The Supervisory Capital Assessment Program: Motivation and Results of the Bank Stress Test

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Motivation of the SCAP

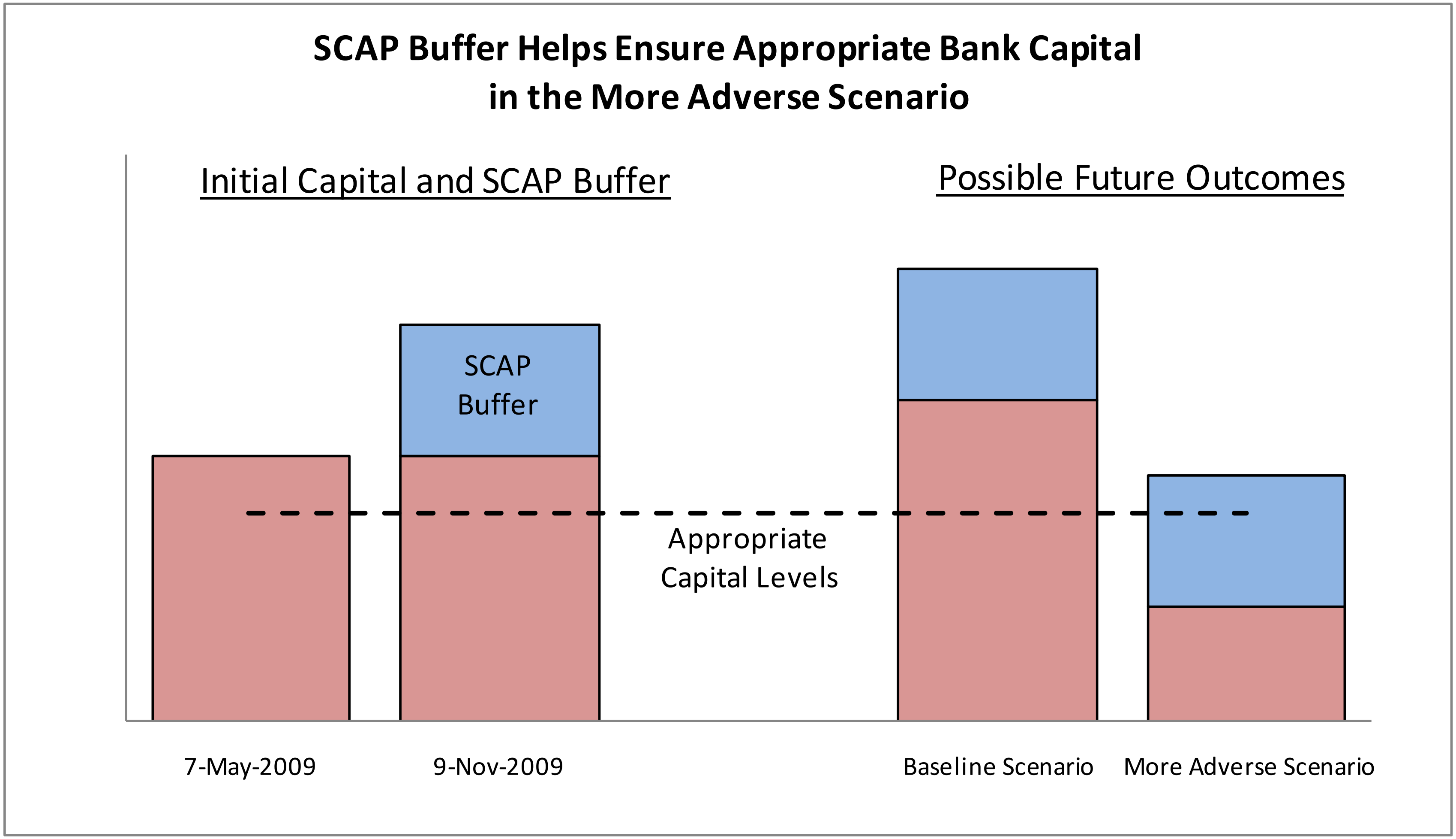
- Supervisory Capital Assessment Program (SCAP)
  - Supervisory exercise to determine the amount of capital needed to ensure bank holding companies (BHCs) remain well-capitalized even in a stressed economic environment
  - "What-if exercise", not a solvency test

- Part of U.S. Treasury's "Financial Stability Plan"
  - Joint effort between Fed, FDIC, OCC, and Treasury
  - Supervisors (Fed, OCC, FDIC) conducted SCAP
  - U.S. Treasury provided capital backstop (CAP)

- Considerable macro-economic uncertainty and uncertainty (and thus lack of transparency) about strength of individual financial firms.

- Goal was to reduce likelihood of a "more adverse" outcome
  - Less uncertainty about banking sector health generates investor and counterparty confidence
  - More capital now to absorb possible future losses makes BHCs more willing to lend

The SCAP Capital Buffer



Microprudential and macroprudential

- Goals of the SCAP were “macroprudential” – reduce the likelihood of adverse economic outcome

- Means were both macro- and microprudential
  - Together, 19 BHCs were comprehensive slice of the U.S. banking industry – total assets and business focus
  - Consistent scenarios applied consistently across firms, but incorporating differences in impact of the scenarios across firms.
  - Much firm-specific information and analysis

- Multiple perspectives and estimates
  - A cross-discipline approach: economists, supervisors, financial analysts, accountants, regulators
  - Multiple estimates and projections, reflecting uncertainty

What the SCAP Actually Did

- Examine 19 BHCs simultaneously
  - All domestic BHCs with assets greater than $100 billion
  - Two-thirds of assets and half of loans of U.S. banking system

- Estimate two-year forward projection of losses, resources, and capital needs under two macroeconomic scenarios
  - “Baseline”
  - “More Adverse”

- Assess <u>level</u> and <u>composition</u> of capital
  - Tier 1 capital composed of common equity and certain types of preferred
  - Composition question focuses on amount of common equity in Tier 1

