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Working Paper No. 4: Quantifying the Impact of Macroprudential Regulation on the Largest U.S. Banks

Working Paper Series on the Value of Large Banks

November 19, 2014

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I. Introduction

The financial crisis and its aftermath have given rise to a debate about whether large banks are perceived as "too-big-to-fail" ("TBTF") and therefore enjoy a competitive advantage in financial markets in general or compared to smaller banks in particular. Indeed, a number of studies have considered this issue,[1] and The Clearing House has conducted empirical research and issued several papers as part of this Working Paper Series on the Value of Large Banks to inform the broader policy debate and ensure it is appropriately framed and evaluated.

The First Working Paper provided the necessary context for the policy debate by framing the question that policymakers should be considering in the TBTF analysis. The First Working Paper concluded that rather than focusing merely on the size of certain banks, consideration should be given to all relevant factors pertaining to systemic risk such as complexity, interconnectedness, leverage, and risk management, as well as the significant and ongoing role of large banks in the U.S. economy. An analysis of the impact of government policies on large banks must be founded on a meaningful understanding of what large banks do, why some banks are necessarily large, and how they are vital to the overall economic system. In addition, rather than focusing the discussion around the question of whether U.S. government policy effectively "subsidizes" large banks through explicit or implicit forms of government support, the more appropriate question to be asked is: *Do large banks today enjoy unfair economic benefits as a result of express, implied, or perceived government policies?*[2]

Finally, the First Working Paper explained that looking only at the perceived benefits enjoyed by large banks tells only part of the story. Any assessment of large banks' relative advantages must take into account the total net effect of government policies on large banks, including the additional regulatory and other costs directly arising from government policies that may offset any benefits conferred on large banks as a result of certain government policies.

The Second Working Paper, entitled *Access to Deposit Insurance and Lender-of-Last-Resort Liquidity*, examined whether deposit insurance and access to the discount window provide an unfair economic advantage to large banks. It concluded that large banks have not enjoyed—and in the future are not likely to enjoy—any disproportionate economic benefit from these two pillars of our banking system's stability.[3]

The Third Working Paper in this series, entitled *Assessing Funding Costs and the Net Impact of Government Policy on Large Banks*, presented a framework for evaluating existing evidence of bank funding costs and described ongoing regulatory reform efforts specifically targeting large banks. The Third Working Paper also made clear that any assessment of any economic advantage enjoyed by large banks must be evaluated in light of the cost of regulatory compliance borne by those large banks, as government regulation imposes certain restrictions and responsibilities uniquely on large banks to enhance their resiliency and reduce the impact on the financial system if they were to fail based on concerns about their potential to impact U.S. financial stability.

1 *See, e.g.*, Anat R. Admati et al., *Fallacies, Irrelevant Facts, and Myths in the Discussion of Capital Regulation: Why Bank Equity is Not Expensive* (Rock Center for Corporate Governance at Stanford University Working Paper No. 86, 2011), at 22, *available at* https://gsbapps.stanford.edu/researchpapers/library/RP2065R1&86.pdf (finding that larger banks are able to borrow more cheaply since implicit or explicit government guarantees result in lower default risk premiums in their interest rates); *Correcting 'Dodd-Frank' to Actually End 'Too-Big-to-Fail'*, Hearing before H. Comm. on Fin. Serv. (statement of Richard W. Fisher, President and CEO of the Fed. Res. Bank of Dallas) (Jun. 26, 2013) (perceived tax-payer support allows megabanks to raise capital more cheaply), *available at* http://financialservices.house.gov/uploadedfiles/hhrg-113-ba00-wstate-rfisher-20130626.pdf; Andrew G. Haldane, Exec. Dir., Fin. Stability, Bank of England, Speech at the Institute of Economic Affairs, The 2012 Beesley Lectures, *On Being the Right Size*, at 7-8 (Oct. 25, 2012), *available at* http://www.bis.org/review/r121030d.pdf (estimating that the implicit subsidy garnered from their status as Too Big To Fail for the 29 global institutions identified as "systemically important" is roughly $300 billion per year); Simon Johnson, *Big Banks Have a Big Problem*, N.Y. Times (Mar. 14, 2013, 5:00am), http://economix.blogs.nytimes.com/2013/03/14/big-banks-have-a-big-problem (stating that big banks have a funding advantage); Peter Wallison & Cornelius Hurley, *Too Big to Fail Has Become a Permanent Bailout Program*, (Aug. 14, 2012), http://www.forbes.com/sites/realspin/2012/08/14/too-big-to-fail-has-become-a-permanent-bailout-program/ (arguing that large firms, through their designation as systemically important, are on the receiving end of a blatant taxpayer subsidy).

