



***Regulating for Resilience:
A Dual Mandate Approach
to Bank Regulation***

Remarks by
Paul Saltzman, President, The Clearing House Association
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Thank you for that kind introduction and thank you to the Exchequer Club for the invitation to speak today.

I'd like to begin my remarks by returning to first principles to discuss the underlying goals of banking regulation. Policymakers frequently refer to the objective of enhanced prudential regulation as ensuring the *resilience* of the banking system, and we at The Clearing House share that view. Unfortunately, resilience is more often than not interpreted as being synonymous with stability. It's much more than that. Resilience is best understood as the combination of *two* elements: first, the banking system's ability to absorb economic and price shocks without taxpayer support, and second, its ability to perform essential intermediation and market-making functions that contribute to the broader economy's growth and productivity. While the banking system is undisputedly safer and stronger now than it was before the crisis, there is much less certainty as to whether the banking system is more resilient.

This topic is particularly timely. In the months ahead, we will see the finalization in the U.S. of three hugely impactful macroprudential rules: a total loss-absorbing capacity (or TLAC) requirement to facilitate the resolution of large banks, a capital surcharge for global systemically important banks, and the net stable funding ratio (or NSFR) to provide for funding stability. These three rules are crucial not just because they represent the finishing touches of the post-crisis macroprudential regulatory overhaul, but also because they are qualitatively different from other recent reforms—collectively and together with rules already implemented, they have the potential to transform banking functions, business models and balance sheets fundamentally in ways that are seemingly at odds with the core essence of what banks do. Moreover, these three rules have implications that reach far beyond just G-SIBs, and will ultimately impact banks of all sizes and the customers that they serve.

With this in mind, I'd like to try to do three things this afternoon. First, describe in more detail this broader concept of banking system resilience that I believe should underpin our approach to banking regulation, along with a few ideas about how we might incorporate it in practice. Second, highlight how much the banking system has changed since the financial crisis. And third, describe how banking system resilience may be at stake with each of the three macroprudential rules being contemplated.

A Dual Mandate Approach to Bank Regulation

The focus on regulation that improves the stability of the banking system appears to have overridden what should be an equally important goal: maximizing economic opportunity and promoting economic growth. As the UK Chancellor of the Exchequer, George Osborne, has said, regulation should not seek “the financial stability of the graveyard.”

I think it is fair to say that regulators generally tend not to focus on the economic growth implications of regulation. Or they simply assume that there are minimal negative impacts or tradeoffs—the proverbial free lunch. That is not a statement of blame, but rather an observation of a natural behavioral incentive asymmetry at work. Regulators receive much more scrutiny when there is a regulatory failure than when there's an economic slowdown. So it's understandable where their priorities lie. Moreover,

quantifying the benefits of greater regulation is typically much easier than assessing their broader economic impact, which inevitably involves subjective assumptions about second- and third-order effects on the economy.

Good intentions notwithstanding, it still begs the question: When policymakers are designing regulations, who in the room is focused on economic growth? Who is thinking about how these proposed changes will affect market liquidity, how individuals and businesses access credit, investment capital, payments and other banking services?¹

We would be well served by an approach to regulation and supervision that in some sustainable way promotes balance. That means maintaining the focus on safety and stability but also treating economic growth as a co-equal mandate. As an example of how this greater emphasis on balance might work in practice, consider the Federal Reserve's *monetary policy*, where the Fed expressly operates under a *dual mandate*—a statutory requirement that it pursue and appropriately balance two, sometimes competing objectives: maximum employment and price stability.² Navigating that dual mandate has framed the Fed's mission and focused its attention on the kind of nuanced analysis that all complex policy problems demand. What I am suggesting today is a culture of policymaking based on a similar dual mandate for *regulatory policy*, one that simultaneously pursues and balances financial stability with economic growth and prosperity for consumers.

One example of a commitment to a balanced regulatory approach comes from Jonathan Hill, Europe's top financial regulator. He pledged recently to "look at regulation through the prism of jobs and growth" in order to achieve "a strong economy ... [with] strong banks playing their part."³ This is exactly the mindset I would like to see U.S. regulators embrace—not just in theory, but in practice.

¹ As M&T Bank Chairman and CEO Bob Wilmers recently pointed out in a letter to shareholders, while there has been improvement in the economy as of late, "rural areas continue to struggle. Over the past decade, U.S. employment growth has varied widely between larger urban areas and rural communities. Collectively, U.S. metropolitan areas experienced a 12% increase in private sector employment from 2003-2013 while non-metropolitan areas recorded just a 5.4% gain." Further, Wilmers identifies that "[a]ggregate student loan debt stands at more than \$1.1 trillion, trailing only mortgage debt as the largest form of consumer indebtedness. One consequence of this rising student debt burden is deferment of home ownership – the percentage of 18-to-34 year olds who own homes has continued to decline and stands at 13% compared to over 17% before the crisis." Robert G. Wilmers, Chairman of the Board and Chief Executive Officer, M&T Bank Corporation, Message to Shareholders, M&T Bank Corporation 2014 Annual Report (2014), available at http://files.shareholder.com/downloads/MTB/4110745821x0x813854/D95209B9-556A-41BD-9F43-2C31F4A69A05/2014_MTB_Annual_Report.pdf.

² See 12 USC § 225a. It should be noted that, by statute, the Federal Reserve actually has *three* objectives it must simultaneously pursue—including moderate long-term interest rates, in addition to maximum employment and stable prices—but the latter two are generally viewed as the most important and colloquially referred to as the Fed's "dual mandate."

