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"A U.S. Perspective on Strengthening Financial Stability"

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Financial Stability Institute,
Bank for International Settlements

St. Petersburg, Russia
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FEDERAL RESERVE BANK OF BOSTON™

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Good morning. I would like to thank Josef Tosovsky and the Financial Stability Institute for inviting me to speak today on financial stability and on regulatory and supervisory priorities in the United States. I would also like to thank Sergey Ignatiev and the Central Bank of the Russian Federation for hosting this very important event.[1]

I think it is crucial that we continue to share perspectives on financial stability and related issues.[*] Clearly the events of the past four years have heightened our awareness of how interconnected our economies, our financial institutions, and our financial markets have become. When large global financial intermediaries become troubled, it impacts not just *home* country

[*] *Of course, the views I express today are my own, not necessarily those of my colleagues on the Federal Reserve's Board of Governors or the Federal Open Market Committee (the FOMC).*

borrowers and, potentially, taxpayers; but increasingly can also have collateral impacts on *host* countries and their financial markets.

Much has been learned in the United States over the past four years about gaps in our regulatory and supervisory framework. One response to the gaps revealed during the financial crisis was the adoption of the Dodd-Frank Wall Street Reform and Consumer Protection Act. It ushered in significant changes and also required numerous studies to be undertaken, and new regulations to be considered and promulgated. Much of this work is still in process.

Some of the most significant aspects of the Dodd-Frank legislation involve seeking greater clarity in the resolution procedures for complex financial holding companies that experience difficulties; creating a Financial Stability Oversight Council; establishing a Consumer Financial Protection Bureau intended to address gaps in consumer protection; and increasing regulatory powers over, and focus on, systemically important financial institutions.

A second major change resulting from the financial crisis has been a reappraisal of the quantity and quality of capital needed to avoid a reoccurrence. This matter is clearly critical to the Basel III discussions taking place here over the next two days; but, I would note, has already been the focus of two supervisory exercises conducted in the United States.

As I will describe in more detail in a moment, during a financial crisis investors focus on how much "core" or "pure" capital exists in an organization to absorb immediate and near-term losses.[2] Some of the broader definitions of capital include elements that are not actually readily available to absorb losses. Capital meeting the broader definitions was largely ignored by investors during the intense phases of the crisis, leading to significant financial runs and liquidity problems at institutions whose capital, using the broader definitions, actually satisfied existing regulatory standards. As conditions deteriorated, market focus shifted from the relative strength implied by regulatory capital

ratios to the vulnerabilities associated with deteriorating measures of "pure" capital. This led to greater uncertainty and ultimately to liquidity stresses.

The experience in the United States during the crisis is instructive as we think about where we should focus our attention in terms of bank capital, as well as in terms of supervision. On the latter, I would note that stress testing has proved to be an important supervisory tool in the United States for judging the quality and quantity of capital.

Before delving into the details, I'd like to give you a preview of my main points:

- First, I would like to discuss capital and the financial crisis, and will suggest that many U.S. financial institutions did not have the quality or quantity of capital needed to withstand the shocks we recently experienced. The focus in Basel III on improving the quantity and quality of capital at financial institutions – particularly systemically important financial institutions – is critically important.

- Second, I will suggest that we should be particularly focused on narrow definitions of capital, which are what investors focused on during the financial crisis.

- Third, I will suggest that stress tests are an important supervisory tool that should be used for prudential and macroprudential[3] supervision as well as for management's own capital planning efforts. The rapid recapitalization of many financial institutions in the United States greatly benefitted from the attention during supervisory exercises (including stress tests) on the quantity and quality of capital. I will also discuss the evaluation of discretionary capital distributions (such as increasing dividends, and stock buybacks).

Capital and the Financial Crisis

I think it is instructive to look at the capital ratios of two of the very large banking organizations that encountered problems and were acquired during the financial crisis.

Wachovia was one of the four largest banking organizations in the United States, with total assets in 2008 exceeding $700 billion. As a result of large exposure to subprime mortgages, partially as a result of an acquisition of a large California thrift, investors became concerned about the solvency of Wachovia. A loss of confidence in Wachovia led depositors, funders, and investors – those on the liability side of the bank's balance sheet – to withdraw, pressuring the institution to sell itself. After a short bidding war between Wells Fargo and Citigroup, Wells Fargo prevailed and acquired Wachovia at the end of 2008.

Washington Mutual or "WaMu" was the largest savings and loan holding company in the United States, with assets over $300 billion. WaMu had grown rapidly, with a large exposure to residential real estate and a large concentration of both variable rate and subprime mortgages. Large depositors became concerned about the solvency of WaMu in September 2008 and began rapidly withdrawing funds. The institution failed later that month (on September 25) and was acquired by JP Morgan Chase.

