

FEDERAL RESERVE SYSTEM

12 CFR Part 252

Regulation YY; Docket No. OP-1452

RIN 7100-AD-86

Policy Statement on the Scenario Design Framework for Stress Testing

AGENCY: Board of Governors of the Federal Reserve System (Board).

ACTION: Proposed policy statement with request for public comment.

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I. Background

Stress testing is a tool that helps both bank supervisors and a banking organization measure the sufficiency of capital available to support the banking organization's operations throughout periods of stress.¹ The Board and the other federal banking agencies previously have highlighted the use of stress testing as a means to better understand the range of a banking organization's potential risk exposures.

In particular, as part of its effort to stabilize the U.S. financial system during the 2007-2009 financial crisis, the Board and the Federal Reserve banks, along with other federal financial regulatory agencies, conducted stress tests of large, complex bank holding companies through the Supervisory Capital Assessment Program (SCAP). The SCAP was a forward-looking exercise designed to estimate revenue, losses, and capital needs under an adverse economic and financial market scenario. By looking at the broad capital needs of the financial system and the specific needs of individual companies, these stress tests provided valuable information to market participants, reduced uncertainty about the financial condition of the participating bank holding companies under a scenario that was more adverse than that which was anticipated to occur at the time, and had an overall stabilizing effect.

Building on the SCAP and other supervisory work coming out of the crisis, the Board initiated the annual Comprehensive Capital Analysis and Review (CCAR) in late 2010 to assess the capital adequacy and the internal capital planning processes of the same large, complex bank holding companies that participated in SCAP and to incorporate stress testing as part of the Board's regular supervisory program for assessing capital adequacy and capital planning practices at these large bank holding companies. The CCAR represents a substantial strengthening of previous approaches to assessing capital adequacy and promotes thorough and robust processes at large banking organizations for measuring capital needs and for managing and allocating capital resources. The CCAR focuses on the risk measurement and management practices supporting organizations' capital adequacy assessments, including their ability to deliver credible inputs to their loss estimation techniques, as well as the governance processes around capital planning practices. On November 22, 2011, the Board issued an amendment (capital plan rule) to its Regulation Y to require all U.S. bank holding companies with total consolidated assets of \$50 billion or more to submit annual capital plans to the Board to allow the Board to assess whether they have robust, forward looking

capital planning processes and have sufficient capital to continue operations throughout times of economic and financial stress.

In the wake of the financial crisis, Congress enacted the Dodd-Frank Act, which requires the Board to implement enhanced prudential supervisory standards, including requirements for stress tests, for covered companies to mitigate the threat to financial stability posed by these institutions.⁴ Section 165(i)(1) of the Dodd-Frank Act requires the Board to conduct an annual stress test of each bank holding company with total consolidated assets of \$50 billion or more and each nonbank financial company that the Council has designated for supervision by the Board (covered company) to evaluate whether the covered company has sufficient capital, on a total consolidated basis, to absorb losses as a result of adverse economic conditions (supervisory stress tests). The Act requires that the supervisory stress test provide for at least three different sets of conditions—baseline, adverse, and severely adverse conditions—under which the Board would conduct its evaluation. The Act also requires the Board to publish a summary of the supervisory stress test results.

In addition, section 165(i)(2) of the Dodd-Frank Act requires the Board to issue regulations that require covered companies to conduct stress tests semi-annually and require financial companies with total consolidated assets of more than \$10 billion that are not covered companies and for which the Board is the primary federal financial regulatory agency to conduct stress tests on an annual basis (collectively, company-run stress tests).

Stress tests required under the stress test rules and under the Board's capital plan rule require the Board and financial institutions to calculate pro-forma capital levels—rather than “current” or actual levels—over a specified planning horizon under baseline and stressed scenarios. This approach integrates key lessons of the 2007-2009 financial crisis into the Board's supervisory framework. In the financial crisis, investor and counterparty confidence in the capitalization of financial institutions eroded rapidly in the face of changes in the current and expected economic and financial conditions, and this loss in market confidence imperiled institutions' ability to access funding, continue operations, serve as a credit intermediary, and meet obligations to creditors and counterparties. Importantly, such a loss in confidence occurred even when a financial institution's capital ratios exceeded the regulatory minimums. This is because the institution's capital ratios were perceived as lagging indicators of its financial condition, particularly when conditions were changing.

The stress tests required under the stress test rules and capital plan rule are a valuable supervisory tool that provides a forward-looking assessment of large financial institutions' capital adequacy under hypothetical economic and financial market conditions. Currently, these stress tests primarily focus on credit risk and market risk—that is, risk of mark-to-market losses associated with firms' trading and counterparty positions—and not on other types of risk, such as liquidity risk or operational risk unrelated to the macroeconomic environment. Pressures stemming from these sources are considered in separate supervisory exercises. No single supervisory tool, including the stress tests, can provide an assessment of an institution's ability to withstand every

potential source of risk.