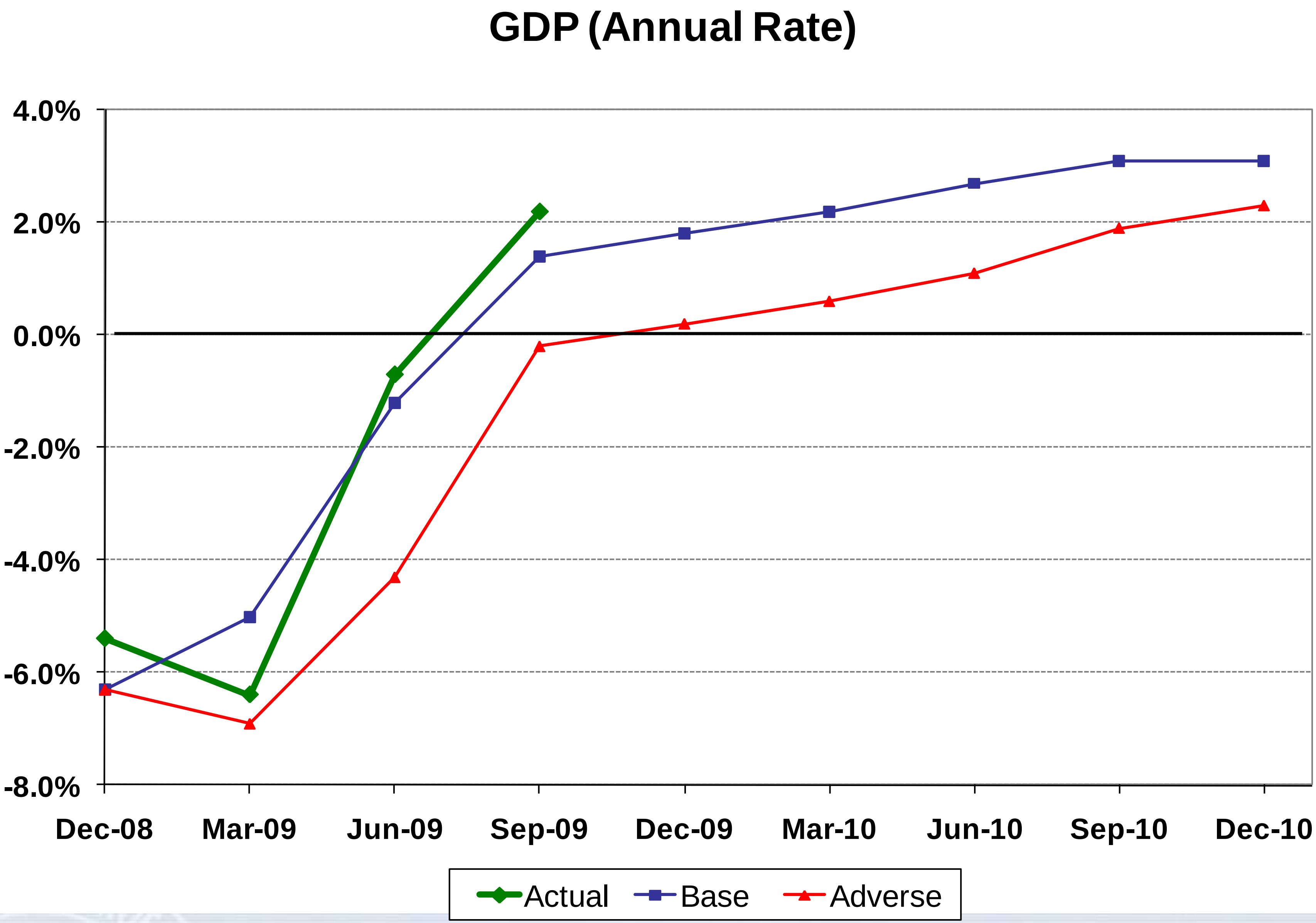
- Do banks have “buffer” large enough to absorb losses in “more adverse” scenario and still meet target capital ratios?
  - Tier 1 capital / Risk-Weighted Assets > 6%
  - Tier 1 Common capital / Risk-Weighted Assets > 4%

SCAP Scenarios

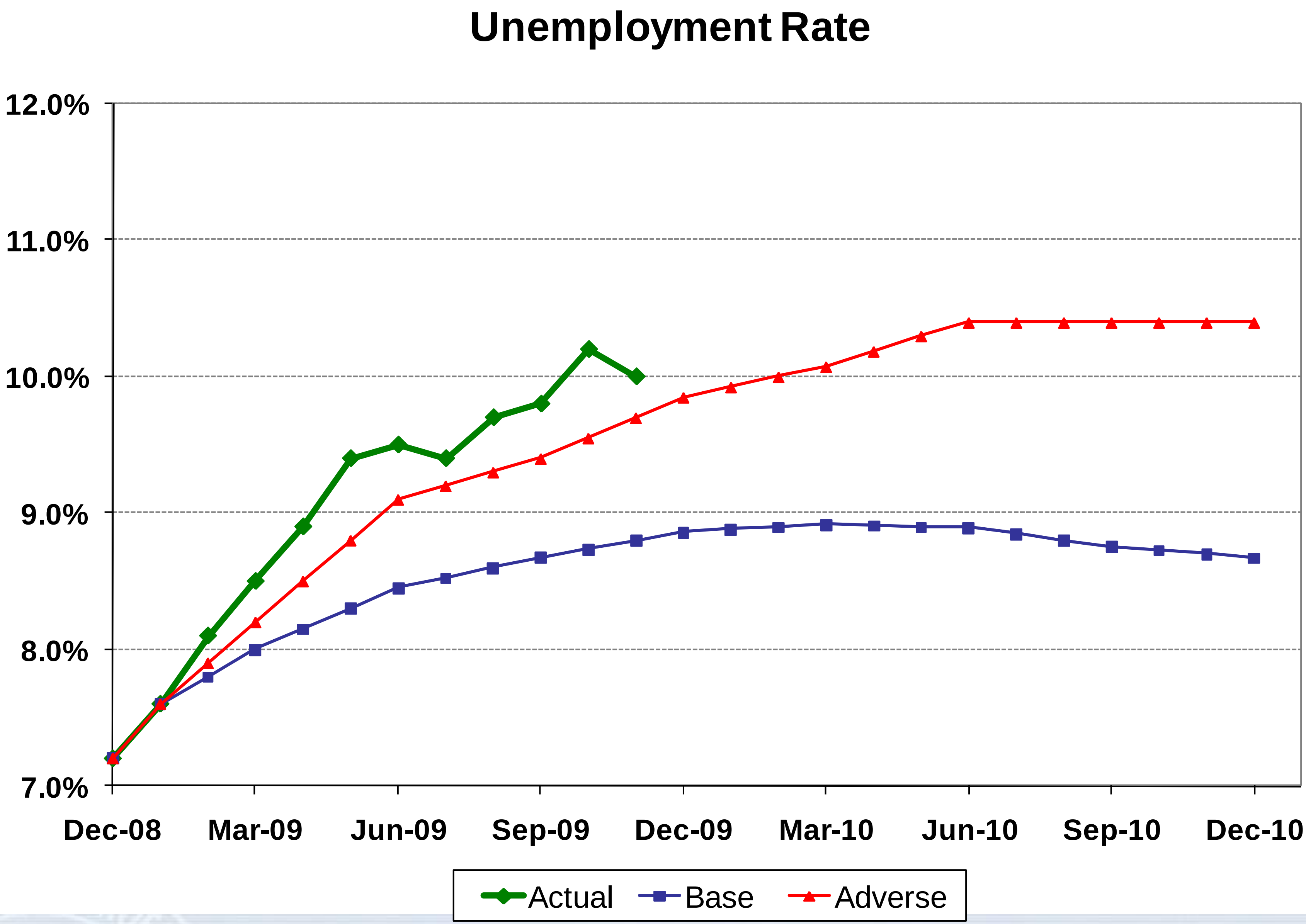
- The BHCs were provided with two economic scenarios, and asked to estimate losses and resources to absorb losses under each scenario.

