

# Stress Testing and Financial Stability

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# Stress testing as a tool to monitor financial stability

- Stress tests have well-known limitations as a stability monitoring tool
- But they can be a crucial part of a comprehensive monitoring framework
- Need to pursue further research on some specific areas

## *Note:*

- Here “stress test” refers to a scenario analysis of income, capital and balance sheets through a hypothetical macro/financial environment
- Not talking about use of results
  - This is not about CCAR
  - Not really about DFAST either

# Stress tests have a checkered history in financial stability

Examples of pre-crisis stress-tests:

1. Between 1992 and 2008, basis of revised regulatory framework for Fannie Mae and Freddie – *only* risk-based capital measure for these firms was a stress test
2. In the 2000s, used by rating agencies to set subordination levels in asset backed securities holding residential mortgages
3. Many national and international authorities, sometimes with terrible timing (e.g. a clean bill of health in Sep. 2008)

Borio (2011) advises that stress tests are better used as recovery/crisis management tools than as early-warning tools.



# What went wrong?

Examples of pre-crisis stress-tests:

1. Fannie/Freddie: Insufficiently severe scenarios and models that became stale. (Frame, Gerardi, and Willen 2015)
2. Rating agencies: Several problems including, broadly, insufficiently severe scenarios, especially on house prices (Gerardi, Lehnert, Sherlund, Willen 2008)
3. Others: Lack of data (e.g. reliance on aggregate exposures), insufficiently severe scenarios, unexpected financial system dynamics



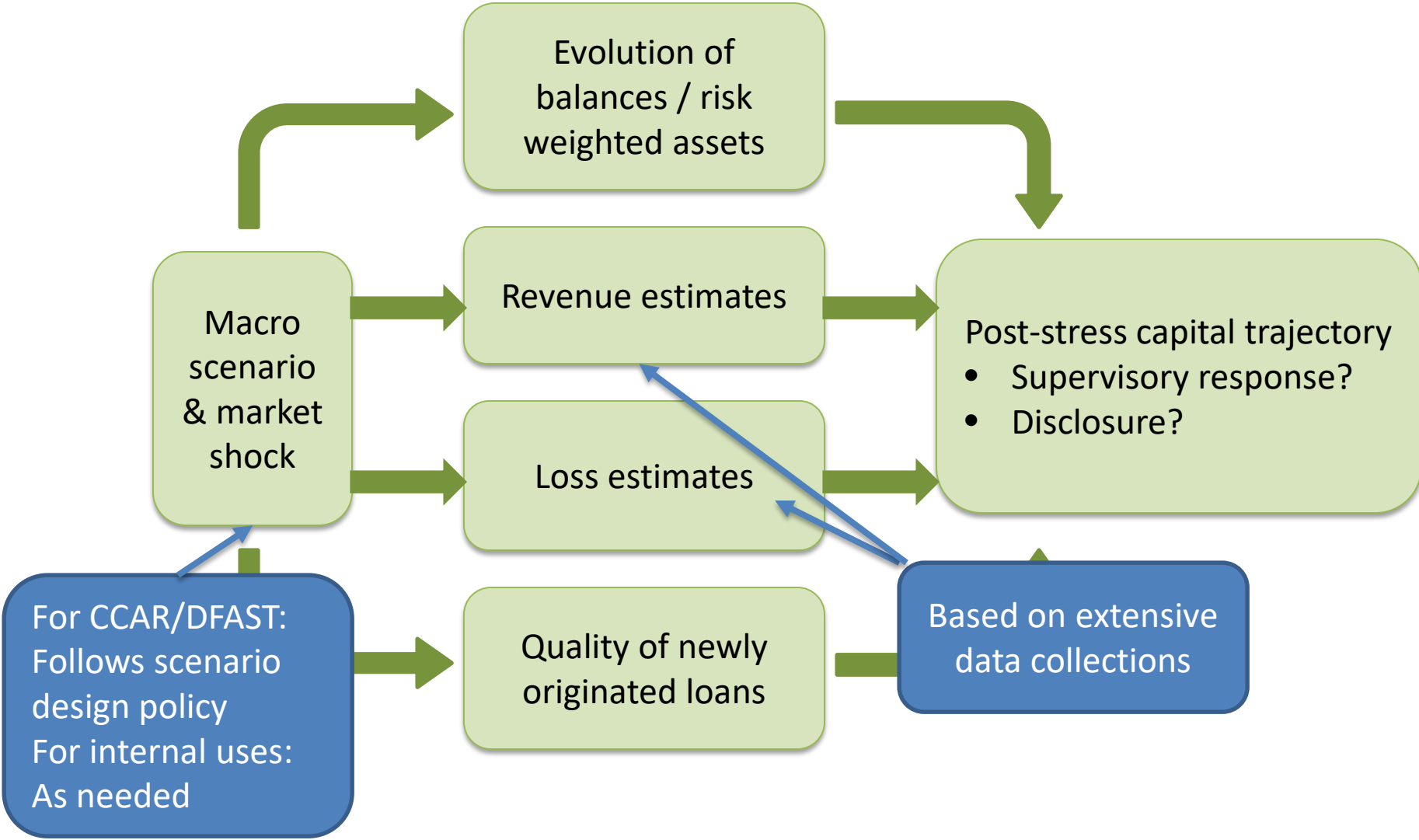
# Unexpected financial system dynamics explain a lot

