



Wells Fargo & Company

# 2019 Mid-Cycle Stress Test Results

Under the Company's Assumed Severely Adverse Scenario

---

October 30, 2019

# Table of contents

---

Overview..... 3

Severely Adverse Scenario ..... 4

Summary Results for the Severely Adverse Scenario ..... 6

Stress Testing Methodologies..... 10

*In this Report, when we refer to “Wells Fargo,” “the Company,” “we,” “our” or “us”, we mean Wells Fargo & Company and Subsidiaries (consolidated). When we refer to “Wells Fargo Bank, N.A.” or “the Bank,” we mean Wells Fargo Bank, National Association, the Company’s principal subsidiary.*

*This Report contains forward-looking statements, including projections of our financial results and condition under a hypothetical scenario that incorporates a set of assumed economic and financial conditions prescribed by us. The projections are not intended to be our forecast of expected future economic or financial conditions or our forecast of the Company’s expected future financial results or condition, but rather reflect possible results under the Company defined hypothetical scenario. Our future financial results and condition will be influenced by actual economic and financial conditions and various other factors as described in our reports filed with the Securities and Exchange Commission (SEC) and available at [www.sec.gov](http://www.sec.gov).*

## Overview

---

Wells Fargo & Company is a diversified, community-based financial services company with \$1.9 trillion in assets. Wells Fargo’s vision is to satisfy our customers’ financial needs and help them succeed financially. Founded in 1852 and headquartered in San Francisco, Wells Fargo provides banking, investment and mortgage products and services, as well as, consumer and commercial finance through 7,500 locations, more than 13,000 ATMs, the internet ([wellsfargo.com](http://wellsfargo.com)) and mobile banking, and has offices in 32 countries and territories to support customers who conduct business in the global economy. With approximately 261,000 team members, Wells Fargo serves one in three households in the United States. Wells Fargo & Company was ranked No. 29 on Fortune’s 2019 rankings of America’s largest corporations.

As a large bank holding company, Wells Fargo is subject to the *Supervisory and Company-Run Stress Test Requirements for Covered Companies* rule issued by the Board of Governors of the Federal Reserve System (Federal Reserve) to implement the stress testing and disclosure requirements of the Dodd-Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank Act stress tests). A stress test is defined in the rule as “a process to assess the potential impact of scenarios on the consolidated earnings, losses, and capital of a company over the planning horizon, taking into account its current condition, risks, exposures, strategies, and activities.”

Since the 2008 financial crisis, stress testing has evolved as an important analytical tool for evaluating capital adequacy under assumed severely adverse conditions. Wells Fargo regularly uses such exercises in its capital management framework to measure our exposure to material risks and evaluate the adequacy of capital resources available to absorb potential losses arising from those risks and to continue to support lending and other key operations during severely adverse economic conditions. We conduct multiple stress tests each year under a range of adverse scenarios.

In this Report, we present the results of our 2019 Mid-Cycle Dodd-Frank Act stress test. This test evaluates the potential impact of a Company-defined severely adverse scenario, inclusive of the Company-defined global market shock and the counterparty default components (the Scenario), on the Company’s consolidated financial position. It is important to note that the Scenario is not a forecast but rather a hypothetical scenario with assumed economic and financial conditions designed by us to assess our strength and resilience to severely adverse economic environments and market conditions.

Our stress testing results in pro forma capital ratios that include specific assumptions regarding capital actions that are prescribed by the Dodd-Frank Act stress test rule<sup>1</sup> (Dodd-Frank capital actions). The Dodd-Frank capital actions assume common stock dividend payments are maintained over the duration of the hypothetical scenario at the Company’s quarterly average dollar amount for the period Q4 2018 through Q3 2019 plus common stock dividends attributable to

<sup>1</sup> The prescribed Dodd-Frank Act capital actions include estimated Q3 2019 capital actions taken by the Company, and for quarters two through nine of the test horizon, no issuance of regulatory capital other than assumed issuance of common stock for employee compensation or in connection with a planned merger or acquisition; payments of common stock dividends equal to the quarterly average dollar amount paid by the Company from Q4 2018 through Q3 2019; payments on all other regulatory capital instruments equal to the stated dividend, interest, or principal due during the quarter; and no capital redemptions or repurchases.

issuances related to expensed employee compensation or in connection with a planned merger or acquisition. In practice, if this Scenario were to occur, the Company would take capital conservation actions mandated by internal policy, which would include but not be limited to changes in common stock dividend payments.

We performed our stress test by projecting balance sheet changes, losses and related provision, revenue, expense, risk-weighted assets, and capital ratios under the Scenario using models and methodologies developed or selected by the Company, except where the assumptions, practices or methodologies were specifically prescribed by rules or instructions published by the Federal Reserve<sup>2</sup>. The stress test results summarized in this Report are not comparable to the results of other stress tests performed by the Company in the past due to a number of factors, including the uniqueness of the scenarios used to prepare each stress test, differences in market conditions and the Company's financial position and exposures at the time each stress test is performed, differences in capital actions assumptions, and the evolving risk quantification methodologies and regulatory capital frameworks that may be applicable at the time each stress test is conducted.

The stress test results summarized in this Report should not be interpreted as expected or likely outcomes for the Company, but rather as a possible result under hypothetical, highly adverse economic conditions that do not take into account capital conservation actions mandated under internal policy if the Scenario were to actually occur.

The results of our 2019 Mid-Cycle stress test suggest that the Company's performance would decline under the assumptions of the Scenario in response to increased provision expenses, reduced business volumes, lower net interest income, and higher market-related losses. As shown in Table 4, for the nine-quarter test horizon from July 1, 2019 to September 30, 2021, we project a cumulative total net loss before tax of \$29.2 billion. This cumulative net loss before tax reflects projected losses of \$47.6 billion from provision for loan losses, trading and counterparty credit losses, and losses on debt securities and other losses. These losses are partially offset by projected cumulative pre-provision net revenue (PPNR) of \$18.4 billion, which represents projected net interest income plus noninterest income less noninterest expense.

Our pro forma Common Equity Tier 1 ratio decreases from 12.0% at June 30, 2019 to 9.4% at September 30, 2021 (see Table 2). Despite projected declines in revenue, significant losses, and the mandated assumption that capital conservation actions would not be taken, the projected minimum Common Equity Tier 1 ratio during the nine-quarter test horizon was 9.1%, well above the 4.5% stress test regulatory minimum. The Common Equity Tier 1 ratio results are calculated under the standardized approach, estimated under the Scenario assumptions and reflect the required Dodd-Frank capital actions.

