

U.S. Macroprudential Policies and Supervisory Stress Tests

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Cyclical macroprudential policies

- Objective: Increase resilience of the financial system and reduce downside macro risks
- Prudential regulations and supervision are procyclical
 - Bank capital (Repullo and Suarez 2013);
 - Margins and haircuts (CGFS Longworth report 2010)
 - Stress test losses have declined amid improving economic conditions
- Also borrower and investor behavior is procyclical
 - Credit-to-GDP (Borio and Lowe, 2002; Drehmann and Juselius, 2013)
 - Asset valuations and risk appetite (Adrian and Shin, 2008)
 - Interaction of asset prices and credit growth (Jorda, Schularik, and Taylor, 2015)
 - Credit-to-GDP is a vulnerability that leads to subsequent downturns in the US (Aikman, Lehnert, Liang, Modugno, 2015)



Stress tests and CCAR

U.S. stress testing program has evolved since SCAP into an annual exercise for the largest banking firms (> \$50 billion in assets) with two components

1. Dodd-Frank Act Stress Tests (DFAST)

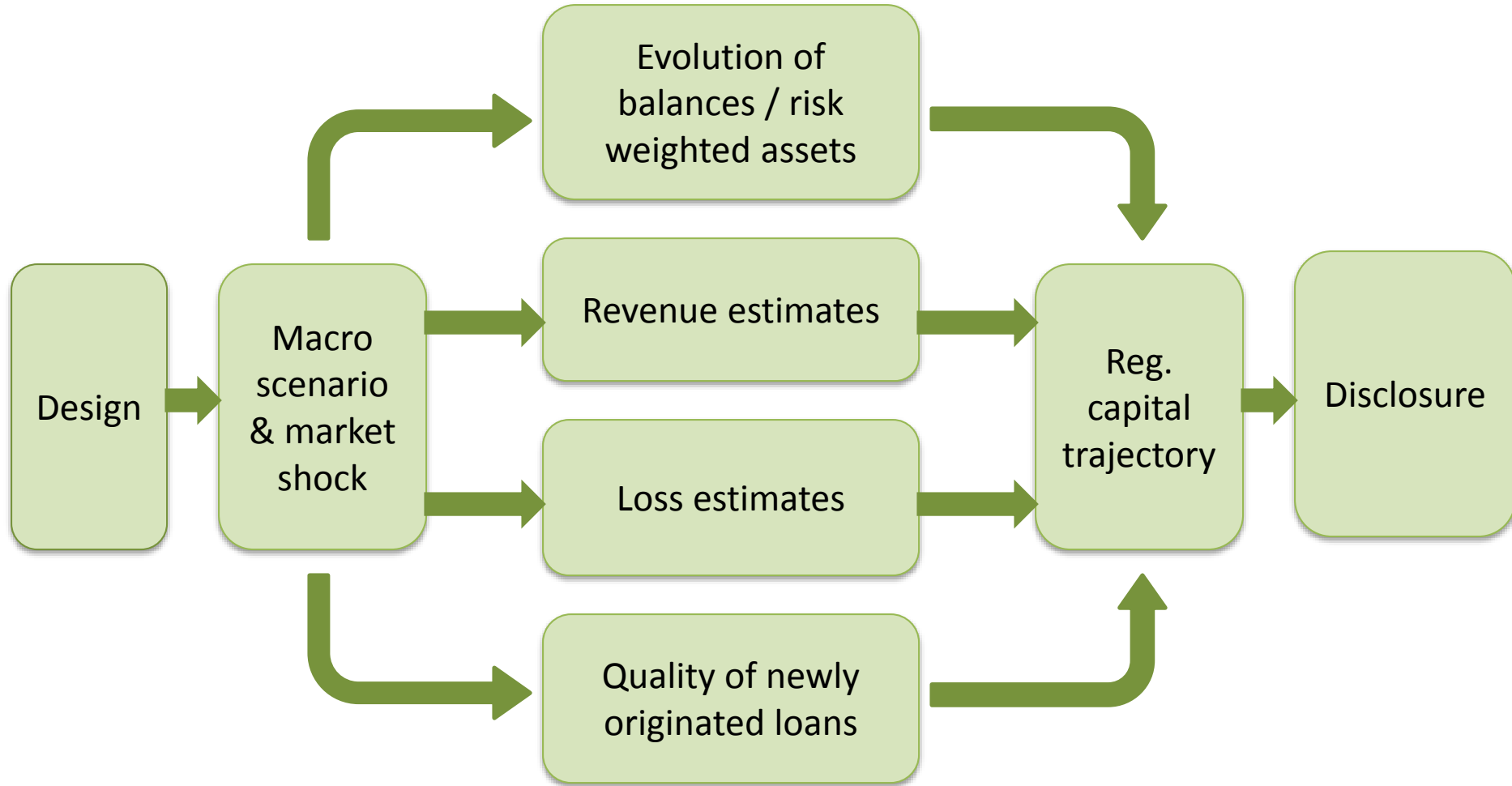
- Purely quantitative
- Mandated by law
- Firms cannot “pass” or “fail”
- Three scenarios: baseline, adverse, and severely adverse