³ Speech by Jonathan Hill, Member of the European Commission, responsible for Financial Stability, Financial Services and Capital Markets Union, to the 6th Convention on Cooperative Banks in Europe (March 3, 2015), available at http://europa.eu/rapid/press-release_SPEECH-15-4537_en.htm.

As we think about embracing a shift towards greater balance in developing banking regulation, let me suggest a few ideas that will improve the quality of our rulemaking process as well as its substantive outcomes.

First, in crafting rules that strike the right balance, it's important that we take a forward-looking and holistic approach and resist the urge to design every individual rule in the vacuum of financial crisis history. Undoubtedly, policymakers *should* carefully consider the events of 2007 and 2008, as well as earlier crises, when pursuing enhancements to the macroprudential framework, but they should also consider the cumulative regulatory reforms and related progress that have been achieved. As Governor Powell recently suggested, “[w]e need to learn, but not overlearn, the lessons of the crisis.”⁴ Following on this suggestion, we need to regulate the banks of today, not those of yesterday. In doing so, it is also important to keep in mind that the banking sector is not the only source of systemic risk. As the Office of Financial Research identified in its 2014 Annual Report, “the migration of financial activities toward opaque and less resilient corners of the financial system” is one of the most significant risks to financial stability.⁵

Second, while greater emphasis on study and deliberation in our rulemaking process is critical, it's important not to fixate on these process issues to the point of reaching regulatory “analysis paralysis.” Definitive empirical conclusions simply cannot be reached on every regulatory issue, and we should defer to the reasonable judgment of the regulatory community where regulators do not proceed in an opaque or arbitrary and capricious manner.

Third is the question of bank failures. We should resist the simplistic logic, however appealing, that every bank failure is the product of a regulatory or supervisory failure. To state the obvious, yes, we all want to reduce the probability that banks will fail, and we all want to reduce the systemic costs when they do, but bank failures can't be eliminated entirely unless we're prepared to eliminate all risk-taking and, by extension, all profitability, innovation and rewards. A bank without risk is a bank without purpose.

As policymakers work to ensure that regulation appropriately reflect the post-crisis evolution of the banking system, it's crucial that we also take into account the wide variety of business models and institutions that populate our bank ecosystem. This diversity of institutions and business models is a source of strength that mitigates systemic risk and promotes banking system resilience. In the area of macroprudential rules, one size does *not* fit all. Much of the macroprudential framework was designed to address the financial stability risks uniquely posed by institutions with very large systemic footprints—but time and time again, these regulations have trickled down to institutions with little or no

⁴ Speech by Jerome H. Powell, Member of the Board of Governors of the Federal Reserve System, to the Stern School of Business, New York University, New York, New York (February 18, 2015), available at <http://www.federalreserve.gov/newsevents/speech/powell20150218a.htm>.

⁵ Office of Financial Research, “2014 Annual Report” (December 2, 2014), available at <http://financialresearch.gov/annual-reports/files/office-of-financial-research-annual-report-2014.pdf>.

systemic footprint. Regulators should not apply *macroprudential* rules to those institutions that do not pose *macroprudential* risks.

Finally, enhancements to the process by which regulations are developed and adopted can also help achieve this dual mandate. Better empirical data supporting the calibration of regulations will also help us achieve this dual mandate. More use of concept releases and ANPRs, together with more transparency into the methodologies regulators use to shape their proposals, will also help to achieve this dual mandate. And greater emphasis on understanding the *cumulative* impact and interaction of implemented regulations—particularly on banks of different sizes—will help shape a more coordinated and sustainably resilient banking system.

Taking Stock of the Strength of the U.S. Banking System

I'd now like to turn to the state of the banking system.

As most of you know, there's a popular narrative that "nothing has changed" since the financial crisis. Nothing could be further from the truth. We've seen significant change in how banks are regulated, how banks manage themselves, and how well-positioned the banking system is to survive future crises.⁶ Indeed, the U.S. has led the world in overhauling the way it regulates the safety and soundness of banks, with particular focus on the largest banks and the systemic risks they pose.⁷

Reports tracking the number of missed deadlines and rulemakings called for by Dodd-Frank feed this false narrative and present an inaccurate view of the state of regulatory reform in the United States—they treat every rule as equally important, when of course they're not.⁸ The reality is that in the years

⁶ As Federal Reserve Governor Tarullo has noted, "[s]ince the passage of the Dodd-Frank Act more than four years ago, the Federal Reserve and the other agencies represented at this hearing have completed wide-ranging financial regulatory reforms that have remade the regulatory landscape for financial firms and markets." Testimony by Daniel K. Tarullo, Member of the Board of Governors of the Federal Reserve System, before the Committee on Banking, Housing, and Urban Affairs, U.S. Senate, Washington, DC, (September 9, 2014), available at <http://www.bis.org/review/r140909c.htm>.

⁷ "By definition, too-big-to-fail problems implicate systemic risk considerations and must be addressed in any regulatory system that seeks to preserve financial stability. More generally, the dynamics observed during the financial crisis - including correlated asset holdings, common risks and exposures, and contagion among the largest firms - suggest that the well-being of any one of these firms cannot be isolated from the well-being of the banking system as a whole. Much of the post-crisis reform agenda has been centered on these institutions." Speech by Daniel K. Tarullo, Member of the Board of Governors of the Federal Reserve System, at the Office of Financial Research and Financial Stability Oversight Councils 4th Annual Conference on "Evaluating Macroprudential Tools: Complementarities and Conflicts", Arlington, Virginia (January 30, 2015), available at <http://www.bis.org/review/r150202a.htm>.