2 *See* The Clearing House, *Working Paper No. 1: Identifying the Right Question*, Working Paper Series on the Value of Large Banks (Nov. 2013), available at https://www.theclearinghouse.org/~/media/Files/Association%20Documents/20131107%20TCH%20Working%20Paper%20Series%20on%20Value%20of%20Large%20Banks.pdf.

3 *See* The Clearing House, *Working Paper No. 2: Access to Deposit Insurance and Lender-of-Last-Resort Liquidity*, Working Paper Series on the Value of Large Banks (Jan. 2014), available at https://www.theclearinghouse.org/~/media/Files/Association%20Documents/TCH%20Working%20Paper%20No%20%202%20Value%20of%20Large%20Banks.pdf.

Such regulations seek to mitigate potential systemic threats posed by large banks by restricting certain behavior (such as by limiting the concentration of counterparty credit exposure), requiring large banks to build financial cushions against the consequences of certain behavior (such as by requiring large banks to maintain sufficient liquid assets to meet expected net cash outflows to lessen potential stress in short-term funding markets during any reasonably foreseeable credit squeeze), and otherwise requiring large banks to internalize the purported social costs of large bank behavior (such as by imposing a capital surcharge).[4]

After the publication of the Third Working Paper, the Government Accountability Office ("GAO") issued a study concluding that any purported TBTF funding advantage for large institutions has largely disappeared and perhaps even reversed.[5] In reaching this conclusion, the GAO study acknowledged that in order to fully assess whether large banks enjoy any purported TBTF advantage, consideration must be given to the costs imposed on large banks of complying with government policies and regulations that impact those institutions.[6]

This fourth working paper builds on and provides supporting evidence for the Third Working Paper's conclusion that the cost of compliance with regulations imposed on large banks must be factored into any assessment of whether large banks enjoy an unfair funding advantage. This working paper estimates the costs to the largest U.S. banks of complying with certain regulations imposed on those institutions and concludes that those regulatory costs are significant. Indeed, The Clearing House's July 2014 study of the cost of complying with six regulations uniquely imposed on U.S.-based global systemically important banks ("GSIBs") with greater than $500 billion in assets (the "TCH July 2014 Study") estimated that they cost GSIBs $27 to $45 billion *per year*.[7]

At the same time as these new, unique costs to GSIBs have been added, the GAO and others have concluded that any TBTF funding advantage that may have existed in the past has disappeared.[8] Thus, U.S. government policy for GSIBs collectively imposes a significant net cost on large banks in light of the absence of any TBTF funding advantage. These costs must be weighed in any future consideration of the possible emergence of a competitive advantage for the largest banks and considered in connection with any future government efforts to address possible TBTF effects or perceptions. ■

4 *See* Enhanced Prudential Standards and Early Remediation Requirements for Covered Companies, 77 Fed. Reg. 594 (Jan. 5, 2012) (single counterparty exposure limits); Liquidity Coverage Ratio: Liquidity Risk Measurement, Standards, and Monitoring, 78 Fed. Reg. 71,818 (Nov. 29, 2013); Regulatory Capital Rules: Regulatory Capital, Enhanced Supplementary Leverage Ratio Standards for Certain Bank Holding Companies and Their Subsidiary Insured Depository Institutions, 79 Fed. Reg. 24,528 (May 1, 2014).

5 Government Accountability Office, *Large Bank Holding Companies: Expectations of Government Support*, GAO-14-621 (July 2014). In addition, the GAO released an interim report in November 2013 studying access to federal liquidity, deposit insurance, and emergency facilities established during the crisis. *See* Government Accountability Office, *Government Support for Bank Holding Companies: Statutory Changes to Limit Future Support Are Not Yet Fully Implemented,* GAO-14-18 (Nov. 2014).