2. Comprehensive Capital Analysis & Review (CCAR)

- Quantitative and qualitative assessment of firm capital plans
- Quantitative assessment of capital ratios in the ***severely adverse*** scenario if a firm makes its proposed dividend and share repurchases
- Qualitative assessment of firms’ risk management processes
- The Fed publicly objects or not to firm capital plans



Steps in the quantitative assessment



- Design influences all steps of the quantitative assessment including scenario specification, model selection, capital policy, and disclosure decisions

Supervisory stress test objectives

- Microprudential
 - Forward-looking measure of capital adequacy for each bank under severe macro and financial stress scenarios
 - Promotes safety and soundness of the stressed firms
- Macroprudential
 - Builds resilience at the largest most complex banking firms, and thus the financial system
 - Firms able to provide credit – can't shrink to health – in a downturn

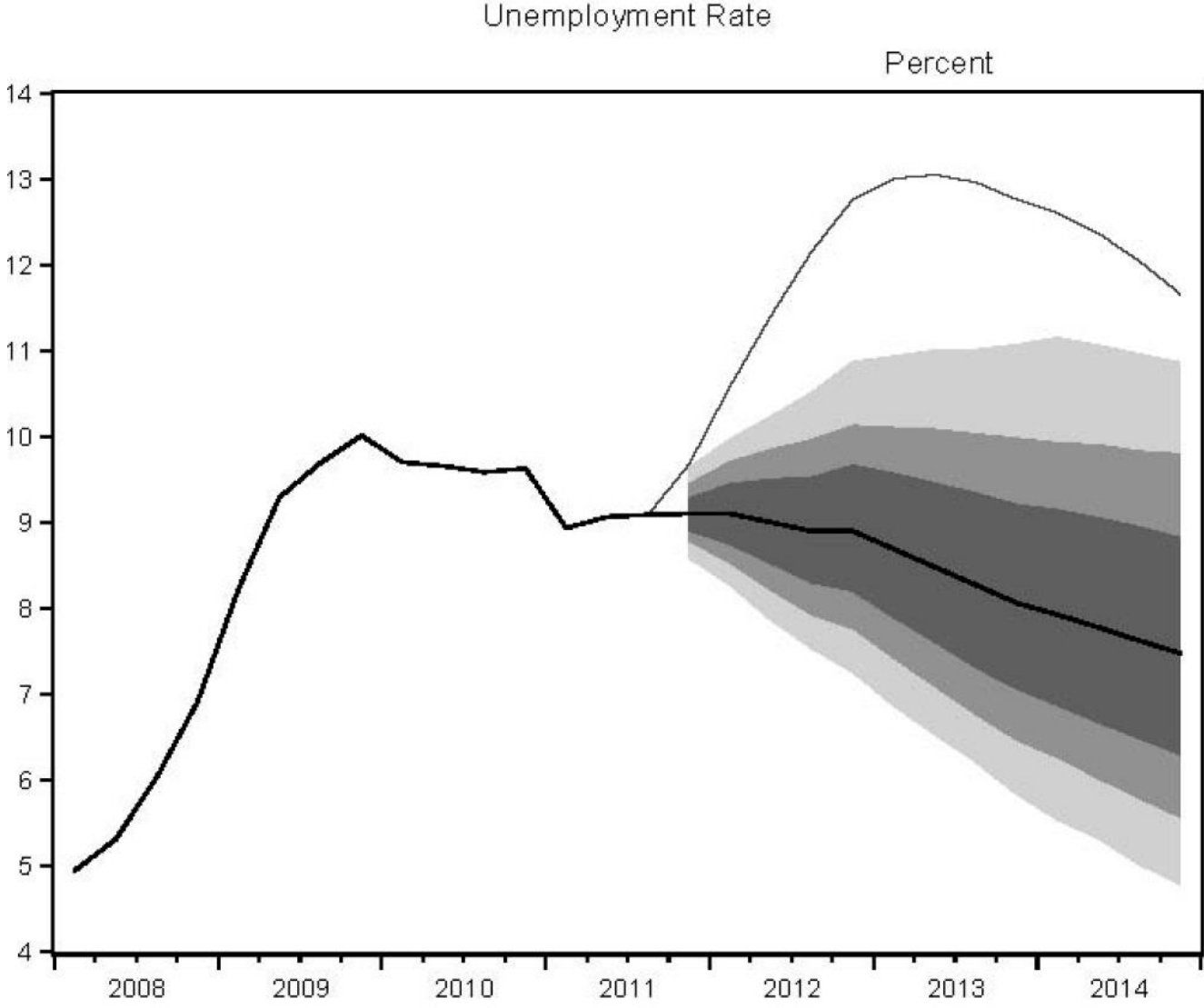


Macroprudential elements

- Macroeconomic and financial scenarios
 - Banking system as a whole cannot diversify its exposure to household and business credit