- The scenarios were defined by three economic variables:
  - GDP growth
  - The unemployment rate
  - Home price appreciation (Case-Shiller 10-City Index)

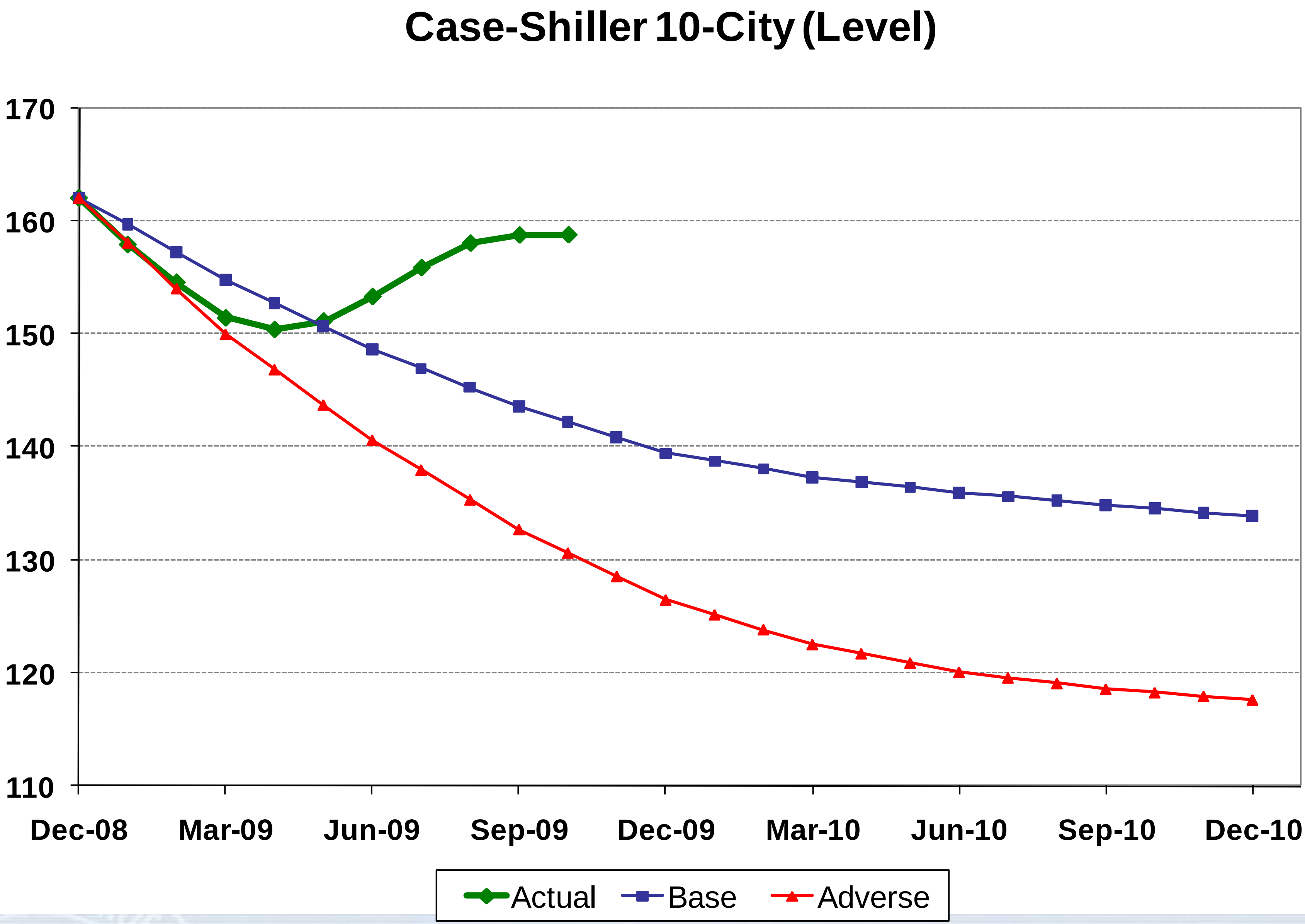
Actual vs. SCAP Scenarios: GDP Growth



Actual vs. SCAP Scenarios: Unemployment Rate



Actual vs. SCAP Scenarios: Housing Prices



Methods for Projecting Losses and Revenue

- Basic calculation

$$K_{t+1} = K_t + \mathit{Resources} - \mathit{Losses} - \mathit{Dividends}$$

- Project losses and resources (revenue, net of reserve needs) over two-year horizon

- Calculate impact on regulatory capital based on supervisors' estimates
  - After taxes and deferred tax asset impact
  - After preferred dividends

- Compare to capital ratio targets to assess any needed capital buffer

SCAP Loss Details

- Estimate <u>future</u> losses over a two-year horizon
  - Differs from studies of “lifetime” losses since onset of the financial crisis

- Loan losses are based on “cash flows”
  - Purchase accounting adjustment reflects losses taken during mergers
  - “Indicative” loss rate ranges provided to the BHCs at beginning of SCAP

- For securities held for investment (AFS/HTM), estimates of future losses consistent with accounting treatment to recognize losses in market value
  - “Other than temporary impairment” (OTTI)

- For trading, mark-to-market shock based on historical market prices from June 2008 to December 2008.

