Bank Stress Testing Benefits

White Paper

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Introduction

There are two types of bank stress tests: macro- and micro-prudential. Macro-prudential tests are mandated by law and instruct large banks to forecast their capital position under severe economic scenarios to prevent any financial systemic risks.

On the other hand, micro-prudential stress testing, unrelated to any mandatory regulation, is a strategic tool that helps banks of *any size* to assess the bank's resilience to withstand an unlikely but plausible economic downturn.

This White Paper focuses on micro-prudential stress testing, and lists all the direct and indirect benefits that banks can gain when they perform stress tests. They are listed by area, as stress testing can be leveraged by different stakeholders in the bank.

1. Risk Management

- **Achieve Enterprise Risk Management to analyze risks interdependencies**
  One of the major challenges in the management of financial institutions is to achieve what is denominated Enterprise Risk Management. The objective is to consolidate in a single view the entire financial institution portfolio, including all bank products and risk types. This is usually a problem, as banks have multiple applications in silos, and the risk management functions are not typically consolidated across products. Running stress tests aggregates all bank products, including assets, liabilities and off-balance sheet exposures, all of them forecasted in a consolidated view.

- **Delineate bank Capital Plans**
  Bank Capital Plans refer to the strategies and initiatives implemented by banks to manage and maintain their capital levels in accordance with regulatory requirements. Bank Capital Plans are required for all banks, regardless of their size, and set capital ratio targets. The output of bank-wide stress tests can be used, product by product, to measure capital requirements and include them in the Capital Plan. Stress tests help identify potential capital shortfalls and enable banks to take preemptive measures to strengthen their capital positions.

- **Perform bank-wide What-If analysis**
  One of the benefits of bank stress testing is that the entire bank portfolio can be assessed under multiple macroeconomic scenarios, each with different levels of adversity. Moreover, each scenario can be studied with greater granularity using What-If analysis, overriding specific baseline variables and comparing results.

- **Support Risk-Adjusted Return on Capital (RAROC) calculation**
  RAROC is a risk-based profitability measure that assesses the return generated by a bank's business activities in relation to the amount of economic capital allocated. Risk Managers can use stress tests to determine the amount of economic capital needed to support the bank's risk exposures and the potential impact of stressed scenarios on the bank's revenue streams.

- **Support Economic Value of Equity (EVE) calculation**
  EVE is a measure that discounts all future cash flows to calculate the present value of the bank's equity. Stress testing can support the calculation of EVE discounting cash flows of the predicted portfolio under different macroeconomic scenarios, such as rising or declining interest rates.

- **Diversify portfolio by analyzing concentration risk**
  By subjecting the bank's portfolio to adverse scenarios, stress tests can highlight vulnerabilities and areas of concentration within each business line. Stress test scenarios could simulate a severe economic downturn in the bank's key operating regions or a significant market correction in a particular sector.

2. Regulation and Supervision Reporting

- **Anticipate Supervisor scrutiny**
  Stress tests provide supervisors with insights into the bank's financial resilience, including its capital adequacy and liquidity position. By subjecting the bank's balance sheet to different stress scenarios, supervisors can identify areas that require corrective action or enhanced oversight. Banks can anticipate supervisor scrutiny running stress tests periodically regardless of any forthcoming examinations.

- **Show soundness to examiners and increase CAMELS rating**
  A well performed stress test will directly contribute to a favorable CAMELS rating. If a bank performs well in a stress test and demonstrates robust risk management practices, it will positively influence the overall assessment of the institution's Capital adequacy, Asset quality, Management quality and Liquidity.

- **Compile Contingency Plans**
  Stress testing can be a valuable tool in building a robust Contingency Plan. Stress tests simulate adverse economic scenarios and help identify potential vulnerabilities. The tests can highlight bank products that may require additional attention and mitigation strategies. Moreover, stress tests can be used to evaluate the effectiveness of existing contingency plans and identify any gaps and reveal weaknesses.

- **Forecast bank products**
  Bank supervisors have the authority to require banks to provide forecasts or projections of specific bank products. By requesting forecasts, supervisors can assess the potential impact of specific activities on the bank's financial condition and overall stability. A stress testing tool already in place can provide a ready-to-use and cost-effective response to supervisors’ requests.

- **Manage capital ratios**
  Regulators may set desirable ratios that are higher than the minimum allowed. Performing well-run stress tests will demonstrate to regulators that the bank follows best practices and that capital management is under control, thus not requiring to increment capital ratios and even allowing a small shortfall for a period of time.

3. Asset/Liability Committee (ALCO)

- **Guide strategic decision-making**
  The results of stress tests can guide ALCO in making strategic decisions. By evaluating the impact of stress scenarios on different business lines, ALCO can assess the overall risk-return trade-offs associated with various activities. This information can influence ALCO's decision-making process, including strategic asset allocation, product pricing, risk appetite, and capital provision.