Figure 1 provides the capital ratios reported in the last financial filing for both Wachovia and Washington Mutual. The most narrow definition of capital,[4] tangible common equity, is a measure of capital widely used by investors (and increasingly so during the crisis) because it focuses on the "core" capital readily available to cushion the bank against losses. The tangible capital measure – specifically the ratio of tangible common equity to tangible assets – was a bit above 2 percent for Wachovia and about 3 percent for WaMu,[5] providing only a small cushion against the losses accumulating from their subprime exposures.

The regulatory capital ratios use broader definitions of capital, relative to risk-weighted assets. To be considered *adequately* capitalized, a bank needs to have at least 4 percent Tier 1 risk-based capital to risk-weighted assets, and at least 8 percent total risk-based capital to risk-weighted assets. To be *well* capitalized a bank needs to have at least 6 percent Tier 1 risk-based capital to risk-weighted assets and at least 10 percent total risk-based capital to risk-weighted assets.[6] Figure 1 shows that under these definitions both banks were well capitalized in their final quarter – despite the fact that more narrow definitions of capital indicated only a very small capital buffer.

Figure 2 plots the capital ratios for the period leading up to the "run" on Wachovia. The broader definitions of capital – Tier 1 and total risk-based capital – were actually *rising* in the period when holders of Wachovia's liabilities were becoming concerned, and thus the broader definitions of capital were not particularly informative. The more narrow definitions of capital – Tier 1 common and tangible common equity – were both declining fairly substantially.

In retrospect, the quality and quantity of capital was not sufficient for the kind of financial shocks experienced in the United States in the crisis. Under the Basel III proposals there is much more attention being given to the quality and quantity of capital. My own view is that this heightened focus is appropriate, and that the particular capital that truly serves as a cushion against losses during periods of stress should be regulators' primary focus.

Figure 3 highlights that since the worst phase of the crisis, 15 large U.S. banking organizations that have reported continuously through the crisis have made significant progress in improving both the quality and quantity of their capital. The most narrow capital definition on the chart – the ratio of tangible common equity to tangible assets – has risen from a little over 2 percent to almost 6 percent. This reflects both significant raising of external capital as well as dramatic declines in dividends and stock buybacks during the crisis and the early period of recovery. Both of these

dynamics have had a significant positive impact on the institutions' ability to withstand potential future stresses.

Figure 4 illustrates the amount and composition of capital – the numerators of the various capital ratios – at the 15 large banking organizations over a four-year period. You can see that there has been an appreciable amount of common equity raised by this group of large banks.

The improvement in the quality and quantity of capital is quite striking. An important aspect of this recapitalization has been the supervisory use of stress tests to determine the adequacy of capital, and also in evaluating discretionary capital distributions (such as increased dividend payouts). The supervisory use of the stress tests is relatively new. It is worth noting and discussing the fact that it is not just capital *regulation*, but also *supervision*, that has been a driver of the recapitalization process.

Stress Tests and Improving the Quantity and Quality of Capital

Now I would like to delve a bit deeper into the role that stress testing has played in encouraging more rapid recapitalization of U.S. banks, during the financial crisis and the early stages of the economic recovery. The U.S. stress test exercise was conducted from February to April of 2009 – a period of significant financial turmoil, when many private-sector analysts and academic observers had raised concerns about the financial condition of the U.S. banking industry. The Supervisory Capital Assessment Program ("SCAP") was designed to provide a rigorous assessment and, in doing so, to ensure that banks had sufficient capital to sustain additional losses and still continue providing critical credit intermediation should economic conditions deteriorate further.

The SCAP exercise was conducted with the 19 largest U.S. domiciled bank holding companies. Each bank holding company was provided a baseline economic scenario and a more

stressful scenario. The scenarios were based on publicly available private forecasts and provided the assumed path for real GDP, unemployment, and house prices over the next two years. Using these assumptions, the banks were asked to provide detailed portfolio information so that projections could be made on losses in a variety of loan and security categories, potential trading losses for firms with large trading operations, pre-provision net revenue, and the allowance for loan losses – allowing for estimates of capital positions under each scenario.

The stress tests were interactive, and were quite resource intensive for both the banks and the supervisors. The banks' submissions were compared to a detailed portfolio analysis done by bank supervisors, and to statistical models intended to capture how key variables were likely to be affected by stressful conditions.

While individual business-line stress tests had been done by bank supervisors, a comprehensive stress test of all the largest banks at the same time using the same scenarios was new. While conducting the tests simultaneously for all 19 banks was challenging and resource intensive, the exercise provided supervisors the ability to make comparisons across institutions using the same underlying assumptions, and allowed the same core supervisory staff to be involved in assessments across institutions. Where banks were outliers relative to peers, supervisors could ask for more detailed information to determine if these differences were justified, based on analysis of comparable data. In addition, the stress tests were forward looking, so that the evolution of performance and results over the next two years could be compared across institutions. This provided a rigorous, data-driven assessment. It also highlighted where institutions needed to do additional work relative to peers to improve their risk management practices.