Indicative Loss Rate Ranges

Table 1: Indicative Loss Rates Provided to BHCs for SCAP (cumulative two-year, in percent)

	Baseline	More Adverse
First Lien Mortgages	5 – 6	7 – 8.5
Prime	1.5 – 2.5	3 – 4
Alt-A	7.5 – 9.5	9.5 – 13
Subprime	15 – 20	21 – 28
Second/Junior Lien Mortgages	9 – 12	12 – 16
Closed-end Junior Liens	18 – 20	22 – 25
HELOCs	6 – 8	8 – 11
C&I Loans	3 – 4	5 – 8
CRE	5 – 7.5	9 – 12
Construction	8 – 12	15 – 18
Multifamily	3.5 – 6.5	10 – 11
Nonfarm, Non-residential	4 – 5	7 – 9
Credit Cards	12 – 17	18 – 20
Other Consumer	4 – 6	8 – 12
Other Loans	2 – 4	4 – 10

SCAP Resources Details

- Resources to absorb losses offset credit losses
- Pre-provision net revenue (PPNR)
  - Revenue before provisions and other credit losses
  - Defined as net interest income plus non-interest income minus non-interest expense
- Loan loss reserve needs at end of horizon
  - Adequate reserve coverage at year-end 2010, given expectations for 2011
    - Reserve build drains resources
    - Reserve release adds to resources

SCAP Process

- BHCs projected losses, PPNR, and capital needs
- Extensive review by supervisors, analysts, and economists
  - Teams with expertise in accounting, regulatory capital, risk management, asset pricing
  - Insights from on-site supervisory teams
  - Interagency participation, including FRS, FDIC, and OCC
- Iterative process with BHCs with additional data on
  - Loan and securities portfolio characteristics
  - Revenue and expense sources
  - Trading books, counterparty exposures, and hedges
  - Capital actions
- Independent benchmark models from
  - Vendors
  - Existing supervisory models
  - Newly developed models
- All reflected in final SCAP loss and resource projections
  - Determined final capital need calculations

Summary Results

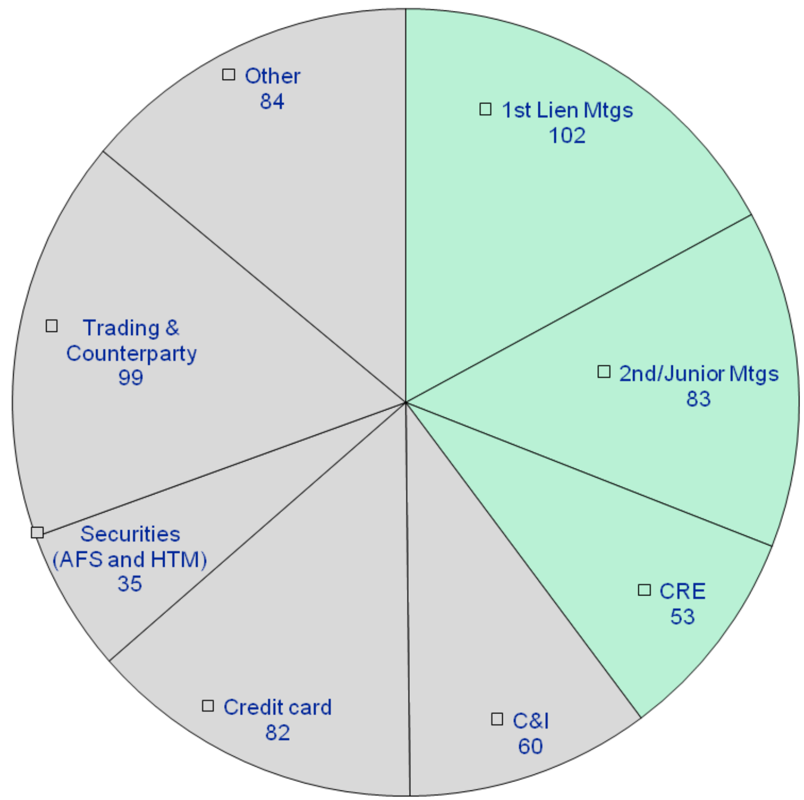
- Aggregate results for the 19 BHCs participating in the SCAP in the more adverse scenario
  - Projected losses of $600B
  - Projected resources to absorb losses of $360B
  - Net capital need of $185B
    - $75B after capital actions

- BHC-specific results
  - 10 BHCs identified as needing additional capital
  - Considerable variation in losses, revenue, and capital needs across BHCs

Losses by Type in the More Adverse Scenario

- $600B in total losses
  - 8 categories
- $240B real estate-related losses
  - 40% of total