Many of the failures of past stress test regimes can be blamed on unpleasant surprises from the financial system

- Scenario severity: The 2007—2009 recession was more severe than it otherwise would have been because of “credit factors” (Bernanke 2018)
- Stale models: Statistical projections of borrower behavior subject to drift (a reminder of why structural models are so important)
- Lack of data: The locus of concern changes over time



# U.S. stress testing program



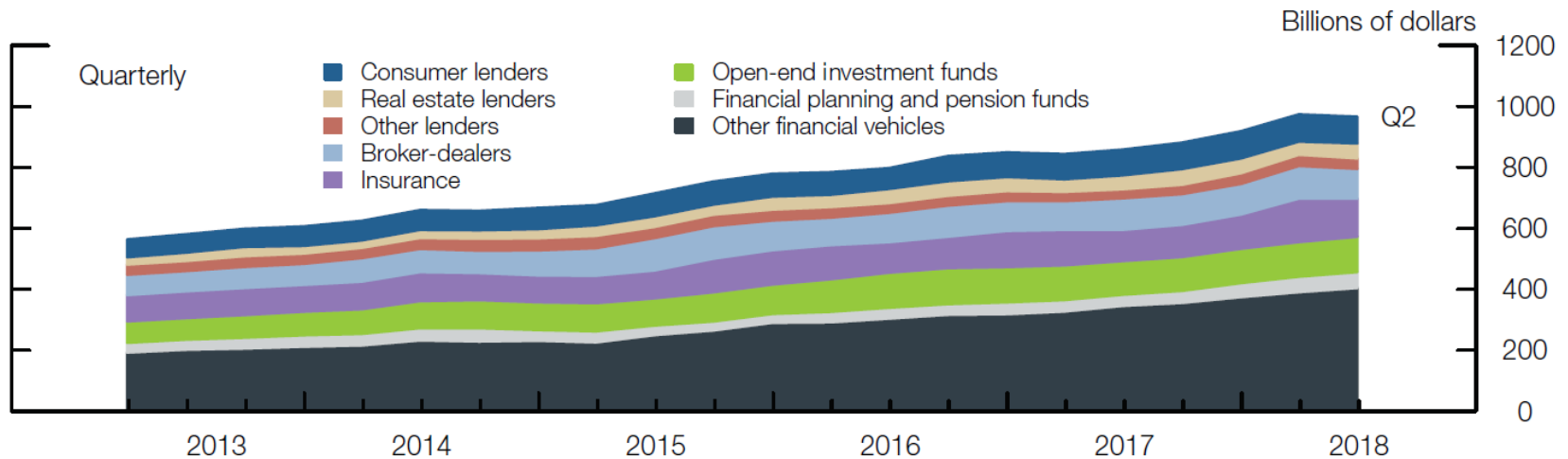
# Does that framework capture unexpected financial system dynamics?