## Severely Adverse Scenario

---

The Scenario depicts a severe recession precipitated by a global roll-back of open markets and free trade. Tariffs are enacted against several trading partners, which, along with a hard Brexit, leads to steep reductions in investment and a global economic recession.

As confidence slumps, businesses abruptly terminate capital expenditures and commence layoffs in an attempt to protect profit margins amidst a growing crisis. A contentious Brexit further dampens already vulnerable business and consumer confidence in Europe, pushing the continental economy into a prolonged recession. As events unfold, the Federal Reserve reduces the federal funds rate to 10 basis points (bps) where it remains through the forecast horizon.

Overall, real gross domestic product (GDP) declines 6.8%, hitting bottom in Q4 2020 with severe damage inflicted on property and equity markets. Unemployment rises to 10% and the S&P 500 Index declines by 51%. Home prices fall 27% with declines generally being greater in geographic areas with high Wells Fargo concentration. Commercial real estate prices also suffer, as job losses cause vacancy rates to increase, lease rates to decline, and operating income to fall. Overall,

<sup>2</sup> See Board of Governors of the Federal Reserve System, "Comprehensive Capital Analysis and Review 2019 Summary Instructions," March, 2019, for the CCAR and Dodd-Frank Act stress test instructions.

commercial property prices decline 30% peak to trough, also with a geographic bias that targets Wells Fargo's concentrations. Table 1 summarizes key macroeconomic metrics from the hypothetical Scenario.

**Table 1: Select Company-Defined Severely Adverse Scenario Macroeconomic Variables (1)**

Quarter	Unemployment rate	Real GDP growth	3-month USD Libor	10-year Treasury yield	Mortgage rate	CoreLogic HPI	CoStar CRE Index	S&P 500 Stock Price Index
Q1 2019	3.9%	3.2%	2.69%	2.65%	4.37%	205.6	235.1	2,722
Q2 2019	3.7%	2.2%	2.59%	2.56%	4.18%	207.4	238.8	2,930
Q3 2019	4.0%	-3.2%	3.28%	1.35%	3.49%	202.9	238.3	2,345
Q4 2019	4.9%	-6.3%	2.85%	1.22%	3.57%	196.0	232.2	1,829
Q1 2020	6.1%	-7.7%	1.92%	1.10%	3.62%	186.2	221.8	1,555
Q2 2020	7.4%	-6.0%	1.18%	1.00%	3.65%	177.9	211.4	1,443
Q3 2020	8.6%	-4.1%	0.64%	1.05%	3.59%	168.4	199.0	1,506
Q4 2020	9.4%	-0.3%	0.60%	1.10%	3.47%	160.5	187.9	1,604
Q1 2021	9.8%	1.5%	0.55%	1.16%	3.45%	155.4	179.2	1,702
Q2 2021	10.0%	1.1%	0.52%	1.20%	3.36%	152.1	172.3	1,781
Q3 2021	9.9%	1.3%	0.50%	1.20%	3.33%	151.4	168.1	1,847
Q4 2021	9.7%	1.7%	0.44%	1.30%	3.31%	153.4	166.8	1,908
Q1 2022	9.2%	2.1%	0.47%	1.40%	3.37%	157.0	166.9	1,970
Q2 2022	8.9%	2.4%	0.45%	1.50%	3.45%	160.4	166.8	2,040
Q3 2022	8.7%	2.5%	0.46%	1.60%	3.52%	163.9	169.6	2,117

(1) All economic variables listed in Table 1 are quarterly averages except GDP which is presented at an annualized rate. HPI stands for House Price Index with January 2000 = 100 and CRE stands for Commercial Real Estate Price Index with January 2001 = 100. The forward looking test horizon includes Q3 2019 to Q3 2021.

As designed, the Scenario deliberately stresses key balance sheet positions, including loan and securities portfolios and mortgage servicing rights (MSR) assets. In addition, the Scenario is designed to significantly and immediately curtail meaningful sources of revenue and capital generation for Wells Fargo, such as mortgage banking and trust and investment fees.

Our economics team uses a robust, top-down approach to develop the projected variables in the Scenario. The Scenario is based upon outputs from a credible, widely-used econometric macro-simulation model that shows an internally consistent evolution of the economy under severely adverse macroeconomic conditions. The variable paths are projected to be consistent and plausible, even in approximating situations that have not occurred previously. The initial set of key variables is selected to help ensure the Scenario reflects a severe economic downturn which encompasses our idiosyncratic risks, internal policy guidelines for severity and other unique characteristics. Once the macroeconomic forecast summary and the paths of key economic variables are created and internally approved, we use additional models to develop regional level economic projections to better address risks on a geographically granular basis.

Specifically, U.S.-level metrics serve as key drivers of the regional and global economic models, whose output includes projections for all 50 states, the District of Columbia, 401 metropolitan statistical areas (MSAs), and key foreign countries, culminating in over 4,700 detailed forecasted variables. In all instances, our methodology to create the detailed variables is performed in a theoretically sound and empirically rigorous way to help ensure internal consistency and coherence.

The Scenario also incorporates a global market shock component, which is a one-time hypothetical market shock to our trading, private equity, and counterparty credit exposures. Generally, these shocks involve large and sudden changes in interest rates, credit spreads, foreign exchange rates, equity and commodity prices, as well as mortgage rates and market liquidity, reflecting general market dislocation and heightened uncertainty. We designed a global market shock that stressed the idiosyncratic aspects of our market risk exposure. The hypothetical global market shock was applied to the June 30, 2019 trading portfolio by fully revaluing each position for the entire portfolio. The difference between the original market value and the post-shock market value is the amount of gain/loss for the stress Scenario. After applying the

market shock, we assume an instantaneous and unexpected default of our largest counterparty, identified by the largest total net stressed exposure as of the market shock measurement date.

## Summary Results for the Severely Adverse Scenario

Under the Scenario, the Company's pro forma Common Equity Tier 1 ratio was projected to decrease from 12.0% at June 30, 2019 to 9.4% at September 30, 2021, the end of the nine-quarter test horizon. The projected minimum Common Equity Tier 1 ratio over the nine-quarter test horizon was 9.1%, which exceeds the 4.5% stress test regulatory minimum. The risk-based capital ratios are calculated under the standardized approach with the total capital ratio calculated under the standardized approach with transition requirements. All capital ratios reflect the Dodd-Frank capital actions. As shown in Table 2, all capital ratios remain above the regulatory minimum ratios throughout the nine-quarter test horizon.

