other debt securities	80	36,131	1,795	3,324	196	39,455	1,991
Total investment securities	167	$141,435	$ 2,389	$11,140	$ 510	$152,575	$ 2,899

	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	$490	$4	$—	$—	$490	$4
Municipal and other tax-exempt	10	4,784	3	495	1	5,279	4
Residential mortgage-backed securities:							
U. S. government agencies:							
FNMA	174	2,049,432	44,860	710,962	38,614	2,760,394	83,474
FHLMC	93	1,116,337	26,663	339,515	15,678	1,455,852	42,341
GNMA	33	275,104	5,611	220,740	9,996	495,844	15,607
Total U.S. government agencies	300	3,440,873	77,134	1,271,217	64,288	4,712,090	141,422
Private issue[1]	8	5,409	373	—	—	5,409	373
Total residential mortgage-backed securities	308	3,446,282	77,507	1,271,217	64,288	4,717,499	141,795
Commercial mortgage-backed securities guaranteed by U.S.	211	1,675,839	42,732	554,819	20,585	2,230,658	63,317

government agencies							
Other debt securities	2	—	—	20,434	68	20,434	68
Total available for sale securities	532	$5,127,395	$120,246	$1,846,965	$84,942	$6,974,360	$205,188

[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 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	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 June 30, 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	82	$111,078	$ 149	$3,000	$ 79	$114,078	$ 228
U.S. government agency residential mortgage-backed securities	1	3,810	61	—	—	3,810	61
Other debt securities	22	8,384	554	—	—	8,384	554
Total investment securities	105	$123,272	$ 764	$3,000	$ 79	$126,272	$ 843

	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	$997	$ 2	$—	$ —	$997	$ 2
Municipal and other tax-exempt	13	1,957	1	4,655	412	6,612	413
Residential mortgage-backed securities:							
U. S. government agencies:							
FNMA	75	1,381,687	20,288	87,371	1,314	1,469,058	21,602
FHLMC	42	731,853	7,213	16,388	476	748,241	7,689
GNMA	21	291,806	3,766	76,605	1,596	368,411	5,362
Other	1	19,957	43	—	—	19,957	43
Total U.S. government agencies	139	2,425,303	31,310	180,364	3,386	2,605,667	34,696
Private issue[1]	—	—	—	—	—	—	—
Total residential mortgage-backed securities	139	2,425,303	31,310	180,364	3,386	2,605,667	34,696
Commercial mortgage-backed securities guaranteed by U.S. government agencies	121	1,388,406	12,690	78,828	1,587	1,467,234	14,277
Other debt securities	2	—	—	4,152	248	4,152	248
Perpetual preferred stocks	—	—	—	—	—	—	—
Equity securities and mutual funds	91	1,668	22	887	41	2,555	63
Total available for sale securities	367	$3,818,331	$ 44,025	$268,886	$ 5,674	$4,087,217	$ 49,699

[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 June 30, 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):

	June 30, 2018		December 31, 2017		June 30, 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	$482,227	$ (5,509)	$755,054	$ (1,877)	$445,169	$ 1,247

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):

	June 30, 2018	Dec. 31, 2017	June 30, 2017
Federal Reserve stock	$41,178	$40,746	$36,676
Federal Home Loan Bank stock	306,543	279,200	274,113
Other	—	243	244
Total	$347,721	$320,189	$311,033

(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 6, 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 6 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 June 30, 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	$15,027,678	$52,681	$(17,382)	$35,299	$—	$35,299
Interest rate swaps	1,745,237	43,040	(2,193)	40,847	(11,737)	29,110
Energy contracts	1,465,826	200,640	(69,991)	130,649	—	130,649
Agricultural contracts	23,508	1,164	(181)	983	(741)	242
Foreign exchange contracts	174,851	170,556	—	170,556	(290)	170,266
Equity option contracts	93,943	4,121	—	4,121	(660)	3,461
Total customer risk management programs	18,531,043	472,202	(89,747)	382,455	(13,428)	369,027
Internal risk management programs	9,672,639	14,760	(10,413)	4,347	—	4,347
Total derivative contracts	$28,203,682	$486,962	$(100,160)	$386,802	$(13,428)	$373,374

	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	$14,443,478	$49,343	$(17,382)	$31,961	$(31,808)	$153
Interest rate swaps	1,745,237	43,043	(2,193)	40,850	(4,946)	35,904
Energy contracts	1,434,980	199,119	(69,990)	129,129	(112,481)	16,648
Agricultural contracts	23,496	1,142	(181)	961	—	961
Foreign exchange contracts	161,567	157,174	(1)	157,173	(517)	156,656
Equity option contracts	93,943	4,121	—	4,121	—	4,121
Total customer risk management programs	17,902,701	453,942	(89,747)	364,195	(149,752)	214,443
Internal risk management programs	11,648,514	30,826	(10,413)	20,413	—	20,413
Total derivative contracts	$29,551,215	$484,768	$(100,160)	$384,608	$(149,752)	$234,856

[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 June 30, 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	$16,174,687	$57,948	$(29,034)	$28,914	$—	$28,914
Interest rate swaps	1,450,193	29,932	—	29,932	(2,206)	27,726
Energy contracts	891,480	56,824	(20,546)	36,278	(21,267)	15,011
Agricultural contracts	45,250	3,541	(1,027)	2,514	—	2,514
Foreign exchange contracts	169,529	162,429	—	162,429	(7)	162,422
Equity option contracts	100,159	4,437	—	4,437	(920)	3,517
Total customer risk management programs	18,831,298	315,111	(50,607)	264,504	(24,400)	240,104
Internal risk management programs	10,680,498	40,185	—	40,185	—	40,185
Total derivative contracts	$29,511,796	$355,296	$(50,607)	$304,689	$(24,400)	$280,289

	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	$16,174,687	$53,829	$(29,034)	$24,795	$—	$24,795
Interest rate swaps	1,450,193	29,982	—	29,982	(15,396)	14,586
Energy contracts	874,625	53,895	(20,546)	33,349	—	33,349
Agricultural contracts	45,262	3,538	(1,027)	2,511	(2,511)	—
Foreign exchange contracts	169,553	162,276	—	162,276	(3,188)	159,088
Equity option contracts	100,159	4,437	—	4,437	—	4,437
Total customer risk management programs	18,814,479	307,957	(50,607)	257,350	(21,095)	236,255
Internal risk management programs	8,310,950	49,564	—	49,564	—	49,564
Total derivative contracts	$27,125,429	$357,521	$(50,607)	$306,914	$(21,095)	$285,819

[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			
	June 30, 2018		June 30, 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	$7,586	$ —	$9,205	$ —
Interest rate swaps	683	—	665	—
Energy contracts	1,416	—	1,666	—
Agricultural contracts	15	—	11	—
Foreign exchange contracts	96	—	90	—
Equity option contracts	—	—	—	—
Total customer risk management programs	9,796	—	11,637	—
Internal risk management programs	(981)	(3,057)	6,485	3,241
Total derivative contracts	$8,815	$ (3,057)	$18,122	$ 3,241

	Six Months Ended			
	June 30, 2018		June 30, 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	$14,405	$ —	$17,232	$ —
Interest rate swaps	1,439	—	1,124	—
Energy contracts	4,556	—	4,539	—
Agricultural contracts	30	—	20	—
Foreign exchange contracts	272	—	360	—
Equity option contracts	—	—	—	—
Total customer risk management programs	20,702	—	23,275	—
Internal risk management programs	(2,864)	(8,742)	6,018	2,791
Total derivative contracts	$17,838	$ (8,742)	$29,293	$ 2,791

(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):

	June 30, 2018				December 31, 2017			
	Fixed Rate	Variable Rate	Non-accrual	Total	Fixed Rate	Variable Rate	Non-accrual	Total
Commercial	$2,206,735	$9,021,326	$ 120,978	$11,349,039	$2,217,432	$8,379,240	$ 137,303	$10,733,975
Commercial real estate	583,782	3,126,442	1,996	3,712,220	548,692	2,928,440	2,855	3,479,987
Residential mortgage	1,567,216	332,691	42,343	1,942,250	1,608,655	317,584	47,447	1,973,686
Personal	168,171	831,676	340	1,000,187	154,517	810,990	269	965,776
Total	$4,525,904	$13,312,135	$ 165,657	$18,003,696	$4,529,296	$12,436,254	$ 187,874	$17,153,424
Accruing loans past due (90 days)[1]				$879				$633

	June 30, 2017			
	Fixed Rate	Variable Rate	Non-accrual	Total
Commercial	$2,198,066	$8,242,732	$ 197,157	$10,637,955
Commercial real estate	594,542	3,090,275	3,775	3,688,592
Residential mortgage	1,597,587	297,376	44,235	1,939,198
Personal	150,728	766,900	272	917,900
Total	$4,540,923	$12,397,283	$ 245,439	$17,183,645
Accruing loans past due (90 days)[1]				$1,414

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

At June 30, 2018, $6.0 billion or 33 percent of our total loan portfolio is to businesses and individuals attributed to the Texas market and $3.5 billion or 20 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 June 30, 2018, commercial loans attributed to the Texas market totaled $3.8 billion or 33 percent of the commercial loan portfolio segment and commercial loans attributed to the Oklahoma market totaled $2.2 billion or 19 percent of the commercial loan portfolio segment.

