

STRESS TESTING: THE WHO, WHAT, WHEN & WHY

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INTRODUCTION

Day in and day out, financial institutions are making [tough lending choices](#) that can help determine which clients get the funding they need to succeed. These decisions also impact the growth of the financial institution and the overall U.S. economy. They're deciding which customers to lend money, which construction projects to support, and so on.

At the same time, financial institutions of all sizes are facing an increased push by federal regulators to go beyond historical risk-management efforts in the wake of the U.S. housing market's collapse and the 2008 financial crisis. They're being asked to evaluate more thoroughly and to prepare better for worst-case scenarios in the economy and in real estate markets in order to avoid future problems. They're being required to examine more closely the stability and soundness of their loan portfolios in order to plan appropriately for adequate capital levels even in the toughest times.

INTRODUCTION (CONT.)

The problem is, there's not a lot of specific guidance from regulators on this additional "stress testing," and this has led to confusion about which banks must do it, how they should test and how they'll be graded on their efforts, according to Mike Lubansky, director of consulting services at [Sageworks](#), a Raleigh, N.C., financial information company that provides stress testing and portfolio management software solutions.

This paper outlines who needs to perform stress tests, recent regulations that have provided additional guidance and helpful advice from industry experts about how stress testing can improve financial institutions' risk management process.

REGULATORY REQUIREMENTS: WHO, WHAT AND WHEN

“Conceptually, the bank examiners are looking for everyone to do [stress testing],” said Joseph J. Hill, president and chief executive officer of New York consulting firm [CEIS Review](#). “It’s a matter of the extent to which it might need to be done that changes.”

CEIS, which helps commercial and savings banks conduct loan reviews, often hears from its clients that they are concerned about how to approach stress testing. Portfolio size and the complexity of a financial institution’s loan portfolio to a large extent determine how thorough or complicated stress testing must be, Hill said.

[Bank-related stress testing](#) gained widespread attention in 2009 as regulators required the 19 largest U.S. bank holding companies to undergo stress tests demonstrating their ability to maintain minimum capital requirements, even in the event of extreme economic conditions.

But even before that, the FDIC outlined guidance in 2006 for institutions to conduct stress tests if 100 percent of their total capital was in loans tied to construction, development and other land deals, or if they had commercial real estate loans representing 300 percent or more of their risk-based capital. It reiterated that guidance in 2008 in the wake of the housing market’s tumble and the U.S. financial crisis.

REGULATORY REQUIREMENTS: WHO, WHAT AND WHEN (CONT.)

Under the 2010 [Dodd-Frank Wall Street Reform and Consumer Protection Act](#), FDIC-regulated institutions with more than \$10 billion in assets are required to perform stress testing. More recently, the Federal Reserve appended this, specifying that bank holding companies and financial institutions between \$10 billion and \$50 billion in assets must conduct stress tests annually and disclose their results between June 15th and June 30th of each year.

[Additional regulations](#) have been released that further define who must stress test and how to perform these stress tests, especially for community banks under \$10 billion in assets. Regulations outline that some type of stress test or sensitivity analysis is a key element of sound risk management, even at smaller institutions.

The OCC's [October 2012 Supervisory Guidance](#) expands which financial institutions need to stress test their portfolio. It also provides more transparency for community banks on how to perform these stress tests, emphasizing that community banks should begin with a simple top down stress test conducted annually, along with “bottom up” stress testing at the concentration and loan level, especially for concentrations of concern such as [commercial real estate \(CRE\)](#). Other examples of concentrations in the loan portfolio that could be considered for stress testing are loans dependent on a type of agribusiness, loans with construction-related risk, long-term fixed rate municipal securities and residential mortgage loans.

[BASEL III](#) regulations, which have yet to be finalized, require financial institutions to assess their current risk levels and run stress tests on different time intervals to assess future losses and plan capital requirements accordingly.

REGULATORY REQUIREMENTS: **WHO, WHAT AND WHEN** (CONT.)