**Table 2: Projected Capital Ratios**

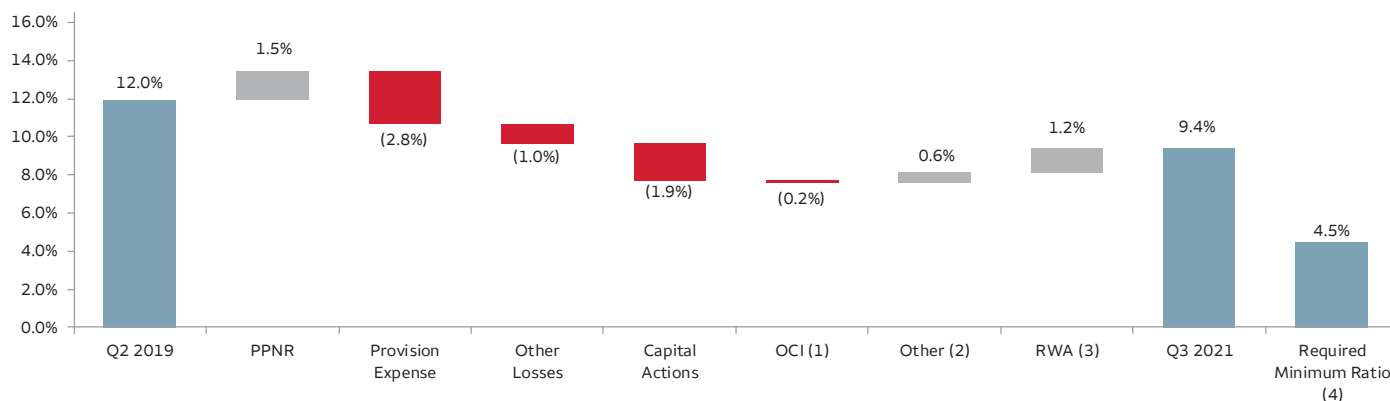
	Actual		Stressed pro forma ratios		Regulatory
	Jun. 30, 2019		Sep. 30, 2021	Minimum	Minimum (1)
Common Equity Tier 1	12.0	%	9.4	9.1	4.5 %
Tier 1 risk-based capital	13.7		11.2	10.7	6.0
Total risk-based capital	16.7		14.6	14.0	8.0
Tier 1 leverage	9.1		7.1	7.1	4.0
Supplementary leverage ratio	7.7		6.4	6.4	3.0
<b>Memo items - Risk-Weighted Assets (2)</b>					
(in billions)					
Standardized approach	\$	1,246.7	\$	1,080.7	

(1) As defined by the regulations issued by the Federal Reserve, OCC and FDIC. Under CCAR stress testing rules, the required minimum regulatory ratios do not include the GSIB capital surcharge, the capital conservation buffer, the countercyclical buffer, or the supplementary leverage buffer.

(2) Risk-weighted assets are calculated under the standardized risk-based capital approach.

The pro forma Tier 1 and Total risk-based capital ratios were projected to decline by 246 basis points (bps) and 218bps, respectively, by the end of the nine-quarter test horizon due to changes in the level of Common Equity Tier 1. All three of the risk-based capital ratios were affected by a decrease in risk-weighted assets mainly driven by the decline in loan balances. The 197bps decrease in the projected pro forma Tier 1 leverage ratio was due to lower ending Tier 1 capital. The supplementary leverage ratio also remains well above the 3% regulatory minimum.

**Table 3: Common Equity Tier 1 Ratio Attribution Analysis**



(1) Other comprehensive income.

(2) Other incorporates all other adjustments, including goodwill and other intangibles, income tax, and net income attributable to non-controlling interests.

(3) Risk-weighted assets.

(4) The required minimum ratio does not include the GSIB capital surcharge or the capital conservation buffer.

Numbers may not foot due to rounding.

As shown in Table 3, the material drivers of changes in the projected pro forma Common Equity Tier 1 ratio include projected positive pre-provision net revenue offset by provision expense, other losses, which include the market shock and counterparty default, as well as the mandated Dodd Frank capital actions and a decline in other comprehensive income. Risk-weighted assets decline over the nine-quarter test horizon due primarily to a decline in loan balances as a result of charge-offs and weakened loan demand. Throughout the nine-quarter forecast horizon our projected Common Equity Tier 1 ratio remains above the regulatory minimum.

As shown in Table 4, for the nine-quarter test horizon we projected a cumulative pro forma net loss before taxes of \$29.2 billion.

**Table 4: Nine-Quarter Cumulative Projected Net Revenue, Losses and Net Income Before Taxes**

(in billions)	Nine quarter cumulative, ending Sep. 30, 2021	Percent of average assets (1)
Pre-provision net revenue (2)	\$ 18.4	1.4%
Less		
Provision for loan and lease losses (3)	34.8	
Realized losses on securities & Other Losses (4)	1.6	
Trading and counterparty losses (5)	11.2	
Subtotal of losses	47.6	
Net income before taxes	\$ (29.2)	-2.2%
<b>Memo items</b>		
Other comprehensive income (6)	\$ (2.0)	
<i>Other effects on capital</i>	<u>Q2 2019</u>	<u>Q3 2021</u>
Accumulated other comprehensive income included in capital	\$ (2.2)	\$ (4.3)

- (1) Average assets is the nine-quarter average of total assets (from Q3 2019 through Q3 2021).
- (2) Pre-provision net revenue represents net interest income plus noninterest income less noninterest expense. It includes losses from operational risk events and expenses associated with the change in the allowance for unfunded commitments. It includes projected change in fair value of loans held for sale (and commitments to commit assumed to become held for sale) and loans accounted for under the fair value option of \$1B.
- (3) Provision for loan and lease losses is reported in accordance with the reporting criteria required in the FR Y-14A.
- (4) Realized losses on debt securities \$0.4B. Other Losses of \$1.2B primarily include realized gains and losses on marketable equity securities.
- (5) Trading and counterparty losses include mark-to-market losses, changes in credit valuation adjustments (CVA), single largest counterparty default, incremental default losses, and losses on non-trading related private equity positions that were subject to the global market shock stress.
- (6) Projected other comprehensive income is reported in after-tax dollars and includes incremental unrealized losses/gains on available for sale securities and held to maturity securities that have experienced other than temporary impairment and includes unrecognized losses/gains on pension plan obligations and pension assets.