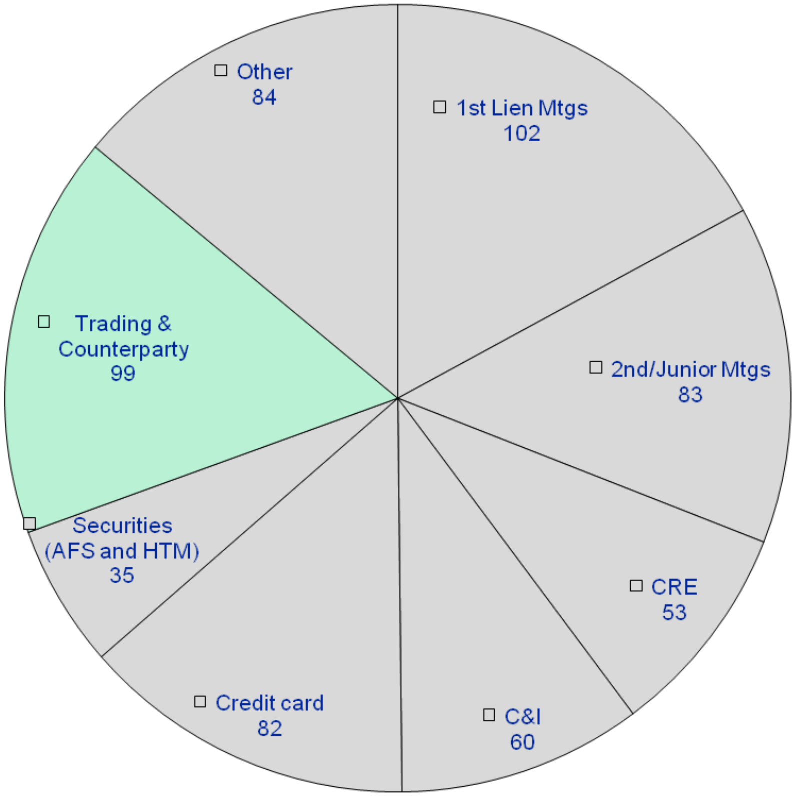
Aggregate Projected Losses ($B)



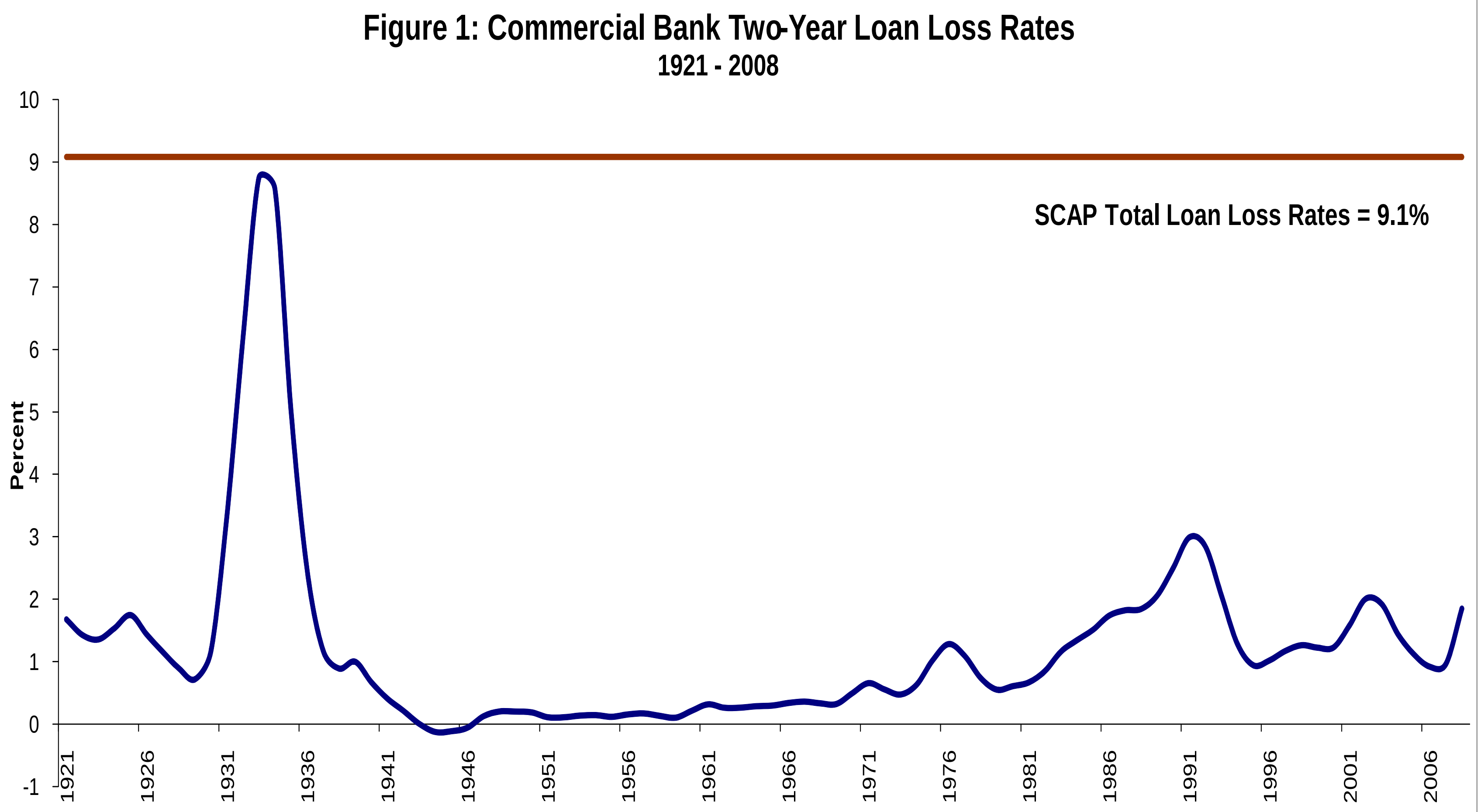
Losses by Type in the More Adverse Scenario

- $600B in total losses
  - 8 categories
- $240B real estate-related losses
  - 40% of total
- $100B trading-related losses
  - 15% of total
  - 5 BHCs with large trading portfolios
  - Projected losses largely driven by counterparty credit risk, illiquid credit products, private equity

Aggregate Projected Losses ($B)