The banks were evaluated on whether, over the two-year period under stress assumptions, they were likely to be able to maintain a Tier 1 capital ratio of 6 percent and a Tier 1 common capital ratio of 4 percent. It is worth noting that for most banks it was the Tier 1 common capital ratio that was

most binding, and was the capital definition that best reflected the ability to absorb losses. Of the 19 banks, nine were sufficiently capitalized to meet the minimum capital ratios under stress conditions, while ten had a combined capital shortfall of $75 billion.

The banks with a capital shortfall were expected to provide detailed capital plans that included raising additional capital – by measures such as restricting payouts, raising new equity, selling assets, or utilizing capital available from the U.S. Treasury. Banks both with and without shortfalls aggressively sold assets and raised additional capital, resulting in a very significant recapitalization of the 19 banks over a relatively short period of time – as is apparent in the figures shown earlier.

Stress Testing and Discretionary Capital Distributions

Now I would like to mention the role of other stress testing in decisions to pursue, and approve, the resumption of discretionary capital distributions. The SCAP was designed to estimate how banks would perform under stress conditions. However, the economic assumptions and the impact of those economic assumptions on financial institutions were by definition educated estimates of potential outcomes. By the end of 2010, many banks were noting that they had substantially recapitalized and in some cases were now well above regulatory minimums – and thus would like to resume or increase stock buybacks or dividend payments.

To evaluate the requests by banks to increase dividend payments, U.S. bank supervisors pursued an exercise known as the Comprehensive Capital Analysis and Review (CCAR), and stress testing was one component of that broader exercise. While the stress testing element was only part of the CCAR review, it was an important input into evaluating banks' capital planning. The assessment was conducted between November 2010 and March 2011. Once again the largest 19 U.S. domiciled bank holding companies were asked to participate, using a baseline scenario, their own stress

scenario, and a supervisor-provided stress scenario (a set of macroeconomic assumptions consistent with an economic downturn).

A critical benchmark was whether banks could meet a 5 percent Tier 1 common capital ratio under stress conditions over the next two years, assuming they paid dividends or carried out the stock buybacks as they proposed. Additional capital measures were examined, including the ability to satisfy over time the new Basel III capital ratios and changes in capital required by the Dodd-Frank legislation. Bank holding companies were required to provide information on their capital adequacy processes and capital distribution policies, and supervisors assessed them.

Conducting the analysis for all of these institutions simultaneously gave supervisors a good benchmark as to how the financial institutions were performing relative to a stress scenario. In addition to providing a method for evaluating capital assessments, the stress test that was one component of the broader CCAR provided an opportunity to determine how financial institutions had refined their ability to conduct stress tests and incorporated lessons learned from the SCAP. In that vein, these types of capital assessments are likely to be an important tool in understanding the capital planning process in the future.

Concluding Observations

In conclusion I would note that the financial crisis highlighted that financial institutions did not have the quality or quantity of capital they needed. In particular, the broader measures of capital were largely ignored during the crisis by many investors as they worried about the "core" capital immediately available to absorb losses. Thus the emphasis in Basel III on improving the quality and quantity of capital is an important regulatory response to the financial crisis. Clearly we need to focus on the narrow definitions of capital – that which can readily absorb losses.

The United States has also improved its supervision framework based on lessons learned during the crisis. One of the major additions to the supervisory "toolkit" was the use of stress tests – in the SCAP and then as an important component of the broader CCAR exercise.

The supervisory and regulatory responses have provided strong encouragement for U.S. financial institutions to improve their capital ratios, particularly those ratios most appropriate for absorbing losses during stressful economic periods. Through retention of earnings, asset sales, and new equity issuances, U.S. banks have substantially improved their capital ratios since the crisis period.

The severe disruptions and economic dislocations that occurred during the financial crisis – affecting not just institutions, but individuals throughout the national and global economy – highlight the critical need to maintain a well-capitalized and resilient financial sector. Bank regulation and bank supervision – not to mention management practices within financial institutions – all need to continue to evolve to ensure that during periods of economic or financial distress, organizations remain well capitalized so their role in credit intermediation is not disrupted.

I hope the analysis and observations I have shared today can assist with a process of learning, evolving, and improving that will prevent future disruptions.

Thank you.

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[1] These remarks were prepared for delivery at a gathering focused on "The New Framework to Strengthen Financial Stability and Regulatory Priorities", jointly organized by the Financial Stability Institute and the banking supervisors from Central and Eastern Europe, and hosted by the Central Bank of the Russian Federation.

[2] Beyond concern over immediate losses, investors may also focus on the possibility of future losses and the capital readily available to offset them.