### Pre-Provision Net Revenue

The estimated stressed pre-provision net revenue of \$18.4 billion reflects projected declining levels of net interest income, noninterest income, and an increase in noninterest expense.

The decline in net interest income is due primarily to lower loan demand, consistent with a severe recession, higher levels of non-performing assets, and the incorporation of an assumed liquidity stress event that increases our funding costs. The Scenario assumes short term interest rates remain low throughout the hypothetical test horizon, which reduces our net interest income. Lower trust and investment fees, lower mortgage banking fees, and reductions in most other noninterest income categories result from the hypothetical depressed economic environment. Trust and investment fees are lower as a result of the depressed equity market levels and slower economic growth. Mortgage banking fees decline due to net losses hedging the fair value of mortgage servicing rights (MSRs), as unhedgeable risks emerge in this hypothetical scenario. Noninterest expense increases, driven primarily by higher operating losses, FDIC deposit insurance expense, and foreclosed asset expense, which are partially offset by lower personnel expense.

### Provision for Loan and Lease Losses

The nine-quarter cumulative provision for loan and lease losses was projected at \$34.8 billion and consists of projected loan loss net charge-offs of \$25.5 billion and a net increase in the allowance for loan and lease losses (ALLL) of \$9.3 billion under the hypothetical scenario. Per the Federal Reserve's instructions, we did not reflect adoption of accounting standard No. 2016-13, Financial Instruments – Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments (CECL).

Projected loan losses by type of loan are presented in Table 5.



**Table 5: Projected Loan Losses by Type of Loan under the Severely Adverse Scenario <sup>(1)</sup>**

(in billions)		Nine quarters cumulative Sep. 30, 2021	Cumulative portfolio loss rate <sup>(4)</sup>
First lien mortgages, domestic	\$	1.4	0.5%
Junior lien and home equity lines of credit, domestic		0.9	2.3%
Commercial & industrial <sup>(2)</sup>		6.3	3.2%
Commercial real estate, domestic		3.0	2.4%
Credit card		6.5	16.9%
Other consumer		3.2	4.6%
All other loans <sup>(3)</sup>		4.3	2.5%
Projected loan losses	\$	25.5	2.7%

(1) The loan categories presented in Table 5 adhere to FR Y-14A reporting definitions and will differ from the loan categories presented in our financial reports filed with the SEC.

(2) Commercial and industrial loans include small and medium enterprise loans and corporate cards.

(3) All other loans are largely commercial loans, and include loans to purchase or hold securities, loans secured by farmland, agricultural loans, loans to various financial institutions, and lease financing receivables, as well as overdrafts from commercial and consumer accounts.

(4) The cumulative portfolio loss rate is calculated by dividing the nine quarter cumulative net losses by the average loan balances over the same period. Average loan balances used to calculate portfolio loss rates exclude loans held for sale and loans held for investment under the fair value option.

While charge-offs represent the realization of loan losses that would have occurred each period in the hypothetical stress test, an increase in ALLL under the Scenario represents the recognition of loan losses and occurs in advance of the loan loss realization under generally accepted accounting principles (GAAP). The ALLL is management's estimate of incurred credit losses inherent in the loan portfolio at a specified point in time. Changes in the ALLL balance are reflected through the provision to help ensure adequate coverage of losses inherent in the loan portfolio at the specified point in time. Projected provision expense associated with the change in the allowance for unfunded credit commitments is included in pre-provision net revenue.

The commercial loan portfolio consists of commercial real estate (CRE) loans, which include CRE construction loans, and commercial non-real estate loans, which include commercial and industrial (C&I) loans and all other commercial loans. Estimated losses over the nine-quarter horizon on the commercial loan portfolio, including all other loans, totaled \$13.5 billion, or 53%, of the total loan losses in the Scenario. The estimated commercial loan losses were influenced by changes in the projected economic variables, particularly GDP, the unemployment rate, and commercial real estate prices.

The consumer loan portfolio consists of residential real estate loans (first lien, junior lien and home equity lines of credit), credit cards, and other consumer loans (primarily student loans, auto loans, and unsecured personal loans/lines of credit). Estimated losses over the nine-quarter horizon on the consumer portfolio totaled \$12.0 billion, or 47%, of the total loan losses in the Scenario. The estimated consumer loan losses were influenced by changes in the projected economic variables, notably the unemployment rate and home price index (HPI).

### Realized and Unrealized Losses on Debt Securities

Pretax realized losses on debt securities, commonly referred to as other-than-temporary impairment (OTTI) write-downs, included in the pro forma income statement for the nine-quarter test horizon totaled \$0.4 billion. The investment losses were mainly driven by widening credit spreads, declining housing prices, and estimated deterioration in credit quality. Projected changes in unrealized losses on debt securities are included in other comprehensive income (OCI).

### Trading and Counterparty Losses

Trading and counterparty credit losses totaled \$11.2 billion, which included mark-to-market losses, changes in credit valuation adjustments (CVA) reserves, incremental default losses, losses on non-trading related private equity positions projected under the global market shock, and an assumed default of our largest trading counterparty. The global market shock represents a general recessionary theme, with credit spreads widening, equity prices declining, and overall liquidity

deterioration<sup>3</sup>. The counterparty default component incorporates an instantaneous and unexpected default of the counterparty with the largest net stressed exposure within the internally developed global market shock environment.

## Stress Testing Methodologies

---

The stress test described in this Report provides a forward-looking perspective on the potential risks to the Company's capital resources under the severely adverse conditions described in the Scenario. This section describes key risks considered in the stress test results and the methodologies applied to translate risk measures into estimates of potential losses over the nine-quarter test horizon. Among the key risks considered are credit risk, interest rate risk, market risk, liquidity risk, mortgage repurchase risk, reputation risk, operational risk, and the risks to capital associated with changes in OCI. Our Board of Directors and executive management have overall and ultimate responsibility for management of these risks, which are executed through committees and processes that help inform our capital adequacy assessments. Each Board committee receives reports and information regarding risk identification and monitoring, including emerging risks, directly from management and, in some cases, management committees have been established to inform the development of the risk management framework and provide governance and advice regarding risk management functions<sup>4</sup>. The Capital Management Committee, a management-level committee, is responsible for the overall capital management framework, including but not limited to, our capital management policy, setting capital targets and triggers, and recommending capital actions to our Board after consideration of capital adequacy assessments through our internal capital adequacy assessment process (ICAAP). The Capital Adequacy Process Committee, a management-level committee, provides appropriate oversight for the company-wide stress testing process, a key component of our ICAAP. This committee is responsible for the review and approval of stress testing methodologies, oversight of our stress test framework, as well as directing, synthesizing and reviewing the results of stress tests.