High Loan Loss Rates by Historical Standards

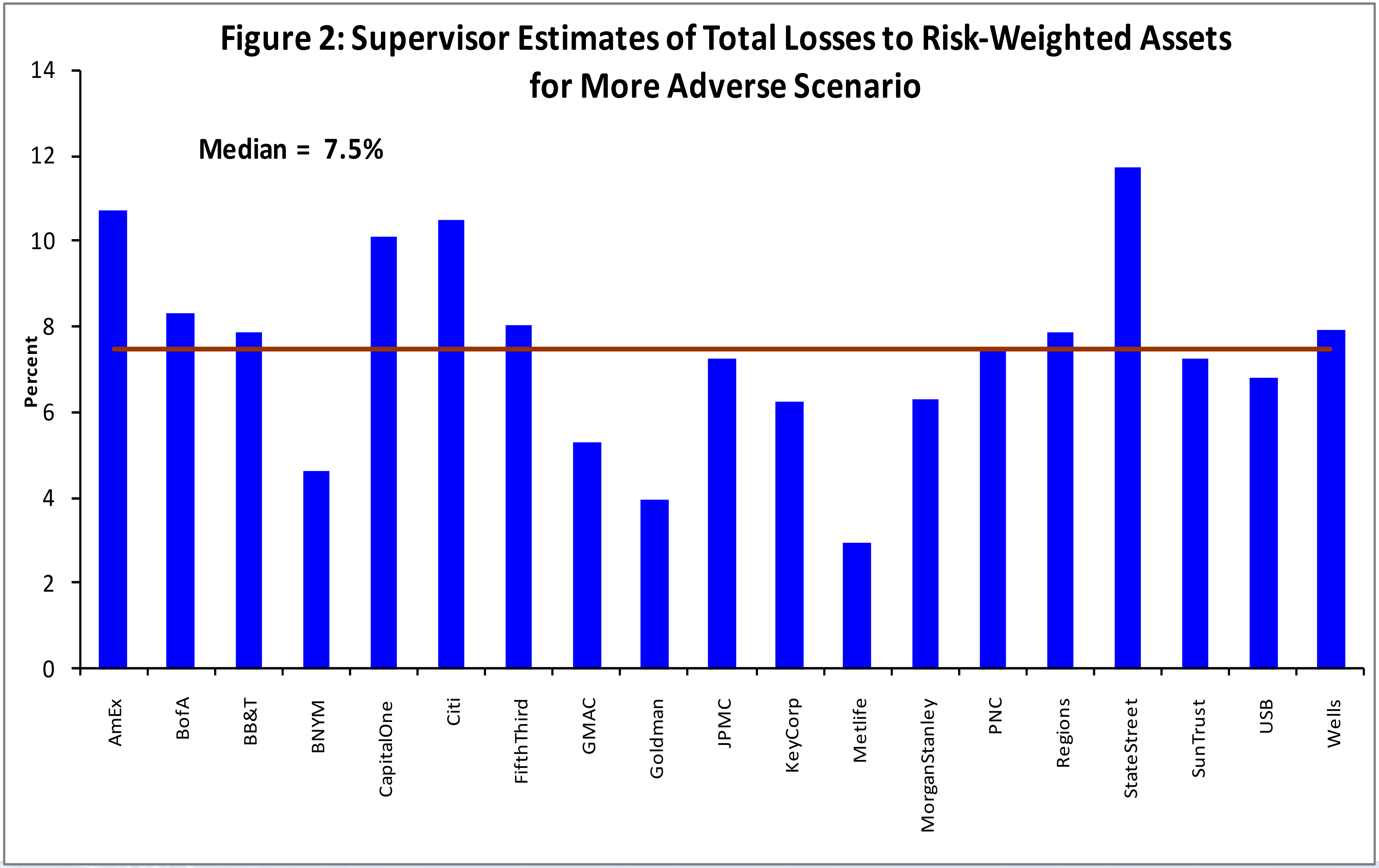


Sources: International Monetary Fund (1920- 1933), Federal Deposit Insurance Corporation (1934- 2007), and commercial bank reports on condition and income (2008)

Differentiation across BHCs

- Wide variation in losses and revenue due to
  - Business lines and exposure
    - Real estate vs. consumer vs. processing vs. trading

Total Loss Rates varied from 3% to 12%



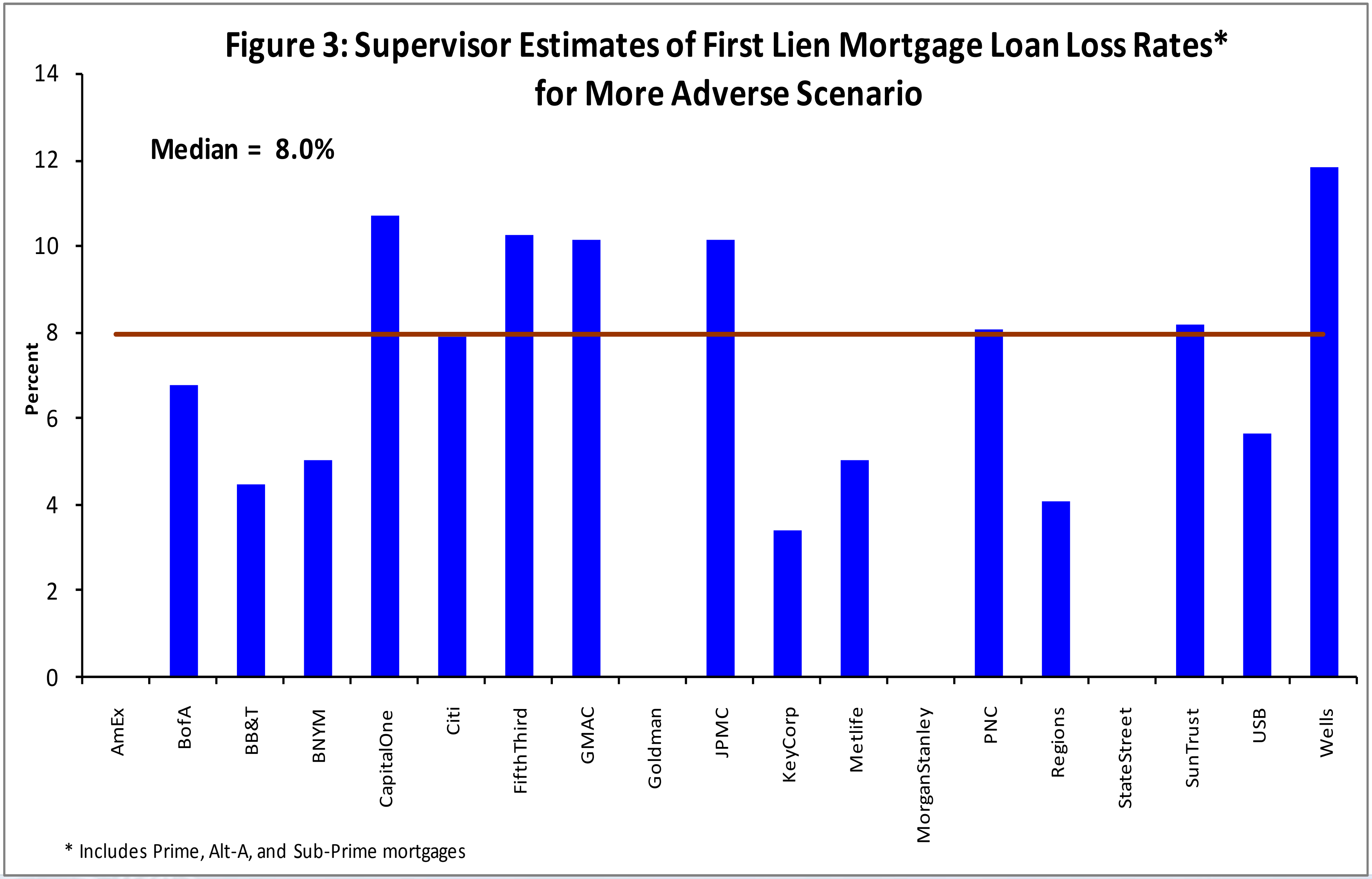
Note: Loss rates are before purchase accounting adjustments.