⁸ For example, the U.S. has implemented a revised version of the supplementary leverage ratio including an enhanced version for the largest banks, regulations requiring banks to hold more and better-quality capital, extensive internal stress testing requirements and yearly evaluation by the Federal Reserve under the Comprehensive Capital Adequacy and Review process, an orderly liquidation authority to resolve a financial

since 2008, U.S. regulators have implemented substantially all of the Dodd-Frank provisions aimed at enhancing prudential standards, accompanied by a substantial increase in supervisory oversight. And they've completed the Basel III capital and liquidity framework, while also adopting the vast array of proposals recommended by the G-20. Policymakers in the U.S. have also gone beyond internationally-agreed-upon standards and gold-plated the most impactful rules. The cumulative effect of these reforms has been to create an entirely new micro- *and* macro-prudential regulatory framework that significantly enhances the safety and soundness of the banking system.

Regulatory overhaul has been accompanied by internal overhaul within the banking industry. Banks have materially changed the way they do business—improving internal risk management processes and the strength and risk profile of their balance sheets. In the process, they have invested substantial resources in their data management systems, IT infrastructure and risk management and compliance staff and capabilities.

The facts demonstrate how transformational these changes have been.

- Bank balance sheets have become less risky across multiple dimensions. While total assets of the banking system have increased overall, the system has experienced a de-risking of assets while capital buffers have grown markedly larger.⁹
- Banks have also increased the amount of high-quality capital they hold, and ratios of capital relative to risk have risen sharply, all dramatically improving banks' ability to absorb losses or prevent insolvency in the event of depreciating asset values. In particular, U.S. institutions' holdings of high-quality common equity Tier 1 Capital has almost tripled since 2004.¹⁰
- The risk of runs has reduced significantly because banks' holdings of deposits, generally considered the most stable form of funding, have more than doubled since 2004 to \$8 trillion.

institution in an efficient manner that allows a failing institution to continue to provide critical services to the economy, and many others.

⁹ See Appendix, Figure 1. Between 2004 and 2014, the proportion of non-risk cash and cash equivalent assets have increased from 7% to nearly 20% of U.S. GDP. Similarly, the research shows that over the last decade, banks, particularly the larger U.S. G-SIBs, have significantly de-risked their balance sheets. G-SIBs have doubled their share of 0% risk-weighted assets such as cash or U.S. Treasuries, from 12% in 2004 to 29% in 2014. Oliver Wyman, "Evolution of Financial Stability in the U.S. Banking System: Evidence from 2004-2014 among U.S. Bank Holding Companies," forthcoming.

¹⁰ See Appendix, Figures 2-3. U.S. institutions' holdings of high-quality common equity Tier 1 Capital has almost tripled since 2004, going from \$474 billion to \$1.246 trillion in 2014. The increase in capital has been driven primarily by retained earnings as opposed to capital raising and between 2010 and 2013 over 75% of the profits generated by the banking system were retained and added to capital buffers. This increase in high-quality capital has led to improved capital ratios as well—for example, the median capital ratios of U.S. G-SIBs increased by 68% between 2004 and 2014. *Id.*

At the same time, funding through repos and commercial paper has declined in importance as a source of funding.¹¹

- These improvements and these regulations have helped to greatly reduce systemic risk in the financial system. Taking stock of one potential measure of systemic risk—SRISK, an estimate of a financial company’s projected capital shortfall in the event of a crisis—the average systemic risk for the largest U.S. financial institutions has declined by about 75% since 2008.¹²

So before digging into the debate over what work remains, it is important that we acknowledge the progress that has been achieved. Is it enough, or has the pendulum in fact swung too far? These are complex but timely questions, and it is *critical* for policymakers to develop a robust empirical understanding of today’s banking system, as well as the impact on economic growth of additional regulatory requirements being contemplated.

The G-SIB Capital Surcharge, TLAC and the NSFR: The Dual Mandate Applied

I’d now like to turn to three issues being considered by federal regulators—the G-SIB capital surcharge, TLAC, and the NSFR. I realize these acronyms mean nothing to those who don’t follow financial regulation. But they are not mere abstractions. Each would change how a bank’s balance sheet can or should be structured, and therefore these measures go to the heart of a bank’s ability to provide consumers, small businesses and other customers access to credit, capital and banking services. The rules also affect the ability of banks to support markets and market liquidity through which many businesses obtain capital and finance. For this reason, these rules will raise precisely the question of the regulatory objectives I have been discussing. In each case, how can policymakers balance the dual mandate of banking system resilience—financial stability and economic growth?

I’ll start with the Federal Reserve’s proposed surcharge on G-SIBs. This is a gold-plated version of the Basel Committee’s G-SIB capital surcharge framework. The Fed’s proposed alternative approach significantly diverges from that of the Basel Committee by proposing a second, additional methodology that effectively nearly doubles the surcharge for most firms and adds a short-term wholesale funding factor. If implemented, the Fed’s alternative would increase the applicable U.S. surcharge by up to 200 basis points as compared to that agreed in Basel.¹³

Getting the balance right is crucial. Here, that means ensuring that G-SIBs hold high-quality capital in amounts sufficient to internalize the potential systemic impact of their failure, but not in amounts in

¹¹ See Appendix, Figures 4-6.

¹² See Appendix, Figure 7.