This section also describes the methodologies applied to estimate capital resources over the nine-quarter test horizon. Key outputs from these methodologies are pro forma balance sheets and income statements, which are used to produce capital projections, including projections of risk-weighted assets, and all regulatory and other capital ratios. In developing pro forma financial statements, the Company applies accounting practices consistent with the Company's significant GAAP accounting policies<sup>5</sup> and regulatory capital rules, except where supervisory guidance specifies alternative treatments.

Our stress testing methodologies focus on empirically defining the relationship between macroeconomic variables and business volumes, revenues, and losses where appropriate in order to estimate outcomes that may result from the specified Scenario. We use a series of models and estimation methodologies, coupled with management judgment, to produce a comprehensive 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 and the potential for changes to customer behavior in response to changes in the environment. Consideration for these uncertainties and limitations when evaluating stress test results is a core part of our capital adequacy process.

### Pre-Provision Net Revenue

Pre-provision net revenue includes projections of net interest income, noninterest income (trading/counterparty losses, realized losses on debt securities, and realized gains and losses on marketable equity securities are excluded from PPNR as they are reported separately) and noninterest expense. Each of these components has distinct processes to consider a

<sup>3</sup> The assumptions under the global market shock scenario differ from the nine-quarter macroeconomic scenario.

<sup>4</sup> For additional discussion of risk management at Wells Fargo, please refer to our most recent Annual and Quarterly reports filed with the SEC, which are available on the Company's website at [https://www.wellsfargo.com/invest\\_relations/filings](https://www.wellsfargo.com/invest_relations/filings)

<sup>5</sup> For additional information about Wells Fargo's significant accounting policies, please refer to Note 1 to Consolidated Financial Statements included in our most recent Annual and Quarterly Reports filed with the SEC, which are available on the Company's website at [https://www.wellsfargo.com/invest\\_relations/filings](https://www.wellsfargo.com/invest_relations/filings)

variety of risks, including interest rate risk, liquidity risk, market risk, mortgage repurchase risk, operational risk, and reputation risk in the generation of stress projections for the given test horizon.

## **Net Interest Income**

### *Interest rate risk*

Interest rate risk, which potentially can have a significant earnings impact, is an integral part of being a financial intermediary. We are subject to interest rate risk because:

- Assets and liabilities may mature or reprice at different times (for example, if assets reprice faster than liabilities and interest rates are generally rising, earnings will initially increase);
- Assets and liabilities may reprice at the same time but by different amounts (for example, when the general level of interest rates is rising, we may increase rates paid on checking and savings deposit accounts by an amount that is less than the general rise in market interest rates);
- Short-term and long-term market interest rates may change by different amounts (for example, the shape of the yield curve may affect new loan yields and funding costs differently);
- The remaining maturity of various assets or liabilities may shorten or lengthen as interest rates change (for example, if long-term mortgage interest rates increase sharply, mortgage-backed securities (MBS) held in the debt securities portfolio may pay down slower than anticipated, which could impact portfolio income); or
- Interest rates may also have a direct or indirect effect on loan demand, credit losses, collateral values, mortgage origination volume, the fair value of MSRs and other financial instruments, the value of the pension liability and other items affecting earnings.

The primary method of measuring earnings sensitivity from interest rate risk, apart from interest rate sensitive non-interest income associated with mortgage banking, is through modeling net interest income. Net interest income is the interest earned on debt securities, loans (including yield-related loan fees), and other interest-earning assets minus the interest paid on deposits, short-term borrowings, long-term debt, and other interest-bearing liabilities.

Net interest income is significantly influenced by the mix and overall size of our asset portfolio and the cost of funding those assets. Changes to balance sheet mix can be driven by changes in interest rates as well as other risk factors and economic variables. In addition, some variable sources of interest income, such as resolutions from purchased credit impaired (PCI) loans, loan fees and collection of interest on nonaccrual loans, can vary from period to period. The estimation process for net interest income is built on two fundamental components. The first component is the projection of expected behavior on existing balance sheet portfolios over the nine-quarter test horizon under the Scenario. The second component is the projection of expected growth and pricing behavior for new business originated over the nine-quarter test horizon under the Scenario.

To model the first component, which is the expected behavior of the existing balance sheet, instrument details are collected for the Company's investment, loan, deposit, and debt portfolios. This detailed data is used to project the interest income and expense of existing portfolios specific to the Scenario conditions. The second component, which is new business and origination assumptions, incorporates a variety of considerations including historical loan and deposit growth, economic conditions influencing the business environment, observed spreads on new production, and planned strategic actions. The modeling methodology and management judgment applied to behavioral assumptions varies depending on the product being considered. For example, the modeling approach for loan and investment prepayment projections varies by portfolio and is generally based on historical relationships and drivers specific to each individual portfolio. In the case of estimating administered deposit yields, methodologies used for stress test purposes are consistent with management practices and include the consideration of historical experience and current expectations of strategic actions. In all cases, the resulting forecast of product behaviors in each scenario is evaluated relative to the Company's experience in various relevant economic environments and for consistency with business strategy.

## *Liquidity Risk*

Effective liquidity risk management is designed to ensure we can meet customer loan requests, customer deposit maturities/withdrawals and other cash commitments efficiently under both normal operating conditions and under periods of Wells Fargo-specific and/or market stress. Liquidity risk can result in a negative impact to capital from actions the Company may take to meet its obligations. Accordingly, we perform an analysis to determine the specific hypothetical liquidity events to occur under the conditions specified in the Scenario. In our analysis, we quantify the potential outflows of cash and the related impacts to interest income and expense that might arise by considering factors such as the runoff of consumer and commercial deposits, the nonrenewal of maturing wholesale funding sources, the drawdown of committed customer lines of credit, and the need for additional collateral requirements. To gauge the magnitude of these factors, we largely rely on the liquidity experience observed by Wachovia Corporation (Wachovia) during the second half of 2008, including the aftermath of the Lehman Brothers bankruptcy. The data from Wachovia's crisis period prior to its acquisition by Wells Fargo provided empirical data for our liquidity stress scenario calculations. We also identify the funding sources needed to satisfy the assumed outflows of cash and quantify the related impacts to interest income and expense as well as the impact of increases in our debt issuance costs.

