



Federal Reserve's Philosophy for Supervisory Stress Test

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Goals of supervisory stress tests

- Supervisory stress tests primarily support “micro-prudential” supervision.
 - Supervisory stress tests are one of the key inputs into CCAR—a major supervisory program—and provide independent, forward-looking assessment of capital adequacy among largest U.S. banks.
- However, supervisory stress tests also support macro-prudential supervisory objectives.
 - Large, and most systemic banks are stressed simultaneously using a common set of scenarios and models.
- Public disclosure of supervisory stress tests provides to the market and the public valuable information about the banking industry and individual banks.
 - Disclosure of stress test results is a form of public accountability, and is wholly novel to supervision.
 - The value of public disclosure hinges largely on the credibility and relevance of supervisory stress tests.



Key aspects of supervisory stress tests

- **Independence** is necessary (though not sufficient) for credibility.
 - To the maximum extent possible, supervisory stress tests should provide a truly independent assessment of banks' capital adequacy.
 - Other considerations, such as the sufficient severity of scenarios and outcomes, and transparency, also contribute to credibility.
- **Comparability** of results supports cross-firm analysis and provides a valuable insight to supervisors and the market.
 - A standard set of scenarios, assumptions, and models promote comparability.
- **Flexibility** ensures relevance.
 - Flexibility to modify and add scenarios and models allow the Federal Reserve to consider relevant risks each year and incorporate dynamic changes—in the economy, in bank portfolios, and the relationship between the two.



Model independence

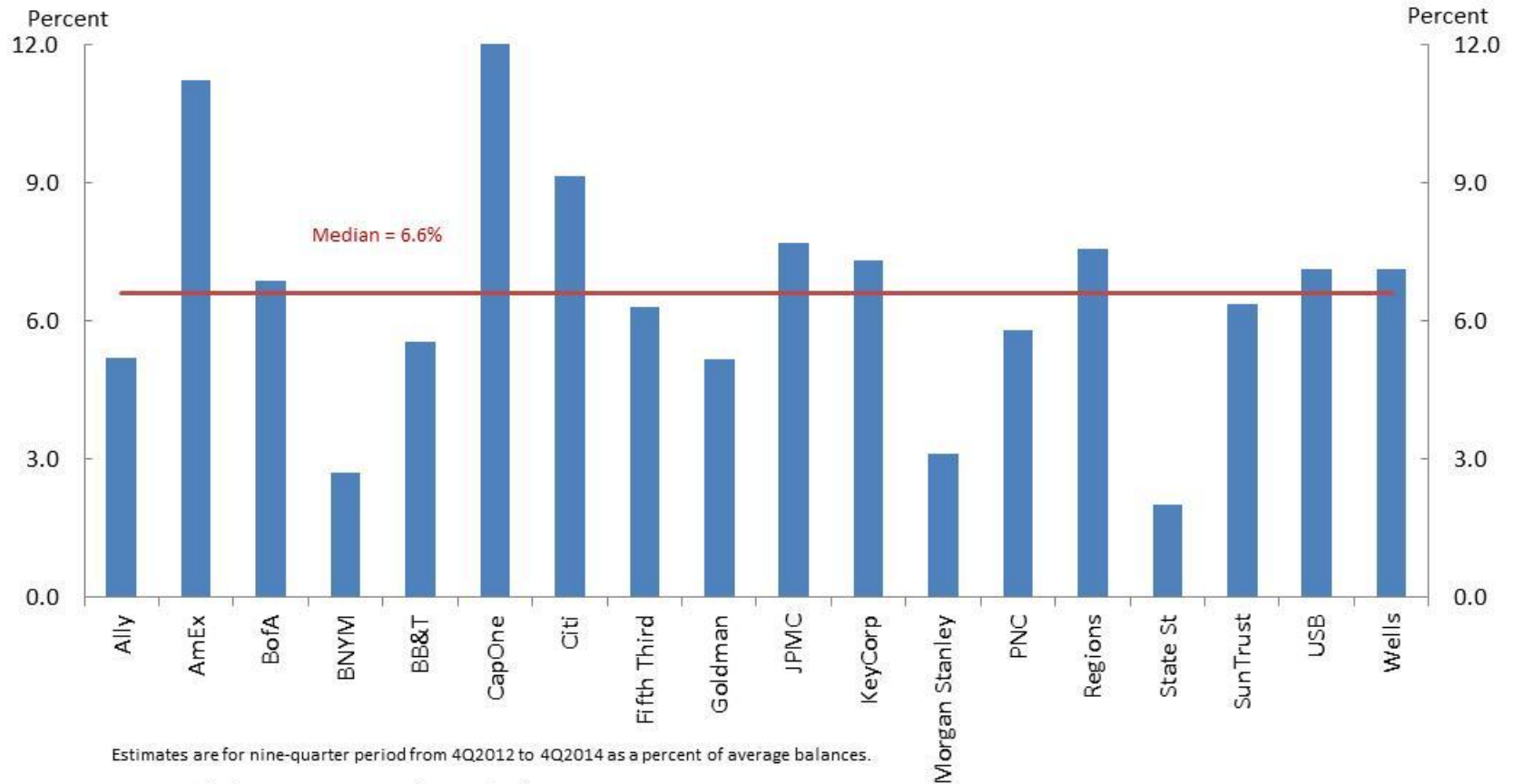
- Have increasingly moved toward independent modeling since SCAP.
- Independently estimate most components of net income now.
 - Most components of losses were independently modeled for several years.
 - Used an independent supervisory model to project PPNR for the first time in DFAST/CCAR 2013.
- Ongoing work on more independent modeling of remaining areas (e.g., balance sheet and risk-weighted assets).
- Greater emphasis on input validation where banks' model results are used as an input (e.g., trading and counterparty risk)



