

Research Agenda for Stress Testing

Andreas Lehnert

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

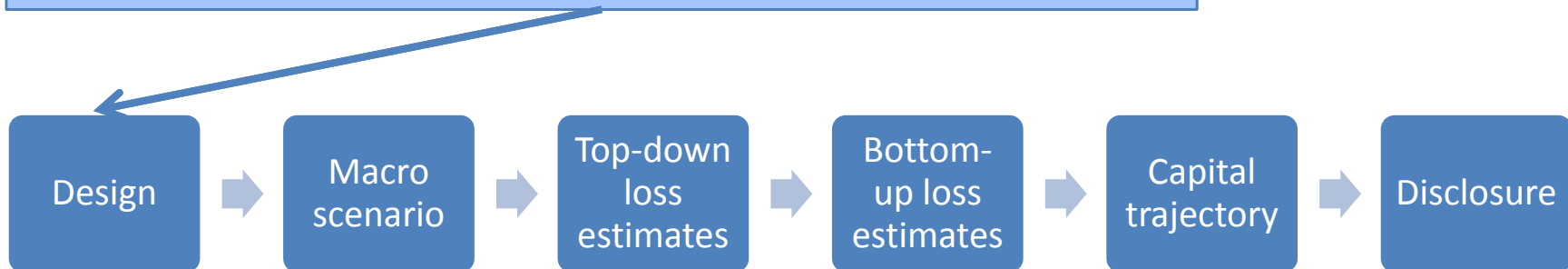
What data to collect

Standard for pass/fail; actions tied to results

Evolution of balances/RWA

Other assumptions (e.g. riskiness of newly originated loans)

Macroprudential elements?