 - Recession vs probabilistic approach, to counter procyclicality
 - Salient risks identified by financial stability monitoring
 - Initial shock and amplification
- Aggregate credit
 - BHCs project balance sheets, which typically show shrinkage. The Fed's independent projections maintain credit supply.
- Failure of single largest counterparty
- Proposed shareholder payouts are assumed even in the stressful scenarios



Supervisory macro scenarios - Probabilistic approach



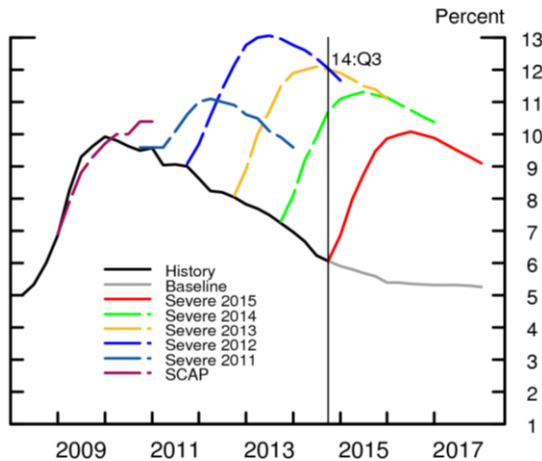
Supervisory macro scenarios - Recession approach

Peak	Trough	Severity	Duration (quarters)	Real GDP Growth	Change in Unemp. Rate During Recession	Total Change in Unemp. Rate
1957Q3	1958Q2	Severe	4 (Medium)	-3.1	3.2	3.2
1960Q2	1961Q1	Moderate	4 (Medium)	-0.5	1.6	1.8
1969Q4	1970Q4	Moderate	5 (Medium)	-0.1	2.3	2.4
1973Q4	1975Q1	Severe	6 (Long)	-3.1	3.4	4.1
1980Q1	1980Q3	Moderate	3 (Short)	-2.2	1.4	1.4
1981Q3	1982Q4	Severe	6 (Long)	-2.6	3.3	3.3
1990Q3	1991Q1	Mild	3 (Short)	-1.3	0.9	1.9
2001Q1	2001Q4	Mild	4 (Medium)	0.7	1.3	2.0
2007Q4	2009Q2	Severe	7 (Long)	-4.7	4.5	5.1
Average		Severe	6	-3.8	3.7	3.9
Average		Moderate	4	-1.0	1.8	1.8
Average		Mild	3	-0.3	1.1	1.9