6 *Id*. at 33 n.64.

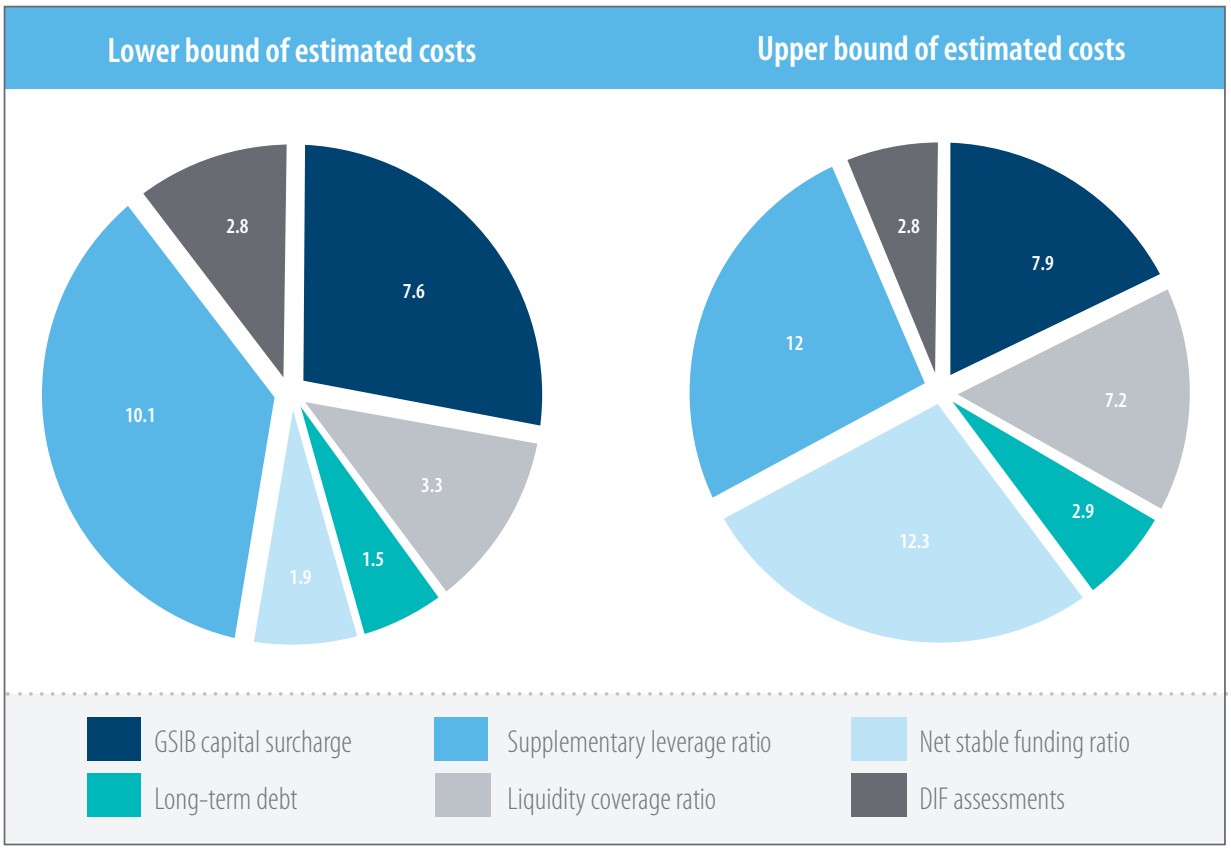
7 *See* The Clearing House, *Estimating the Regulatory Costs for U.S. GSIBs* (Jul. 31, 2014), attached as Appendix A and available at https://www.theclearinghouse.org/~/media/Files/Research/20140731%20-%20TCH%20offsets%20study%20revised.pdf.

8 TCH has prepared a literature review of bank funding cost research up to and including the GAO study, which is attached as Appendix B.