¹³ Federal Reserve System, Risk-Based Capital Guidelines: Implementation of Capital Requirements for Global Systemically Important Bank Holding Companies, 79 Fed. Reg. 75,473 at 75,475.

excess of that standard, which would impose substantial and needless economic costs on banking organizations' customers, investors and the markets. The need for a balance between stability and economic growth in order to ensure a resilient banking system is particularly apparent here—excessive capital is not the panacea for every banking system resiliency challenge, nor is it always better for the U.S. economy or customers and consumers.

Particularly troubling is the fact that the Fed's proposal contains little empirical or analytical basis. In the words of Sheila Bair, the Fed needs to "show its work."¹⁴ Although the Fed's rulemaking notice refers to analyses and related data upon which key elements of the G-SIB surcharge are based or have been calibrated, it does not disclose any of them. Given the potentially substantial impact of the surcharge, these analytical and quantitative bases should be fully transparent and available for public scrutiny and comment, consistent with both the letter and spirit of the Administrative Procedures Act, prior to the finalization of the proposed surcharge.

The Fed's proposal also fails to account for regulations already implemented or proposed since the G-SIB framework was set by Basel in 2011 that have substantially mitigated the probability of default and loss given default, including a range of measures addressing short-term wholesale funding. Nor are the calibrations sensitive enough to reward behavior that is consistent with the incentive structure of the surcharge framework. For example, both the liquidity coverage ratio and the net stable funding ratio will impose strong limits on banks' ability to rely excessively on short-term wholesale funding. And combined with these other regulations, the proposed capital surcharge also effectively double- or triple-taxes certain products, which would meaningfully affect how banks do business, as well as banks' ability to serve customers and the broader economy. The Clearing House will shortly be submitting a comment letter on behalf of the industry on the Fed's proposal, where we will be supportive in principle of a G-SIB surcharge, but will call for changes to address each of these technical weaknesses.

Another critical piece of the regulatory puzzle currently being debated is TLAC, which refers to the amount of loss-absorbing instruments that the largest institutions are required to hold in order to ensure they have sufficient capacity to recapitalize critical operating subsidiaries in a resolution. Together with single point of entry and other resolution strategies, TLAC is an important step in ensuring that banks are able to absorb losses in times of stress without spreading contagion or disrupting the larger financial system. And let me be clear: The Clearing House supports a properly calibrated TLAC requirement as part of our macroprudential framework for G-SIBs.

¹⁴ Sheila Bair, The Systemic Risk Council, Comments Re: Risk-Based Capital Guidelines: Implementation of Capital Requirements for Global Systemically Important Bank Holding Companies (March 2, 2015), available at <http://www.systemicriskcouncil.org/wp-content/uploads/2015/03/SRC-Letter-to-Fed-Board-re-GSIB-Surcharge-030215.pdf>.

Yet, getting the balance right is again crucial. Here, that means ensuring that G-SIBs have sufficient loss-absorbency capital to facilitate an orderly resolution and recapitalization utilizing a single-point-of entry strategy without taxpayer exposure. It also means ensuring that the amount of TLAC is calibrated appropriately so that the requirement does not lead to unnecessarily higher funding costs for banks or the unnecessary deleveraging of bank balance sheets. The likely effect of any deleveraging would be to stifle banks' important economic functions while doing little to foster increased stability. In fact, the empirical data shows that the higher calibration of TLAC suggested by the Financial Stability Board in December is unnecessary to provide sufficient loss absorbency to facilitate recapitalization in a failure scenario.¹⁵ The FSB's proposed TLAC requirement is more than 2.5 times larger than the historical capital depletion of failed or acquired U.S. financial institutions—a backward-looking approach—and is 4.4 times larger than both the projected capital depletion of U.S. G-SIBs under a severely adverse supervisory stress scenario in D-FAST 2014—a forward-looking approach.¹⁶

Despite substantial concerns that the TLAC framework proposed by the Financial Stability Board does not get this balance right, I am pleased that the FSB proposal committed to undertake studies that it would use to finalize the TLAC framework; of course, it would be nice if they undertook the studies before issuing a proposal. I would urge the FSB to make those studies and their results public and allow for a period of time for comment, and for the U.S. regulators to undertake similar impact analyses when the TLAC framework is eventually proposed in the U.S. Further, the FSB should explain the standard used to calculate TLAC, and support that standard with empirically-based, forward-looking stressed analyses as well as analyses of historical losses.

The final example I'd like to touch on is the net stable funding ratio, or NSFR, which is designed to ensure that banks hold a minimum amount of stable funding over a one-year horizon. And while the Basel Committee has finished its work in developing the overall NSFR framework, the NSFR has not yet been implemented in the U.S., and its impact will be significant.

Getting the balance right here means a final U.S. NSFR standard that is calibrated to take into account the effect on banks' balance sheets in order to prevent negative effects on consumers, the financial system and the economy more broadly. If not properly calibrated, the NSFR may result in reduced or more expensive medium- and long-term financing as banks replace loans with investments in highly-liquid assets, and also may cause market liquidity issues. The NSFR may also result in distortions in the markets for longer-term securities (including U.S. Treasury securities and mortgage-backed securities),

¹⁵ The Clearing House conducted an analysis considering the relationship between capital depletion in times of stress and the calibration of external TLAC. Our analysis found that the aggregate loss-absorbing capacity comprised of external TLAC equal to 16% of risk-weighted assets, plus the 2.5% capital conservation buffer, plus the RWA-weighted average U.S. G-SIB buffer, is significantly larger than necessary for the eight U.S. G-SIBs.