“Regulators are essentially telling bankers, ‘You need to be on top of your portfolio and, in some way or another, be able to forecast the impact on the institution’s financial statements if things change economically or if things change in one sector,’” says Tim McPeak, a director in the Financial Markets Group at Sageworks. “For example, in commercial real estate, if the valuations change for the worse, if the vacancy rates increase, if interest rates change, you need to be able to attempt to quantify what the impact is going to be on your institution – or really, what the impact will be on your capital levels.”

The recent guidance released by the different regulatory boards has helped many financial institutions better understand what examiners will expect, but there is still some ambiguity and challenges around how to begin. One place to start is identifying how institution leaders most hope to benefit from stress testing.

THE “WHY”: BENEFITS OF STRESS TESTING

For many banks, stress testing is a best practice and something they should be progressively implementing in a structured manner, Lubansky said. That way, they can make the most out of the process.

“Financial institutions may be trying to do this to satisfy the regulators and check a box,” he said. “However, if they can implement an effective stress testing program, institutions have found they can manage the risks better.”

“Stress testing should help management identify pockets of the portfolio that may be vulnerable to changes in short-term interest rates or deteriorating real estate market conditions,” said CEIS managing director of special projects Elizabeth Williams. “Hopefully that gives them a chance to make some changes today or prior to experiencing the actual stress.”

For example, a financial institution might change its loan pricing on certain types of real estate to attract or discourage loans in those areas. Or it might modify its marketing efforts to target one sector or another. Indeed, executives at financial institutions are finding that an effective stress testing program can help them:

- Better understand where the loan portfolio may be overexposed in terms of concentration, either in type of real estate, geography or other factors;
- Better identify which types of loans within a certain concentration have more potential for troubles; and
- Identify and target potentially problematic loans for additional scrutiny, such as more frequent rent-roll reviews or owner-income updates.

METHODS OF STRESS TESTING

METHODS OF STRESS TESTING:

Transaction Stress Testing

Portfolio Stress Testing

Enterprise-level Stress Testing

Reverse Stress Testing

BOTTOM UP:

Adverse impact is estimated at the individual loan level during stress tests.

The Office of the Comptroller of the Currency's October 2012 Supervisory Guidance notes that an institution can use a variety of methods of stress testing to evaluate the loan portfolio risk and to measure the potential impact on earnings and capital based on its own specific risk profile. The selected methodology should reflect the institution's unique size, product mix, business strategy and sophistication.

Among the many methods available: transaction stress testing, portfolio stress testing, enterprise-level stress testing and reverse stress testing.

Transaction Stress Testing

Both transaction stress testing and some portfolio stress testing approaches help create a "bottom up" look to assess borrower vulnerabilities as they relate to default. According to the OCC, transaction stress testing "estimates potential losses at the loan level by assessing the impact of changing economic conditions on a borrower's ability to service debt." The borrower being stressed could be a single customer or complex borrowing entity, and the institution will use factors such as Cap Rate, Collateral Value, EBITDA, Interest Rate, Net Operating Income, Personal Income, Potential Gross Income or Vacancy Rate to ascertain estimated impact on cash flows. This analysis is typically performed as part of underwriting.

Benefits of this method include early identification of problem loans, which can help with early detection, relationship management and strategic decision making about key loans.

METHODS OF STRESS TESTING (CONT.)

Portfolio Stress Testing

Similarly, a “bottom up” portfolio stress testing approach aggregates the individual transaction-level stress test results in an effort to identify risks within certain credit concentrations. With this methodology, a bank identifies or creates a new concentration to analyze using filters such as Collateral Code, Product Code, Risk Rating, Total Exposure, MSA Code, Origination Date or Loan Officer. These concentrations can be stressed using factors like those mentioned for transaction stress testing to identify risky concentrations and assess potential impact.

Commonly Used Concentrations

- Collateral Code
- Product Code
- Risk Rating
- Total Exposure
- MSA Code
- Date of Origination
- Loan Officer
- Customized Segment

TOP DOWN:

Adverse impact is estimated using aggregated data.