The commercial loan portfolio segment is further divided into loan classes. The energy loan class totaled $3.1 billion or 17 percent of total loans at June 30, 2018, including $2.6 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 16 percent of total loans at June 30, 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, consumer services, financial services and loans to entities providing services for real estate and construction. The healthcare loan class totaled $2.4 billion or 13 percent of total loans at June 30, 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 June 30, 2018, 33 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 June 30, 2018, residential mortgage loans included $170 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 $704 million at June 30, 2018. Approximately 62 percent of the home equity loan portfolio is comprised of first lien loans and 38 percent of the home equity portfolio is comprised of junior lien loans. Junior lien loans are distributed 45 percent to amortizing term loans and 55 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 June 30, 2018, outstanding commitments totaled $10.3 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 June 30, 2018, outstanding standby letters of credit totaled $660 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 6, 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 and six months ended June 30, 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 June 30, 2018 is summarized as follows (in thousands):

	Commercial	Commercial Real Estate	Residential Mortgage	Personal	Nonspecific Allowance	Total
Allowance for loan losses:						
Beginning balance	$ 120,083	$ 57,070	$ 18,431	$ 8,408	$ 19,975	$ 223,967
Provision for loan losses	7,116	(1,409)	(257)	755	(4,503)	1,702
Loans charged off	(13,775)	—	(135)	(1,195)	—	(15,105)
Recoveries	298	3,097	505	678	—	4,578
Ending balance	$ 113,722	$ 58,758	$ 18,544	$ 8,646	$ 15,472	$ 215,142
Allowance for off-balance sheet credit losses:						
Beginning balance	$ 4,027	$ 44	$ 62	$ 2	$ —	$ 4,135
Provision for off-balance sheet credit losses	(1,666)	(27)	(9)	—	—	(1,702)
Ending balance	$ 2,361	$ 17	$ 53	$ 2	$ —	$ 2,433
Total provision for credit losses	$ 5,450	$ (1,436)	$ (266)	$ 755	$ (4,503)	$ —

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 six months ended June 30, 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	4,005	(1,143)	(419)	603	(6,745)	(3,699)
Loans charged off	(15,338)	—	(235)	(2,422)	—	(17,995)
Recoveries	786	3,280	747	1,341	—	6,154
Ending balance	$ 113,722	$ 58,758	$ 18,544	$ 8,646	$ 15,472	$ 215,142
Allowance for off-balance sheet credit losses:						
Beginning balance	$ 3,644	$ 45	$ 43	$ 2	$ —	$ 3,734
Provision for off-balance sheet credit losses	(1,283)	(28)	10	—	—	(1,301)
Ending balance	$ 2,361	$ 17	$ 53	$ 2	$ —	$ 2,433
Total provision for credit losses	$ 2,722	$ (1,171)	$ (409)	$ 603	$ (6,745)	$ (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 June 30, 2017 is summarized as follows (in thousands):

	Commercial	Commercial Real Estate	Residential Mortgage	Personal	Nonspecific Allowance	Total
Allowance for loan losses:						
Beginning balance	$ 137,616	$ 58,343	$ 18,177	$ 7,247	$ 27,327	$ 248,710
Provision for loan losses	1,546	105	(47)	1,358	47	3,009
Loans charged off	(1,703)	(76)	(40)	(1,053)	—	(2,872)
Recoveries	283	208	169	554	—	1,214
Ending balance	$ 137,742	$ 58,580	$ 18,259	$ 8,106	$ 27,374	$ 250,061
Allowance for off-balance sheet credit losses:						
Beginning balance	$ 9,288	$ 106	$ 40	$ 6	$ —	$ 9,440
Provision for off-balance sheet credit losses	(2,987)	(22)	(2)	2	—	(3,009)
Ending balance	$ 6,301	$ 84	$ 38	$ 8	$ —	$ 6,431
Total provision for credit losses	$ (1,441)	$ 83	$ (49)	$ 1,360	$ 47	$ —

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 six months ended June 30, 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	(1,809)	6,964	(86)	570	(826)	4,813
Loans charged off	(2,127)	(76)	(276)	(2,546)	—	(5,025)
Recoveries	1,465	943	397	1,309	—	4,114
Ending balance	$ 137,742	$ 58,580	$ 18,259	$ 8,106	$ 27,374	$ 250,061
Allowance for off-balance sheet credit losses:						
Beginning balance	$ 11,063	$ 123	$ 50	$ 8	$ —	$ 11,244
Provision for off-balance sheet credit losses	(4,762)	(39)	(12)	—	—	(4,813)
Ending balance	$ 6,301	$ 84	$ 38	$ 8	$ —	$ 6,431
Total provision for credit losses	$ (6,571)	$ 6,925	$ (98)	$ 570	$ (826)	$ —

The allowance for loan losses and recorded investment of the related loans by portfolio segment for each impairment measurement method at June 30, 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	$ 11,228,061	$ 98,522	$ 120,978	$ 15,200	$ 11,349,039	$ 113,722
Commercial real estate	3,710,224	58,758	1,996	—	3,712,220	58,758
Residential mortgage	1,899,907	18,544	42,343	—	1,942,250	18,544
Personal	999,847	8,646	340	—	1,000,187	8,646
Total	17,838,039	184,470	165,657	15,200	18,003,696	199,670
Nonspecific allowance	—	—	—	—	—	15,472
Total	$ 17,838,039	$ 184,470	$ 165,657	$ 15,200	$ 18,003,696	$ 215,142

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 June 30, 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	$10,440,798	$ 128,049	$197,157	$ 9,693	$10,637,955	$ 137,742
Commercial real estate	3,684,817	58,580	3,775	—	3,688,592	58,580
Residential mortgage	1,894,963	18,259	44,235	—	1,939,198	18,259
Personal	917,628	8,106	272	—	917,900	8,106
Total	16,938,206	212,994	245,439	9,693	17,183,645	222,687
Nonspecific allowance	—	—	—	—	—	27,374
Total	$16,938,206	$ 212,994	$245,439	$ 9,693	$17,183,645	$ 250,061

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 June 30, 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	$11,323,917	$ 112,842	$25,122	$ 880	$11,349,039	$ 113,722
Commercial real estate	3,712,220	58,758	—	—	3,712,220	58,758
Residential mortgage	250,081	3,082	1,692,169	15,462	1,942,250	18,544
Personal	917,620	6,621	82,567	2,025	1,000,187	8,646
Total	16,203,838	181,303	1,799,858	18,367	18,003,696	199,670
Nonspecific allowance	—	—	—	—	—	15,472
Total	$16,203,838	$ 181,303	$1,799,858	$ 18,367	$18,003,696	$ 215,142

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 June 30, 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	$10,612,477	$ 136,819	$25,478	$ 923	$10,637,955	$ 137,742
Commercial real estate	3,688,592	58,580	—	—	3,688,592	58,580
Residential mortgage	216,007	2,976	1,723,191	15,283	1,939,198	18,259
Personal	824,318	5,742	93,582	2,364	917,900	8,106
Total	15,341,394	204,117	1,842,251	18,570	17,183,645	222,687
Nonspecific allowance	—	—	—	—	—	27,374
Total	$15,341,394	$ 204,117	$1,842,251	$ 18,570	$17,183,645	$ 250,061

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.

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The following table summarizes the Company's loan portfolio at June 30, 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	$2,936,184	$52,350	$93,088	$65,597	$—	$—	$3,147,219
Services	2,903,168	30,564	6,390	4,377	—	—	2,944,499
Wholesale/retail	1,679,834	900	4,725	14,095	—	—	1,699,554
Manufacturing	620,687	7,559	16,579	2,991	—	—	647,816
Healthcare	2,319,035	2,030	16,532	16,125	—	—	2,353,722
Other commercial and industrial	513,027	400	—	17,680	25,009	113	556,229
Total commercial	10,971,935	93,803	137,314	120,865	25,009	113	11,349,039
Commercial real estate:							
Residential construction and land development	116,821	1,828	—	350	—	—	118,999
Retail	745,691	21,173	92	1,068	—	—	768,024
Office	812,848	7,004	—	275	—	—	820,127
Multifamily	1,056,953	—	31	—	—	—	1,056,984
Industrial	653,384	—	—	—	—	—	653,384
Other commercial real estate	294,399	—	—	303	—	—	294,702
Total commercial real estate	3,680,096	30,005	123	1,996	—	—	3,712,220
Residential mortgage:							
Permanent mortgage	246,470	—	2,555	1,056	796,282	22,049	1,068,412
Permanent mortgages guaranteed by U.S. government agencies	—	—	—	—	162,086	7,567	169,653
Home equity	—	—	—	—	692,514	11,671	704,185
Total residential mortgage	246,470	—	2,555	1,056	1,650,882	41,287	1,942,250
Personal	917,459	48	34	79	82,306	261	1,000,187
Total	$15,815,960	$123,856	$140,026	$123,996	$1,758,197	$41,661	$18,003,696

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 June 30, 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	$2,376,368	$ 120,473	$ 226,407	$ 123,992	$—	$ —	$2,847,240
Services	2,921,510	12,452	17,111	7,754	—	—	2,958,827
Wholesale/retail	1,507,063	16,224	9,788	10,620	—	—	1,543,695
Manufacturing	513,442	6,540	16,499	9,656	—	—	546,137
Healthcare	2,130,339	33,554	33,120	24,505	—	—	2,221,518
Other commercial and industrial	453,712	2,961	17,861	20,526	25,374	104	520,538
Total commercial	9,902,434	192,204	320,786	197,053	25,374	104	10,637,955
Commercial real estate:							
Residential construction and land development	138,790	—	751	2,051	—	—	141,592
Retail	720,730	1,774	—	301	—	—	722,805
Office	859,722	2,855	—	396	—	—	862,973
Multifamily	947,950	—	4,420	10	—	—	952,380
Industrial	693,635	—	—	—	—	—	693,635
Other commercial real estate	314,187	—	3	1,017	—	—	315,207
Total commercial real estate	3,675,014	4,629	5,174	3,775	—	—	3,688,592
Residential mortgage:							
Permanent mortgage	212,563	1,693	478	1,273	750,891	22,142	989,040
Permanent mortgages guaranteed by U.S. government agencies	—	—	—	—	182,677	9,052	191,729
Home equity	—	—	—	—	746,661	11,768	758,429
Total residential mortgage	212,563	1,693	478	1,273	1,680,229	42,962	1,939,198
Personal	823,304	49	877	88	93,398	184	917,900
Total	$14,613,315	$ 198,575	$ 327,315	$ 202,189	$1,799,001	$ 43,250	$17,183,645