Selecting appropriate scenarios is an especially significant consideration for stress tests required under the capital plan rule, which ties the review of a bank holding company's performance under stress scenarios to its ability to make capital distributions. More severe scenarios, all other things being equal, generally translate into larger projected declines in a company's capital. Thus, a company would need more capital today to meet its minimum capital requirements in more stressful scenarios and have the ability to continue making capital distributions, such as common dividend payments. This translation is far from mechanical; it will depend on factors that are specific to a given company, such as underwriting standards and the banking organization's business model, which would also greatly affect projected revenue, losses, and capital.

To enhance the transparency of the scenario design process, the Board is requesting public comment on a proposed policy statement (Policy Statement) that would be used to develop scenarios for annual supervisory and company-run stress tests under the stress testing rules issued under the Act and the capital plan rule. The Board plans to develop the annual set of scenarios, as outlined below, in consultation with the Office of the Comptroller of the Currency (OCC) and Federal Deposit Insurance Corporation (FDIC) to reduce the burden that could arise from having the agencies establish inconsistent scenarios.

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Consistent with the stress testing rules and the Act, the Board will issue a minimum of three different scenarios, including baseline, adverse, and severely adverse scenarios, for use under the stress test rules. Specific circumstances or vulnerabilities, over which the Board determines, in any given year, require particular vigilance to ensure the resilience of the banking sector, will be captured in either the adverse or severely adverse scenarios. A greater number of scenarios could be needed in some years - for example, because the Board identifies a large number of unrelated and uncorrelated but nonetheless significant risks.

While the Board generally expects to use the same scenarios for all companies subject to the stress testing rules, it may require a subset of companies— depending on a company's financial condition, size, complexity, risk profile, scope of operations, or activities, or risks to the U.S. economy —to include additional scenario components or additional scenarios that are designed to capture different effects of adverse events on revenue, losses, and capital. One example of such components is the market shock that applies only to trading companies. Additional components or scenarios may also include other stress factors that may not necessarily be directly correlated to macroeconomic or financial assumptions but nevertheless can materially affect companies' risks, such as the unexpected default of a major counterparty.

Early in each stress testing cycle, the Board plans to publish the macro scenarios along with a brief narrative summary that explains how these scenarios have changed relative to the previous year. In cases where scenarios are modified to reflect particular

risks and vulnerabilities, the narrative would also explain the underlying motivation for these changes. The Board also plans to release a broad description of the market shock component.

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Stress tests required under the stress test rules and under the capital plan rule require the Board and banking organizations to calculate pro-forma capital levels—rather than “current” or actual levels—over a specified planning horizon under baseline and stressful scenarios. This approach integrates on key lessons of the 2007-2009 financial crisis into the Board’s supervisory framework. During the financial crisis, investor and counterparty confidence in the capitalization of financial institutions eroded rapidly in the face of changes in the current and expected economic and financial conditions, and this loss in market confidence imperiled institutions’ ability to access funding, continue operations, serve as a credit intermediary, and meet obligations to creditors and counterparties. Importantly, such a loss in confidence occurred even when a financial institution’s capital ratios were in excess of regulatory minimums. This is because the institution’s capital ratios were perceived as lagging indicators of its financial condition, particularly when conditions were changing.

The stress tests required under the stress test rules and capital plan rule are a valuable supervisory tool that provides a forward-looking assessment of large financial institutions’ capital adequacy under hypothetical economic and financial market conditions. Currently, these stress tests primarily focus on credit risk and market risk—that is, risk of mark-to-market losses associated with firms’ trading and counterparty positions—and not on other types of risk, such as liquidity risk or operational risk unrelated to the macroeconomic environment. Pressures stemming from these sources are considered in separate supervisory exercises. No single supervisory tool, including the stress tests, can provide an assessment of an institution’s ability to withstand every potential source of risk.

Selecting appropriate scenarios is an especially significant consideration, for stress tests required under the capital plan rule, which ties the review of a bank holding company’s performance under stress scenarios to its ability to make capital distributions. More severe scenarios, all other things being equal, generally translate into larger projected declines in banks’ capital. Thus, a company would need more capital today to meet its minimum capital requirements in more stressful scenarios and have the ability to continue making capital distributions, such as common dividend payments. This translation is far from mechanical; it will depend on factors that are specific to a given company, such as underwriting standards and the company’s business model, which would also greatly affect projected revenue, losses, and capital.

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3.1 Macro Scenarios

The macro scenarios will consist of the future paths of a set of economic and financial variables. ²⁷ The economic and financial variables included in the scenarios will

likely comprise those included in the 2012 Comprehensive Capital Analysis and Review (CCAR).²⁸ The domestic U.S. variables provided for in the 2012 CCAR included:

- Five measures of economic activity and prices: real and nominal gross domestic product (GDP) growth, the unemployment rate of the civilian noninstitutional population aged 16 and over, nominal disposable personal income growth, and the Consumer Price Index (CPI) inflation rate;
- Four measures of developments in equity and property markets: The Core Logic National House Price Index, the National Council for Real Estate Investment Fiduciaries Commercial Real Estate Price Index, the Dow Jones Total Stock Market Index, and the Chicago Board Options Exchange Market Volatility Index; and
- Four measures of interest rates: the rate on the three-month Treasury bill, the yield on the 10-year Treasury bond, the yield on a 10-year BBB corporate security, and the interest rate associated with a conforming, conventional, fixed-rate, 30-year mortgage.