A “top down” portfolio stress testing approach, by contrast, applies “estimated stress loss rates under one or more scenarios to pools of loans with common risk characteristics,” according to the OCC.

Regulators recommend that financial institutions create the various adverse scenarios based on macro and local economic data. “A bank may have to develop different variable assumptions for pools of loans with similar characteristics, such as geography and collateral type, within each scenario,” the OCC’s October guidance says. But the benefits may be numerous. “The process of stress testing portfolios can aid in strategic decision making, credit policy development,

METHODS OF STRESS TESTING (CONT.)

strengthen the quality of concentration risk management, support reserve methodology, and determine regulatory capital at risk,” the agency said.

Financial institutions with larger portfolios and more comprehensive internal databases can use [loan migration analysis](#) to assess how a “downward migration” in internal loan ratings might affect asset quality, earnings and capital, according to the OCC.

Enterprise-level Stress Testing

Enterprise-level stress testing considers the interrelated effects on the overall financial impact of multiple types of risk in a given scenario. Examples of types of risk include interest rate risk, counter-party credit risk and changes in the institution’s liquidity. The size and complexity of the institution should determine the sophistication of this type of stress testing.

Reverse Stress Testing

Reverse stress testing is another type of “top down” approach, in that this method starts with the institution assuming a scenario that could critically harm it – a “break the bank” scenario. Then it works backward to evaluate the likelihood of such a scenario, to develop contingency plans and perhaps to mitigate identified risks.

Regardless of the stress testing method, data will be the key to generating defensible test results. Unfortunately, for many financial institutions, data collection is also one of the most challenging aspects of stress testing.

CHALLENGES WITH DATA COLLECTION

Sean Delehanty is the senior credit officer of OmniBank, N.A., which has been planning and developing a system for stress testing since around 2008. A good portion of OmniBank, N.A.'s portfolio includes real estate loans, and it began exploring stress testing as executives heard more about the push for clarity on banks' CRE portfolios.

He said one of the biggest challenges his and other institutions face in developing stress tests is data collection. That's because most data warehouses or core accounting systems at institutions will have some, but not all, of the data needed.

For example, many institutions will have a loan's property appraisal, its rent rolls, capitalization rates and income and expense statements in their credit files, but that information might not be in the core accounting system, Williams said. Some institutions had those fields set up in their core systems, but many of the fields might be blank, or they might have outdated information such as an old appraisal, Hill added.

Frank Callison, executive vice president and chief credit officer of First South Bank, also said many of the pieces of information that financial institutions need in order to perform a good stress test aren't historically tracked in the institution's core processor.

He, too, noted that original property appraisals are likely to be in the core system, but more recent appraisals may only be in the credit file. And as loans are modified, collateral changes. "When our loan officer does an annual review, what's presented to the credit administrator and board of directors is spot-on accurate," he said. "But it doesn't necessarily reflect what's in the core processor."

"When you go to do a stress test on your portfolio, your collateral codes, purpose

CHALLENGES WITH DATA COLLECTION (CONT.)

codes, values of collateral – all of those things have to be spot on, so it's an extra time-consuming process to go back through and make sure they're all accurate," he said.

Lubansky said many banks face the same issues identified by First South and OmniBank. "There's a lot of data to gather; they must develop a structured, manageable process to get the data in small chunks from different sources."

Callison noted that First South has been able to use Sageworks [Credit Analysis and Sageworks Stress Testing](#) to do that kind of loan-by-loan data check more easily than would be possible in the bank's core processing system, which is designed to process data, not to facilitate the retrieval of information. "You need a straightforward way and an easier way to organize your loans by common characteristics and then to go through each of those loans to make sure that the data that has populated them is accurate and current."

The larger and more complex the portfolio, the more difficult it can be to pull together manually the necessary data, Lubansky said. This makes a systematic approach to data gathering even more critical, allowing financial institutions to quickly move from the data-gathering process to the data-analysis stage.

Once a software or solution has been selected for the stress tests, institutions should start accumulating data for the largest real estate exposures first, adding data for smaller exposures over time.