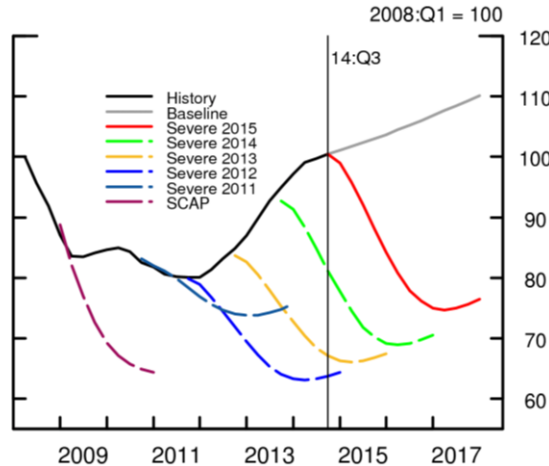


Macroprudential Scenario Design

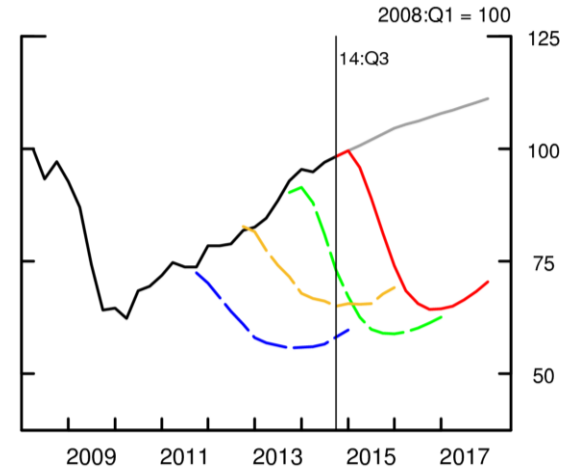
Unemployment Rate



House Prices



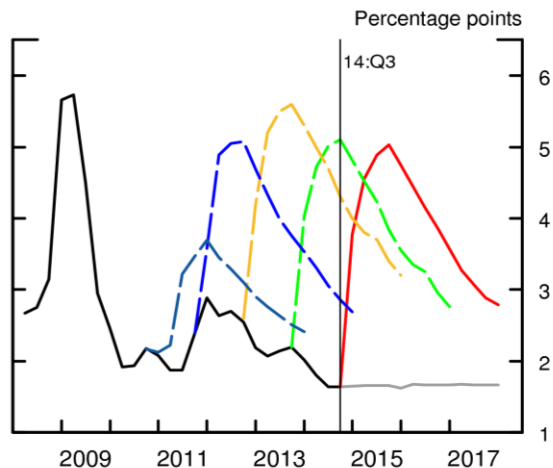
Commercial Real Estate Prices



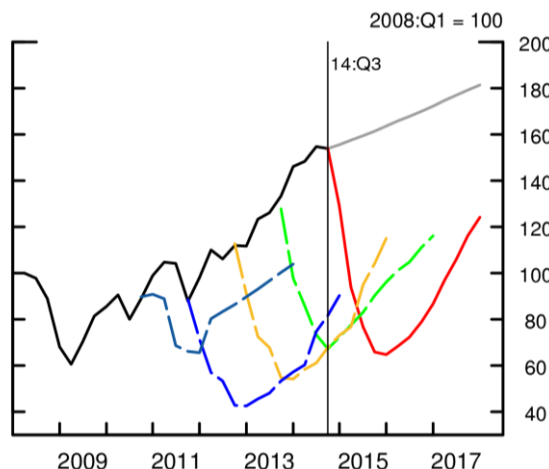
- Policy statement (2013) – Unemployment rate (UR) in the ***severely adverse*** scenario will increase between 3 to 5 pp, or to 10 percent
 - In “good times,” when the UR is low, the increase in the UR in the scenario will be larger, so *somewhat* limiting procyclicality
- Scenarios include salient risks beyond those typical to recessions
 - Examples: Property prices, interest rates

