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## INFORMATIONAL MEMORANDUM



September 8, 2023

To: Chair, Board of Directors  
Chief Executive Officer  
Each Farm Credit System Institution

From: Mike Duffy, Director and Chief Examiner  
Office of Examination

Subject: Stress testing expectations

The Farm Credit Administration is issuing this informational memorandum to update previous guidance we issued to Farm Credit System (System) institutions on our expectations for sound stress testing.<sup>1</sup> This informational memorandum identifies sound principles for establishing a stress testing framework to govern stress testing activities at System banks and associations and for using stress testing as a risk management tool.<sup>2</sup>

### **Background and overview**

We originally issued an informational memorandum on this topic on March 4, 2010, following the significant stresses created by the financial crisis of 2007 to 2009. That informational memorandum focused primarily on our expectations for periodic enterprise-wide stress testing.<sup>3</sup> More recently, we updated several sections of the FCA Examination Manual to reflect the importance of stress testing in effective risk management.

Since the publication of our 2010 informational memorandum, several new challenges have arisen that could threaten the safety and soundness of System institutions. Agriculture has experienced more extreme climate and weather events, including droughts, floods, hurricanes, and wildfires. Broad sections of the world economy were shut down in response

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<sup>1</sup> With the adoption of this informational memorandum, we rescind the informational memorandum titled "FCA's Stress Testing Expectations for All FCS Institutions," dated March 4, 2010.

<sup>2</sup> Certain regulatory citations and references in this document are not applicable to the Federal Agricultural Mortgage Corporation (Farmer Mac), which is subject to stress testing requirements set forth at § 652.61(c). However, the sound principles for stress testing discussed in this informational memorandum are generally relevant and applicable to Farmer Mac's risk management practices.

<sup>3</sup> In this informational memorandum, we use the terms "stress testing framework," "enterprise-wide stress test," "stress test," "stress testing model," "model overrides," "sensitivity analysis," and "severe but plausible event" consistent with their definitions in annex 1 to the Basel Committee on Banking Supervision's December 2017 publication [Supervisory and bank stress testing: range of practices \(PDF\)](#).

to a global pandemic, and geopolitical events have created significant disruptions in commodity markets. These conditions prompted extraordinary responses from governments and central banks across the globe, later leading to inflation and significant tightening of monetary policy. These events underscore the challenging environment in which System institutions operate.

FCA views stress testing as an important component of risk management at all System institutions. A well-structured and supported stress testing framework provides key insights into the potential adverse outcomes arising from a wide range of risks. Stress testing enables your institution to highlight the nature of your risk exposures. It promotes adequate levels of capital, earnings, and liquidity to weather the impacts of substantial stress.

We have adapted the sound practices below from principles developed by the Basel Committee on Banking Supervision.<sup>4</sup> As these principles emphasize, your institution's board and management share the responsibilities for developing a sound stress testing framework, establishing stress testing objectives, and carrying out meaningful and actionable stress testing activities. You should follow the practices described below in a manner that is commensurate with the size, complexity, and risk profile of your institution.

### **1. Establish objectives for your stress testing framework.**

Board-approved policies and management procedures governing the stress testing framework should clearly define the objectives of stress testing. The objectives should be consistent with the role of stress testing as a risk management practice. Examples of potential stress testing objectives include but are not limited to the following:

- Identify and quantify risks and vulnerabilities to which your institution may be exposed.
- Evaluate enterprise-wide risks, including interrelationships among risks.
- Assess overall capital adequacy, as required by § [628.10\(e\)\(2\)](#).
- Assess earnings adequacy.
- Evaluate alternative operating scenarios and risk environments.
- Assess the various sources of credit risks, including concentration risks.
- Assess liquidity risks and the adequacy of liquidity reserves.
- Evaluate the potential effects of interest rate risk (IRR) exposures on projected earnings and market values, as required by §§ [615.5180\(c\)\(3\)](#) and [615.5182](#).<sup>5</sup>
- Determine whether investments present undue risks to capital, earnings, or liquidity, as required by § [615.5133\(h\)\(4\)](#).
- Assess the continued marketability of investments in the liquidity reserve, as required by § [615.5134\(d\)](#).
- Assess the risk exposures presented by derivatives.