¹⁶ *Id.*

as banks invest more heavily in shorter-term instruments. This can have the effect of a material increase to bank funding costs as liabilities are termed further out on the curve.

Similarly, the NSFR is a reminder that getting the balance right is not just a question of “how high” a requirement should be; it is also a question of scope. A fundamental objective of a resilient banking system is ensuring that macroprudential rules are only applied to firms that present the risks those rules are designed to mitigate. As regulators determine the appropriate scope of banks required to meet the U.S. version of the NSFR, it is important that they undertake a robust empirical analysis to identify which institutions have the kind of systemic footprint that necessitates an additional set of quantitative liquidity rules.

Conclusion

In conclusion, I’m hopeful that regulators will begin to embrace a shift in thinking and approach—one that focuses on the dual regulatory mandate I have described, and brings greater balance and transparency to our debates about banking regulation. Advancing the dual mandate of resilience will promote safety and stability while also maximizing economic growth and helping to create the opportunities that stimulate job creation and higher living standards in this country and countries throughout the world.

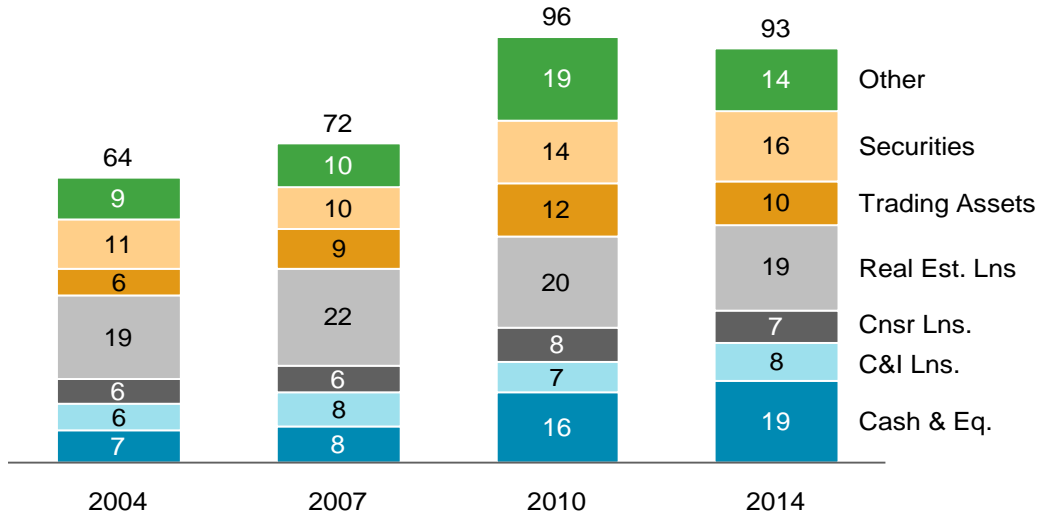
While there are many more dimensions to these issues, I’ll stop there in order to save time for questions. Thank you again to the Exchequer Club for the invitation, and thanks to all of you for coming.

Appendix

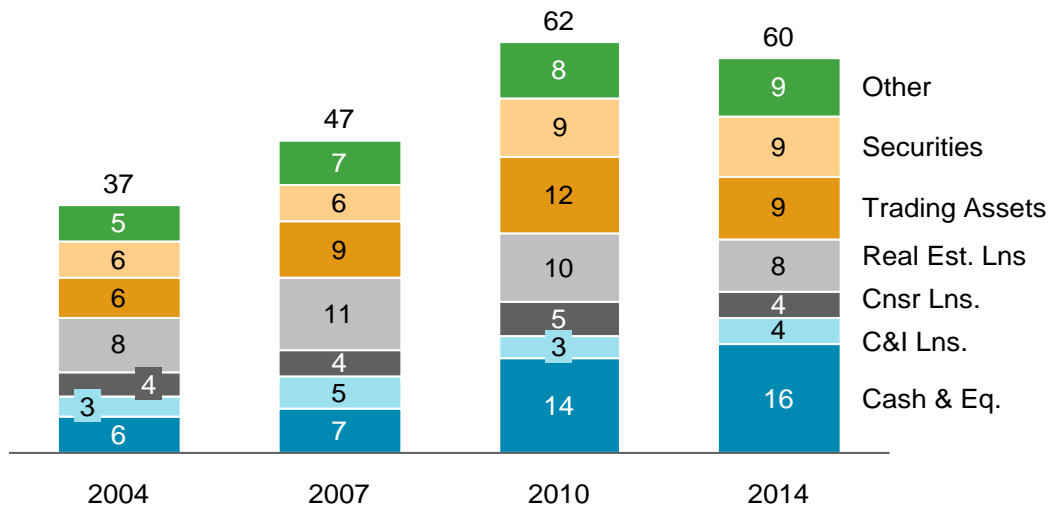
Figure 1: Size of bank balance sheets

Tangible assets / U.S. GDP (%)

