Research Agenda for Stress Testing

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These slides present the author’s perspective on ongoing research related to stress testing and other supervisory activities. The views expressed herein are solely the author’s, and do not reflect those of the Federal Reserve Board or its staff. All information presented here is publicly available.
Outline

• Overview of generic stress testing process
• Research perspective on the 2012 exercise
• Directions for future research
  – Information collections
Process overview

**Design elements**
What data to collect
Standard for pass/fail; actions tied to results
Evolution of balances/RWA
Other assumptions (e.g. riskiness of newly originated loans)
Macroprudential elements?

**Scenario design**
Variables to include?
Severity?
Separate trading shock

Design → Macro scenario → Top-down loss estimates → Bottom-up loss estimates → Capital trajectory → Disclosure
Process overview

**Top-down loss estimates**
Use public data
Apply generically
Guide expectations
Make the ranges public?

**Bottom-up loss estimates**
Based on granular data from firms
Role of firms’ own estimates?
Role for revelation principle style mechanisms?
Process overview

**Capital trajectory**
Forecast of income & losses → quarterly path of capital
Pass/fail per quarter?
Include “below the line” adjustments?

**Disclosure**
By asset class?
By firm?
Time series or just ending?
Supervisory actions?
RESEARCH PERSPECTIVE ON THE 2012 EXERCISE
Summary of 2012 Exercise: Timeline and Design

• Timeline
  – Scenario published in November 2011
  – Used firm positions as of Sep. 30, 2011 and in Nov. 2011 for trading book
  – Firms submitted capital plans, including loss forecasts, in early January 2012

• Design
  – Held proposed capital distributions constant in the stress scenario
  – Three regulatory ratios, 5% tier 1 common
  – Qualitative assessment of firms’ capital planning processes
    • Supporting processes such as risk measurement and risk management
  – Dynamic balance sheets specified by firms
  – Six large trading firms subject to market shock using Nov. 2011 positions
  – Losses & earnings forecast for nine quarters: 2011:Q4—2013:Q4
    • Losses in 2014 used to size end-of-period ALLL and for other purposes
Summary of 2012 Exercise: Scenario, Loss Estimates & Disclosure

• Scenario
  – U.S. enters a severe recession
  – Unemployment rate 13%, house prices -21%
  – GDP and exchange rates for country/country blocks
  – Trading shock reflected widening in sovereign spreads

• Loss estimates
  – No top-down loss estimates distributed
  – Wholesale, retail, AFS-HTM
  – Trading book & PPNR
  – Bottom-up independent loss estimates published

• Disclosure
  – Firm-specific results
  – Minimum and period-end capital ratios
Stylized Representation of Capital Analysis

Starting capital ratio

Losses in stress scenario

Proposed capital distribution

Post-stress capital ratio

Minimum stressed ratio assuming no capital actions after Q1 2012

Minimum stressed ratio with all proposed capital actions through Q4 2013
DIRECTIONS FOR FUTURE RESEARCH
Number of journal articles containing the search term in their *abstracts* (1980 to 2011)

Information Collections

• Understand what information supervisors are collecting
  – And what might be feasible alternatives
• Information collected (generally) using public regulatory reports
• Changes to reports typically associated with public notice and comment
Recent Developments

- Agencies clarify effective date for Section 716 of the Dodd-Frank Act
- Testimony by Sandra F. Braunstein, Director, Division of Consumer and Community Affairs, on mobile payments
- Speech by Governor Duke on building sustainable communities
- Federal Reserve Board issues enforcement action, and terminates enforcement action
Information collections under review
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Current information collection
FR Y-14Q & FR Y-14M

- PPNR
  - Actual balances & rates earned on assets by category (first-lien, C&I,...)
  - Non-interest income/expenses
  - Weighted average life of assets/liabilities
  - Retail repricing “beta” (sensitivity of cost of funds to rate shocks)
- Retail (mortgages, cards, auto, ...)
- Wholesale (C&I, CRE loans, ...)
- Securities (financial assets held in AFS/HTM portfolio)
- Trading
  - Sensitivities of assets to shocks (DV01, CS01, vega)
  - Counterparty credit risk exposures (CVA, IDR, top 10 lists)
- Basel III
- Regulatory capital instruments
Scenario Information Collection
FR Y14-A

- Five scenarios: BHC baseline & stress, Federal Reserve baseline & stress, separate trading shock (potential for additional scenarios)
- Project nine quarters (under each scenario)
  - Flows to income/hits to capital
    - PPNR
    - Loan losses
    - ALLL
    - OTTI
    - Trading mark-to-market losses
  - Asset balances (loans outstanding, RWA)
  - New originations by loan category
  - Special topics (e.g. repurchases, fair value, etc)
- Additional trading/CCR collections
  - Top counterparties
Research Directions

• Micro/product-specific analysis
  – Loss forecasting
  – Elasticity of demand
  – Behavior in tail events
  – Better information to collect

• Trading and counterparty credit risk
  – Designing scenarios
  – Counterparty behavior in stress episodes

• Macro topics
  – Designing scenarios
  – Role of bank capital in macro outcomes (e.g. countercyclical capital buffers)

• Banking
  – Cost of bank liabilities
  – Determinants of bank risk appetites

• Research on supervision
  – Connection to program evaluation literature
  – Study of forecast errors
  – Alternative approaches (including information collection)
  – Alternative targets
  – Disclosure policy
  – New form of supervision (public, quantitative, ...)

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