Comparability of results

- Use a standard set of scenarios, assumptions, and models for all banks, using data reported by banks
 - Loan or segmentation-level data enhance the ability to account for differences in underwriting quality, and portfolio risk characteristics
- Treat all banks equally and generally do not make firm-specific adjustments to supervisory estimates.
 - Use firm fixed effects only for a limited number of instances to address data limitation
 - Differences in portfolio composition (e.g., credit score, LTV, products) account for differences in results.
 - Little weight is given to the potential for management action in response to scenario outcomes.
- Apply any “management overlay” consistently across banks, based on quantitative evidence
 - For example, used matched first and second-lien data to identify current second-lien loans behind delinquent first loans and adjusted the loss rate on the second-lien loans.


Total loan loss rates: Supervisory estimates for DFAST 2013





Flexibility in stress testing framework

- Supervisory scenarios will likely evolve over time to incorporate particular risks that emerge (“salient” risks).
 - Prior examples include heightened stress among European sovereign and financial institutions
 - Additional scenario components may be applied to a subset of banks (e.g., global market shock, counterparty jump-to-default)
- Supervisory stress testing models will also likely evolve over time, as new data become available, economic conditions change, new products and businesses introduce new risks, and estimation techniques advance further.
 - Update or re-estimate models each year as the relationship between macroeconomic variables and revenues or losses shifts
 - Incorporate research in key risk areas and new products
 - Do not rely on history as the best indicator of the future, and make appropriate changes to assumptions




Supervisory stress testing program: Where we are

- Significant enhancements have been made to supervisory models since SCAP
 - The program has been able to leverage experts across the Federal Reserve System.
 - Better data support “bottom-up” models, which can better control for underlying risk characteristics.
 - Multiple modeling approaches and additional benchmark models are being developed and used.
- Implemented a process that closely follows supervisory expectations for banks’ model risk management (SR 11-7)
 - Program oversight and decision-making process is clear and centralized to ensure accountability and better coordination.
 - The model review and validation process is independent.



Supervisory stress testing program: Governance

- Close oversight of the process by a small group of senior staff from across the Federal Reserve System (Model Oversight Group)
 - Oversees all model development and implementation
 - Evaluates the reasonableness of assumptions and results and engages in extensive vetting of results with modelers, using a variety of benchmarks
 - Centralized vetting of approaches and aggregation of results across different work streams to ensure consistency
- Independent review and validation of model soundness and controls
 - Separate reporting structure overseen by the Model Validation Unit
 - Sets documentation and control standards
 - Ensures, together with the MOG, that identified weaknesses are remedied prior to using the model
 - Promotes internal transparency of model status and results



Annual supervisory stress testing program: from R&D to publication

Steps	Process
Research & Development	<ul style="list-style-type: none">• Develop and enhance stress test models on an ongoing basis• Conduct performance testing of models• Explore new data sources, modeling techniques, and emerging risks
Model Review and Validation	<ul style="list-style-type: none">• Independent review of conceptual soundness and control process• Must address key identified weaknesses before using the model for production
Test run	<ul style="list-style-type: none">• Formal testing of all models and processes to identify weaknesses• Conduct extensive vetting of assumptions, approaches, and outcomes
Production	<ul style="list-style-type: none">• Implement approved models to produce supervisory estimates• Extensive vetting of outcomes for reasonableness, using multiple benchmarks
Publication	<ul style="list-style-type: none">• Discuss stress test results with the Governors and other internal stakeholders• Publish the results and the overview of methodologies



Questions?