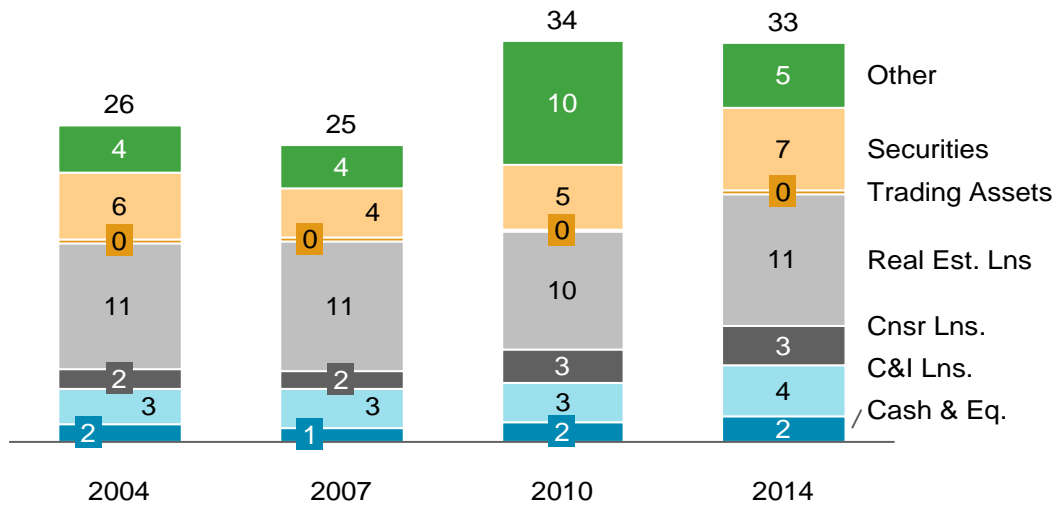
Total banking system



G-SIBs



Non-G-SIBs

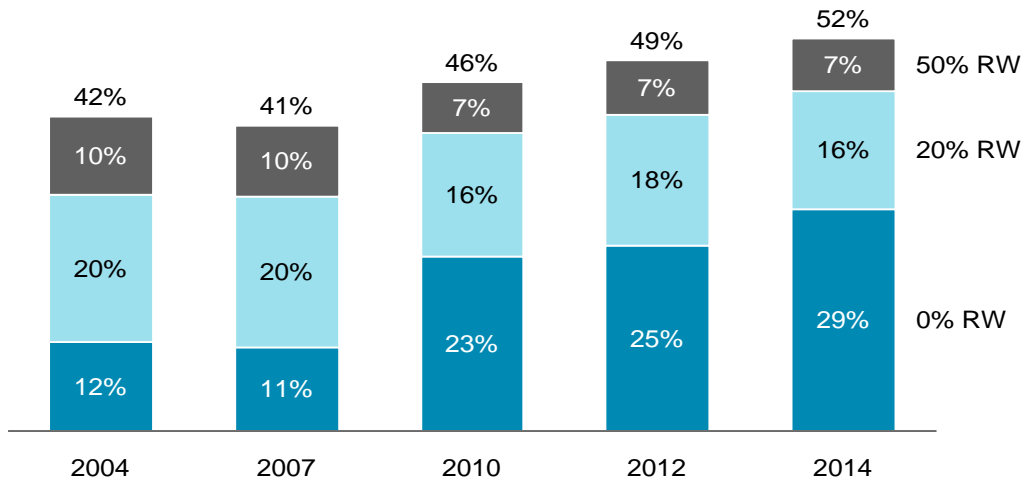


Note: Includes U.S. institutions that were registered as BHCs as of year-end in each period. Tangible Assets defined as total assets less goodwill.

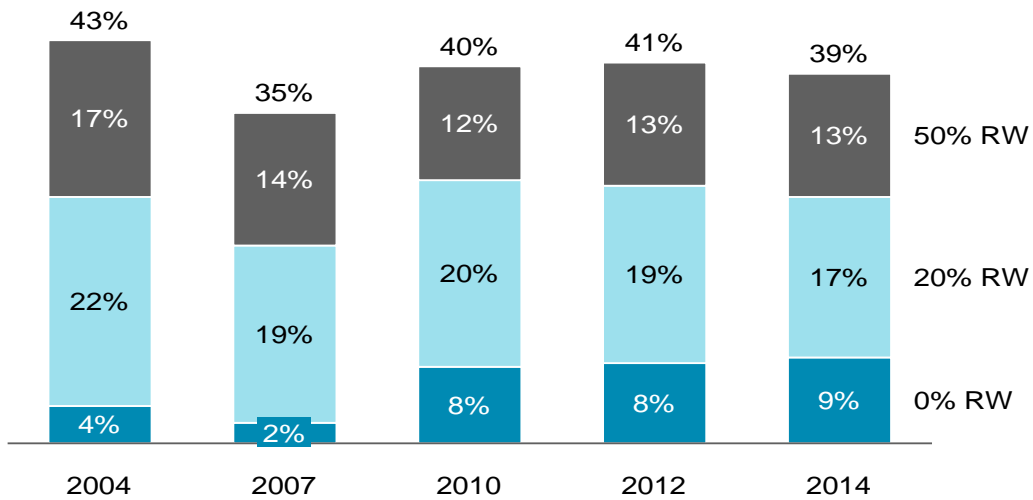
Source: SNL Financial, Oliver Wyman analysis; Oliver Wyman, "Evolution of Financial Stability in the U.S. Banking System: Evidence from 2004-2014 among U.S. Bank Holding Companies," forthcoming.