Macroprudential Scenario Design 2015

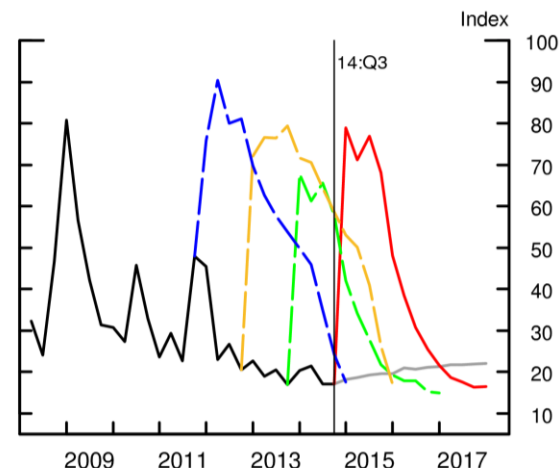
BBB-Bond Rate Spread



Dow Jones Total Stock Market Index



VIX

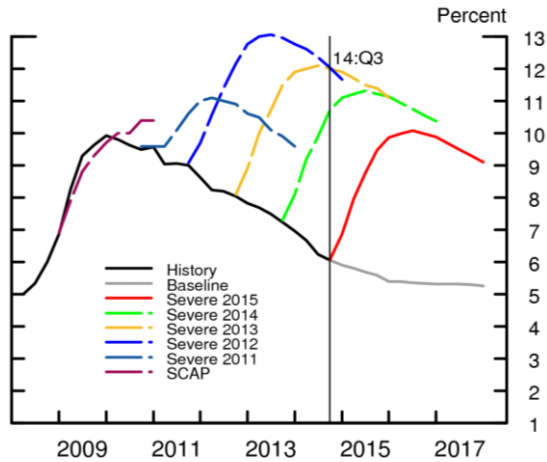


- In 2015, included stressed corporate credit markets, based on compressed spreads and rising leverage of speculative-grade nonfinancial businesses
- A total of 28 variables were included in the 2015 published scenarios and the Fed also publishes a narrative that describes developments for the paths of key variables not in the scenarios
 - CCAR 2015 narrative described spreads for many high-yield instruments

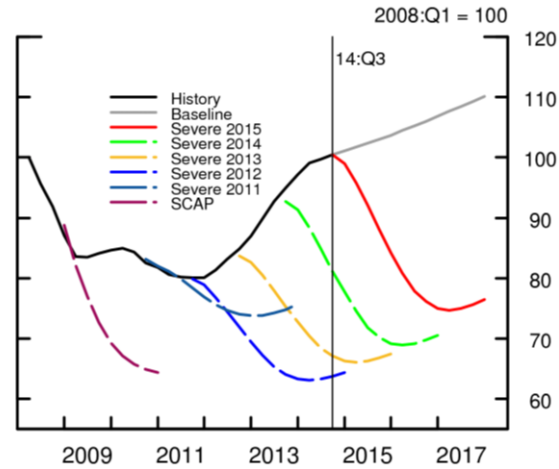


Procyclicality as economy and balance sheets improve

Unemployment Rate



House Prices



CCAR Cycle	2012	2013	2014	2015	Change (2012-2015)
Loan Losses (Portfolio loss Rate)	8.1	7.5	6.9	6.1	-25%
Decline in Net Income (% of Avg. Assets)	1.9	1.7	1.6	1.5	-21%