## **Noninterest Income**

Projected noninterest income largely consists of revenue generated from service charges on deposits, trust and investment fees, card fees, mortgage banking fees, and all other fees. Loss projections for trading and debt securities portfolios are presented separately and discussed in the subsequent Market Risk Related Losses section. Trust and investment fees are largely derived from providing services to our brokerage customers, managing and administering assets, and investment banking activities. Mortgage banking fees primarily include fees and income associated with originating and servicing loans, net gains/losses on hedging the fair value of MSR's, and changes to the mortgage repurchase reserve. All other fees include charges and fees on loans, trading and equity gains, life insurance income, and operating lease income. The estimation process for noninterest income is based on macroeconomic and financial market variable assumptions, as well as key business performance metrics. The models we use to estimate noninterest income vary across the major noninterest income categories and are tailored to the specific underlying business activity being considered. Our models are informed by historical relationships between macroeconomic drivers and revenue streams. We then leverage data-driven approaches (where appropriate), expectations around new business, impact of regulatory changes, and management judgment. For example, specific financial market and macroeconomic variables such as the Dow Jones U.S. Total Market Index and GDP are incorporated into the projections based on their assumed levels in the Scenario.

## *Mortgage Banking Interest Rate and Market Risk*

Interest rate and market risk can be substantial in the mortgage business. Changes in interest rates may impact total origination and servicing fees, the fair value of residential MSR's, the fair value of mortgages held-for-sale (MHFS), the fair value of derivative loan commitments (interest rate "locks") extended to mortgage applicants, the associated income and loss reflected in mortgage banking noninterest income, and the income and loss associated with instruments used to hedge changes in the fair value of MSR's, MHFS, and interest rate locks.

Interest rates affect the amount and timing of origination income and net mortgage servicing fees because consumer demand for new mortgages and the level of refinancing activity are sensitive to changes in mortgage interest rates. The earnings sensitivity to interest rates is greater when prevailing mortgage rates are below the average rate on the total mortgage debt outstanding. Conversely, interest rate risk will be reduced as mortgage rates rise to levels above the average rate of the servicing portfolio. Typically, a decline in mortgage interest rates will lead to an increase in mortgage originations and fees, and a decrease in net mortgage servicing fees. The Scenario interest rates drive assumptions around changes in the origination market size and loan prepayments. These assumptions are used to project the potential net impact on the Company's balance sheet and income statement.

### *Mortgage Repurchase Risk*

Wells Fargo sells mortgage loans to investors under contractual provisions that may include certain representations and warranties. Repurchase risk arises from the potential that a contractual representation or warranty has been breached and the breach is not remedied within a specified period (usually 90 days or less) after receiving notice of the breach. Wells Fargo establishes a repurchase reserve that reflects management's estimate of losses for loans we have sold for which we could have a repurchase obligation, whether or not we currently service those loans, based on a combination of factors.

The repurchase risk typically diminishes over time as customers meet their contractual obligations, gain equity in their home, or both. Our estimates of repurchase risk are projections of repurchase losses by exposure type based on default expectations, estimated levels of origination defects, reimbursement by correspondent and other third party originators, and projected loss severity. While the repurchase reserve covers life of loan exposures, considerations such as government sponsored enterprise (GSE) representation and warranty relief, repurchase settlements, and statute of limitations provide limits to potential repurchase liabilities in severely adverse economic scenarios.

### **Noninterest Expense**

Estimates of noninterest expense, primarily personnel-related expenses, are closely associated with the projected level of business activity, the overall strength or weakness of the assumed economic environment, or otherwise based on standard, defined calculations. In addition to routine business driven expenses, consideration is also given to expenses that may materialize from other risks in the stress environment such as operational losses or foreclosed assets related expenses. Our methodologies employ historical experience and management judgement where noninterest expense relationships are indeterminate with economic drivers or financial market variable assumptions.

### *Operational Risk*

Operational risk is the risk resulting from inadequate or failed internal controls, processes, people and systems, or from external events. Operational risk losses may be caused by events such as fraud, breaches of customer privacy, business disruptions, inappropriate employee conduct, and vendors that do not perform their responsibilities, all of which can lead to additional expenses in the form of regulatory fines and penalties and litigation. As such, operational risk is broadly defined for inclusion in our stress tests.

The scope of operational risk includes loss events that range from highly frequent, but low-impact losses to those that are much less frequent, but which have significant financial impacts. It is not uncommon for a few large events to generate the majority of the financial impact.

While the drivers of operational risk can vary by business and risk, the most significant financial impacts in our stress test often relate to alleged improper business activities, resulting in litigation and/or regulatory actions. Certain risks, such as transaction processing errors and external fraud events can occur more frequently and can be significant in the aggregate, but generally have less financial impact per event than loss events involving litigation. Material losses can also arise from a range of external events, such as cyber threats, as well as those that are less frequent, such as earthquakes or other natural disasters. All of these events are considered in our capital stress tests.

Our operational risk loss estimation process is comprehensive and uses a blend of quantitative and qualitative estimation methods. One of the qualitative estimation components uses a scenario-based loss estimation approach, leveraging day-to-day risk management expertise from group business and risk leaders and the legal department to identify drivers of risk and estimate potential loss exposure under a variety of stressed scenarios. We use scenario analysis, internal and external reference data, and informed judgment in estimating losses for operational risks that are generally not closely tied to macroeconomic factors. Given the difficulty in applying statistical techniques to a small population of loss events and the application of a qualitative, scenario-based approach which relies on informed judgment, we benchmark the projections using multiple approaches to assess reasonableness of the loss projections.