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[3] Given time constraints, my remarks do not delve into the role of stress tests in macroprudential supervision. In my view, stress tests benefit macroprudential supervision in that (a) they embed an explicit link to macroeconomic scenarios and (b) they focus on the ability of the financial system as a whole to provide intermediation services to the real economy rather than just on the solvency of individual institutions.

[4] Four measures of capital are referenced in this speech, total risk-based capital, Tier 1 risk-based capital, Tier 1 common capital, and tangible common equity:

Total risk-based capital includes core capital elements (Tier 1 capital) plus supplementary capital elements (Tier 2 capital).

Tier 1 risk-based capital is defined in the Capital Adequacy Guidelines for Bank Holding Companies: Risk-Based Measures (12 CFR part 225, Appendix A) as the sum of core capital elements less any amounts of goodwill, other intangible assets, interest-only strips receivables, deferred tax assets, nonfinancial equity investments, and other items that are required to be deducted in accordance with section II.B. of this appendix. Tier 1 capital must represent at least 50 percent of qualifying total capital." The specific elements included in Tier 1 capital and their various limits, restrictions, and deductions are discussed in detail in 12 CFR part 225, Appendix A.

Tier 2 capital includes supplementary items such as qualifying subordinated debt and a portion of the allowance for loan and lease losses. See 12 CFR part 225, Appendix A for a full discussion of the items included in Tier 2 capital and the associated limits, restrictions and deductions.

Tier 1 common capital as defined for the Supervisory Capital Assessment Program is the portion of Tier 1 capital that is common equity, or Tier 1 capital less perpetual preferred stock, minority interests and trust preferred securities that qualified as Tier 1 capital.

Tangible common equity is defined as total equity capital less perpetual preferred stock and related surplus (net of related treasury stock), goodwill and other intangible assets.

Four capital ratios are also calculated. The denominator for three ratios -- the Tier 1 risk-based capital ratio, the total risk-based capital ratio and the Tier 1 common capital ratio -- is risk-weighted assets. The denominator for the tangible common equity ratio is tangible assets, defined as total assets less goodwill and other intangible assets.

[5] It had been under 2 percent.

[6] These guidelines apply to the individual bank subsidiaries within a bank holding company.

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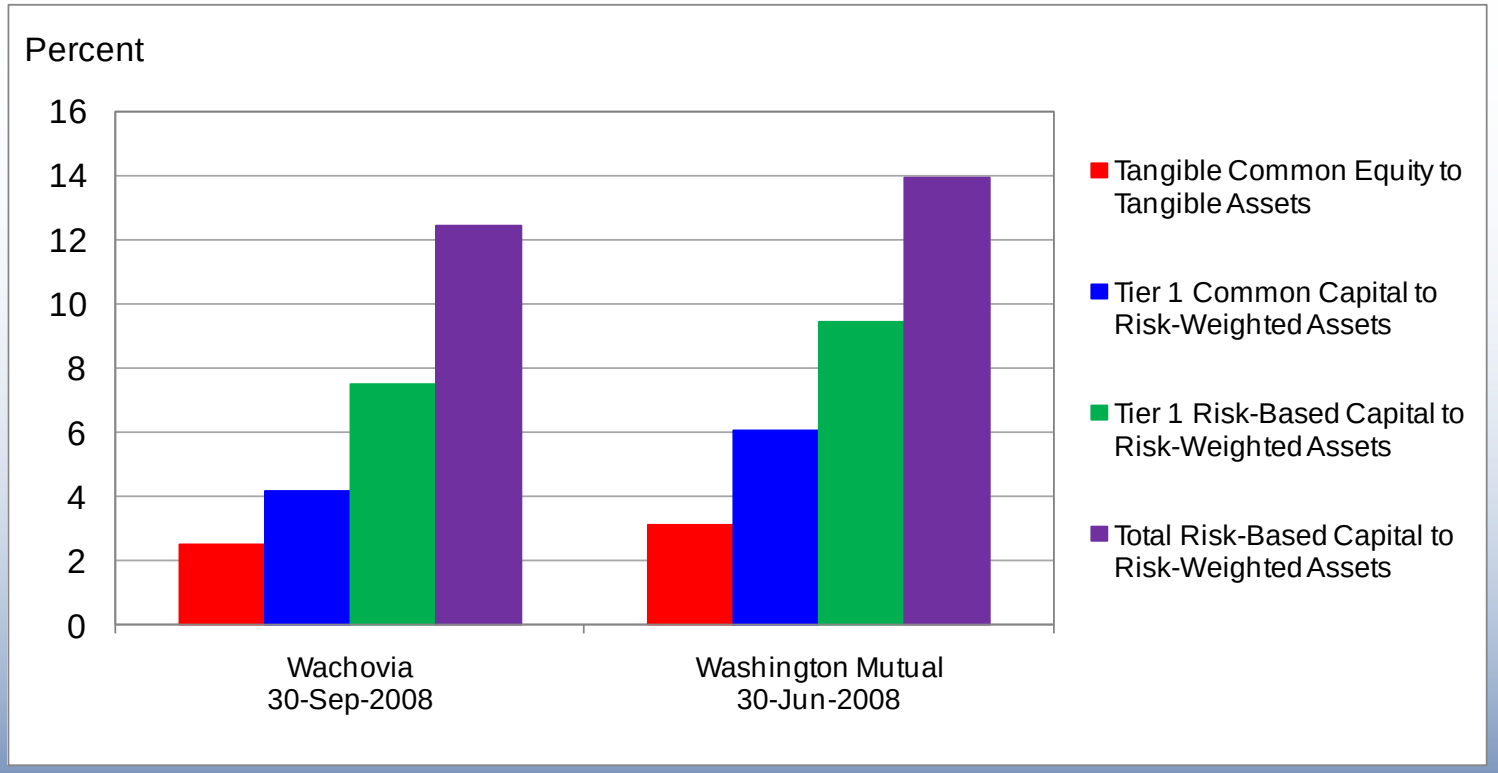
Dodd-Frank Legislation