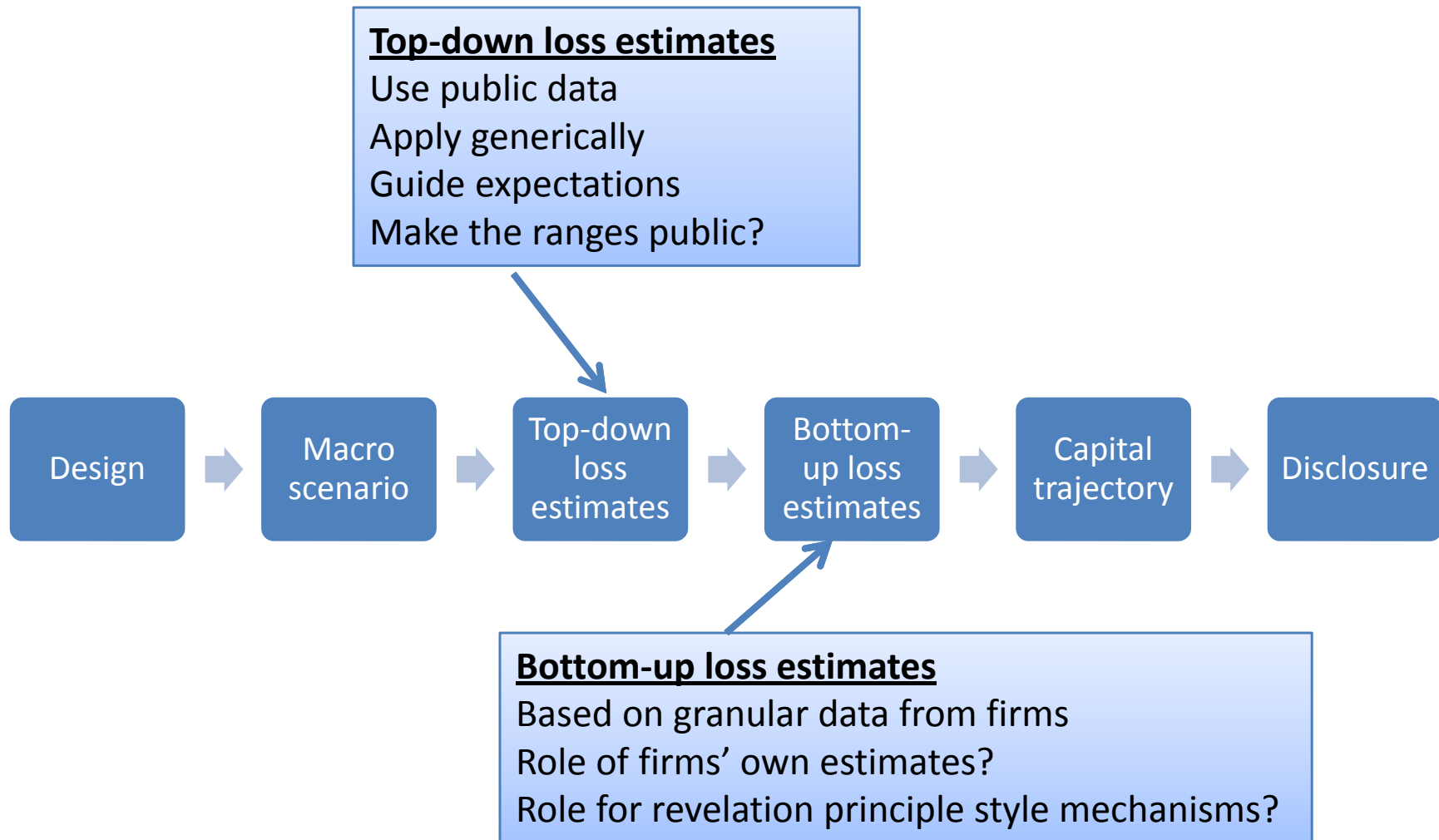
Scenario design

Variables to include?

Severity?

Separate trading shock

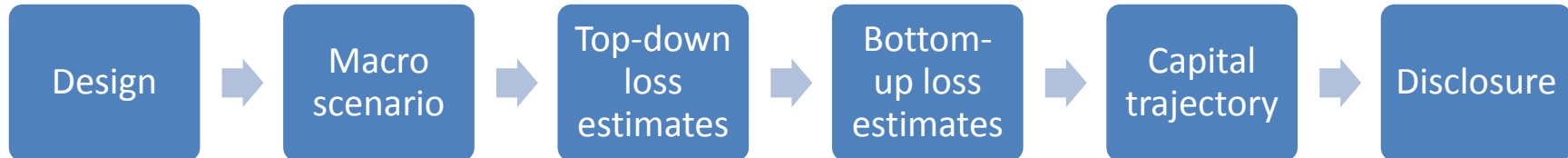
Process overview



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

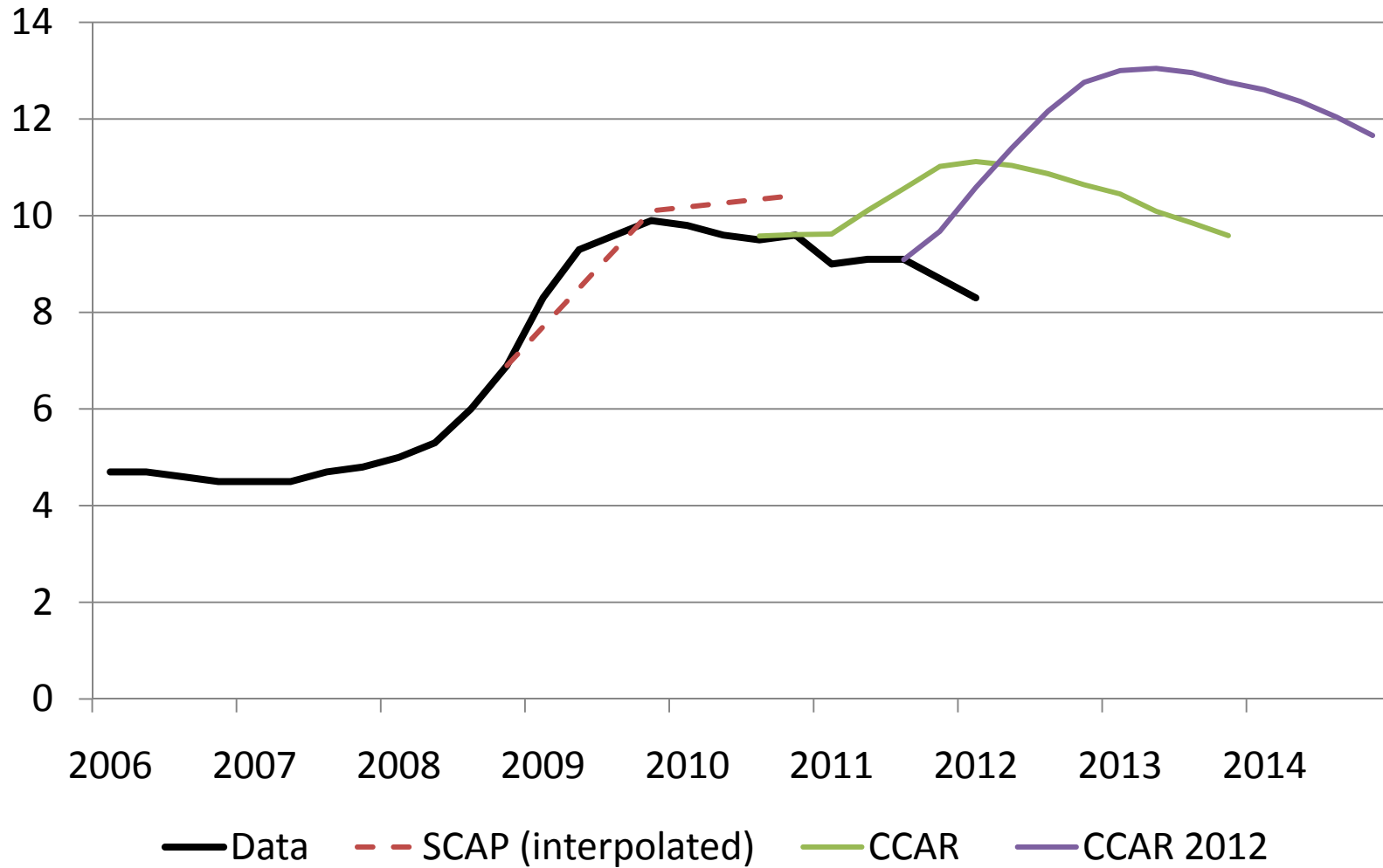
Summary of 2012 Exercise: Timeline and Design