From: CCAR and Dodd-Frank Act Stress Test Results



Balance sheet projections

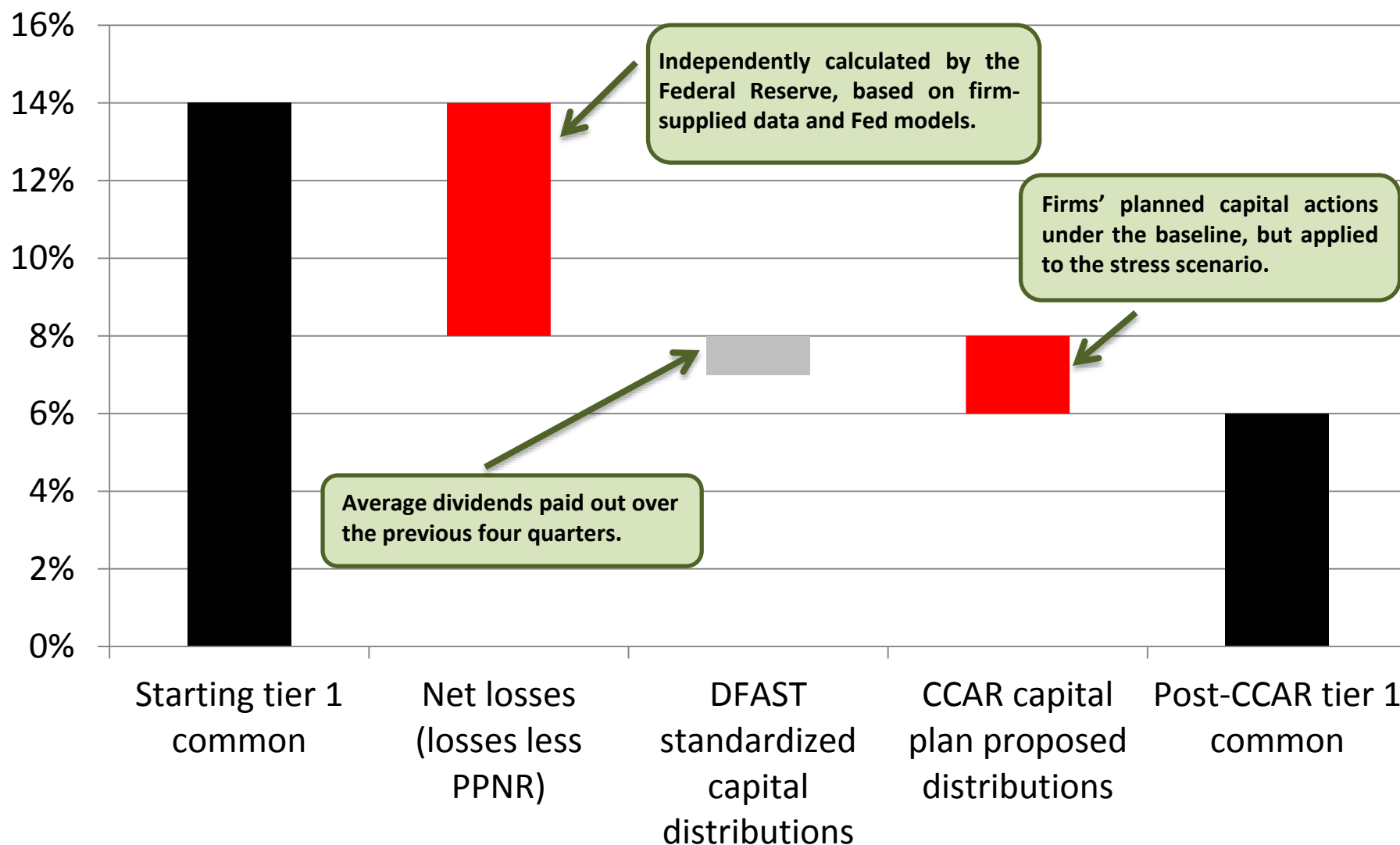
- Each firm's individual projection reflects its own view of its market share, and reduces the horizontal comparability
- Starting in 2013, Fed produces own projections of balance sheets under the supervisory scenario, based on aggregate volume as a function of broad economic conditions
- Common assumptions for household and business borrowing, and firms' market shares
- Used to produce projections of firm PPNR, loan losses, RWA and pro forma regulatory capital ratios
- Consistent with objective of a system that can function in stress

Table 3. Loan Growth Projections in CCAR/DFAST 2013

Cumulative change in total loans over nine quarters (percent)	
<i>BHC Projections</i>	
25 th percentile	-0.5
50 th percentile	-7.8
75 th percentile	-9.4
<i>Federal Reserve model</i>	1.0 to 2.0