- Greater clarity in resolution of complex financial institutions
- Created a Financial Stability Oversight Council
- Created a Consumer Financial Protection Bureau
- More regulatory powers to supervise systemically important financial institutions

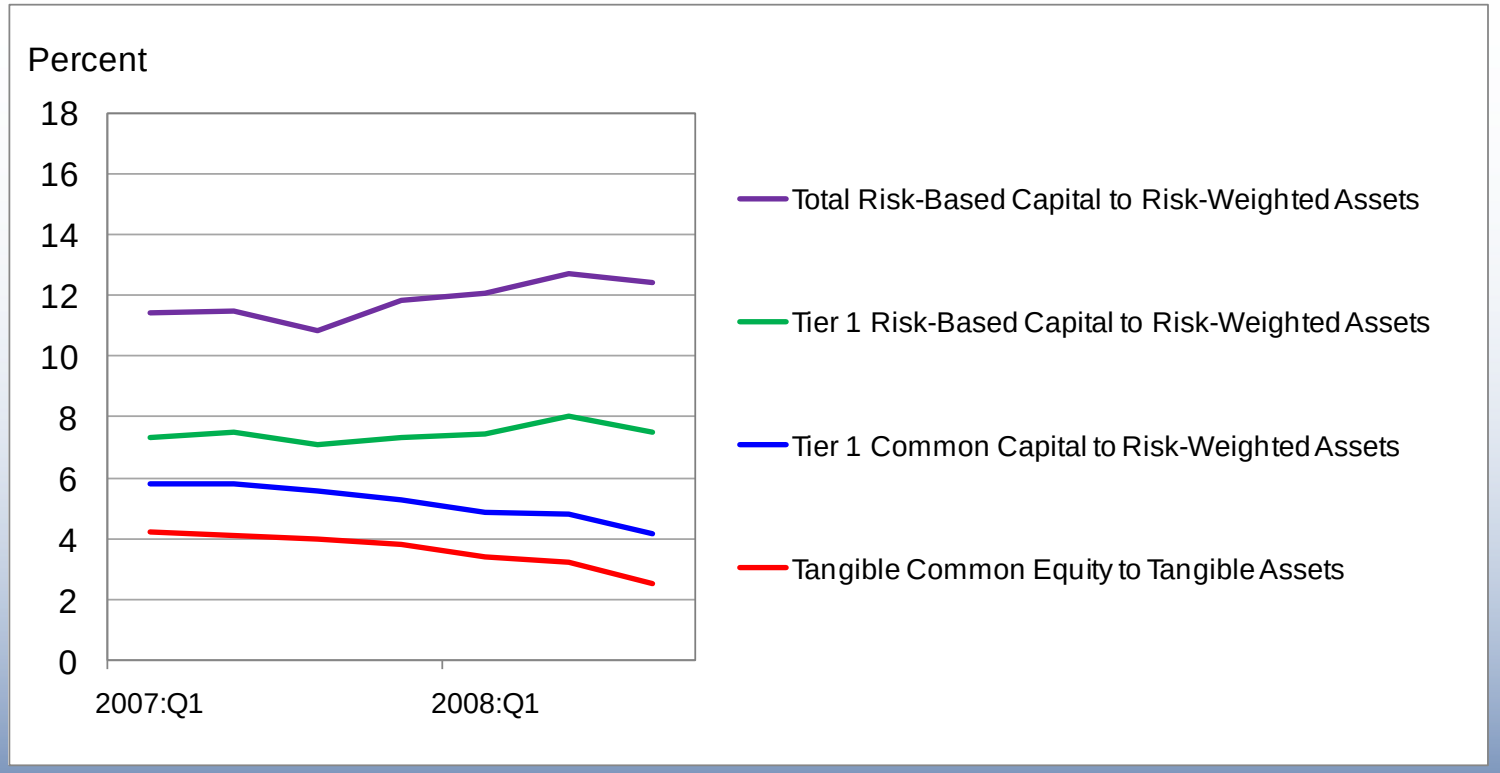
Figure 1
Capital Measures in Last Filing Quarter for Wachovia and Washington Mutual