- 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
 - Federal Reserve published independent loss estimates & capital ratios on March 13, 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

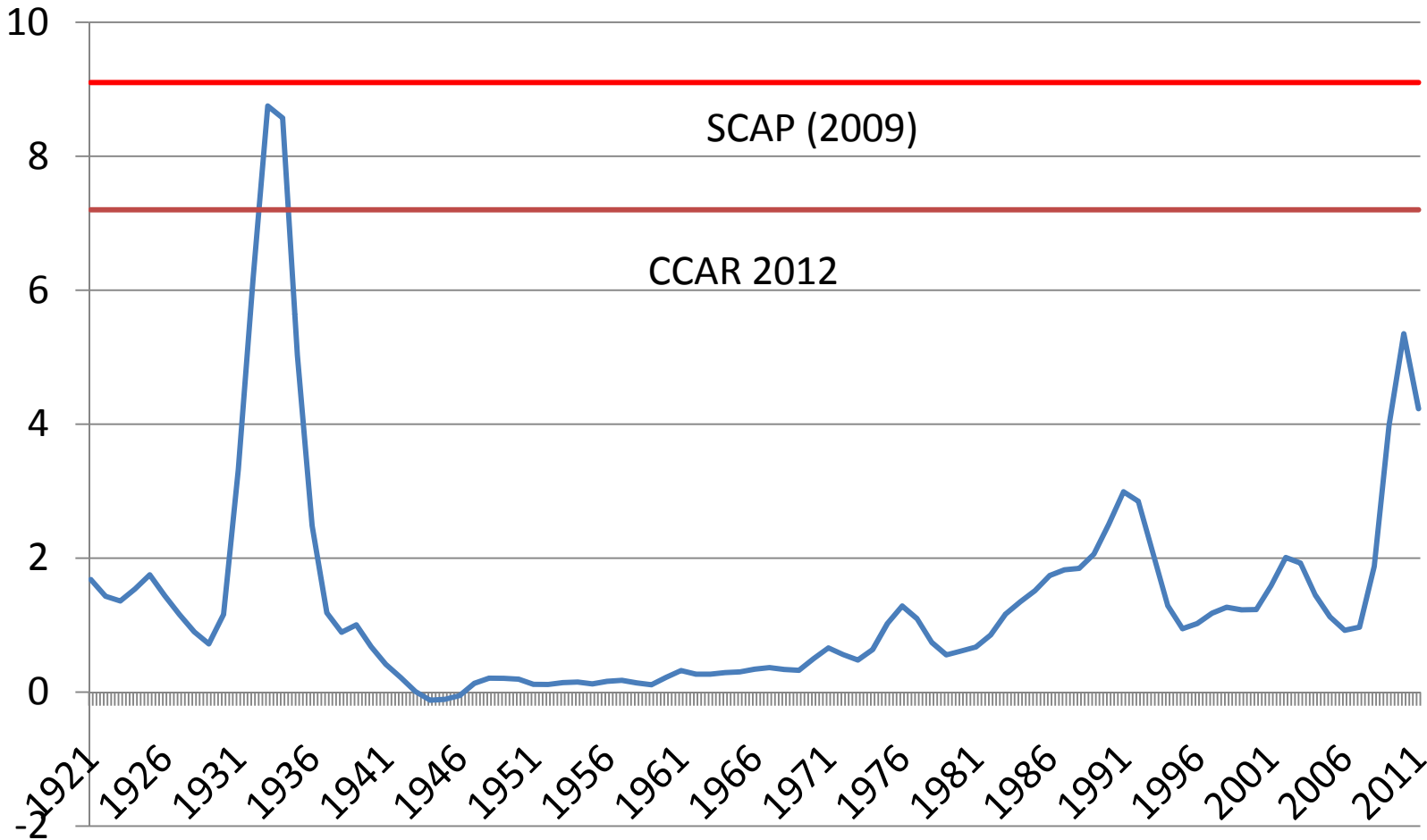
Summary of 2012 Exercise: Scenario, Loss Estimates & Disclosure

