



July 2017 BOK Financial Corporation and BOKF, NA DFAST Public Disclosure

BOK Financial Corporation and BOKF, NA are required to perform annual company-run capital stress testing pursuant to the Dodd-Frank Wall Street Reform and Consumer Protection Act (“Dodd-Frank Act”). The performance and disclosure requirements of Dodd-Frank Act related stress testing for the Company are defined by a number of regulatory pronouncements including “Supervisory Guidance on Implementing Dodd-Frank Act Company-Run Stress Tests for Banking Organizations with Total Consolidated Assets of More than \$10 Billion but less than \$50 Billion” which was jointly issued by the Office of the Comptroller of the Currency (the “OCC”), the Board of Governors of the Federal Reserve System (the “Federal Reserve”), and the Federal Deposit Insurance Corporation (the “FDIC”). Pursuant to this guidance BOK Financial Corporation (the “Company”) and BOKF, NA are each to perform Dodd-Frank Act Stress Tests and are to disclose certain results of the test.

BOKF, NA is the Company’s principal banking subsidiary, with total assets of approximately 99% of the Company’s total consolidated assets as of December 31, 2016. The annual Dodd-Frank Act company-run stress test is a forward looking exercise under which the Company and BOKF, NA must estimate the impact of a hypothetical severely adverse macroeconomic scenario provided by the Federal Reserve and the OCC on its financial condition and regulatory capital ratios over a nine quarter time horizon. The Supervisory Severely Adverse Scenario for the 2017 company-run stress tests was released by the Federal Reserve on February 10, 2017. It is important to note that this scenario is not a forecast and not an expected scenario or outcome, but rather a hypothetical scenario designed by the Federal Reserve to assess the strength of banks and the banking system. The results do not include actual results for the Company for First Quarter or Second Quarters of 2017 and the macroeconomic scenarios do not reflect actual changes to the economy, financial markets, or commodity markets which have occurred since the scenarios were released by the Federal Reserve.

On December 1, 2016 BOKF closed on the acquisition of MBT Bancshares, the parent company of Missouri Bank and Trust of Kansas City (“Mobank”) headquartered in Kansas City, Mo. The consolidated financial statements of BOKF at December 31, 2016 reflect the impact of the related purchase accounting entries on balance sheet and capital accounts.

Non-comparability of results

The supervisory scenarios are defined by the Federal Reserve and OCC using strictly national macroeconomic statistics. Banking organizations with banking operations focused in a certain region or regions of the country, such as BOK Financial, must translate those national economic statistics into regional economic inputs. Certain inputs to the stress test necessarily involve management judgment which may also differ among firms. The business mix and exposures to various types of risk also vary among banking organizations. These are among the factors which could result in the non-comparability of stress test outcomes among firms.

Governance

The Company's Dodd-Frank Act stress testing ("DFAST") is overseen by the Risk Committee of the Board of Directors as well as a number of management committees. These committees review and approve inputs and assumptions, processes, and methodologies, and outputs of DFAST. The same committee structure oversees other capital stress testing performed by the Company. DFAST is one of many tools used to assess capital adequacy in accordance with the expectations and principles established in guidance published by the OCC and Federal Reserve "Supervisory Guidance on Stress Testing for Banking Organizations with More than \$10 Billion in Total Consolidated Assets."

Quantitative Disclosure - BOK Financial Corporation

The following table presents summary financial results for the Supervisory Severely Adverse Scenario for BOK Financial Corporation on a consolidated basis. Please note that the regulatory capital rules changed for the banking industry with the implementation of Basel III on January 1, 2015, and certain elements of the new rules have phase-in periods which extend through 2018. The Beginning capital ratios are as of December 31, 2016 and reflect Basel III regulatory capital rules applicable as of that date. The remaining Basel III phase-in impacts, are small, and have been fully phased-in during the first quarter of the nine quarter projection period. Please see the Capital Position section under Methodologies Used in the Stress Test for more discussion of capital methodology. Income statement items represent nine quarters of cumulative results from January 1, 2017 through March 31, 2019.