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 generally 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 June 30, 2018					For the Three Months Ended June 30, 2018		For the Six Months Ended June 30, 2018	
		Recorded Investment							
	Unpaid Principal Balance	Total	With No Allowance	With Allowance	Related Allowance	Average Recorded Investment	Interest Income Recognized	Average Recorded Investment	Interest Income Recognized
Commercial:									
Energy	$84,285	$65,597	$19,735	$45,862	$9,460	$77,770	$ —	$78,940	$ —
Services	7,211	4,377	4,296	81	79	3,243	—	3,498	—
Wholesale/retail	14,523	14,095	2,822	11,273	4,075	8,329	—	8,334	—
Manufacturing	2,995	2,991	2,734	257	257	2,996	—	4,476	—
Healthcare	26,212	16,125	13,583	2,542	1,329	15,734	—	15,445	—
Other commercial and industrial	26,983	17,793	17,793	—	—	18,147	—	18,446	—
Total commercial	162,209	120,978	60,963	60,015	15,200	126,219	—	129,139	—
Commercial real estate:									
Residential construction and land development	1,764	350	350	—	—	982	—	1,091	—
Retail	8,134	1,068	1,068	—	—	666	—	672	—
Office	287	275	275	—	—	275	—	275	—
Multifamily	—	—	—	—	—	—	—	—	—
Industrial	—	—	—	—	—	—	—	—	—
Other commercial real estate	509	303	303	—	—	311	—	387	—
Total commercial real estate	10,694	1,996	1,996	—	—	2,234	—	2,425	—
Residential mortgage:									
Permanent mortgage	28,402	23,105	23,105	—	—	23,841	322	24,149	628
Permanent mortgage guaranteed by U.S. government agencies[1]	174,589	169,653	169,653	—	—	170,856	1,574	180,671	3,422
Home equity	13,362	11,671	11,671	—	—	12,002	—	12,373	—
Total residential mortgage	216,353	204,429	204,429	—	—	206,699	1,896	217,193	4,050
Personal	387	340	340	—	—	340	—	305	—

Total	$389,643	$327,743	$267,728	$60,015	$15,200	$335,492	$1,896	$349,062	$4,050

[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 June 30, 2018, $7.6 million of these loans were nonaccruing and $162 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):

	Unpaid Principal Balance	Recorded Investment			Related Allowance
		Total	With No Allowance	With 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, $9.2 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 June 30, 2017 follows (in thousands):

	As of June 30, 2017					For the Three Months Ended		For the Six Months Ended	
		Recorded Investment				June 30, 2017		June 30, 2017	
	Unpaid Principal Balance	Total	With No Allowance	With Allowance	Related Allowance	Average Recorded Investment	Interest Income Recognized	Average Recorded Investment	Interest Income Recognized
Commercial:									
Energy	$141,091	$123,992	$56,988	$ 67,004	$ 8,874	$117,209	$ —	$128,246	$ —
Services	11,209	7,754	7,754	—	—	7,734	—	7,964	—
Wholesale/retail	17,392	10,620	10,620	—	—	10,855	—	11,013	—
Manufacturing	10,223	9,656	9,656	—	—	7,781	—	7,293	—
Healthcare	24,795	24,505	18,883	5,622	802	12,707	—	12,665	—
Other commercial and industrial	28,933	20,630	20,609	21	17	20,706	—	20,874	—
Total commercial	233,643	197,157	124,510	72,647	9,693	176,992	—	188,055	—
Commercial real estate:									
Residential construction and land development	3,676	2,051	2,051	—	—	2,334	—	2,742	—
Retail	518	301	301	—	—	308	—	314	—
Office	499	396	396	—	—	404	—	411	—
Multifamily	1,000	10	10	—	—	17	—	24	—
Industrial	—	—	—	—	—	38	—	38	—
Other commercial real estate	1,212	1,017	1,017	—	—	1,024	—	1,119	—
Total commercial real estate	6,905	3,775	3,775	—	—	4,125	—	4,648	—
Residential mortgage:									
Permanent mortgage	28,603	23,415	23,415	—	—	23,801	307	23,135	598
Permanent mortgage guaranteed by U.S. government agencies[1]	197,659	191,729	191,729	—	—	202,946	2,021	205,159	3,925
Home equity	13,064	11,768	11,768	—	—	11,776	—	11,643	—
Total residential mortgage	239,326	226,912	226,912	—	—	238,523	2,328	239,937	4,523
Personal	307	272	272	—	—	253	—	281	—
Total	$480,181	$428,116	$355,469	$ 72,647	$ 9,693	$419,893	$ 2,328	$432,921	$ 4,523

[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 June 30, 2017, $9.1 million of these loans were nonaccruing and $183 million were accruing based on the guarantee by U.S. government agencies.

Troubled Debt Restructurings

At June 30, 2018 the Company had $152 million in troubled debt restructurings (TDRs), of which $75 million were accruing residential mortgage loans guaranteed by U.S. government agencies. Approximately $80 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 June 30, 2017, TDRs totaled $169 million, of which $81 million were accruing residential mortgage loans guaranteed by U.S. government agencies. Approximately $71 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 three and six months ended June 30, 2018, $19 million and $32 million of loans were restructured and $5.5 million and $5.6 million of loans designated as TDRs were charged off. During the three and six months ended June 30, 2017, $34 million and $53 million of loans were restructured and $10 thousand and $42 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 June 30, 2018 is as follows (in thousands):

	Current	Past Due 30 to 59 Days	60 to 89 Days	90 Days or More	Nonaccrual	Total
Commercial:						
Energy	$3,081,622	$—	$—	$—	$ 65,597	$3,147,219
Services	2,937,699	1,619	106	698	4,377	2,944,499
Wholesale/retail	1,685,175	284	—	—	14,095	1,699,554
Manufacturing	644,825	—	—	—	2,991	647,816
Healthcare	2,322,580	—	15,017	—	16,125	2,353,722
Other commercial and industrial	538,269	52	105	10	17,793	556,229
Total commercial	11,210,170	1,955	15,228	708	120,978	11,349,039
Commercial real estate:						
Residential construction and land development	118,649	—	—	—	350	118,999
Retail	766,956	—	—	—	1,068	768,024
Office	819,852	—	—	—	275	820,127
Multifamily	1,056,984	—	—	—	—	1,056,984
Industrial	653,384	—	—	—	—	653,384
Other commercial real estate	294,377	—	—	22	303	294,702
Total commercial real estate	3,710,202	—	—	22	1,996	3,712,220
Residential mortgage:						
Permanent mortgage	1,041,859	2,568	796	84	23,105	1,068,412
Permanent mortgages guaranteed by U.S. government agencies	38,717	14,757	12,878	95,734	7,567	169,653
Home equity	690,743	1,612	94	65	11,671	704,185
Total residential mortgage	1,771,319	18,937	13,768	95,883	42,343	1,942,250
Personal	999,519	178	150	—	340	1,000,187
Total	$17,691,210	$21,070	$29,146	$96,613	$ 165,657	$18,003,696

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 30 to 59 Days	60 to 89 Days	90 Days or More	Nonaccrual	Total
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 June 30, 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	$2,723,248	$—	—	$—	$ 123,992	$2,847,240
Services	2,949,562	50	180	1,281	7,754	2,958,827
Wholesale/retail	1,532,986	89	—	—	10,620	1,543,695
Manufacturing	536,481	—	—	—	9,656	546,137
Healthcare	2,196,088	925	—	—	24,505	2,221,518
Other commercial and industrial	499,743	45	119	1	20,630	520,538
Total commercial	10,438,108	1,109	299	1,282	197,157	10,637,955
Commercial real estate:						
Residential construction and land development	139,070	471	—	—	2,051	141,592
Retail	722,504	—	—	—	301	722,805
Office	862,577	—	—	—	396	862,973
Multifamily	952,370	—	—	—	10	952,380
Industrial	693,635	—	—	—	—	693,635
Other commercial real estate	314,187	3	—	—	1,017	315,207
Total commercial real estate	3,684,343	474	—	—	3,775	3,688,592
Residential mortgage:						
Permanent mortgage	962,443	2,024	1,026	132	23,415	989,040
Permanent mortgages guaranteed by U.S. government agencies	36,867	18,416	13,581	113,813	9,052	191,729
Home equity	744,735	1,564	362	—	11,768	758,429
Total residential mortgage	1,744,045	22,004	14,969	113,945	44,235	1,939,198
Personal	916,852	487	289	—	272	917,900
Total	$16,783,348	$24,074	15,557	$115,227	$ 245,439	$17,183,645

(5) Acquisitions

On June 18, 2018, the Company announced the signing of a definitive merger agreement with CoBiz Financial Inc. CoBiz is headquartered in Denver with a presence in Colorado and Arizona and has approximately $3.8 billion in assets. Upon completion of the merger, CoBiz shareholders will receive 0.17 shares of BOK Financial common stock and $5.70 in cash for each share of CoBiz common stock. The merger is subject to customary closing conditions including regulatory approval.

On May 1, 2018, the Company acquired a majority voting interest in Switchgrass Holdings, LLC, a restaurant franchise owner and operator, pursuant to merchant banking regulations and restrictions. The purchase price for this acquisition was $14 million. The preliminary purchase price allocation included $6.1 million of goodwill.

(6) 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):

	June 30, 2018		December 31, 2017		June 30, 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	$214,717	$216,983	$212,525	$215,113	$269,772	$275,179
Residential mortgage loan commitments	251,231	7,473	222,919	6,523	362,088	10,993
Forward sales contracts	440,735	(1,155)	380,159	(258)	587,595	1,087
		$223,301		$221,378		$287,259

No residential mortgage loans held for sale were 90 days or more past due or considered impaired as of June 30, 2018, December 31, 2017 or June 30, 2017. No credit losses were recognized on residential mortgage loans held for sale for the six month period ended June 30, 2018 and 2017.