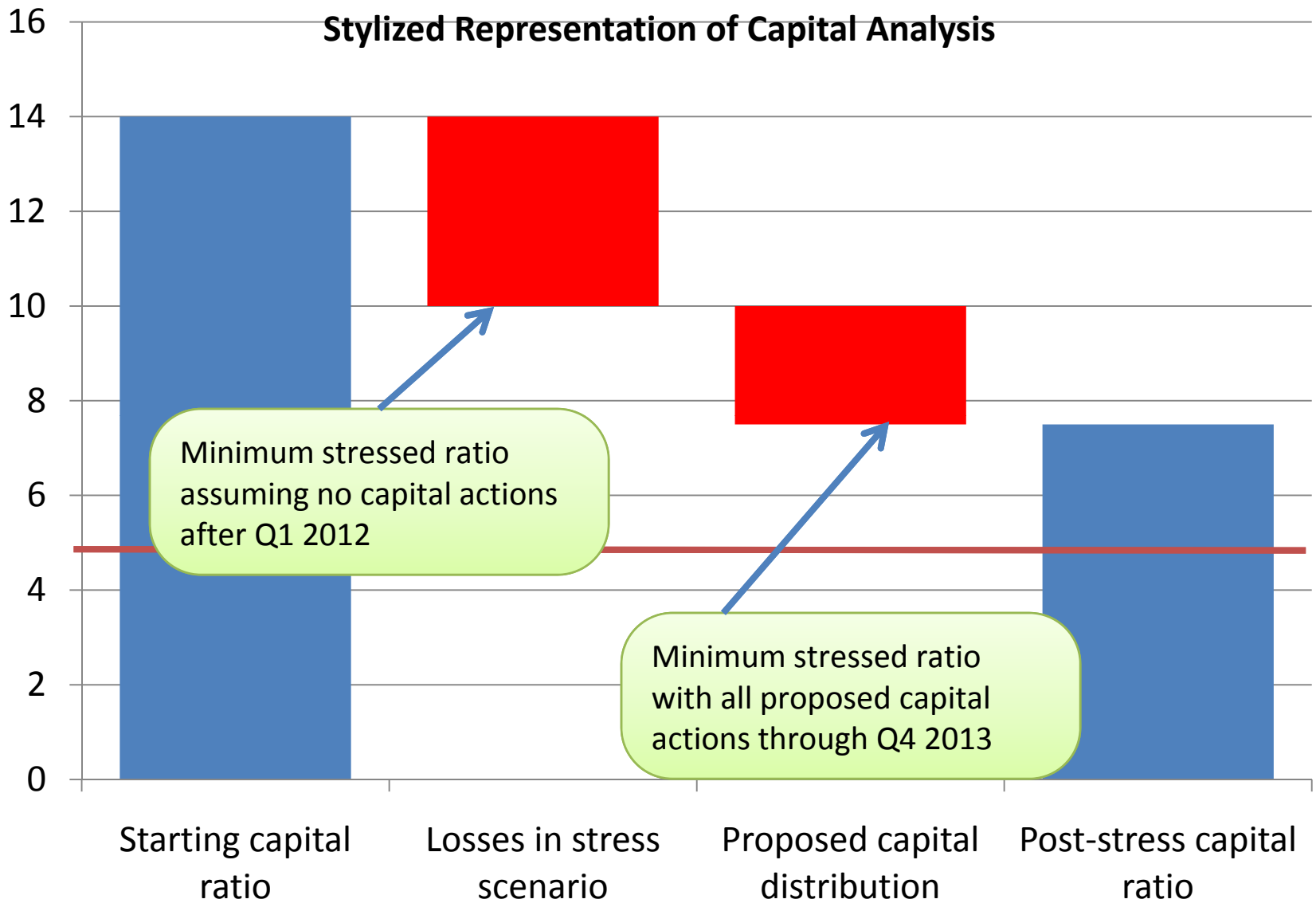
- Scenario
 - U.S. enters a severe recession
 - Unemployment rate 13%, house prices -21%
 - GDP and exchange rates for country/country blocks
 - Trading shock reflected widening in sovereign spreads
- Loss estimates
 - No top-down loss estimates distributed
 - Wholesale, retail, AFS-HTM
 - Trading book & PPNR
 - Bottom-up independent loss estimates published
- Disclosure
 - Firm-specific results
 - Minimum and period-end capital ratios