## *Reputation Risk*

Reputation risk, the risk arising from negative perceptions by stakeholders, whether real or not, resulting in potential loss of trust in the Company's competence or integrity, is inherent in our business and remains elevated due to our risk profile in the financial services industry, and sales practice related matters and other instances where customers have or may have experienced financial harm. When determining the impacts in our stress tests from such breakdowns, we use management judgment and subject matter expertise in our assessment of the level of reputation risk generated by negative public perceptions of the Company in recognition of the fact that reputation risk can generate outcomes which are difficult to quantify and/or not easily predicted.

## **Provision for Loan and Lease Losses**

### *Credit Risk*

Loans represent the largest component of assets on our balance sheet and their related credit risk is among the most significant risks we manage. We define credit risk as the risk of loss associated with a borrower or counterparty default (failure to meet obligations in accordance with agreed upon terms). Loss projections for counterparty credit risk are presented separately and discussed in the Market Risk Related Losses section. Credit risk associated with a borrower default on a loan in the held for investment portfolio is translated to the pro forma income statement through the provision for loan losses, reflecting projected loan losses that would be realized as charge-offs in accordance with the Scenario and the provision reflecting the change appropriate to help ensure adequacy of the ALLL at the end of each period.

### *Loan Loss Forecasting*

When estimating loan losses, probability of default (PD), loss severity (referred to as loss given default (LGD)), and exposure at default (EAD) components are combined to produce loan loss estimates. Loss estimates take into consideration the unique characteristics of our commercial and consumer loan portfolio segments. For each portfolio segment, losses are estimated collectively for groups of loans with similar risk characteristics.

A variety of models are used to project losses on the loans in the held for investment loan portfolio. While we report our loan portfolio by commercial and consumer portfolio segments in our financial reports filed with the SEC, for the purpose of stress testing we segment our portfolios between individually graded commercial loans (Wholesale) and Retail loans that include both consumer loans and scored small business commercial loans. The methodologies described in this section cover the models developed for the major categories of Wholesale and Retail loans.

The loan loss projections take into consideration many factors, including historical performance, the forecasted economic scenarios, current credit characteristics, and for Wholesale loans, loan-level credit quality ratings and other loan characteristics. Where appropriate, we incorporate state, local, and foreign economic variables to reflect geographical concentrations within a given loan portfolio. Management judgement is applied to modeled results, as necessary, to address model limitations identified through reviews of model performance, current and emerging risks, and, to a lesser extent, knowledge of recent trends or other factors not considered adequately captured by the models.

### **Wholesale Lending: Individually Graded**

The Wholesale portfolio consists of two major segments for loss modeling purposes: investor/developer CRE and Corporate loans, which include C&I, owner/occupied CRE, farmland, financial institutions, and leasing. Loans in the Wholesale portfolio are subject to individual risk assessments using our internal borrower and collateral quality ratings.

The loss modeling framework relies principally on a PD, LGD and EAD framework. The PD model segments borrowers based on asset type, industry, exposure size and line of business and mostly relies on borrower quality rating migration matrices. Borrower quality ratings migration and default likelihood are forecasted based on changes in economic variables, such as GDP, unemployment rates and asset prices.

Separate models are used to forecast losses on domestic corporate loans, foreign corporate loans, investor/developer CRE loans and scored commercial portfolios. For investor/developer CRE loans, loan-level attributes such as loan-to-value and

net operating income are combined with projected changes in commercial real estate price movements by property type and geographic location. While the domestic corporate loan segment utilizes national forecasts of macroeconomic variables, foreign corporate loans forecast credit losses using foreign macroeconomic variables. In all segments, the LGD model forecasts the loss severity on defaulted loans, which is dependent on the underlying collateral quality as well as economic conditions. The EAD model forecasts the portion of commitment amount that is funded at the time of default. These three components are combined for a given loan to calculate the forecasted losses for each quarter in the forecast horizon.

#### **Retail Lending: Residential Real Estate (First Lien Mortgages and Home Equity Loans, Junior Lien Loans, and Home Equity Lines of Credit)**

Losses on residential first lien mortgages and home equity loans are forecasted using models which project both PD and LGD. The loss forecast model for first lien portfolios is a loan-level model that predicts the conditional probabilities of reaching loss based on national MSA- and state-level economic variables (including unemployment, HPI, mortgage rates, Federal funds rate, and real GDP) and loan attributes (for example, loan-to-value).

Our junior lien loans and home equity lines of credit loss forecasting process leverages a loan-level model which projects PD, LGD, and EAD based on national and MSA-level variables, including unemployment and HPI and loan attributes.

#### **Retail Lending: Credit Cards**

Projected losses on the credit card portfolio are based upon borrower characteristics and the impact of forecasted macroeconomic variables on the PD. An account level model is utilized to project losses on the largest segment of the credit card portfolio. Account activity, credit bureau attributes, and macroeconomic variables such as unemployment and bankruptcy filings are used to generate PD and EAD. A segment-level model which assigns each current exposure into a risk tier based on delinquency status and credit score is used to project losses on the less significant credit card segments. For recovery recognition, estimated recovery rates are modeled using macroeconomic, time since default and default type.

#### **Retail Lending: Other**

The other retail lending category includes the auto portfolio, student loan portfolio, personal lines and loans portfolio, the scored small business and business card portfolio, and several other smaller portfolios. Customized product models, which are mostly estimated at the loan level, are used to project losses within this diverse collection of portfolios.

#### *Allowance for Loan and Lease Losses*

The Company estimates the ALLL for each quarter of the nine-quarter forecast horizon using a methodology consistent with the following accounting standards:

- Accounting Standards Codification (ASC) 450-20 governs allowance attributable to non-impaired loans for losses that are probable and estimable;
- ASC 310-10-35 and 310-40 governs allowance for impaired loans (nonperforming, individually graded commercial loans and loans modified under a troubled debt restructuring); and
- ASC 310-30 governs allowance for Purchased Credit Impaired (PCI) loans.

Our ALLL methodology reflects Wholesale and Retail portfolio segments for stress testing purposes. While we attribute portions of the allowance to our respective Wholesale and Retail portfolio segments, the entire allowance is available to absorb credit losses inherent in the total loan portfolio.

#### *Wholesale Portfolio Allowance*

Average PD, LGD and EAD estimates are applied to projected quarterly loan distributions to calculate the Scenario based allowance estimates. Consistent with GAAP, nonperforming loan loss allowance is an estimate of the loss over the life-of-loan.