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Mortgage banking revenue was as follows (in thousands):

	Three Months Ended June 30,		Six Months Ended June 30,	
	2018	2017	2018	2017
Production revenue:				
Net realized gains on sale of mortgage loans	$10,718	$11,787	$19,636	$20,402
Net change in unrealized gain on mortgage loans held for sale	1,047	985	(322)	4,827
Net change in the fair value of mortgage loan commitments	(1,124)	(3,274)	950	1,260
Net change in the fair value of forward sales contracts	(726)	4,342	(897)	(4,106)
Total production revenue	9,915	13,840	19,367	22,383
Servicing revenue	16,431	16,436	33,004	33,084
Total mortgage banking revenue	$26,346	$30,276	$52,371	$55,467

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):

	June 30, 2018	December 31, 2017	June 30, 2017
Number of residential mortgage loans serviced for others	134,868	136,528	138,335
Outstanding principal balance of residential mortgage loans serviced for others	$21,963,309	$22,046,632	$22,095,232
Weighted average interest rate	3.96%	3.94%	3.95%
Remaining term (in months)	295	297	299

The following represents activity in capitalized mortgage servicing rights (in thousands):

	Three Months Ended June 30,		Six Months Ended June 30,	
	2018	2017	2018	2017
Beginning Balance	$274,978	$249,403	$252,867	$247,073
Additions, net	10,820	11,078	19,720	19,514
Change in fair value due to principal payments	(8,802)	(8,299)	(16,797)	(16,261)
Change in fair value due to market assumption changes	1,723	(6,943)	22,929	(5,087)
Ending Balance	$278,719	$245,239	$278,719	$245,239

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:

	June 30, 2018	December 31, 2017	June 30, 2017
Discount rate – risk-free rate plus a market premium	9.91%	9.84%	9.84%
Prepayment rate - based upon loan interest rate, original term and loan type	8.12% - 15.08%	8.72% - 15.16%	8.61%-15.91%
Loan servicing costs – annually per loan based upon loan type:			
Performing loans	\$65 - \$88	\$65 - \$88	\$65-\$120
Delinquent loans	\$150 - \$500	\$150 - \$500	\$150-\$500
Loans in foreclosure	\$1,000 - \$4,000	\$1,000 - \$4,000	\$1,000-\$4,250
Escrow earnings rate – indexed to rates paid on deposit accounts with comparable average life	2.88%	2.24%	1.95%
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 June 30, 2018 follows (in thousands):

	Current	Past Due 30 to 59 Days	60 to 89 Days	90 Days or More	Total
FHLMC	\$7,932,832	\$68,996	\$9,405	\$25,129	\$8,036,362
FNMA	6,491,492	77,424	9,118	20,918	6,598,952
GNMA	6,624,862	198,852	47,791	15,204	6,886,709
Other	433,830	4,989	221	2,246	441,286
Total	\$21,483,016	\$350,261	\$66,535	\$63,497	\$21,963,309

(7) 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 411,089 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 $40 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 and no loss is probable.

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.
On July 6, 2018, a plaintiff served a petition in a putative class action in the Oklahoma District Court for Tulsa County Oklahoma alleging BOKF NA breached its Demand Deposit Agreements by charging overdraft and not sufficient funds fees to deposit accounts on the day of the transaction triggering the fee and by the bank's debit hold process causing overdraft fees. 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 June 30, 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 June 30, 2018, December 31, 2017 and June 30, 2017 is as follows (in thousands):

	June 30, 2018				
	Loans	Other assets	Other liabilities	Other borrowings	Non-controlling interests
Consolidated:					
Private equity funds	$—	$14,150	$—	$ —	$ 10,747
Tax credit entities	10,000	10,964	—	10,964	10,000
Other	—	17,608	1,871	—	1,867
Total consolidated	$10,000	$42,722	$1,871	$ 10,964	$ 22,614
Unconsolidated:					
Tax credit entities	$62,188	$147,071	$49,472	$ —	$ —
Other	—	45,070	19,786	—	—
Total unconsolidated	$62,188	$192,141	$69,258	$ —	$ —

	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	$ —	$ —

	June 30, 2017				
	Loans	Other assets	Other liabilities	Other borrowings	Non-controlling interests
Consolidated:					
Private equity funds	$—	$16,905	$—	$ —	$ 14,199
Tax credit entities	10,000	11,274	—	10,964	10,000
Other	—	15,894	1,621	878	2,877
Total consolidated	$10,000	$44,073	$1,621	$ 11,842	$ 27,076
Unconsolidated:					
Tax credit entities	$59,744	$148,525	$63,822	$ —	$ —
Other	—	33,155	13,680	—	—
Total unconsolidated	$59,744	$181,680	$77,502	$ —	$ —

(8) Shareholders' Equity

On July 24, 2018, the Company declared a quarterly cash dividend of $0.50 per common share payable on or about August 27, 2018 to shareholders of record as of August 13, 2018.

Dividends declared were $0.45 and $0.90 per share during the three and six months ended June 30, 2018 and $0.44 and $0.88 per share during the three and six months ended June 30, 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)	33,369	—	33,369
Reclassification adjustments included in earnings:			
Gain on available for sale securities, net	(2,429)	—	(2,429)
Other comprehensive income (loss), before income taxes	30,940	—	30,940
Federal and state income taxes[1]	12,009	—	12,009
Other comprehensive income (loss), net of income taxes	18,931	—	18,931
Balance, June 30, 2017	$9,844	$(1,880)	$7,964
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)	(130,523)	—	(130,523)
Reclassification adjustments included in earnings:			
Loss on available for sale securities, net	1,052	—	1,052
Other comprehensive income (loss), before income taxes	(129,471)	—	(129,471)
Federal and state income taxes[2]	(33,049)	—	(33,049)
Other comprehensive income (loss), net of income taxes	(96,422)	—	(96,422)
Balance, June 30, 2018	$(134,516)	$(789)	$(135,305)

[1] Calculated using a 39 percent blended federal and state statutory tax rate.
[2] Calculated using a 25 percent blended federal and state statutory tax rate.

(9) Earnings Per Share

(In thousands, except share and per share amounts)	Three Months Ended June 30,		Six Months Ended June 30,	
	2018	2017	2018	2017
Numerator:				
Net income attributable to BOK Financial Corp. shareholders	$114,372	$ 88,147	$219,934	$ 176,503
Less: Earnings allocated to participating securities	956	926	1,978	1,929
Numerator for basic earnings per share – income available to common shareholders	113,416	87,221	217,956	174,574
Effect of reallocating undistributed earnings of participating securities	1	1	1	1
Numerator for diluted earnings per share – income available to common shareholders	$113,417	$ 87,222	$217,957	$ 174,575
Denominator:				
Weighted average shares outstanding	65,448,035	65,416,274	65,463,671	65,436,909
Less: Participating securities included in weighted average shares outstanding	546,060	686,522	589,104	714,165
Denominator for basic earnings per common share	64,901,975	64,729,752	64,874,567	64,722,744
Dilutive effect of employee stock compensation plans[1]	35,251	63,382	37,985	65,578
Denominator for diluted earnings per common share	64,937,226	64,793,134	64,912,552	64,788,322
Basic earnings per share	$1.75	$ 1.35	$3.36	$ 2.70
Diluted earnings per share	$1.75	$ 1.35	$3.36	$ 2.69
[1] Excludes employee stock options with exercise prices greater than current market price.	—	—	—	—

(10) Reportable Segments

Reportable segments reconciliation to the Consolidated Financial Statements for the three months ended June 30, 2018 is as follows (in thousands):

	Commercial	Consumer	Wealth Management	Funds Management and Other	BOK Financial Consolidated
Net interest revenue from external sources	$182,127	$21,746	$18,754	$15,935	$238,562
Net interest revenue (expense) from internal sources	(37,102)	17,548	10,232	9,322	—
Net interest revenue	145,025	39,294	28,986	25,257	238,562
Provision for credit losses	10,108	1,139	(105)	(11,142)	—
Net interest revenue after provision for credit losses	134,917	38,155	29,091	36,399	238,562
Other operating revenue	43,047	46,320	70,642	(3,610)	156,399
Other operating expense	47,483	55,906	61,491	81,596	246,476
Net direct contribution	130,481	28,569	38,242	(48,807)	148,485
Gain (loss) on financial instruments, net	9	(6,411)	—	6,402	—
Change in fair value of mortgage servicing rights	—	1,723	—	(1,723)	—
Gain (loss) on repossessed assets, net	(67)	174	—	(107)	—
Corporate expense allocations	11,269	15,867	11,142	(38,278)	—
Net income before taxes	119,154	8,188	27,100	(5,957)	148,485
Federal and state income taxes	31,577	2,086	6,981	(7,314)	33,330
Net income	87,577	6,102	20,119	1,357	115,155
Net income attributable to non-controlling interests	—	—	—	783	783
Net income attributable to BOK Financial Corp. shareholders	$87,577	$6,102	$20,119	$574	$114,372
Average assets	$18,072,155	$8,353,558	$8,495,557	$(1,015,235)	$33,906,035

Reportable segments reconciliation to the Consolidated Financial Statements for the six months ended June 30, 2018 is as follows (in thousands):