Scenario Unemployment Rates



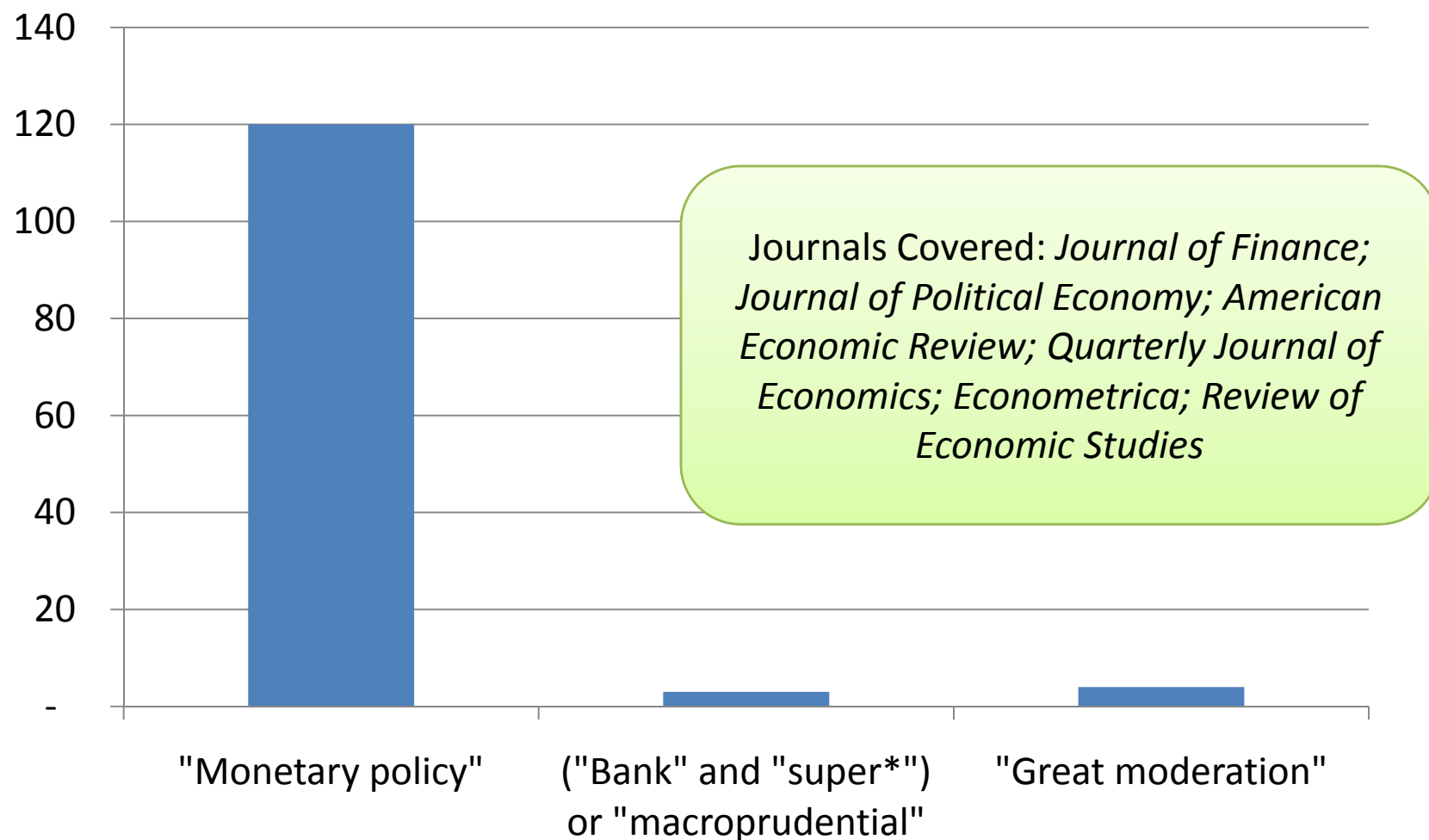
Two-year Loan Loss Rates Commercial Banks 1920-2011