Differentiation across BHCs

- Wide variation in losses and revenue due to
  - Business lines and exposure
    - Real estate vs. consumer vs. processing vs. trading

- Variation within loan categories due to
  - Portfolio characteristics
    - Vintage, FICO, LTV, and geography
    - Loan type such as prime, Alt-A, or sub-prime
  - Underwriting standards

First Lien Mortgage Loss Rates Varied from 3% to 12%



Note: Loss rates are before purchase accounting adjustments.

SCAP Capital Needs

- 10 of 19 BHCs identified with a need for a "capital buffer" in the more adverse scenario
  - $185B in total need
  - Typically reflected need for more common equity

- Existing "capital actions" reduced the SCAP capital need
  - Examples
    - Exchange offer that converts preferred equity to common
    - Mandatory conversion of preferred equity to common
    - Contracted sale of businesses or assets
    - Strong 1Q 2009 revenue that added to retained earnings
  - Remaining need of $75B in new equity

Identified Capital Need for 10 of 19 BHCs

No Capital Need

- American Express
- BB&T
- Bank of NY Mellon
- Capital One
- Goldman Sachs
- JPMorgan Chase
- MetLife
- State Street
- US Bancorp

Identified Capital Need

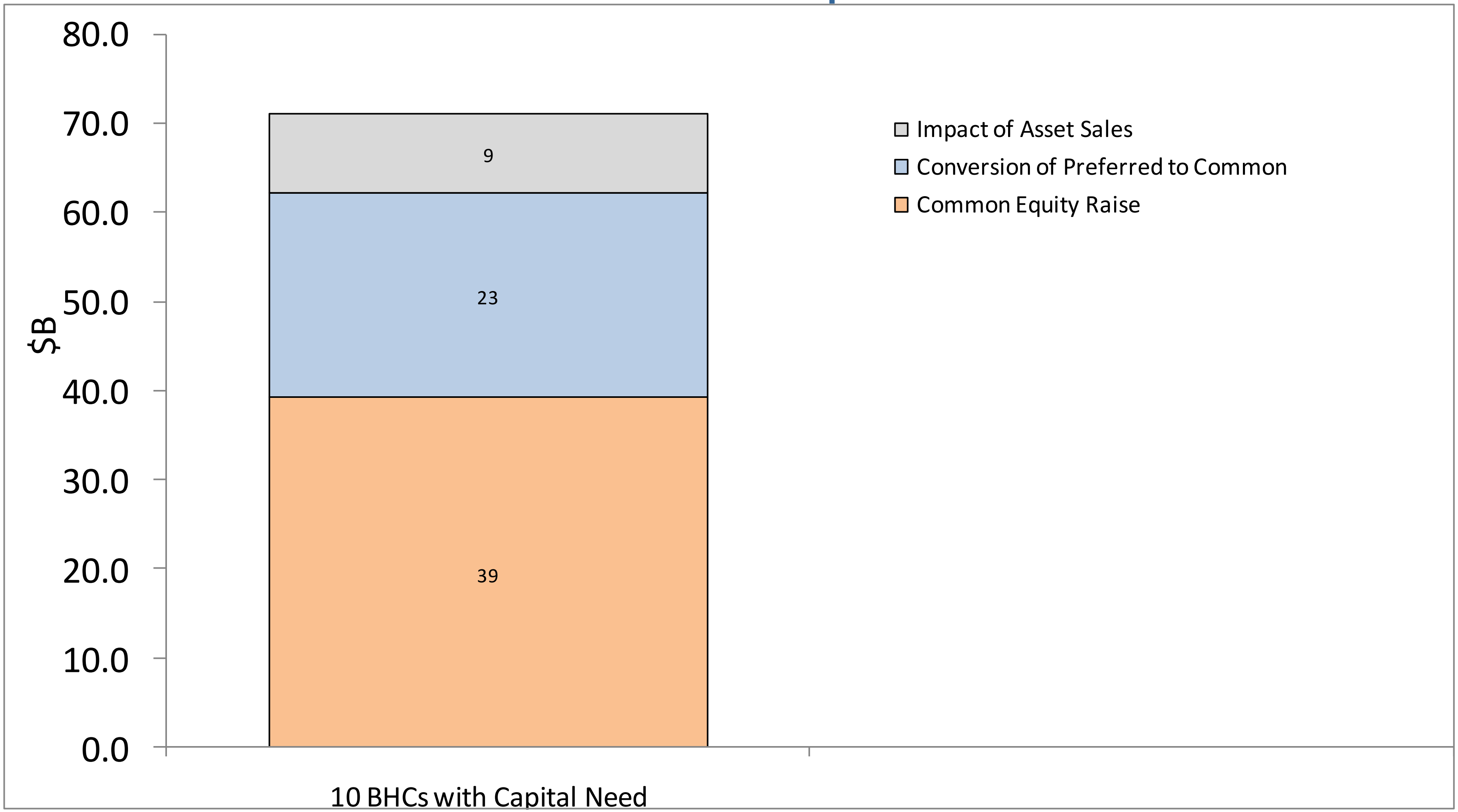
Bank of America	$33.9B
Citigroup	$5.5B
Fifth Third	$1.1B
GMAC	$11.5B
KeyCorp	$1.8B
Morgan Stanley	$1.8B
PNC	$0.6B
Regions	$2.5B
SunTrust	$2.2B
Wells Fargo	$13.7B
Total	$74.6B