II. Executive Summary

- An accurate analysis of the key question - *Do large banks today enjoy unfair economic benefits as a result of express, implied, or perceived government policies?* – must take into account both the relative funding costs of large institutions and the offsetting costs of regulatory compliance burdens imposed uniquely on large institutions.
- While the GAO and others have found that any unfair funding advantages for large institutions resulting from market perceptions of government support have largely disappeared, the regulatory burdens unique to those institutions have increased.
- These regulatory obligations impose significant costs on the largest banks. Indeed, an analysis by The Clearing House estimates that the cost of complying with certain regulations uniquely imposed on GSIBs would be between $27 and $45 billion per year.[9]
- These significant costs must be weighed in any future consideration of both (i) the existence of a competitive advantage for the largest banks that might arise in the future and (ii) further government efforts to address possible TBTF effects or perceptions. ■

TCH July 2014 Study: Estimated range of compliance costs by regulation (billions of USD)



9 *See supra* The Clearing House, *Estimating the Regulatory Costs for U.S. GSIBs*.

III. Policymakers Should Continue to Consider the *Net* Impact of Government Policy, as Many Regulatory Requirements Uniquely Impact Compliance Costs for the Largest Banks

Policymakers, regulators, academics, and others have acknowledged that certain financial regulations, particularly those aimed at the largest banks, can impose substantial costs on institutions, which may "offset" any competitive advantage that may arise as a result of perceived government support of large financial institutions.[10] Indeed, certain regulators have made clear that, even if the largest banks were to enjoy a competitive advantage because of market perceptions of possible government support, this advantage might be offset by imposing regulatory costs selectively on these institutions. As explained by Federal Reserve Board Chair Janet Yellen:

> **"[T]he efforts of the Federal Reserve and the global regulatory community have focused principally on (1) producing stronger regulations to reduce the probability of default of SIFIs to levels that are meaningfully below those for less systemically important financial firms, and (2) creating a resolution regime to reduce the losses to the broader financial system and economy upon the failure of a SIFI. The goal has been to compel SIFIs to internalize the costs their failure would impose on society and to offset any implicit subsidy that such firms may enjoy due to market perceptions that they are too-big-to-fail."**[11]

Similarly, Federal Reserve Board Governor Daniel K. Tarullo also has recognized that certain regulations imposed solely on the largest banks may offset any potential unfair funding difference, explaining that "additional capital requirements can also help offset any funding advantage derived from the perceived status of [the largest banks] as too-big-to-fail."[12]

When adopting new requirements applicable only to the largest banks, U.S. regulatory agencies have highlighted the effect of regulation in offsetting possible disparities in funding costs. For example, in the final rule imposing an enhanced supplementary leverage ratio requirement on GSIBs, the Office of the Comptroller of the Currency, the Federal Reserve Board, and the Federal Deposit Insurance Corporation ("FDIC") noted that "[b]y enhancing the capital strength of covered organizations, the enhanced supplementary leverage ratio standards could counterbalance possible funding cost advantages that these organizations may enjoy as a result of being perceived as "too big to fail."[13]

Consistent with this framework, in evaluating any further government action to address possible TBTF effects or perceptions, policymakers should evaluate both (i) the extent to which large banks may enjoy any unfair funding cost advantage and (ii) the extent of any economic costs imposed particularly on large banks by certain government policies. In doing so, it appears clear, in view of the finding in the GAO study and other research that the difference in funding costs has significantly declined or reversed—that the net impact of overall government policy with respect to large banks has been to impose greater costs on large institutions. ■

10 *See, e.g.,* Staff, International Monetary Fund, *A Fair and Substantial Contribution by the Financial Sector: Final Report for the G-20,* at 26-27 (Jun. 2010) ("Regulatory and tax policies towards the financial sector have been formed largely independently of each other. A more holistic approach is needed to ensure that they are properly aligned in both the incentives and the overall burden they imply for the sector."); Standard & Poor's, *Two Years On, Reassessing the Cost of Dodd-Frank for the Largest U.S. Banks* (Aug. 9, 2012) (estimating that "the DFA could reduce pretax earnings for the eight large, complex banks by a total of $22 billion to $34 billion annually"); Kenneth Jones & Barry Kolatch, *The Federal Safety Net, Banking Subsidies, and Implications for Financial Modernization,* FDIC Banking Review, Vol. 12 No. 1 (May 1999) (examining whether deposit insurance and discount window access confer a competitive advantage, concluding that the "relevant question is not whether a gross subsidy exists, but whether a net marginal subsidy remains after full account is taken of all offsetting costs of government regulation, costs both explicit and implicit").