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

<http://www.federalreserve.gov>

Reporting forms

What's New · What's Next · Site Map · A-Z Index · Careers · RSS · All Videos · Current FAQs

Search [Advanced Search](#)

Board of Governors of the Federal Reserve System

The Federal Reserve, the central bank of the United States, provides the nation with a safe, flexible, and stable monetary and financial system.

About the Fed	News & Events	Monetary Policy	Banking Information & Regulation	Payment Systems	Economic Research & Data	Consumer Information	Community Development	Reporting Forms	Publications
---------------	---------------	-----------------	----------------------------------	-----------------	--------------------------	----------------------	-----------------------	------------------------	--------------

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**

Does the Fed get audited? YES

[Learn more >](#)

INDEPENDENT AUDITORS' REPORT
To the Board of Governors of the Federal Reserve System
We have audited the accompanying balance sheet as of December 31, 2010 and 2009, and the results of operations, and cash flows for the Board's management. Our responsibility is to express an opinion on these financial statements based on our audit.

Video

[All Video](#)

Information collections under review

[What's New](#) · [What's Next](#) · [Site Map](#) · [A-Z Index](#) · [Careers](#) · [RSS](#) · [All Videos](#) · [Current FAQs](#)

Board of Governors of the Federal Reserve System

[About the Fed](#)

[News & Events](#)

[Monetary Policy](#)

[Banking Information & Regulation](#)

[Payment Systems](#)

[Economic Research & Data](#)

[Consumer Information](#)

[Community Development](#)

[Reporting Forms](#)

[Publications](#)

Forms by Category

- [Financial statements](#)
- [Applications/structure change](#)
- [FFIEC](#)
- [Monetary policy](#)
- [Research](#)
- [Business/consumer credit](#)
- [Securities Exchange Act of 1934](#)
- [Municipal and government securities](#)
- [Activities monitoring](#)
- [Information collections under review](#)

FR Y-14A
FR Y-14M
FR Y-14Q

Information Collections Out for Public Comment (* End of Comment Period)						
Reporting Form Number	OMB Supporting Statement (PDF)	Draft Reporting Form (PDF)	Draft Reporting Instructions (PDF)	Other Attachments (PDF)	Initial Federal Register Notice (PDF)	Final Federal Register Notice (PDF)
FR 2018	36 KB	not applicable	not applicable	not applicable	156 KB *04/06/2012	not available
FR 2023	28 KB	not applicable	not applicable	not applicable	156 KB *04/06/2012	not available
FR 2064	25 KB	not applicable	not applicable	not applicable	200 KB *05/14/2012	not available
FR 3051	32 KB	not applicable	not applicable	not applicable	162 KB *04/02/2012	not available
FR 3059	26 KB	not applicable	not applicable	not applicable	162 KB *04/02/2012	not available
FR 4203	not available	not applicable	not applicable	link	231 KB *06/08/2012	not available
FR H-4	29 KB	not applicable	not applicable	not applicable	162 KB *04/02/2012	not available
FR Y-14A FR Y-14M FR Y-14Q	124 KB	525 KB 575 KB	not available	not applicable	163 KB *04/23/2012	not available
Reg W	26 KB	not applicable	not applicable	not applicable	200 KB *05/14/2012	not available
Reg YY R-1438	not available	not applicable	not applicable	link 1 link 2	451 KB 190 KB *04/30/2012	not available
RFP RFPQ	29 KB	not applicable	not applicable	not applicable	162 KB *04/02/2012	not available

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, ...)