	Commercial	Consumer	Wealth Management	Funds Management and Other	BOK Financial Consolidated
Net interest revenue from external sources	$342,541	$43,499	$34,161	$ 38,097	$458,298
Net interest revenue (expense) from internal sources	(65,445)	32,772	20,164	12,509	—
Net interest revenue	277,096	76,271	54,325	50,606	458,298
Provision for credit losses	10,735	2,440	(153)	(18,022)	(5,000)
Net interest revenue after provision for credit losses	266,361	73,831	54,478	68,628	463,298
Other operating revenue	82,722	91,269	145,409	(7,012)	312,388
Other operating expense	93,950	105,760	124,295	166,901	490,906
Net direct contribution	255,133	59,340	75,592	(105,285)	284,780
Gain on financial instruments, net	16	(29,672)	—	29,656	—
Change in fair value of mortgage servicing rights	—	22,929	—	(22,929)	—
Gain (loss) on repossessed assets, net	(4,232)	66	—	4,166	—
Corporate expense allocations	23,776	31,897	22,097	(77,770)	—
Net income before taxes	227,141	20,766	53,495	(16,622)	284,780
Federal and state income taxes	60,319	5,288	13,767	(15,096)	64,278
Net income	166,822	15,478	39,728	(1,526)	220,502
Net income attributable to non-controlling interests	—	—	—	568	568
Net income attributable to BOK Financial Corp. shareholders	$166,822	$15,478	$39,728	$ (2,094)	$219,934
Average assets	$17,933,756	$8,410,513	$8,296,780	$ (825,055)	$33,815,994

Reportable segments reconciliation to the Consolidated Financial Statements for the three months ended June 30, 2017 is as follows (in thousands):

	Commercial	Consumer	Wealth Management	Funds Management and Other	BOK Financial Consolidated
Net interest revenue from external sources	$154,377	$20,756	$10,475	$ 19,596	$205,204
Net interest revenue (expense) from internal sources	(21,715)	13,447	10,325	(2,057)	—
Net interest revenue	132,662	34,203	20,800	17,539	205,204
Provision for credit losses	1,228	926	(92)	(2,062)	—
Net interest revenue after provision for credit losses	131,434	33,277	20,892	19,601	205,204
Other operating revenue	56,353	50,744	75,569	(414)	182,252
Other operating expense	59,511	55,125	60,616	75,633	250,885
Net direct contribution	128,276	28,896	35,845	(56,446)	136,571
Gain (loss) on financial instruments, net	3	5,224	—	(5,227)	—
Change in fair value of mortgage servicing rights	—	(6,943)	—	6,943	—
Gain (loss) on repossessed assets, net	1,403	98	—	(1,501)	—

Corporate expense allocations	8,955	16,912	9,947	(35,814)	—
Net income before taxes	120,727	10,363	25,898	(20,417)	136,571
Federal and state income taxes	49,382	4,031	10,209	(15,917)	47,705
Net income	71,345	6,332	15,689	(4,500)	88,866
Net income attributable to non-controlling interests	—	—	—	719	719
Net income (loss) attributable to BOK Financial Corp. shareholders	$71,345	$6,332	$15,689	$(5,219)	$88,147
Average assets	$17,791,671	$8,441,831	$6,960,872	$(825,803)	$32,368,571

Reportable segments reconciliation to the Consolidated Financial Statements for the six months ended June 30, 2017 is as follows (in thousands):

	Commercial	Consumer	Wealth Management	Funds Management and Other	BOK Financial Consolidated
Net interest revenue from external sources	$301,753	$39,348	$21,960	$43,325	$406,386
Net interest revenue (expense) from internal sources	(39,831)	25,864	19,181	(5,214)	—
Net interest revenue	261,922	65,212	41,141	38,111	406,386
Provision for credit losses	(236)	2,199	(53)	(1,910)	—
Net interest revenue after provision for credit losses	262,158	63,013	41,194	40,021	406,386
Other operating revenue	103,198	95,879	149,727	3,744	352,548
Other operating expense	112,416	107,991	121,025	154,164	495,596
Net direct contribution	252,940	50,901	69,896	(110,399)	263,338
Gain (loss) on financial instruments, net	41	3,557	—	(3,598)	—
Change in fair value of mortgage servicing rights	—	(5,087)	—	5,087	—
Gain (loss) on repossessed assets, net	1,398	(39)	—	(1,359)	—
Corporate expense allocations	17,674	33,658	20,619	(71,951)	—
Net income before taxes	236,705	15,674	49,277	(38,318)	263,338
Federal and state income taxes	96,949	6,097	19,429	(36,667)	85,808
Net income	139,756	9,577	29,848	(1,651)	177,530
Net income attributable to non-controlling interests	—	—	—	1,027	1,027
Net income attributable to BOK Financial Corp. shareholders	$139,756	$9,577	$29,848	$(2,678)	$176,503
Average assets	$17,716,738	$8,360,022	$6,960,872	$(377,472)	$32,660,160

(11) 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 June 30, 2018.

	Commercial	Consumer	Wealth Management	Funds Management & Other	Consolidated	Out of Scope[1]	In Scope[2]
Trading revenue	$ —	$ —	$ 6,338	$ —	$ 6,338	$ 6,338	$ —
Customer hedging revenue	2,892	—	7,611	(708)	9,795	9,795	—
Retail brokerage revenue	—	—	4,886	(75)	4,811	—	4,811
Investment banking revenue	2,903	—	2,641	—	5,544	2,300	3,244
Brokerage and trading revenue	5,795	—	21,476	(783)	26,488	18,433	8,055
TransFund EFT network revenue	18,048	1,009	(21)	2	19,038	—	19,038
Merchant services revenue	1,921	16	—	—	1,937	—	1,937
Transaction card revenue	19,969	1,025	(21)	2	20,975	—	20,975
Personal trust revenue	—	—	20,558	—	20,558	—	20,558
Corporate trust revenue	—	—	4,935	—	4,935	—	4,935
Institutional trust & retirement plan services revenue	—	—	11,039	—	11,039	—	11,039
Investment management services and other	—	—	5,217	(50)	5,167	—	5,167
Fiduciary and asset management revenue	—	—	41,749	(50)	41,699	—	41,699
Commercial account service charge revenue	10,912	362	610	—	11,884	—	11,884
Overdraft fee revenue	98	8,768	32	7	8,905	—	8,905
Check card revenue	—	5,343	—	—	5,343	—	5,343
Automated service charge and other deposit fee revenue	38	1,633	24	—	1,695	—	1,695
Deposit service charges and fees	11,048	16,106	666	7	27,827	—	27,827
Mortgage production revenue	—	9,915	—	—	9,915	9,915	—
Mortgage servicing revenue	—	16,902	—	(471)	16,431	16,431	—
Mortgage banking revenue	—	26,817	—	(471)	26,346	26,346	—
Other revenue	6,062	2,384	6,619	(547)	14,518	9,372	5,146
Total fees and commissions revenue	$ 42,874	$ 46,332	$ 70,489	$ (1,842)	$ 157,853	$ 54,151	$ 103,702

[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.

Fees and commissions revenue by reportable segment and primary service line is as follows for the six months ended June 30, 2018.

	Commercial	Consumer	Wealth Management	Funds Management & Other	Consolidated	Out of Scope[1]	In Scope[2]
Trading revenue	$ —	$ —	$ 16,732	$ —	$ 16,732	$ 16,732	$ —
Customer hedging revenue	4,914	—	14,576	1,212	20,702	20,702	—
Retail brokerage revenue	—	—	9,738	(173)	9,565	—	9,565
Investment banking revenue	3,964	—	6,173	—	10,137	3,361	6,776
Brokerage and trading revenue	8,878	—	47,219	1,039	57,136	40,795	16,341
TransFund EFT network revenue	36,250	1,996	(40)	3	38,209	—	38,209
Merchant services revenue	3,725	31	—	—	3,756	—	3,756
Transaction card revenue	39,975	2,027	(40)	3	41,965	—	41,965
Personal trust revenue	—	—	40,658	—	40,658	—	40,658
Corporate trust revenue	—	—	10,576	—	10,576	—	10,576
Institutional trust & retirement plan services revenue	—	—	22,489	—	22,489	—	22,489
Investment management services and other	—	—	9,906	(98)	9,808	—	9,808
Fiduciary and asset management revenue	—	—	83,629	(98)	83,531	—	83,531
Commercial account service charge revenue	21,856	721	1,215	—	23,792	—	23,792
Overdraft fee revenue	188	17,252	66	10	17,516	—	17,516
Check card revenue	—	10,261	—	—	10,261	—	10,261
Automated service charge and other deposit fee revenue	75	3,292	50	2	3,419	—	3,419
Deposit service charges and fees	22,119	31,526	1,331	12	54,988	—	54,988
Mortgage production revenue	—	19,367	—	—	19,367	19,367	—
Mortgage servicing revenue	—	33,929	—	(925)	33,004	33,004	—
Mortgage banking revenue	—	53,296	—	(925)	52,371	52,371	—
Other revenue	11,919	4,447	13,157	(2,675)	26,848	17,727	9,121
Total fees and commissions revenue	$ 82,891	$ 91,296	$ 145,296	$ (2,644)	$ 316,839	$ 110,893	$ 205,946

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.