Capital Ratio Measures				Income Statement	
	Beginning	Minimum	Ending		9Q Cumulative (000s):
Consolidated				Consolidated	
Tier 1 Common	11.21%	10.36%	10.36%	Pre-Provision Net Revenue	\$ 847,282
Tier 1 Risk Based	11.21%	10.36%	10.36%	Aggregated Losses	\$ 535,177
Total Risk Based	12.81%	12.18%	12.18%	Provision for Loan Loss	\$ 872,369
Tier 1 Leverage	8.72%	8.41%	8.41%	Net Income	\$ 23,819

Quantitative Disclosure - BOKF, NA

The following table presents summary financial results for the Supervisory Severely Adverse Scenario for BOKF, NA. Please note that the regulatory capital rules change for the banking industry with the implementation of Basel III on January 1, 2015 and certain elements of the new rules have phase-in periods which extend through 2018. The Beginning capital ratios are as of December 31, 2016 and reflect Basel III regulatory capital rules applicable as of that date. The remaining Basel III phase-in impacts are small, and have been fully phased-in during the first quarter of the nine quarter projection period. Please see the Capital Position section under Methodologies Used in the Stress Test for more discussion of capital methodology. Income statement items represent nine quarters of cumulative results from January 1, 2017 through March 31, 2019.

Capital Ratio Measures				Income Statement	
	Beginning	Minimum	Ending		9Q Cumulative (000s):
Bank				Bank	
Tier 1 Common	10.65%	9.63%	9.67%	Pre-Provision Net Revenue	\$ 804,685
Tier 1 Risk Based	10.65%	9.63%	9.67%	Aggregated Losses	\$ 523,997
Total Risk Based	11.70%	10.88%	10.92%	Provision for Loan Loss	\$ 872,369
Tier 1 Leverage	8.11%	7.55%	7.69%	Net Income	\$ (5,069)

Macroeconomic Scenario

The Company projects the impact of adverse macroeconomic scenarios (“stressed economic conditions”) on its net income, balance sheet, risk-weighted assets, and capital adequacy. The projections disclosed herein are based on macroeconomic factors provided by the Federal Reserve and the OCC. The macroeconomic factor projections describe a hypothetical scenario designed to assess the strength of the Company and its resilience to severely stressed adverse economic conditions. Following is a description of the Supervisory Severely Adverse Scenario defined by the Federal Reserve and the OCC and used to project the results of the 2017 Dodd-Frank Act Stress Test which forms the basis of this disclosure. The nine-quarter stress time horizon for the 2017 Stress Test is from January 1, 2017 through March 31, 2019.

Supervisory Severely Adverse Scenario Definition

The Supervisory Severely Adverse Scenario, as published by the Federal Reserve and the OCC, is characterized by “a severe global recession that is accompanied by a period of heightened stress in corporate loan markets and commercial real estate markets.”¹ Key national economic factors that drive the scenario are as follows:

- Unemployment peaks at 10.0 percent in 3Q2018.
- Real Gross Domestic Product (GDP) declines about 6.5 percent at the trough.

1 Defined by the Board of Governors of the Federal Reserve System in the "2017 Supervisory Scenarios for Annual Stress Tests Required under the Dodd-Frank Act Stress Testing Rules and the Capital Plan Rule", revised version published on February 10, 2017.

- Consumer Price Inflation (CPI) initially falls to an annual rate of about 1.25% before peaking at almost 2.0 percent in late 2018.
- Equity prices decline approximately 50 percent at the trough.
- Housing prices decline roughly 25 percent through the first quarter of 2019.
- Commercial real estate (CRE) prices decline approximately 35 percent through the first quarter of 2019.
- Short-term interest rates fall and remain at 0.10% through the nine quarters.
- Long-term 10-year Treasury rates decline to 0.80% in 1Q2017 and gradually increase to 1.5% by the end of the stress horizon.
- Mortgage rates peak at 4.6% in 4Q2017, and gradually decline to 3.8% by the final quarter.

The Company identifies the macroeconomic indicators most relevant to the Company's business activities, including factors not provided in the supervisory macroeconomic scenarios. For relevant drivers that are not provided by the Federal Reserve or the OCC, the Company derives values based on historical correlations to the supervisory-defined macroeconomic factors observed in historical periods. Additional macroeconomic factors projected by the Company may include additional energy prices, regional economic performance metrics, and a broader array of interest rate curves and term points. These factors, along with the factors published by the Federal Reserve and the Office of the Comptroller of the Currency, reflect drivers of economic activity, the value of primary collateral pools, and interest rates. These variables also are selected for their impact on the performance of the Company's businesses.