Capital Distributions in DFAST and CCAR



Shareholder payout assumptions

- Firm continues shareholder payouts even in stress environment
 - Firms did not cut materially in 2007-2008 episode
 - If assumed instead they cut payouts, could cause funding problems for a firm, and for other firms
- Design process that mitigates a firm's incentives to increase dividends beyond what can be supported by stability of earnings
 - Past year's dividends are included in following year's DFAST
 - Proposed dividends are included in the CCAR
 - DFAST and CCAR exercises occur each year



Next steps for stress tests in macroprudential policies

- Stress tests have strengthened microprudential supervision
 - Forward-looking assessment of capital and capital plans, conducted on a horizontal basis
 - Disclosure of results increases the transparency of bank risks
 - Fosters market discipline
- Some macroprudential risks
 - Banks may focus on back-engineering CCAR and ignore other risks
 - May load on risks that are systemic but orthogonal to projected losses
 - Stress losses still procyclical
- Some possible next steps
 - Links to funding risks and fire sale externalities
 - Common counterparty distress



End



Disclosure

Table 2. 31 participating bank holding companies

Projected stressed capital ratios, risk-weighted assets, losses, revenues, net income before taxes, and loan losses

Federal Reserve estimates: Severely adverse scenario

Actual 2014:Q3 projected stressed capital ratios through 2016:Q4

	Actual 2014:Q3	Stressed capital ratios ¹	
		Ending	Minimum
Tier 1 common ratio (%)	11.9	8.4	8.3
Common equity tier 1 capital ratio (%) ²	n/a	7.8	7.6
Tier 1 risk-based capital ratio (%)	13.5	8.6	8.4
Total risk-based capital ratio (%)	16.2	11.0	10.8
Tier 1 leverage ratio (%)	8.8	5.9	5.9

Projected loan losses, by type of loan, 2014:Q4–2016:Q4

	Billions of dollars	Portfolio loss rates (%) ¹
Loan losses	340.3	6.1
First-lien mortgages, domestic	39.7	3.6
Junior liens and HELOCs, domestic	34.0	8.0
Commercial and industrial ²	67.8	5.4
Commercial real estate, domestic	52.8	8.6
Credit cards	82.9	13.1
Other consumer ³	35.1	5.8
Other loans ⁴	28.0	2.9

Actual 2014:Q3 and projected 2016:Q4 risk-weighted assets

	Actual 2014:Q3	Projected 2016:Q4	
		General approach	Standardized approach
Risk-weighted assets (billions of dollars) ¹	8,790.2	9,103.4	9,948.4

Projected losses, revenue, net income and other comprehensive income through 2016:Q4

	Billions of dollars	Percent of average assets ¹
Pre-provision net revenue ²	309.6	2.1
Other revenue ³	0.0	
<i>loss</i>		
Provisions	381.9	
Realized losses/gains on securities (AFS/HTM)	17.8	
Trading and counterparty losses ⁴	102.7	
Other losses/gains ⁵	29.3	
<i>equals</i>		
Net income before taxes	-222.2	-1.5
Memo items		
Other comprehensive income ⁶	-12.4	
<i>Other effects on capital</i>	<i>Actual 2014:Q3</i>	<i>2016:Q4</i>
AOCI included in capital (billions of dollars) ⁷	n/a	-27.9

- The same type of information is provided for all 31 of the banks in the CCAR/DFA stress tests

From: Dodd-Frank Act Stress Test 2015: Supervisory Stress Test Methodology and Results



Disclosure, continued

- CCAR 2012 and all subsequent CCARs have disclosed bank-level results by type of exposure for the severely adverse scenario
- DFAST 2013 disclosed severely adverse scenario results only but all subsequent DFASTs have disclosed results for both scenarios
- Disclosing results – even outside of stress periods – can be valuable
 - Results provide the market with information on banks' risks in normal times, promoting transparency and market discipline
- Disclosing results beyond top-line results also
 - Increases stress-test credibility, by showing how supervisors came to their final results
 - Increases the information on banks' risks available to the market



Key Risk Driver: Delinquent Loans

Delinquency Rate