The international variables provided for in the 2012 CCAR included, for the euro area, the United Kingdom, developing Asia, and Japan:

- Percent change in real GDP;
- Percent change in the Consumer Price Index or local equivalent; and
- The U.S./foreign currency exchange rate.²⁹

The economic variables included in the scenarios influence key items affecting banking organizations' net income, including pre-provision net revenue and credit losses on loans and securities. Moreover, these variables exhibit fairly typical trends in adverse economic climates that can have unfavorable implications for banks' net income and, thus, capital positions.

The economic variables included in the scenario may change over time. For example, the Board may add variables to a scenario if the international footprint of companies that are subject to the stress testing rules changed notably over time such that the variables already included in the scenario no longer sufficiently capture the material risks of these companies. Alternatively, historical relationships between macroeconomic variables could change over time such that one variable (*e.g.*, disposable personal income growth) that previously provided a good proxy for another (*e.g.*, light vehicle sales) in modeling banks' pre-provision net revenue or credit losses ceases to do so, resulting in the need to create a separate path, or alternative proxy, for the other variable. However, recognizing the amount of work required for companies to incorporate the scenario variables into their stress testing models, the Board expects to eliminate variables from the scenarios only in rare instances.

The Board expects that the company may not use all of the variables provided in the scenario, if those variables are not appropriate to the company's line of business, or

may add additional variables, as appropriate.³⁰ The Board expects the companies will ensure that the paths of such additional variables are consistent with the scenarios the Board provided. For example, the companies may use, as part of their internal stress test models, local-level, such as state-level unemployment rates or city-level house prices. While the Board does not plan to include local-level macro variables in the stress test scenarios it provides, it expects the companies to evaluate the paths of local-level macro variables as needed for their internal models, and ensure internal consistency between these within-country variables and their aggregate, macro-economic counterparts. The Board will provide the macro scenario component of the stress test scenarios for a period that spans a minimum of 13 quarters. The scenario horizon reflects the supervisory stress test approach that the Board plans to use. Under the stress test rules, the Board will assess the effect of different scenarios on the consolidated capital of each company over a forward-looking planning horizon of at least nine quarters.

3.2 Market shock component

The market shock component of the stress test scenarios will only apply to companies with significant trading activity and their subsidiaries. The component consists of large moves in market prices and rates that would be expected to generate losses. Market shocks differ from macro scenarios in a number of ways, both in their design and application. For instance, market shocks that might typically be observed over an extended period (*e.g.*, 6 months) are assumed to be an instantaneous event which immediately affects the market value of the companies' trading assets and liabilities. In addition, under the stress test rules, the as-of date for market shocks will differ from the quarter-end, and the Board will provide the as of date for market shocks no later than December 1 of each year. Finally, as described in section 4, market shocks include a much larger set of risk factors than the set of economic and financial variables included in macro scenarios. Broadly, these risk factors include shocks to financial market variables that affect asset prices, such as a credit spread or the yield on a bond, and, in some cases, the value of the position itself (*e.g.*, the market value of private equity positions).

The Board envisions that the market shocks will include shocks to a broad range of risk factors that are similar in granularity to those risk factors trading companies use internally to produce profit and loss estimates, under stressful market scenarios, for all asset classes that are considered trading assets, including equities, credit, interest rates, foreign exchange rates, and commodities. For example, risk factor shocks for interest rates would capture changes in the level, correlation, and volatility, by country and maturity. Risk factors will be specified separately by currency or geographic region, and include key sub-categories relevant to each asset class. For example, the risk factor shocks applied to credit spreads will differ by risk category and the risk factor shocks for spot oil prices will vary by grade and type of crude oil.

Examples of risk factors include, but are not limited to:

- Equity indices of all developed markets, and of developing and emerging

market nations to which companies with significant trading activity may have exposure, along with term structures of implied volatilities;

- Cross-currency FX rates of all major and many minor currencies, along term structures of implied volatilities;
- Term structures of government rates (*e.g.*, U.S. Treasuries), interbank rates (*e.g.*, swap rates) and other key rates (*e.g.*, commercial paper) for all developed markets and for developing and emerging market nations to which banks may have exposure;
- Term structures of implied volatilities that are key inputs to the pricing of interest rate derivatives;
- Term structures of futures prices for energy products including crude oil (differentiated by country of origin), natural gas, and power;
- Term structures of futures prices for metals and agricultural commodities;
- “Value-drivers” (credit spreads or instrument prices themselves) for credit-sensitive product segments including: corporate bonds, credit default swaps, and collateralized debt obligations by risk; non-agency residential mortgage-backed securities and commercial mortgage-backed securities by risk and vintage; sovereign debt; and, municipal bonds; and
- Shocks to the values of private equity positions.

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