"I believe the examiners consider that to be reasonable as well," Hill said. "The biggest concern examiners have is to see that banks have a process in place. They understand some of the problems."

IDENTIFYING THE BEST REPORTS

According to experts, tackling the richest data points first can also help banks generate meaningful reports analyzing risks sooner. As you add data, the detail of your analyses can always be stepped up.

Delehanty said that once OmniBank had gathered substantial data, it began deciding what kind of reports would be most useful. He said that's the time for the bank president and the credit department to be asking: Do we want to find out what loans or what borrowers are struggling? What industries seem to be struggling? Knowing what we know about our market, do we want to stress those industries that may be having a problem in order to target future problems?

Deciding how often to run the reports and how often to share them with the bank's board is also important, he added. Generally, stress testing in some variety along with accompanying reports for the board should occur on a quarterly basis.

Finding the reports that make the information as simple as possible but also useful can be challenging, Delehanty said, but examiners have provided input on the process.

"I sat down with the examiners ... and showed them a segment of our portfolio – the income-producing properties – and said, 'This is what we've focused on for about the past three or four months; we're about 90 percent done with our input and here are some reports and how we plan to use them in the future,'" Delehanty said. "They seemed to be, for one, pretty impressed that ... our bank was this far along in the process and that we were thinking about that."

Examiners were also encouraged by OmniBank's ability to demonstrate what

IDENTIFYING THE BEST REPORTS (CONT.)

kind of potential losses it might have if a certain stress happened and how that might affect the bank's balance sheet.

At the same time, examiners offered helpful guidance on making sure OmniBank maintains accurate information for all of its stress tests, an issue that is obviously a challenge for financial institutions. Delehanty said he works closely with his bank's note department to make sure he's aware of adjustments to charge-offs so that he can account for that loan differently in the stress test.

Experts agree that developing a stress test system will go more smoothly if the institution's board and management are supportive of the need. Delehanty recommends having a small group of people assigned to and focused on the project. "Having one person working through it drags it out more," he said.

Hill advises to "Just be organized and don't panic. Take it a step at a time and be intelligent about it. The examiners want to see a process going on ... they're not looking for a miracle overnight."

ABOUT SAGEWORKS

Sageworks (www.sageworks.com) is a financial information company working with financial institutions, accountants and private-company executives across North America to collect and interpret financial information. Thousands of bankers rely on Sageworks' credit risk management solutions to streamline credit analysis, risk rating, [portfolio stress testing](#), loan administration and ALLL calculation. Sageworks is also an industry thought leader, regularly publishing [whitepapers](#) and hosting webinars on topics important to bankers.

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[Sageworks Stress Testing](#) is a Stress Testing whole-portfolio solution that allows financial institutions to stress at the individual

borrower, concentration or institution level to uncover potential risk. With Sageworks, banks and credit unions can use multi-variable scenarios and key stress factors to prepare “what-if” scenarios and satisfy examiners. To find out more, visit www.sageworksanalyst.com.

ADDITIONAL RESOURCES

“Community Bank Stress Testing: Supervisory Guidance (Bulletin OCC 2012-33)” *The Office of the Comptroller of the Currency*.

<http://occ.gov/news-issuances/bulletins/2012/bulletin-2012-33.html>

“Company-Run Stress Test Requirements; Final Rules” *Board of Governors of the Federal Reserve System*.

<http://www.gpo.gov/fdsys/pkg/FR-2012-10-12/html/2012-24987.htm>

“Stress Testing- Drafting a ‘Battle Plan’ for the CRE Portfolio” *Sageworks*.

<http://www.sageworks.com/blog/post/2011/04/20/Sageworks-Article-Stress-Testing-Drafting-a-Battle-Plan-for-the-CRE-Portfolio.aspx>

“Concentrations in Commercial Real Estate Lending, Sound Risk Management Practices” *Office of the Comptroller of the Currency, the Board of Governors of the Federal Reserve System, and the Federal Deposit Insurance Corporation*.

<http://www.occ.gov/news-issuances/bulletins/2006/bulletin-2006-46.html>