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<sup>4</sup> See [Stress testing principles \(PDF\)](#), October 2018, by the Basel Committee on Banking Supervision.

<sup>5</sup> [FCA Bookletter 072—Interest Rate Risk Management \(PDF\)](#) provides further guidance on our expectations for interest rate risk management at banks and associations.

## **2. Develop a governance structure for your stress testing framework.**

The stress testing framework should include a governance structure that is clear, comprehensive, and well documented. This governance structure should identify all key stakeholders. It should also ensure that your institution provides comprehensive and consistent oversight and monitoring at every stage of the stress testing process. The business functions and personnel engaged in a given stress testing exercise or application depend on a number of factors, including the objectives and type of the stress test you are performing. In establishing governance structures, you should follow these guidelines:

- Design governance structures to encompass all stress testing activities, including enterprise-wide stress analysis.
- Clearly articulate the governance framework in your institution's policies, procedures, and applicable committee charters. Review and update them at least annually.
- Specify roles and responsibilities for the board, senior managers, technical experts, business unit managers, risk managers, and internal auditors.
- Address all aspects of the stress testing framework, including scenario development and approval, model development and validation, data sufficiency and limitations, reporting and challenging of results, and the use of stress test outputs.
- Establish processes that facilitate collaboration and communication among stakeholders. For example, incorporate input from the appropriate business unit personnel when developing key assumptions or scenarios.
- Establish practices that promote effective challenge at each key stage of the stress testing process. These stages include developing scenarios and assumptions, determining methodologies, evaluating results, and assessing the ongoing performance and effectiveness of your stress testing program against your stress testing objectives.
- Incorporate stress testing into your institution's existing model risk management framework, as discussed later.

While development and implementation may be delegated to senior management, ultimate responsibility for the overall stress testing framework, including oversight, rests with your institution's board of directors. Directors do not need to be subject-matter experts but are expected to understand the material aspects of your stress testing framework and activities. The directors' level of understanding should be sufficient to enable them to engage in discussions with senior management and experts responsible for stress testing activities, and to participate in the effective challenge process. Accordingly, directors may need training to ensure they have an appropriate level of understanding.

## **3. Incorporate stress testing in risk management and business planning.**

Stress testing is an important tool in risk management and business planning. A stress testing framework with clearly defined objectives and sound governance structures should deliver actionable stress testing results. You can use stress testing results to establish your board's risk appetite, form strategies and policies, inform business and risk management decisions, define or calibrate risk limits, and develop action plans for various scenarios. For example, stress testing may provide valuable input for the following processes:

- Developing your operational and strategic business plan, as required by § [618.8440](#).

- Using results of enterprise-wide stress tests to develop or support capital plans, goals, and targets.
- Adjusting earnings goals and strategies.
- Developing portfolio risk parameters, loan underwriting standards and practices, and loan portfolio plans and strategies as discussed in FCA's Examination Manual.
- Establishing the basis for qualitative adjustments to the allowance for credit losses.
- Adjusting interest rate risk strategies and risk limits as required by §§ [615.5180\(c\)](#) and [615.5182](#), and calibrating balance sheet or derivative positions.
- Adjusting investment strategies, portfolio composition, or the investment risk parameters required by § [615.5133\(c\)](#).
- Establishing a contingency funding plan, as required by § [615.5134\(f\)](#), that provides for a variety of stress events.
- Determining the liquidity reserve composition and targeted days of liquidity that your institution needs based on its business model and risk profile, as required by § [615.5134\(a\)\(2\)](#).

To ensure that you apply stress test results appropriately in board and management decisions, tailor your reporting to the intended audience. Reporting should include the key modeling and scenario assumptions, sensitivity of results to key assumptions, and any resulting limitations on stress test processes and results. Decision makers should have a clear understanding of factors such as scenario relevance, risk coverage, and related model risks.

Lastly, your institution should perform stress analysis in a timely manner, as appropriate for the objectives of your stress testing framework. While many activities occur on a defined schedule (e.g., annually, quarterly, or monthly), you should perform ad hoc analysis when appropriate, such as to assess the ramifications of shifting macroeconomic factors or lending conditions.