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(12) 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. 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 three and six months ended June 30, 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 June 30,		Six Months Ended June 30,	
	2018	2017	2018	2017
Amount:				
Federal statutory tax	$31,182	$47,800	$59,804	$92,168
Tax exempt revenue	(1,653)	(3,224)	(3,465)	(6,335)
Effect of state income taxes, net of federal benefit	3,288	2,944	6,945	5,389
Utilization of tax credits, net of proportional amortization of low-income housing limited partnership investments	(1,334)	(889)	(2,667)	(2,976)
Share-based compensation	(424)	1,636	(2,044)	(2,301)
Adjustment to provisional amounts related to tax reform	—	—	1,895	—
Other, net	2,271	(562)	3,810	(137)
Total income tax expense	$33,330	$47,705	$64,278	$85,808

	Three Months Ended June 30,		Six Months Ended June 30,	
	2018	2017	2018	2017
Percent of pretax income:				
Federal statutory tax	21.0 %	35.0 %	21.0 %	35.0 %
Tax exempt revenue	(1.1)	(2.4)	(1.2)	(2.4)
Effect of state income taxes, net of federal benefit	2.2	2.2	2.4	2.0
Utilization of tax credits, net of proportional amortization of low-income housing limited partnership investments	(0.9)	(0.7)	(0.9)	(1.1)
Share-based compensation	(0.3)	1.2	(0.7)	(0.9)
Adjustment to provisional amounts related to tax reform	—	—	0.7	—
Other, net	1.5	(0.4)	1.3	—
Total	22.4 %	34.9 %	22.6 %	32.6 %

(13) 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 six months ended June 30, 2018 and 2017, respectively. Transfers between significant other observable inputs and significant unobservable inputs during the six months ended June 30, 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 June 30, 2018, December 31, 2017 or June 30, 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 June 30, 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	$ 28,750	$ —	$ 28,750	$ —
U.S. government agency residential mortgage-backed securities	1,605,001	—	1,605,001	—
Municipal and other tax-exempt securities	70,606	—	70,606	—
Asset-backed securities	193,271	—	193,271	—
Other trading securities	11,987	—	11,987	—
Total trading securities	1,909,615	—	1,909,615	—
Available for sale securities:				
U.S. Treasury	490	490	—	—
Municipal and other tax-exempt securities	10,697	—	8,667	2,030
U.S. government agency residential mortgage-backed securities	5,304,560	—	5,304,560	—
Privately issued residential mortgage-backed securities	83,224	—	83,224	—
Commercial mortgage-backed securities guaranteed by U.S. government agencies	2,738,451	—	2,738,451	—
Other debt securities	25,444	—	24,973	471
Total available for sale securities	8,162,866	490	8,159,875	2,501
Fair value option securities – U.S. government agency residential mortgage-backed securities	482,227	—	482,227	—
Residential mortgage loans held for sale	223,301	—	209,058	14,243
Mortgage servicing rights[1]	278,719	—	—	278,719
Derivative contracts, net of cash collateral[2]	373,373	21,056	352,317	—
Liabilities:				
Derivative contracts, net of cash collateral[2]	234,856	17,214	217,642	—

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 6, 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, net of cah margin. Derivative contacts in liability positions that were valued using quoted prices in active markets for identical instruments are exchange-traded energy and interest rate 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 6, 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 June 30, 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	$ 20,954	$ —	$ 20,954	$ —
U.S. government agency residential mortgage-backed securities	365,171	—	365,171	—
Municipal and other tax-exempt securities	45,444	—	45,444	—
Other trading securities	9,845	—	9,845	—
Total trading securities	441,414	—	441,414	—
Available for sale securities:				
U.S. Treasury	998	998	—	—
Municipal and other tax-exempt securities	32,765	—	28,110	4,655
U.S. government agency residential mortgage-backed securities	5,382,377	—	5,382,377	—
Privately issued residential mortgage-backed securities	103,383	—	103,383	—
Commercial mortgage-backed securities guaranteed by U.S. government agencies	2,782,070	—	2,782,070	—
Other debt securities	4,152	—	—	4,152
Perpetual preferred stock	16,568	—	16,568	—
Equity securities and mutual funds	18,728	3,516	15,212	—
Total available for sale securities	8,341,041	4,514	8,327,720	8,807
Fair value option securities – U.S. government agency residential mortgage-backed securities	445,169	—	445,169	—
Residential mortgage loans held for sale	287,259	—	274,524	12,735
Mortgage servicing rights[1]	245,239	—	—	245,239
Derivative contracts, net of cash collateral[2]	280,289	46,366	233,923	—
Liabilities:				
Derivative contracts, net of cash collateral[2]	285,819	20,915	264,904	—

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 6, 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 energy and interest rate 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 and six months ended June 30, 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, March 31, 2018	$1,891	$ 472	$ 13,871
Transfer to Level 3 from Level 2[1]	—	—	687
Purchases	—	—	—
Proceeds from sales	—	—	(488)
Redemptions and distributions	—	—	—
Gain (loss) recognized in earnings:			
Mortgage banking revenue	—	—	173
Other comprehensive income:			
Net change in unrealized gain	139	(1)	—
Balance, June 30, 2018	$2,030	$ 471	$ 14,243

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.

	Available for Sale Securities		
	Municipal and other tax-exempt	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]	—	—	2,843
Purchases	—	—	—
Proceeds from sales	—	—	(812)
Redemptions and distributions	(3,045)	—	—
Gain (loss) recognized in earnings:			
Mortgage banking revenue	—	—	(87)
Other comprehensive income (loss):			
Net change in unrealized gain (loss)	273	(1)	—
Balance, June 30, 2018	$2,030	$ 471	$ 14,243

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 and six months ended June 30, 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, March 31, 2017	$5,722	$ 4,153	$ 12,679
Transfer to Level 3 from Level 2[1]	—	—	853
Purchases	—	—	—
Proceeds from sales	—	—	(1,030)
Redemptions and distributions	(1,100)	—	—
Gain (loss) recognized in earnings:			
Mortgage banking revenue	—	—	233
Other comprehensive income (loss):			
Net change in unrealized gain (loss)	33	(1)	—
Balance, June 30, 2017	$4,655	$ 4,152	$ 12,735

[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.

	Available for Sale Securities		
	Municipal and other tax-exempt	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]	—	—	2,740
Purchases	—	—	—
Proceeds from sales	—	—	(1,702)
Redemptions and distributions	(1,100)	—	—
Gain (loss) recognized in earnings			
Mortgage banking revenue	—	—	80
Other comprehensive income (loss):			
Net change in unrealized gain (loss)	(34)	—	—
Balance, June 30, 2017	$4,655	$ 4,152	$ 12,735

[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 June 30, 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	$2,030	Discounted cash flows	[1]	Interest rate spread	6.69%-6.69% (6.69%) 99.00%-99.00% (99.00%)	[2] [3]
Other debt securities	500	500	471	Discounted cash flows	[1]	Interest rate spread	6.32%-6.32% (6.32%) 94.36% - 94.36 (94.36%)	[4] [3]
Residential mortgage loans held for sale	N/A	15,025	14,252	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.	94.86%	

[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 413 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%) 94.39% - 94.39 (94.39%)	[4] [3]

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 June 30, 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	$5,095	$ 5,067	$4,655	Discounted cash flows [1]	Interest rate spread	5.98%-5.98% (5.98%) [2] 90.00%-94.90% (92.93%) [3]
Other debt securities	4,400	4,400	4,152	Discounted cash flows [1]	Interest rate spread	5.41%-6.72% (6.57%) [4] 94.31% - 94.38 (94.37%) [3]
Residential mortgage loans held for sale	N/A	13,274	12,735	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.	95.94%

[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 360 to 446 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 June 30, 2018 for which the fair value was adjusted during the six months ended June 30, 2018:

	Carrying Value at June 30, 2018			Fair Value Adjustments for the Three Months Ended June 30, 2018 Recognized in:		Six Months Ended June 30, 2018 Recognized in:	
	Quoted Prices in Active	Significant Other Observable Inputs	Significant Unobservable Inputs	Gross charge-offs against allowance	Net losses and expenses of repossessed	Gross charge-offs against allowance	Net losses and expenses of repossessed

	Markets for Identical Instruments			for loan losses	assets, net	for loan losses	assets, net
Impaired loans	$—	$ 1,045	$ 11,763	$6,701	$ —	$ 7,198	$ —
Real estate and other repossessed assets	—	1,996	6,838	—	118	—	5,242

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 June 30, 2017 for which the fair value was adjusted during the six months ended June 30, 2017:

	Carrying Value at June 30, 2017			Fair Value Adjustments for the Three Months Ended June 30, 2017 Recognized in:		Six Months Ended June 30, 2017 Recognized in:	
	Quoted Prices in Active Markets for Identical Instruments	Significant Other Observable Inputs	Significant Unobservable Inputs	Gross charge-offs against allowance for loan losses	Net losses and expenses of repossessed assets, net	Gross charge-offs against allowance for loan losses	Net losses and expenses of repossessed assets, net
Impaired loans	$—	$ 464	$ 3,570	$232	$ —	$ 676	$ —
Real estate and other repossessed assets	—	3,488	530	—	772	—	906

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 June 30, 2018 follows (in thousands):

	Fair Value	Valuation Technique(s)	Unobservable Input	Range (Weighted Average)
Impaired loans	$11,763	Discounted cash flows	Management knowledge of industry and non-real estate collateral including but not limited to recoverable oil and gas reserves, forward-looking commodity prices, estimated operating costs	43% - 84% (53%)[1]
Real estate and other repossessed assets	6,838	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 June 30, 2017 follows (in thousands):

	Fair Value	Valuation Technique(s)	Unobservable Input	Range (Weighted Average)
Impaired loans	$3,570	Discounted cash flows	Recoverable oil and gas reserves, forward-looking commodity prices, estimated operating costs	75% - 90% (83%)[1]
Real estate and other repossessed assets	530	Appraised value, as adjusted	Marketability adjustments off appraised value2	65% - 88% (80%)