The average economic performance of the states in which the Company operates during the 2008-2010 recession was notably better than the economic performance for the country as a whole. As the Company assessed its approach to the DFAST it did not assume the same very favorable regional performance would occur in the hypothetical Severely Adverse scenario being modeled. The company therefore elected to assume a significant moderation in the relative outperformance of its regional economy versus that of the national economy. This assumption was vetted through management committees and the Risk Committee of the Board of Directors, and may be altered in future stress tests. Testing various levels of performance of the regional economy is a valuable tool to further understand the capital strength of the company. This is an important assumption that is either made passively or actively by a regional bank, and is one of the reasons that results will not necessarily be comparable among firms.

Risks Included in the Stress Test

The Risk Committee of the Board of Directors is responsible for reviewing and approving the risks included in the DFAST. Board approved policies identify which management committees are to identify and review and approve the risks included prior submission to the Risk Committee. The key risk exposures incorporated into the DFAST are credit risk, interest rate risk, market risk, liquidity risk, and operational risk. The Bank projects the impact of these risks to its net income, balance sheet, and capital positions, and also considers other financial impacts of stressed economic factors on the performance of the Company's businesses.

Credit risk is the risk of loss resulting from the failure of a borrower or counterparty to honor its financial or contractual obligations to the Company. Credit Risk arises in lending activities, the investment portfolio, as well as trading activities where counterparties have repayment of principal or interest or other obligations to the Company. Credit risk related to lending activities directly affects the allowance for loan losses on the balance sheet and the provision for credit losses on the income statement.

Interest rate risk is the potential reduction of net interest income as a result of changes in interest rates, which can affect the re-pricing of assets and liabilities differently. The Company's net interest income is affected by market rates of interest, which in turn are affected by prevailing economic conditions, by the fiscal and monetary policies of the federal government and by the policies of various regulatory agencies. The stressed macroeconomic Severely Adverse Scenario includes assumptions about key interest rates. The Company's stress test results incorporate key interest rate assumptions in the estimate of the yield on assets and funding costs, as well as in the composition of its balance sheet.

Market risk arises from fluctuations in interest rates or security prices which may result in changes in the values of financial instruments carried at fair value, such as trading and available-for-sale securities, mortgage loans held for sale, mortgage servicing rights ("MSRs"), and derivatives. The Bank considers the impact of these risks in its projections under the stressed economic conditions.

Liquidity risk is the possible inability to fund obligations or new business at a reasonable cost in a timely manner. The Company's liquidity is essential for the operation of its business. Market conditions and other events could negatively affect the Company's access to funds or its borrowing costs. The Company makes an assessment of the liquidity and wholesale borrowing cost profile and includes any material incremental borrowing costs in interest expense.

Operational risk is the risk of loss resulting from inadequate or failed internal processes, people or systems, or from external events, including the risk of loss resulting from breaches in data security. Operational risk can also include failures by third parties with which the Company does business. The Company's stress testing process estimates and quantifies the effect of stressed economic conditions on fraud related operational losses, and their effect on the Company's net income and capital positions.

Methodologies Used in the Stress Test

The Dodd Frank Act Stress Test is a stress test of capital adequacy, and the disclosure covers the Severely Adverse Scenario defined by the Federal Reserve and the OCC. This section describes the methodologies applied to estimate capital levels over the projected nine quarter time horizon. Key outputs from this process include a pro forma income statement, balance sheet, and off balance sheet exposures, which are used to produce capital projections, including projections of risk weighted assets and regulatory capital ratios. In developing pro forma financial statements, the Company applies accounting practices consistent with the Company's significant GAAP accounting policies and regulatory capital rules consistent with supervisory guidance.

The Company's stress testing methodologies focus on empirically defining the relationships between macroeconomic variables and business volumes, revenues, expenses, and losses in order to estimate outcomes which may result from the specified Severely Adverse Scenario. The Company uses a series of models and estimation methodologies, coupled with management judgment, to produce an estimate of future business performance. Stress testing methodologies are subject to considerable uncertainties and modeling limitations, including uncertainty about the extent to which historical relationships between macroeconomic factors and business outcomes will continue to be relevant in a severely stressed economic environment. The Company routinely considers uncertainties and the limitations of our estimates when evaluating stress test results.

Net Income

The outcome projected for net income under the stressed economic conditions includes the impact on the Company's pre-provision net revenue, provision for credit losses, realized gains or losses on the Company's available-for-sale ("AFS") or held-to-maturity ("HTM") investment portfolio and other gains or losses. These include the benefit to the Company's income tax expense resulting from the ability to utilize losses and the use of tax credits from the Company's tax-advantaged community investments.