Source: Consolidated Financial Statements for Bank Holding Companies (FR Y-9C) and SEC Filings (Form 10-Q)

Figure 2
Capital Measures for Wachovia

2007:Q1 - 2008:Q3



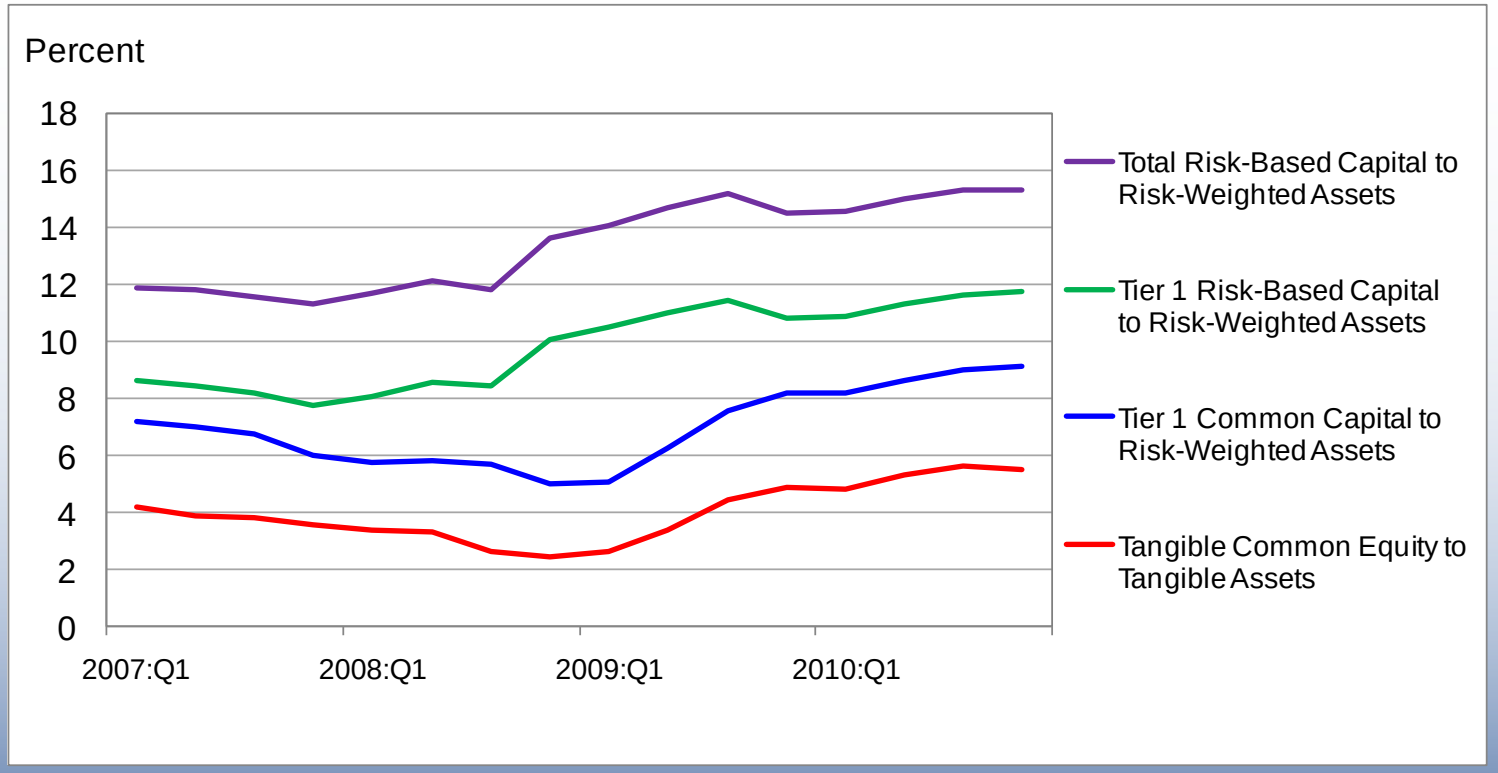
Source: Consolidated Financial Statements for Bank Holding Companies (FR Y-9C)

Observations

- Broad measures of capital did not decline at some troubled institutions
- Narrow capital measures did decline substantially at troubled institutions
- Confirms Basel III emphasis on improving quality and quantity of capital