[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 June 30, 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	$585,801	$585,801	$585,801	$ —	$ —
Interest-bearing cash and cash equivalents	872,999	872,999	872,999	—	—
Trading securities:					
U.S. government agency debentures	28,750	28,750	—	28,750	—
U.S. government agency residential mortgage-backed securities	1,605,001	1,605,001	—	1,605,001	—
Municipal and other tax-exempt securities	70,606	70,606	—	70,606	—
Asset-backed securities	193,271	193,271	—	193,271	—
Other trading securities	11,987	11,987	—	11,987	—
Total trading securities	1,909,615	1,909,615	—	1,909,615	—
Investment securities:					
Municipal and other tax-exempt securities	173,097	174,205	—	174,205	—
U.S. government agency residential mortgage-backed securities	13,989	13,984	—	13,984	—
Other debt securities	204,927	215,195	—	215,195	—
Total investment securities	392,013	403,384	—	403,384	—
Available for sale securities:					
U.S. Treasury	490	490	490	—	—
Municipal and other tax-exempt securities	10,697	10,697	—	8,667	2,030
U.S. government agency residential mortgage-backed securities	5,304,560	5,304,560	—	5,304,560	—
Privately issued residential mortgage-backed securities	83,224	83,224	—	83,224	—
Commercial mortgage-backed securities guaranteed by U.S. government agencies	2,738,451	2,738,451	—	2,738,451	—
Other debt securities	25,444	25,444	—	24,973	471
Total available for sale securities	8,162,866	8,162,866	490	8,159,875	2,501
Fair value option securities – U.S. government agency residential mortgage-backed securities	482,227	482,227	—	482,227	—
Residential mortgage loans held for sale	223,301	223,301	—	209,058	14,243
Loans:					
Commercial	11,349,039	11,116,828	—	—	11,116,828
Commercial real estate	3,712,220	3,639,121	—	—	3,639,121
Residential mortgage	1,942,250	1,917,099	—	—	1,917,099
Personal	1,000,187	990,419	—	—	990,419
Total loans	18,003,696	17,663,467	—	—	17,663,467
Allowance for loan losses	(215,142)	—	—	—	—
Loans, net of allowance	17,788,554	17,663,467	—	—	17,663,467

Mortgage servicing rights	278,719	278,719	—	—	278,719
Derivative instruments with positive fair value, net of cash collateral	373,373	373,373	21,056	352,317	—
Deposits with no stated maturity	20,041,532	20,041,532	—	—	20,041,532
Time deposits	2,127,732	2,078,486	—	—	2,078,486
Other borrowed funds	6,809,472	6,571,762	—	—	6,571,762
Subordinated debentures	144,697	148,112	—	148,112	—
Derivative instruments with negative fair value, net of cash collateral	234,856	234,856	17,214	217,642	—

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	—	209,079	12,299
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	5,709,861	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 June 30, 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	$ 561,587	$ 561,587	$ 561,587	$ —	$ —
Interest-bearing cash and cash equivalents	2,078,831	2,078,831	2,078,831	—	—
Trading securities:					
U.S. government agency debentures	20,954	20,954	—	20,954	—
U.S. government agency residential mortgage-backed securities	365,171	365,171	—	365,171	—
Municipal and other tax-exempt securities	45,444	45,444	—	45,444	—
Other trading securities	9,845	9,845	—	9,845	—
Total trading securities	441,414	441,414	—	441,414	—
Investment securities:					
Municipal and other tax-exempt securities	267,375	270,531	—	270,531	—
U.S. government agency residential mortgage-backed securities	18,035	18,642	—	18,642	—
Other debt securities	205,016	226,502	—	226,502	—
Total investment securities	490,426	515,675	—	515,675	—
Available for sale securities:					
U.S. Treasury	998	998	998	—	—
Municipal and other tax-exempt securities	32,765	32,765	—	28,110	4,655
U.S. government agency residential mortgage-backed securities	5,382,377	5,382,377	—	5,382,377	—
Privately issued residential mortgage-backed securities	103,383	103,383	—	103,383	—
Commercial mortgage-backed securities guaranteed by U.S. government agencies	2,782,070	2,782,070	—	2,782,070	—
Other debt securities	4,152	4,152	—	—	4,152
Perpetual preferred stock	16,568	16,568	—	16,568	—
Equity securities and mutual funds	18,728	18,728	3,516	15,212	—
Total available for sale securities	8,341,041	8,341,041	4,514	8,327,720	8,807
Fair value option securities – U.S. government agency residential mortgage-backed securities	445,169	445,169	—	445,169	—
Residential mortgage loans held for sale	287,259	287,259	—	274,524	12,735
Loans:					
Commercial	10,637,955	10,413,704	—	—	10,413,704
Commercial real estate	3,688,592	3,636,365	—	—	3,636,365
Residential mortgage	1,939,198	1,950,577	—	—	1,950,577
Personal	917,900	909,055	—	—	909,055
Total loans	17,183,645	16,909,701	—	—	16,909,701
Allowance for loan losses	(250,061)	—	—	—	—
Loans, net of allowance	16,933,584	16,909,701	—	—	16,909,701
Mortgage servicing rights	245,239	245,239	—	—	245,239

Derivative instruments with positive fair value, net of cash collateral	280,289	280,289	46,366	233,923	—
Deposits with no stated maturity	20,120,352	20,120,352	—	—	20,120,352
Time deposits	2,196,122	2,164,115	—	—	2,164,115
Other borrowed funds	5,696,666	5,664,273	—	—	5,664,273
Subordinated debentures	144,658	147,204	—	147,204	—
Derivative instruments with negative fair value, net of cash collateral	285,819	285,819	20,915	264,904	—

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 6 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.

(14) Subsequent Events

The Company evaluated events from the date of the consolidated financial statements on June 30, 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.

Six-Month Financial Summary – Unaudited
Consolidated Daily Average Balances, Average Yields and Rates

(In Thousands, Except Per Share Data)	Six Months Ended					
	June 30, 2018			June 30, 2017		
	Average Balance	Revenue/ Expense	Yield/ Rate	Average Balance	Revenue/ Expense	Yield/ Rate
Assets						
Interest-bearing cash and cash equivalents	$1,865,385	$15,722	1.70%	$2,047,633	$9,442	0.93%
Trading securities	1,209,369	20,893	3.53%	517,447	8,886	3.59%
Investment securities						
Taxable	222,299	5,801	5.22%	220,528	5,944	5.39%
Tax-exempt	197,733	2,304	2.33%	294,539	3,650	2.48%
Total investment securities	420,032	8,105	3.86%	515,067	9,594	3.73%
Available for sale securities						
Taxable	8,179,361	93,137	2.26%	8,420,578	85,847	2.06%
Tax-exempt	20,476	334	3.26%	54,470	1,453	5.71%
Total available for sale securities	8,199,837	93,471	2.26%	8,475,048	87,300	2.08%
Fair value option securities	556,337	8,746	3.05%	446,478	5,919	2.62%
Restricted equity securities	349,134	10,525	6.03%	304,074	8,708	5.73%
Residential mortgage loans held for sale	209,043	4,177	4.01%	232,932	4,222	3.65%
Loans	17,507,714	401,940	4.63%	17,132,662	336,258	3.96%
Allowance for loan losses	(225,909)			(250,512)		
Loans, net of allowance	17,281,805	401,940	4.69%	16,882,150	336,258	4.01%
Total earning assets	30,090,942	563,579	3.76%	29,420,829	470,329	3.23%
Receivable on unsettled securities sales	807,470			373,022		
Cash and other assets	2,917,582			2,866,309		
Total assets	$33,815,994			$32,660,160		
Liabilities and equity						
Interest-bearing deposits:						
Transaction	$10,266,484	$25,487	0.50%	$10,326,232	$11,651	0.23%
Savings	491,955	183	0.08%	451,476	182	0.08%
Time	2,144,928	13,512	1.27%	2,231,526	12,143	1.10%
Total interest-bearing deposits	12,903,367	39,182	0.61%	13,009,234	23,976	0.37%
Funds purchased and repurchase agreements	562,999	1,304	0.47%	534,599	260	0.10%
Other borrowings	6,412,463	56,752	1.78%	5,654,534	26,921	0.96%
Subordinated debentures	144,687	4,051	5.65%	144,649	4,028	5.62%
Total interest-bearing liabilities	20,023,516	101,289	1.02%	19,343,015	55,185	0.58%
Non-interest bearing demand deposits	9,187,499			9,220,877		
Due on unsettled securities purchases	543,265			127,824		
Other liabilities	566,248			599,806		
Total equity	3,495,466			3,368,638		
Total liabilities and equity	$33,815,994			$32,660,160		
Tax-equivalent Net Interest Revenue		$462,290	2.74%		$415,144	2.65%
Tax-equivalent Net Interest Revenue to Earning Assets			3.08%			2.85%
Less tax-equivalent adjustment		3,992			8,758	
Net Interest Revenue		458,298			406,386	
Provision for credit losses		(5,000)			—	
Other operating revenue		312,388			352,548	
Other operating expense		490,906			495,596	

Income before taxes	284,780	263,338
Federal and state income taxes	64,278	85,808
Net income	220,502	177,530
Net income (loss) attributable to non-controlling interests	568	1,027
Net income attributable to BOK Financial Corp. shareholders	$219,934	$176,503
Earnings Per Average Common Share Equivalent:		
Net income:		
Basic	$3.36	$2.70
Diluted	$3.36	$2.69

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.