### *Retail Portfolio Allowance*

The Retail loss forecasting models produce quarterly loss estimates. Loans are pooled generally by product type with similar risk characteristics. The ASC 450 allowance is estimated using forecasted losses to represent our best estimate of incurred loss based on historical experience, using quantitative and other mathematical techniques to translate our stress loss forecast into an appropriate allowance estimate.

Estimated troubled debt restructuring (TDR) volumes and associated life-of-loan losses are stressed throughout the observation period. Cash flow shortfalls from PCI mortgages are estimated using life-of-loan models, and related credit provision expenses are recognized as applicable to establish an appropriate allowance.

An incremental estimate for imprecision is included in both Wholesale and Retail allowance estimates to reflect inherent uncertainty in the process, judgments and estimates, particularly model risk and unforeseen changes in customer behavior.

### **Market Risk Related Losses**

Market risk related losses result from adverse changes in market risk factors such as interest rates, credit spreads, foreign exchange rates, equity and commodity prices and the risk of possible loss due to counterparty risk. This includes implied volatility risk, basis risk, and market liquidity risk. Market risk related to our available-for-sale debt securities portfolio and derivatives portfolio are reflected in estimates of OTTI and changes in market values. Market risk is also reflected in estimates of trading, private equity, and counterparty credit related losses. Counterparty related market losses occur when trading obligations are not fulfilled, and is measured by the likelihood of default of our trading counterparties. Additionally, unrealized losses can also occur if either positive exposures or expected default increase due to underlying market movement.

### **Securities Portfolio**

The securities portfolio primarily consists of debt securities with losses projected through OTTI over the stress test horizon. Securities with projected market values below carrying values are evaluated for potential OTTI under the stress scenario. Projected market values are derived using assumptions consistent with the macroeconomic variables.

No future sales of securities are assumed to occur over the test horizon in the Scenario. Therefore, in the stress test we recognize OTTI if under scenario conditions we would not expect to recover the entire amortized cost basis of the security. The OTTI write-down is separated into two amounts representing the credit loss, which is recognized in earnings, and the amount related to all other factors, recognized in OCI. OCI represents unrealized gains/losses on the value of the securities that may fluctuate over the forecast horizon.

To project the amount, if any, of the security's amortized cost basis we would not expect to recover in the stressed environment, we perform a credit analysis to estimate the performance of the underlying credit or collateral positions under the projected economic conditions. In general, the methodology we use to estimate the credit-related component of OTTI varies based on the type of security under evaluation.

- **Assets assumed not to be at risk for OTTI:** We assume projected declines in the market values of U.S. Treasury and federal agency obligations as well as federal agency MBS are not due to credit risk given the implicit or explicit guarantees provided by the U.S. government.
- **Asset-backed Securities:** For securitized assets, detailed cash flow projections are developed for the underlying collateral. The unique credit characteristics of each transaction are analyzed and security-level collateral projections are created, factoring in scenario economic conditions. Key assumptions developed for determining the projected cash flows include default rates, loss severities and prepayment rates. The estimated collateral performance is then used to project cash flows to the various tranches in the security structure to create a set of projected bond cash flows. The debt security's cost basis is compared with the present value of the projected bond cash flows, discounted at the security's effective yield, and the difference is recognized in the pro forma income statement as credit related OTTI.
- **Direct obligation assets:** For assets where the credit risk is the direct obligation of the issuer (for example, corporate debt and municipal bonds), for each position we develop projections of credit losses considering the issuer's credit



quality and migration of the credit quality, the type of security (secured or unsecured), and the projected economic conditions. The expected credit losses are compared with the security's amortized cost to determine OTTI.

### **Trading and Counterparty Credit Risk**

Our approach to projecting market risk trading stress loss estimates is based upon shocking market risk factors and observing their impact on the value of the firm's trading and private equity portfolio. The market risk trading stress loss estimate is computed using a full revaluation methodology in which the portfolio is fully repriced under the stressed market conditions. For the specified scenario, the shifts of one or more risk factors are applied simultaneously to the position and the position is revalued. The difference between the base trade valuation and the post-shock valuation is the stress loss (or gain) estimate. The results are calculated for each position and aggregated to determine the stress loss estimate for the entire trading portfolio.

We estimate counterparty losses arising from two sources: (1) the increase in the CVA reserve, which is a measure of market implied credit losses and (2) the incremental losses associated with counterparty default, including largest counterparty default losses and correlated counterparty default losses.

The estimation of counterparty credit risk varies across the different portfolios and is multidimensional in nature to capture the stress of exposures, the stress of credit quality, and timing. Stressing of exposures predominantly occurs through the application of shocks to market risk drivers associated with underlying trades. The credit component of CVA is stressed by directly shocking the credit spreads used to price CVA. Credit spreads are market implied PDs which are classified as either observable market instruments, e.g., liquid credit default swaps (CDS) or observable bond prices, or as illiquid names. Counterparty names which have observable market instruments are referred to as liquid and are stressed by widening ratings-based spreads in each scenario. Counterparties which do not have observable market instruments are referred to as illiquid. The credit quality of these illiquid names are stressed by applying the market risk factor shocks to internal rating grades mapped to the external ratings.

To calculate the losses attributed to the Largest Counterparty Default (LCD) scenario component, the net stressed exposures are calculated by applying the market risk factor shocks, which drives identification of the largest counterparty exposure. A stressed LGD is applied and the impact of stressed CVA for the counterparty is removed, resulting in the LCD impact. The selected counterparty is incorporated into our Incremental Default Losses as well as our Default Fund Contribution for centrally cleared counterparties to capture expected market contagion impacts.

### **Changes in Capital and Capital Ratios**

Capital estimates are derived from quarterly pro forma financial statements generated through the stress test projection process. The change in equity capital each quarter reflects the after tax net income (loss) estimate for that quarter adjusted for the Dodd-Frank capital actions required to be assumed during that quarter. The resulting equity capital balance for each quarter is adjusted for certain regulatory deductions defined by U.S. regulatory capital rules, including goodwill, to arrive at estimated regulatory capital. The pro forma balance sheet is risk-weighted from one quarter to the next to account for changes in the overall balance sheet size and mix and for changes in off-balance sheet exposures. Assets are categorized and risk-weighted for each quarter of the nine-quarter horizon under the standardized approach as required. Other risk-weighted components (such as market risk and other adjustments) are also projected and included in the risk-weighted calculation process. The resulting regulatory capital estimate and risk-weighted assets are used to generate pro forma quarterly capital ratios.