Post-SCAP Capital Raises

- SCAP Plan
  - BHC capital plan submitted to supervisors by June 8, 2009
  - BHC capital raises to be completed by November 9, 2009
    - Nine of 10 completed by this date
    - The 10th (GMAC) received capital from the U.S. Treasury on December 30, 2009

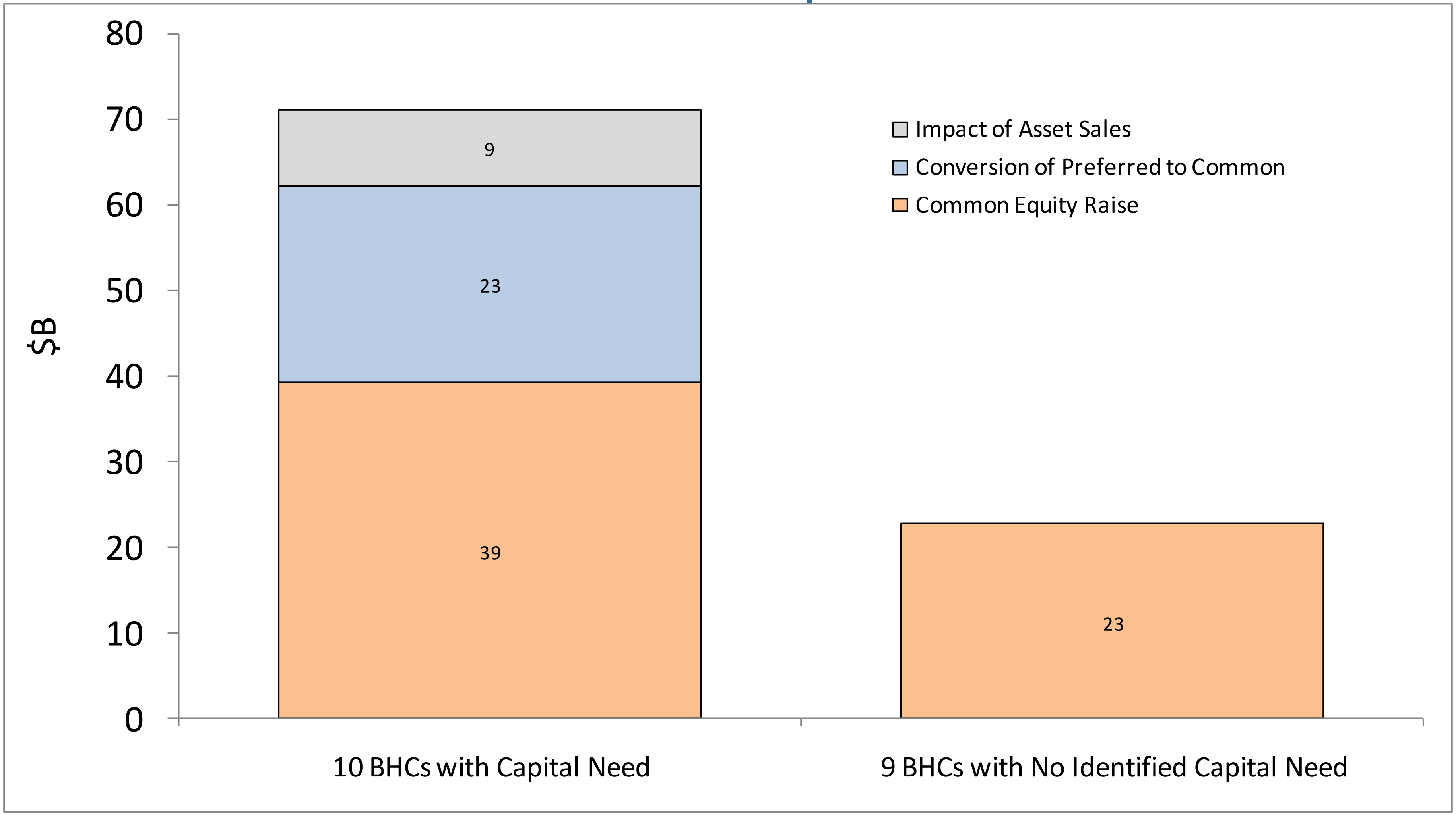
- SCAP BHCs generated new common equity of $94B
  - Issuance, preferred/common conversion, and asset sales
  - Some capital raised by BHCs without SCAP need
  - This does not include new common equity recently raised by several BHCs as part of TARP redemption

$71B New Common Equity since SCAP for BHCs with an Identified Capital Need …



Note: Capital estimates as of November 9, 2009.

… and $23B New Common Equity for BHCs without an Identified Capital Need



Note: Capital estimates as of November 9, 2009.

Why Did SCAP (seem to) Work?

- Disclosure around the exercise
  - Detailed information on supervisory goals and approach
  - Specific discussion of assumptions and methods

- Aggregate estimates seen as credible
  - Consistent with many external estimates
  - Plausible upper-bound on size of the problem and potential government actions

- Cross-sectional variation
  - Clear differentiation among institutions
  - Unprecedented amount of cross-sectional comparisons

Conclusions

- Initial public policy objectives of SCAP met
  - Increased confidence in major U.S. BHCs and U.S. financial system
  - $94B of new common equity generated by the 19 SCAP BHCs in the banking system

- But, too early to declare victory
  - Macro risks
    - Macro outlook remains uncertain
    - Unclear how BHCs will perform during a prolonged recession or slow recovery
  - BHC risks
    - BHC capital remains low by historical standards
    - Concern about CRE

- Promising start, but much work to do

References

- Board of Governors of the Federal Reserve System. "The Supervisory Capital Assessment Program: Design and Implementation." April 24, 2009. http://www.federalreserve.gov/bankinforeg/bcreg20090424a1.pdf

- __________. "The Supervisory Capital Assessment Program: Overview of Results." May 7, 2009. http://www.federalreserve.gov/bankinforeg/bcreg20090507a1.pdf