Capital Position

In projecting its capital position, the Company incorporates the net income projections for each quarter and any capital actions for each quarter. Assumptions for dividends paid on common stock are consistent with DFAST regulations for companies between \$10 and \$50 billion in assets, other regulatory requirements relating to the payment of dividends such as Federal Reserve SR letter 09-4, and the capital policy of the Company. The Company analyzes the effects of the stressed economic conditions on its net deferred tax asset position, MSRs, and non-significant equity investments to determine the appropriate level of deductions from regulatory capital if applicable pursuant to Basel III capital rules.

The Company calculates, according to the applicable capital regulations, its risk-weighted assets for on-and off-balance sheet credit exposures, and total assets. The Company's capital ratio is then determined by dividing regulatory capital by the risk-weighted or total assets.

Regulatory capital ratios are reported using the Basel III rules. Certain elements of the Basel III standardized rules contain phase-in effects. Due to the small magnitude of the phase-in effects for the Company, all remaining phase-in effects have been incorporated in the first quarter of the nine quarter projection period.

Pre-provision Net Revenue

The projections under the stressed economic conditions are produced for:

- Balance Sheet and related Net Interest Income
- Fee Revenue
- Gains and Losses Excluding Other Than Temporary Impairments (OTTI) on Investment Securities
- Non-Interest Expenses.

Balance Sheet and related Net Interest Income and Fee Income:

Balance Sheet and Net Interest Income:

Balance sheet projections include loans, securities, non-earning assets, interest-bearing non-maturity deposits, demand deposits, CDs, wholesale borrowings, and other liabilities. Projections are conditioned on macroeconomic variables where practical and modified by management judgment to be consistent with interest rate risk management strategy. Loan balance assumptions generated higher loan balances outstanding at the end of the stress test than at the beginning. This provided incrementally more stress on the capital ratios than has actually been experienced by loan balance behavior in historical periods of economic stress, and demonstrates the ability of the company to support its local markets and regional economy through a period of severe stress.

To a large extent, the estimate of net interest income is driven by the contractual features of the underlying balance sheet instruments. To model the behaviors of the existing balance sheet, instrument details are collected for the Company's loan, deposit, investment, and wholesale funding portfolios. This detailed data is used in conjunction with assumptions regarding the terms of new business added during the stress period to project interest income and interest expense. Assumptions are made regarding the various key inputs such as prepayment speeds, deposit balances and mix, as well as pricing strategies including those for administered deposit rates. Assumptions are consistent with management expectations and include the consideration of historical experience and anticipated customer behavior.

Fee Income:

Fee income includes brokerage and trading, transaction card revenue, fiduciary and asset management revenue, deposit service charges and fees, mortgage banking revenue, and other fee revenue sources.

The estimation process for fee income is based on macroeconomic and financial market variable assumptions as well as key business performance metrics. Methodologies to estimate fee income vary across the major categories and are tailored to the underlying business activity being considered. In addition to statistical models, the approaches include consideration of historical experience, expectations around new business, impact of regulatory changes, and management judgment.

Regardless of methodology, all projections rely on the same consistent view of the macroeconomic environment as those business lines using regression modeling. Each business line individually evaluates the macroeconomic scenario factors to determine which factors are significant for their respective fee income categories. Management then projects how these inputs impact their key business drivers of fee income.

Gains and Losses Excluding OTTI on Investment Securities

The Company carries the MSR asset and its associated hedge portfolio at fair value. These values are highly sensitive to the path and level of interest rates. The Company projects the change in the fair value of mortgage servicing rights and the accompanying hedge securities based on the scenario variables and a model calibrated on historical exposure.

The Company does not assume there will be material gains or losses realized from the AFS or HTM portfolios in the Severely Adverse Scenario.

Non-Interest Expenses:

With personnel expense accounting for over half of non-interest expenses, the projections of business activity and the resulting effect on incentive compensation are meaningful. In addition to routine fixed and variable business expenses, costs that materialize from other risks in the stress environment, such as FDIC insurance expense, operational losses and increases in foreclosed and repossessed asset related expense, are also included. Where non-interest expense relationships are indeterminate with macroeconomic drivers or financial market variable assumptions, historical experience and management judgment is employed.