- Implicitly in a standard “severe recession” scenario
  - Unlikely that severe recessions would not be associated with financial turmoil
  - Market shock features a large counterparty default element (but no second-round effects)
- But results are unlikely to deliver novel dynamics
- Need to also maintain a comprehensive understanding of key vulnerabilities in the financial system
  - Board’s first public *Financial Stability Report*, Nov. 2018
  - Examples in the FSR of crucial information gleaned from stress test data



# Important to measure bank exposure to nonbanks...

3-9. Large Bank Lending to Nonbank Financial Firms: Committed Amounts



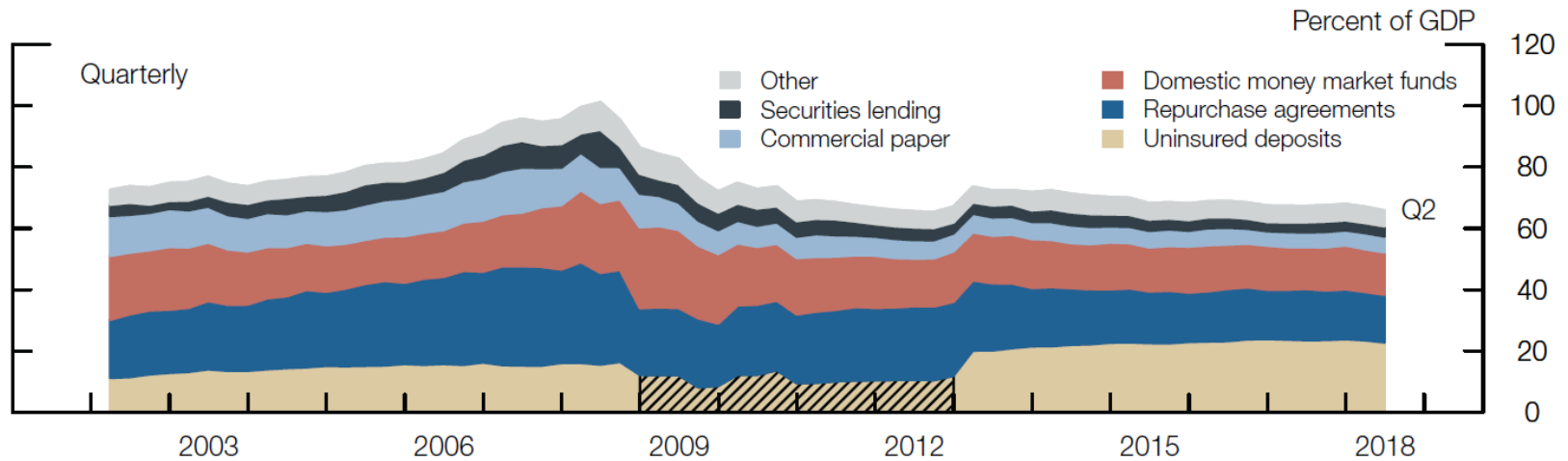
Note: Committed amounts on credit lines and term loans extended to nonbank financial firms by a balanced panel of 25 bank holding companies that have filed Form FR Y-14Q in every quarter since 2012:Q3. Nonbank financial firms are identified based on reported NAICS (North American Industry Classification System) codes, excluding other domestic and foreign banks, monetary authorities, and credit unions. Broker-dealers also include commodity contracts dealing and brokerages and other securities and commodity exchanges. Other financial vehicles include closed-end investment and mutual funds, real estate investment trusts, special purpose vehicles, and other vehicles.

Source: Federal Reserve Board, Form FR Y-14Q, Capital Assessments and Stress Testing.



# ...but some risks can't be addressed in stress tests

4-3. Runnable Money-Like Liabilities as a Share of GDP, by Instrument and Institution



# Need ongoing research to understand surprises

- Macroeconomics of medium-sized shocks
- Amplification mechanisms outside of the banking system
- Evolving financial market structure
  - Technology
  - Institutions