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

(In Thousands, Except Per Share Data)	Three Months Ended					
	June 30, 2018			March 31, 2018		
	Average Balance	Revenue/ Expense	Yield/ Rate	Average Balance	Revenue/ Expense	Yield/ Rate
Assets						
Interest-bearing cash and cash equivalents	$1,673,387	$7,740	1.86%	$2,059,517	$7,982	1.57%
Trading securities	1,482,302	13,084	3.63%	933,404	7,809	3.40%
Investment securities						
Taxable	217,770	2,845	5.23%	226,877	2,956	5.21%
Tax-exempt	181,318	1,096	2.42%	214,330	1,208	2.25%
Total investment securities	399,088	3,941	3.95%	441,207	4,164	3.78%
Available for sale securities						
Taxable	8,145,748	47,322	2.29%	8,213,346	45,815	2.22%
Tax-exempt	17,394	141	3.26%	23,592	193	3.26%
Total available for sale securities	8,163,142	47,463	2.30%	8,236,938	46,008	2.23%
Fair value option securities	487,192	3,927	3.16%	626,251	4,819	2.95%
Restricted equity securities	348,546	5,408	6.21%	349,176	5,117	5.86%
Residential mortgage loans held for sale	218,600	2,333	4.28%	199,380	1,844	3.71%
Loans	17,751,242	212,266	4.80%	17,261,481	189,674	4.45%
Allowance for loan losses	(222,856)			(228,996)		
Loans, net of allowance	17,528,386	212,266	4.86%	17,032,485	189,674	4.51%
Total earning assets	30,301,191	296,162	3.91%	29,878,358	267,417	3.61%
Receivable on unsettled securities sales	618,240			998,803		
Cash and other assets	2,986,604			2,847,791		
Total assets	$33,906,035			$33,724,952		
Liabilities and equity						
Interest-bearing deposits:						
Transaction	$10,189,354	$13,993	0.55%	$10,344,469	$11,494	0.45%
Savings	503,671	95	0.08%	480,110	88	0.07%
Time	2,138,880	6,875	1.29%	2,151,044	6,637	1.25%
Total interest-bearing deposits	12,831,905	20,963	0.66%	12,975,623	18,219	0.57%
Funds purchased and repurchase agreements	593,250	782	0.53%	532,412	522	0.40%
Other borrowings	6,497,020	31,825	1.96%	6,326,967	24,927	1.60%
Subordinated debentures	144,692	2,048	5.67%	144,682	2,003	5.61%
Total interest-bearing liabilities	20,066,867	55,618	1.11%	19,979,684	45,671	0.93%
Non-interest bearing demand deposits	9,223,327			9,151,272		
Due on unsettled securities purchases	527,804			558,898		
Other liabilities	575,865			556,524		
Total equity	3,512,172			3,478,574		
Total liabilities and equity	$33,906,035			$33,724,952		
Tax-equivalent Net Interest Revenue		$240,544	2.80%		$221,746	2.68%
Tax-equivalent Net Interest Revenue to Earning Assets			3.17%			2.99%
Less tax-equivalent adjustment		1,983			2,010	
Net Interest Revenue		238,562			219,736	
Provision for credit losses		—			(5,000)	
Other operating revenue		156,399			155,989	

Other operating expense	246,476	244,430
Income before taxes	148,485	136,295
Federal and state income taxes	33,330	30,948
Net income	115,155	105,347
Net income (loss) attributable to non-controlling interests	783	(215)
Net income attributable to BOK Financial Corp. shareholders	$114,372	$105,562
Earnings Per Average Common Share Equivalent:		
Basic	$1.75	$1.61
Diluted	$1.75	$1.61

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								
December 31, 2017			September 30, 2017			June 30, 2017		
Average Balance	Revenue /Expense	Yield / Rate	Average Balance	Revenue / Expense	Yield / Rate	Average Balance	Revenue / Expense	Yield / Rate
$1,976,395	$6,311	1.27%	$1,965,645	$6,375	1.29%	$2,007,746	$5,198	1.04%
560,321	4,629	3.38%	491,613	4,122	3.47%	456,028	3,517	3.23%
228,388	3,029	5.31%	221,609	2,942	5.31%	219,385	2,931	5.34%
234,481	1,577	2.69%	254,096	1,650	2.60%	279,987	1,757	2.51%
462,869	4,606	3.98%	475,705	4,592	3.86%	499,372	4,688	3.76%
8,392,231	45,078	2.19%	8,381,536	44,579	2.16%	8,332,709	42,920	2.09%
43,685	545	5.41%	46,817	566	5.27%	51,348	725	6.09%
8,435,916	45,623	2.21%	8,428,353	45,145	2.17%	8,384,057	43,645	2.11%
792,647	5,770	2.90%	684,571	5,066	2.97%	476,102	3,539	2.92%
337,673	4,956	5.87%	328,677	4,826	5.87%	295,743	4,399	5.95%
257,927	2,389	3.72%	256,343	2,095	3.36%	245,401	2,386	3.92%
17,181,007	185,614	4.29%	17,256,663	187,506	4.31%	17,129,533	172,139	4.03%
(246,143)			(250,590)			(251,632)		
16,934,864	185,614	4.35%	17,006,073	187,506	4.38%	16,877,901	172,139	4.09%
29,758,612	259,898	3.49%	29,636,980	259,727	3.50%	29,242,350	239,511	3.30%
821,275			608,412			372,894		
2,872,228			2,762,778			2,753,327		
$33,452,115			$33,008,170			$32,368,571		
$10,142,744	$8,914	0.35%	$10,088,522	$8,062	0.32%	$10,087,640	$6,437	0.26%
466,496	87	0.07%	464,130	90	0.08%	461,586	95	0.08%
2,134,469	6,296	1.17%	2,176,820	6,378	1.16%	2,204,422	6,090	1.11%
12,743,709	15,297	0.48%	12,729,472	14,530	0.45%	12,753,648	12,622	0.40%
488,330	340	0.28%	411,286	256	0.25%	490,616	164	0.13%
6,209,903	21,242	1.36%	6,162,641	20,105	1.29%	5,572,031	15,188	1.09%
144,673	2,025	5.55%	144,663	2,070	5.68%	144,654	2,003	5.55%
19,586,615	38,904	0.79%	19,448,062	36,961	0.75%	18,960,949	29,977	0.63%
9,417,351			9,389,849			9,338,683		
332,155			145,977			162,348		
600,604			539,641			497,158		
3,515,390			3,484,641			3,409,433		
$33,452,115			$33,008,170			$32,368,571		
	$220,994	2.70%		$222,766	2.75%		$209,534	2.67%
		2.97%			3.01%			2.89%
	4,131			4,314			4,330	
	216,863			218,452			205,204	
	(7,000)			—			—	
	166,836			175,710			182,252	
	263,987			265,934			250,885	
	126,712			128,228			136,571	
	54,347			42,438			47,705	

72,365	85,790	88,866
(127)	141	719
$72,492	$85,649	$88,147
$1.11	$1.31	$1.35
$1.11	$1.31	$1.35

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

	Three Months Ended				
	June 30, 2018	Mar. 31, 2018	Dec. 31, 2017	Sept. 30, 2017	June 30, 2017
Interest revenue	$294,180	$265,407	$255,767	$255,413	$235,181
Interest expense	55,618	45,671	38,904	36,961	29,977
Net interest revenue	238,562	219,736	216,863	218,452	205,204
Provision for credit losses	—	(5,000)	(7,000)	—	—
Net interest revenue after provision for credit losses	238,562	224,736	223,863	218,452	205,204
Other operating revenue					
Brokerage and trading revenue	26,488	30,648	33,045	33,169	31,764
Transaction card revenue[1]	20,975	20,990	20,028	22,929	20,009
Fiduciary and asset management revenue	41,699	41,832	41,767	40,687	41,808
Deposit service charges and fees	27,827	27,161	27,685	28,191	28,422
Mortgage banking revenue	26,346	26,025	24,362	24,890	30,276
Other revenue	14,518	12,330	11,762	13,670	14,984
Total fees and commissions	157,853	158,986	158,649	163,536	167,263
Other gains (losses), net	3,983	(664)	552	(1,283)	6,108
Gain (loss) on derivatives, net	(3,057)	(5,685)	(3,045)	1,033	3,241
Gain (loss) on fair value option securities, net	(3,341)	(17,564)	(4,238)	661	1,984
Change in fair value of mortgage servicing rights	1,723	21,206	5,898	(639)	(6,943)
Gain (loss) on available for sale securities, net	(762)	(290)	(488)	2,487	380
Total other operating revenue	156,399	155,989	157,328	165,795	172,033
Other operating expense					
Personnel	138,947	139,947	145,329	147,910	143,744
Business promotion	7,686	6,010	7,317	7,105	7,738
Charitable contributions to BOKF Foundation	—	—	2,000	—	—
Professional fees and services	14,978	10,200	15,344	11,887	12,419
Net occupancy and equipment	22,761	24,046	22,403	21,325	21,125
Insurance	6,245	6,593	6,555	6,005	689
Data processing and communications[1]	27,739	27,817	28,903	27,412	26,111
Printing, postage and supplies	4,011	4,089	3,781	3,917	4,140
Net losses (gains) and operating expenses of repossessed assets	2,722	7,705	340	6,071	2,267
Amortization of intangible assets	1,386	1,300	1,430	1,744	1,803
Mortgage banking costs	12,890	10,149	14,331	13,450	12,072
Other expense	7,111	6,574	6,746	9,193	8,558
Total other operating expense	246,476	244,430	254,479	256,019	240,666
Net income before taxes	148,485	136,295	126,712	128,228	136,571
Federal and state income taxes	33,330	30,948	54,347	42,438	47,705
Net income	115,155	105,347	72,365	85,790	88,866
Net income (loss) attributable to non-controlling interests	783	(215)	(127)	141	719
Net income attributable to BOK Financial Corporation shareholders	$114,372	$105,562	$72,492	$85,649	$88,147
Earnings per share:					
Basic	$1.75	$1.61	$1.11	$1.31	$1.35

Diluted	$1.75	$1.61	$1.11	$1.31	$1.35
Average shares used in computation:					
Basic	64,901,975	64,847,334	64,793,005	64,742,822	64,729,752
Diluted	64,937,226	64,888,033	64,843,179	64,805,172	64,793,134

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 7 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 June 30, 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
April 1 to April 30, 2018	7,629	$ 91.46	—	1,958,174
May 1 to May 31, 2018	8,257	$ 99.84	8,257	1,949,917
June 1 to June 30, 2018	—	$ —	—	1,949,917
Total	15,886		8,257	

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 June 30, 2018, the Company had repurchased 3,050,083 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

99.1 Agreement and Plan of Merger by and among CoBiz Financial Inc., BOK Financial Corporation and BOKF Merger Corporation Number Sixteen, dated as of June 17, 2018

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: July 31, 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