Figure 3
Capital Measures for Large U.S. Banking Organizations

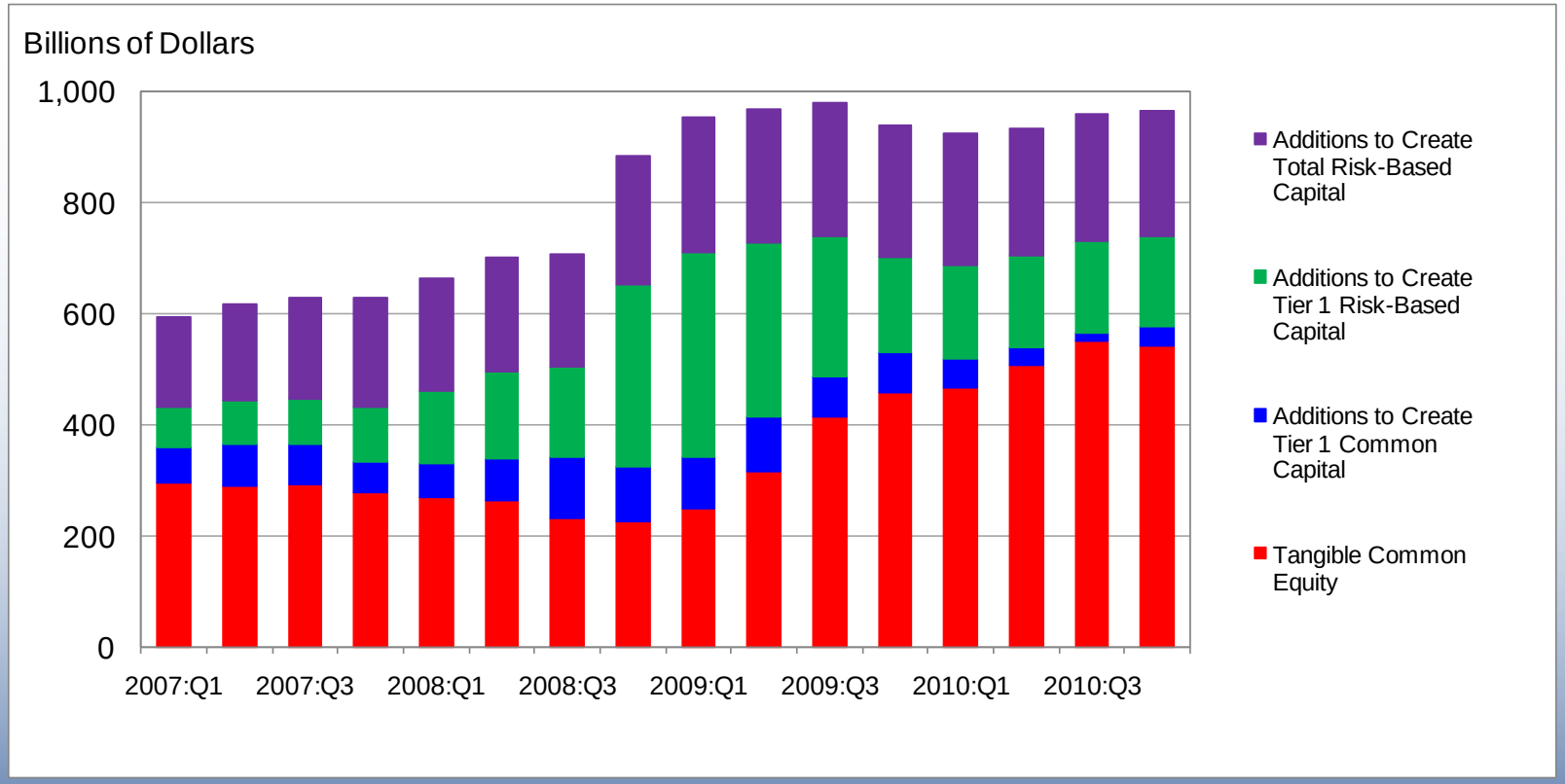
2007:Q1 - 2010:Q4



Note: Includes 15 large banking organizations that filed the FR Y-9C throughout the four-year period
Source: Consolidated Financial Statements for Bank Holding Companies (FR Y-9C)

Figure 4
Composition of Capital at Large U.S. Banking Organizations

2007:Q1 - 2010:Q4



Note: Includes 15 large banking organizations that filed the FR Y-9C throughout the four-year period
Source: Consolidated Financial Statements for Bank Holding Companies (FR Y-9C)

Role of Stress Tests in Improving Quality and Quantity of Capital

- Supervisory Capital Assessment Program (SCAP)
  - Conducted from February to April 2009
  - 19 largest U.S. domiciled bank holding companies participated
  - Banks were asked to consider a baseline economic scenario and a more stressful scenario