- **Assess Asset-Liability mismatch**
  Stress tests enable ALCO to evaluate the potential asset-liability mismatch under different interest rate scenarios. By considering the repricing characteristics, maturity profiles, and interest rate sensitivity of assets and liabilities, ALCO can assess the impact of interest rate shocks on the bank's cash flows and net interest margin.

4. Board of Directors

- **Support decision-making**
  The aggregated data and insights from stress tests help the board understand the potential impact of adverse events on the bank's financial stability, capital adequacy, and overall risk position. Armed with this information, the board can evaluate risk mitigation strategies, allocate resources, and set strategic priorities to enhance the bank's resilience.

- **Analyze quantitative metrics**
  Stress tests generate quantitative metrics and ratios that summarize the impact of adverse scenarios on the bank's financials. These metrics can be leveraged by the board, and include measures such as capital adequacy ratios, earnings at risk, credit losses, liquidity shortfalls, and other key risk indicators that are calculated under different macroeconomic scenarios.

- **Align on risk appetite**
  By comparing stress test results against predefined risk appetite statements, the board can determine if the bank's risk-taking activities are in line with its strategic objectives and risk tolerance. This evaluation enables the board to make informed decisions about risk limits, capital planning, and overall risk governance.

5. Treasury

- **Foresee exposure**
  Treasurers can use stress tests to foresee the bank exposure to risky assets and off-balance-sheet obligations. Moreover, Treasury can work with Risk Management to establish limits and controls that can be checked automatically by stress tests that run periodically. When these limits are exceeded, Treasury can use stress tests as guidelines to determine the amount of capital that needs to be raised.

- **Assess Liquidity Risk**
  Liquidity risk is a critical concern for banks, and stress tests are an effective tool for evaluating liquidity positions. Treasury can use stress tests to assess how different scenarios impact the bank's ability to meet its short-term funding needs. By analyzing potential liquidity gaps, Treasury can implement appropriate liquidity risk management strategies, such as contingency funding plans.

6. Line of Business (LOB) Management

- **Forecast future product revenue**
  Line of Business managers can forecast future product revenue under different market conditions. They can track and analyze key performance metrics specific to their products; these metrics may include customer acquisition rates, customer churn rates, average transaction value and product penetration. By using stress tests to forecast these metrics, managers can project future revenue based on different macroeconomic scenarios.

- **Product planning**
  Line of business managers can use the insights gained from stress tests to evaluate the capital adequacy of their respective products. They can assess the potential impact of stressed conditions on their capital positions and determine if additional capital needs to be allocated to support the business. In addition, managers can evaluate the resilience of their business lines under adverse conditions and adjust their strategies accordingly.

7. Bank Holding Company (BHC) management[1]

- **Comprehensive risk assessment**
  BHC-level stress tests provide a comprehensive assessment of the consolidated risk profile of the entire group. For example, a stress scenario involving a severe downturn in a particular sector may have cascading effects on multiple subsidiaries, highlighting the need for risk management measures at the BHC level.

- **Regulatory requirements**
  BHCs are typically subject to regulatory requirements regarding stress testing and reporting. Regulators may mandate BHCs to conduct stress tests to assess the group's resilience and

[1] It is important to note that stress testing at the BHC level involves aggregating and consolidating data from various subsidiaries, which can be complex due to differences in data systems.

compliance with regulatory capital and liquidity requirements. BHCs are required to prepare and submit stress test reports to regulators, demonstrating their ability to withstand adverse scenarios.

- **Compare metrics among member banks**
  Once the consolidated BHC stress test is in place, reporting tools can be implemented to measure and compare quantitative metrics and ratios among banks in the group. This can help BHC-level management balance and interrelate strategic decisions.

8. Investor Relations

- **Enhance bank management transparency**
  Public disclosure of stress test results promotes transparency and enhances market confidence. This transparency contributes to market discipline, allowing market participants, investors, and rating agencies to make informed decisions and maintain confidence in the bank.

- **Perform CCAR[2] stress tests**
  Even when the bank is not required to perform CCAR annual stress tests, it can still run the tests to compare results with larger banks. This will show investors, creditors and shareholders that the institution is well capitalized and trustworthy.

Please send any questions or comments to contact@sofiana.ai

This paper is based on “Principles for Sound Stress Testing Practices and Supervision” published by Basel Committee on Banking Supervision[3].

[2] Comprehensive Capital Analysis and Review (CCAR) are annual stress tests of large banks in the US, mandated by law and conducted by the Federal Reserve to assess the resilience of the financial system.
[3] https://www.bis.org/publ/bcbs147.pdf