Figure 2: Proportion of lower risk-weight assets
 On-balance-sheet assets in each risk weight bucket as % of total assets

G-SIBs

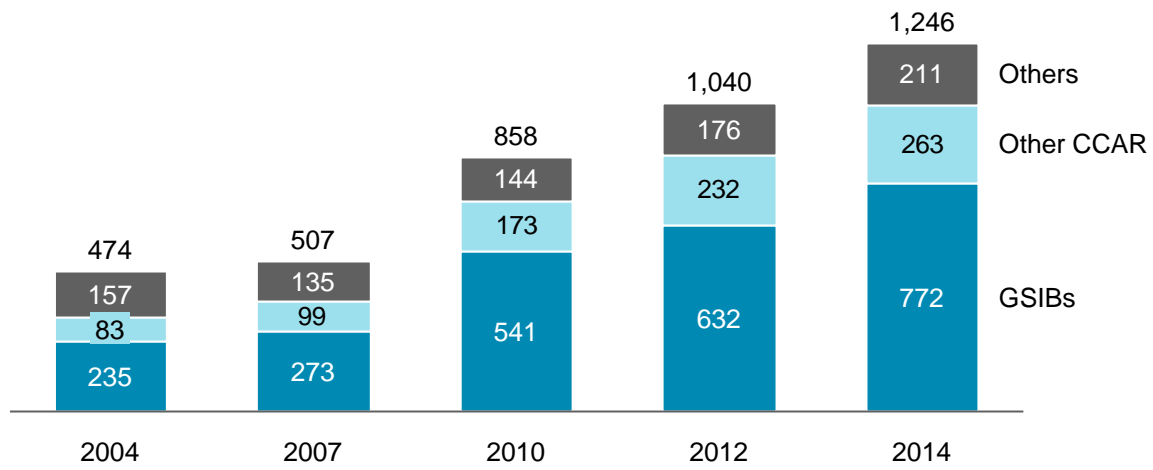


Non-G-SIBs



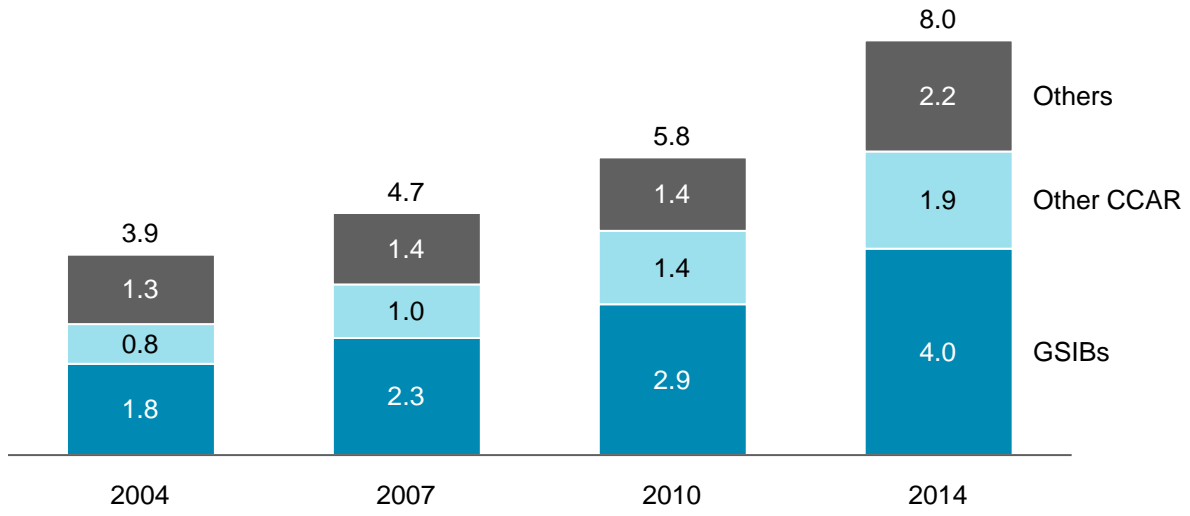
Note: Includes U.S. institutions that were registered as BHCs as of year-end in each period.
 Source: SNL Financial, Oliver Wyman analysis; Oliver Wyman, "Evolution of Financial Stability in the U.S. Banking System: Evidence from 2004-2014 among U.S. Bank Holding Companies," forthcoming.

Figure 3: Common Equity Tier 1 (CET1)
\$BN



Source: SNL Financial, Oliver Wyman analysis; Oliver Wyman, "Evolution of Financial Stability in the U.S. Banking System: Evidence from 2004-2014 among U.S. Bank Holding Companies," forthcoming.

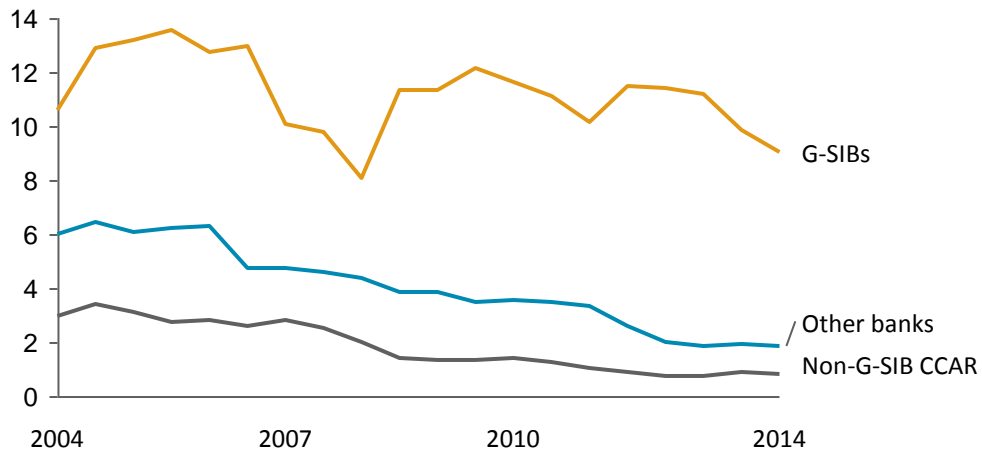
Figure 4: Deposit liabilities
 \$TN



Source: SNL Financial, Oliver Wyman analysis; Oliver Wyman, "Evolution of Financial Stability in the U.S. Banking System: Evidence from 2004-2014 among U.S. Bank Holding Companies," forthcoming.