#### **4. Identify relevant risks and develop appropriate stress scenarios.**

Stress tests should address the relevant and material risks that your institution has identified through a comprehensive risk assessment process. The risk assessment and review of internal and external factors completed for the business plan, as required by § [618.8440\(b\)\(2\)](#), may be a logical starting point when identifying risks for stress testing analysis. You may also tailor the risk assessment to the stress testing objective.

The risks identified should drive the design of stress test scenarios. For example, in determining the types of interest rate scenarios to use in IRR sensitivity analysis, risk assessments should identify your institution's unique sources of IRR exposure.

If you don't address material or relevant risks in a given stress test activity, be sure to clearly explain why you excluded these risks in reports to decision makers. Stress testing scenarios should be sufficiently severe and varied to provide a meaningful test of your institution's resilience to stresses. The following guidelines will help you create appropriate scenarios:

- Consider all sources of relevant risks in risk assessments. Risks may arise from various sources, including operational processes.
- Review scenarios and sensitivities used in stress testing at least annually, or as changes in conditions warrant, to ensure that the scenarios and sensitivities remain relevant and appropriate. For example, extended drought conditions may warrant more severe loss assumptions (i.e., loss given default) in loan portfolio stress analysis.
- Look beyond historical events and empirically observed relationships when creating scenarios, particularly if historical data do not capture severe events or if unique risks arise. For example, more extreme climate and weather events may result in higher levels of loan losses than experienced over the course of your institution's history. Reverse stress tests can help identify key risks and related stress scenarios.<sup>6</sup>
- Conduct stress tests at the appropriate level in your institution (e.g., portfolio, business unit, or enterprise-wide) for the stress test objective. For example, FCA regulations require the stress testing of investment prices and cash flows at both the individual asset and aggregate portfolio levels (§ [615.5133\(h\)\(4\)\(i\)](#)). Similarly, you could conduct credit stress analysis at the individual loan, portfolio segment, and overall portfolio levels.
- Document scenario assumptions, limitations, and exclusions. For complex stress testing processes, such as enterprise-wide stress tests, reports should explain how a given scenario captures the relevant and material risks. In your documentation, ensure that the processes you used to determine stress relationships or scenarios are clear to internal and external stakeholders (including FCA). Documentation should provide defensible and traceable evidence of how assumptions of the scenario are captured in model inputs.

## **5. Ensure that you have adequate stress testing resources and the appropriate organizational structure.**

Your board and management should ensure that your institution has adequate resources to accomplish its stress testing objectives. Personnel tasked with carrying out stress test activities should have the appropriate skill sets and expertise. Resource requirements will vary depending on your institution's stress testing objectives, the overall complexity of your operations, and the risks being evaluated.<sup>7</sup>

For example, at many associations, the funding bank manages the bulk of the interest rate and liquidity risk exposures. These associations will require fewer resources to support the stress testing of these areas than System banks and associations with significant interest rate or liquidity risk exposures.

Institutions with more complex operations or portfolios typically require staff with specialized skills (e.g., experts in the stress testing of credit risk, liquidity risk, IRR, or capital adequacy) and a more sophisticated information technology infrastructure to support

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<sup>6</sup> See "Additional Points for Banks" on page 6 of [Stress testing principles \(PDF\)](#), October 2018, by the Basel Committee on Banking Supervision.

<sup>7</sup> If your institution provides stress testing support or applications to other System institutions, your resources and expertise should be sufficient to provide for sound stress testing practices at all institutions served.

stress testing initiatives. Any third parties providing support for stress testing activities should be subject to appropriate oversight and controls. For more information, see the “Third-Party Risk Management” guidance under the topic [Direction and Control of Operations \(PDF\)](#) in FCA’s Examination Manual.

The organizational structure for stress testing activities may also vary depending on the scope and complexity of stress testing objectives. If your institution adopts a centralized approach to stress testing, be sure that your processes facilitate input from business lines; among other things, this will help you identify the most relevant factors to consider for portfolio stress test scenarios.

If your institution has several stress testing objectives and adopts a more decentralized approach, make sure that your policies, procedures, and controls allow you to aggregate the impacts of stress scenarios into an enterprise-wide view of the risks your institution is facing.