Aggregate Losses

Aggregate losses include net charge-offs (net credit losses), described in the Provision for Credit Losses section below, and OTTI. The company assesses OTTI for its non-agency mortgage backed securities, corporate securities, and municipal securities. Macroeconomic variables and underlying credit metrics for each exposure are used in the impairment assessment for each security type and any resulting OTTI is recorded in the appropriate quarter.

Provision for Credit Losses

The Company projects net credit losses and provision expenses under the stressed economic conditions based on several key inputs. These inputs include beginning period loan balances and portfolio composition, macroeconomic assumptions of the scenario, forecasts of loan portfolio balances, and forecasts of defaults and losses. The Company's loss forecasting models are regression models developed based on historical experience. Losses are separately forecast for each major portfolio segment. The Company evaluates the loss forecasts produced by models by considering past portfolio performance, the results of a challenger model, and expectations of future performance given the scenario's economic assumptions. The provision expense is based on the loss forecasts, portfolio growth, and the Company's Allowance for Loan Loss Reserve Methodology, including managerially determined qualitative and environmental factors.

Income Taxes

The Company's process for estimating the impact of income taxes on earnings and capital involves estimating the periodic effective tax rate to apply to earnings, estimation of the deferred tax position at each period-end based on estimates for the most significant temporary differences, and measuring any deferred tax asset limitations under the relevant capital framework.

The effective tax rate differs from the marginal tax rate principally as a result of tax credits generated by the Company's tax-advantaged community investments and, to a lesser extent, income from the Company's tax-exempt investments.

The Company evaluates the likelihood of any deferred tax asset being realized by considering factors that include whether there is sufficient taxable income in prior periods to support recovery through carryback and the ability of the Company to realize tax benefits in future periods.

Changes in Regulatory Capital Ratios for BOK Financial Corporation

In all scenarios the Company's capital ratios remain in excess of regulatory minimums at all times. At the consolidated level and relative to the value on December 31, 2016:

- Ending Common Equity Tier 1 ratios are 86 bps lower in the Severely Adverse Scenario.
- Ending Tier 1 Leverage ratios are 31 bps lower in the Severely Adverse Scenario.
- Ending Total Risk-Based Capital ratios are 63 bps lower in the Severely Adverse Scenario.
- Ending Tier 1 Risk-Based Capital ratios are 86 bps lower in the Severely Adverse Scenario.

Common Equity Tier 1 and Tier 1 risk based capital ratios for BOK Financial Corporation decrease primarily due to dividends assumed to be paid to common shareholders, to a lesser extent the remaining phase-in items from the Basel III capital rules and RWA growth. Additions to capital resulting from PPNR are largely offset by reductions to capital from provision expense.

Changes in Regulatory Capital Ratios for BOKF, NA

In all scenarios the Company's capital ratios remain in excess of regulatory minimums at all times. At the bank level and relative to the value on December 31, 2016:

- Ending Common Equity Tier 1 ratios are 98 bps lower in the Severely Adverse Scenario. Minimum Common Equity Tier 1 ratios are 102 bp lower in the Severely Adverse Scenario.
- Ending Tier 1 Leverage ratios are 43 bps lower in the Severely Adverse Scenario. Minimum Tier 1 Leverage ratios are 56 bp lower in the Severely Adverse Scenario.
- Ending Total Risk-Based Capital ratios are 78 bps lower in the Severely Adverse Scenario. Minimum Total Risk-Based Capital ratios are 82 bp lower in the Severely Adverse Scenario.
- Ending Tier 1 Risk-Based Capital ratios are 98 bps lower in the Severely Adverse Scenario. Minimum Tier 1 Risk Based ratios are 82 bp lower in the Severely Adverse Scenario.

Common Equity Tier 1 and Tier 1 risk based capital ratios for BOKF, NA decrease due to Basel III transition effects, upstream dividends, and RWA growth, as the beneficial effect of PPNR are largely offset by the effect of provision expense.

This Report contains forward-looking statements, including projections of the Company and BOKF, NA financial results and condition under a hypothetical scenario that incorporates a set of assumed economic and financial conditions prescribed by its regulators. The projections are not intended to be a forecast of expected future economic or financial conditions or a forecast of the Company's or BOKF's expected future financial results or condition, but rather reflect possible results under the prescribed hypothetical scenario. The Company's future financial results and condition will be influenced by actual economic and financial conditions and various other factors as described in its reports filed with the Securities and Exchange Commission and available at www.sec.gov.