Figure 5: Repurchase agreements (liabilities)

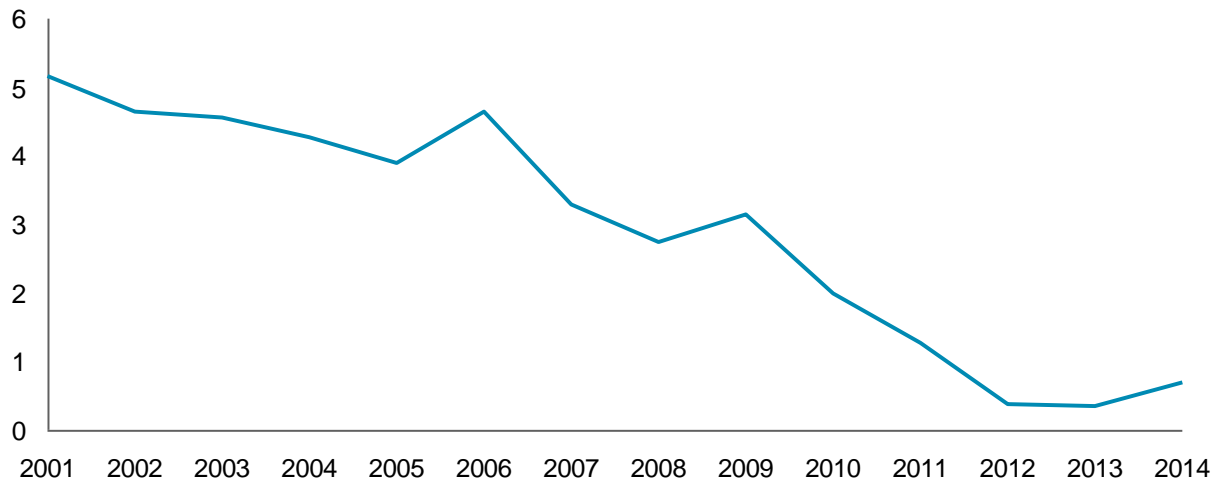
% of tangible assets, 2004–2014



Note: Tangible assets defined as total assets less goodwill.

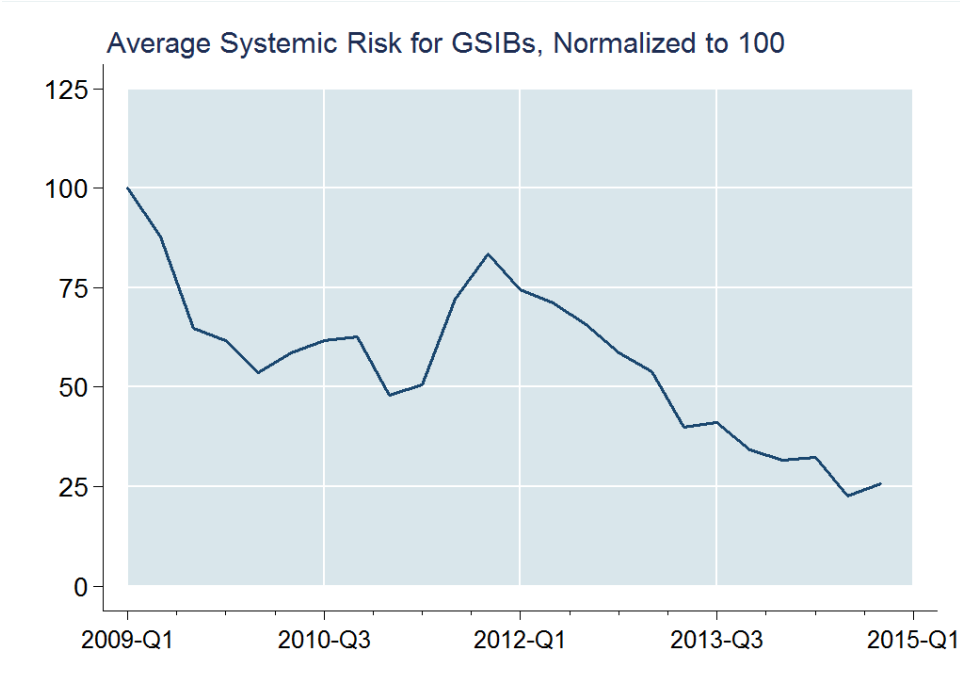
Source: SNL Financial, Oliver Wyman analysis; Oliver Wyman, "Evolution of Financial Stability in the U.S. Banking System: Evidence from 2004-2014 among U.S. Bank Holding Companies," forthcoming.

Figure 6: Financials commercial paper issuance
\$TN, 2000–2014



Source: SNL Financial, Oliver Wyman analysis; Oliver Wyman, “Evolution of Financial Stability in the U.S. Banking System: Evidence from 2004-2014 among U.S. Bank Holding Companies,” forthcoming.

Figure 7: Average systemic risk for G-SIBs



Source: The Volatility Institute, available at <http://vlab.stern.nyu.edu/>, TCH Analytics analysis.