SCAP Innovations

- Assessment – Interactive assessment based on participants' submissions, bottom-up estimates by bank supervisors, and statistical analysis based on historical patterns in the data
- Comprehensive – not just particular business lines
- Simultaneous – Compare results across firms
- Forward looking – Evaluate sufficiency of capital under stress, not adequacy of current capital

SCAP Results

- Capital buffer needed to have Tier 1 capital of 6% and Tier 1 common of 4% under stress conditions at the end of 2010
  - 9 firms had sufficient capital buffers under the stress scenario
  - 10 firms had a combined capital shortfall of $75 billion under the stress scenario
  - Substantial new equity issuance, including by banks with no capital shortfall in the stress scenario

Stress Testing and Discretionary Capital Distributions

- Comprehensive Capital Analysis and Review (CCAR) – stress test was one important component
  - Conducted from November 2010 to March 2011
  - 19 largest U.S. domiciled bank holding companies participated
  - Three scenarios – bank-provided base and stress scenarios; supervisory-provided stress scenario

CCAR Highlights

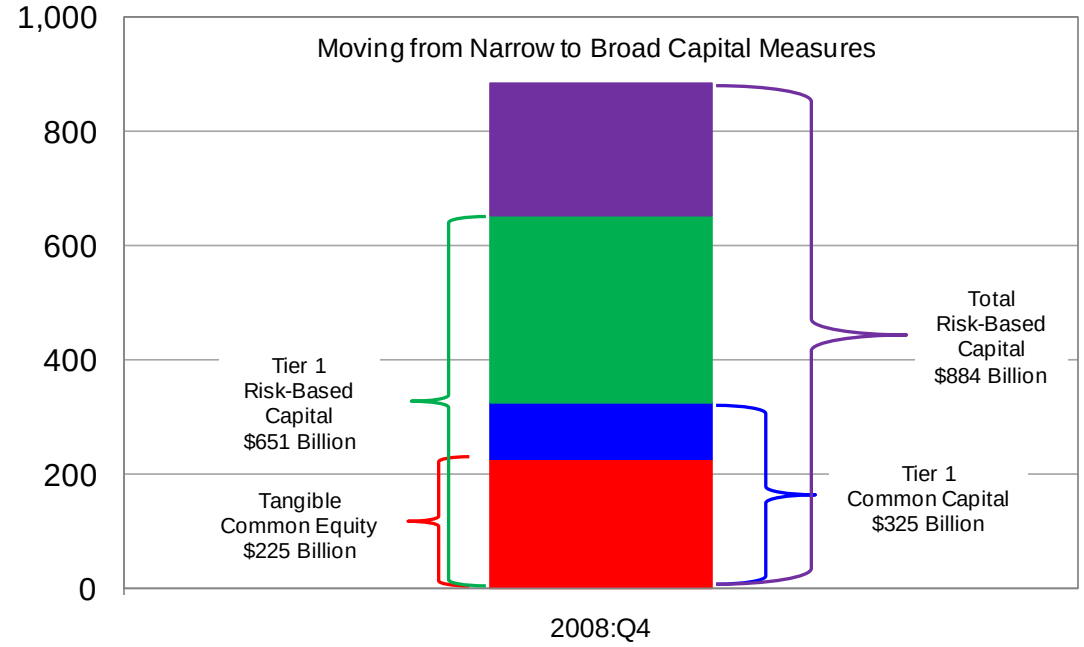
- A framework for evaluation of capital assessment over a two-year period
- Benchmark was a 5% Tier 1 common capital ratio, but also expectations for meeting other objectives including Basel III plans
- Dividends and stock buybacks should be considered in context of bank operating above minimum capital requirements under stress conditions

Conclusion

- Need to focus on narrowly defined capital which can readily absorb losses
- Stress testing has been a useful supplement to regulations to improve quality and quantity of bank capital in U.S.; capital ratios have increased substantially
- Need to better insulate credit intermediation from financial stress with improved regulation and supervision

Appendix
Composition of Capital at Large U.S. Banking Organizations

2008:Q4



Additions to Move from one Capital Measure to the Next:

- Additions to Create Total Risk-Based Capital:
  - + Qualifying Subordinated Debt
  - + Includible Loan Loss Allowance
  - + Other Tier 2 Capital Components
  - + Other Adjustments
- Additions to Create Tier 1 Risk-Based Capital:
  - + Qualifying Perpetual Preferred Stock
  - + Qualifying Minority Interests
  - + Qualifying Trust Preferred Securities
- Additions to Create Tier 1 Common Capital:
  - + Net Unrealized Losses (Gains) due to market factors and hedge positions
  - + Other Adjustments (Intangible Assets, Deferred Tax Assets)
- Tangible Common Equity =
  - Equity capital minus the sum of perpetual preferred stock and intangible assets

Note: Includes 15 large banking organizations that filed the FR Y-9C throughout the four-year period
Source: Consolidated Financial Statements for Bank Holding Companies (FR Y-9C)