#### **6. Ensure that you have the data and information technology infrastructure to perform stress testing effectively.**

Your institution should have controls and processes that provide for reasonable assurance that the data used for stress testing are adequate, reliable, and timely. Model documentation should address challenges with data adequacy and should support assumptions or other approaches used to compensate for data limitations. Information systems should be capable of retrieving, processing, and reporting all the information you need to support your stress testing objectives.

Your quality-control processes should provide assurance that your information is sufficiently accurate and granular to meet the objectives of your stress testing framework. Be sure to address any material information deficiencies and, at a minimum, report these deficiencies along with stress testing results. Ideally, your institution’s infrastructure and related processes will be sufficiently flexible to allow for ad hoc stress test analysis in times of rapidly changing conditions.

#### **7. Ensure that your stress testing models and methodologies are fit for purpose.**

Models and methodologies used in stress testing should be fit for purpose. Your institution’s stress testing objectives should guide your model development. The model should also reflect your institution’s business lines, strategies, and risk characteristics. Model developers should work with managers and business units to understand the risks being modeled, and the business drivers or risk factors that should be addressed.

Model sophistication and specification should be appropriate for the objectives of the stress testing exercise and the complexity of the portfolio or activity being assessed. FCA would not expect the same level of model sophistication at associations with smaller and less complex portfolios and exposures as we would expect at System banks and associations with larger and more complex portfolios or exposures. Be sure to support and document the justification for all models and methodologies you use, including any application of expert judgment or model override.

All stress testing models should be subject to sound governance under your institution’s model risk management framework. For example, you should include stress testing models in your model inventory, which should accurately represent each model’s risk, materiality,

and validation status. In addition, model validation, change controls, staffing, separation of duties, and new model development should be consistent with your model risk management framework. For more information, see the "Model Risk Management" guidance under the topic [Direction and Control of Operations \(PDF\)](#) in FCA's Examination Manual.

## **8. Challenge and review stress testing frameworks, models, and results.**

Your institution should regularly review and challenge all components of the stress testing framework and the resulting stress testing activities. Many components, such as key methodologies, scenarios, assumptions, and the forecasted impacts on earnings, capital, and liquidity, should be reviewed at least annually.

Key stakeholders should participate in the challenge and review. For example, business unit personnel should challenge the assumptions and plausibility of modeled outcomes and ensure that results make sense relative to market experience. In addition, when you use stress tests to inform strategic decisions, such as setting capital goals and targets or adjusting strategies for managing IRR, you should review and challenge the processes, assumptions, and outcomes. Documenting abandoned or changed assumptions, scenarios, or outcomes and the basis for these decisions can support an effective challenge and review process and help ensure that stress test results are not unduly biased. Policies or procedures should specify this process.

As with all critical risk management exercises, the internal audit function should regularly review the overall stress testing framework and its implementation in business practices. An effective challenge and review process should not only identify where you can improve your stress testing framework and activities, but it should also ensure that you are using the stress testing results to meet your stress testing objectives.

## **Conclusion**

While the degree of sophistication of models and analytics will vary widely depending on the size and complexity of your institution, stress testing remains a critical risk management tool for System institutions of all sizes and risk profiles. We expect your institution to have a stress testing program consistent with the principles outlined in this informational memorandum.

Establishing an appropriate stress testing framework encompassing these core principles helps ensure that your institution's stress testing activities result in insights that you can use in your risk management and strategic planning processes. We provide further guidance on sound stress testing practices in the FCA Examination Manual. The principles discussed in this memorandum are applicable to the stress testing activities discussed in these FCA [Examination Manual](#) sections:

- Capital Adequacy and Capital Management
- Allowance for Losses
- Investments
- Portfolio Planning & Analysis
- Business Strategy & Planning
- Earnings Adequacy and Earnings Management

- Liquidity Risk and Liquidity Management
- Interest Rate Risk and Interest Rate Risk Management
- Derivatives

If you have questions about this memorandum, please contact any of the following individuals:

- Your designated examiner-in-charge
- Scott Donnelly, Credit Specialist Program Manager, at [donnellys@fca.gov](mailto:donnellys@fca.gov) or 952-259-0440
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