11 Janet Yellen, Vice Chair, Board of Governors of the Federal Reserve System, Remarks at the International Monetary Conference, Shanghai, China (June 3, 2013).

12 *See* Daniel K. Tarullo, Board of Governors of the Federal Reserve System, Remarks at the Yale Law School Conference on Challenges in Global Financial Services (Sept. 20, 2013).

13 79 Fed. Reg. 24,523 (May 1, 2014).

IV. Requirements Mandated by or Derived from Domestic and International Financial Reform Efforts Impose Substantial New Costs Uniquely on Large Banks

As set forth in the Third Working Paper, both domestic and international financial institution reform efforts have imposed a number of requirements on large banks due to their size and importance to the financial system. These requirements include higher risk-based and leverage capital requirements, increased liquidity, heightened supervisory expectations and compliance obligations, and disproportionate pricing of Federal deposit insurance, and there are substantial costs associated with complying with these requirements, including opportunity costs. For example, Standard & Poor's has recently estimated that the Dodd-Frank Act could reduce pretax earnings for eight large, complex U.S. banks by between $22 billion and $34 billion annually.[14] Thus, it is clear that the largest banks may face competitive disadvantages in the capital markets as they continue to be specifically targeted for more stringent regulation and oversight.[15]

This paper will not attempt to provide an estimation of the total regulatory costs imposed by the myriad government policies directed at the largest banks. Rather, this paper provides an estimate of the costs of complying with the following six new requirements for GSIBs with more than $500 billion in total assets: the GSIB surcharge, the enhanced supplementary leverage ratio, a total loss absorbing capacity requirement, the liquidity coverage ratio, the net stable funding ratio, and deposit insurance fund assessments. As explained in greater detail below, the expected costs for these institutions to comply with these regulations are substantial.

14 *See supra* Standard & Poor's, *Two Years On, Reassessing The Cost of Dodd-Frank for the Largest U.S. Banks* (estimating that new regulations required by the Dodd-Frank Act would reduce earnings for Bank of America, Citigroup, Goldman Sachs, JPMorgan Chase, Morgan Stanley, PNC Financial Services, U.S. Bancorp, and Wells Fargo.

15 *See* McKinsey & Company, *The Triple Transformation: Achieving a Sustainable Business Model*, 24 (Oct. 2012) (noting that "institutions will face the challenge of demonstrating superior profitability to compensate for forthcoming G-SIFI surcharges and additional regulatory burdens").

A. The estimated costs of complying with certain new requirements for the U.S. GSIBs with more than $500 billion in assets is between $27 billion and $45 billion per year

As described below, the Dodd-Frank Act and other related regulatory measures intended to improve the resiliency of the financial system require banks, and large banks in particular, to take a variety of measures to strengthen their safety and soundness and minimize their impact on the financial system if they were to experience distress. In a recent study, TCH assessed the cost of compliance for U.S.-based GSIBs with more than $500 billion in assets for the six new requirements described above.[16] The TCH July 2014 Study estimated the total *annual cost* to those institutions of complying with just those six requirements to be between $27 billion and $45 billion.[17]

TCH July 2014 Study

New Requirement	Annual Cost
Compliance with the additional capital requirements of the GSIB surcharge	$7.6-7.9 billion
Compliance with the enhanced supplementary leverage ratio	$10.1-12.0 billion
Increasing total loss absorbing capacity to facilitate an orderly resolution	$1.5-2.9 billion
Increasing holdings of high quality liquid assets pursuant to the liquidity coverage ratio	$3.3-7.2 billion
Increasing available stable funding pursuant to the net stable funding ratio	$1.9-12.3 billion
Increased deposit fund assessment as a result of changes to the assessment calculation	$2.8 billion

As illustrated above, each of the individual new rules has significant costs that must be taken into account when considering the net impact of government policies. Each of these new rules is described below, as well as the methodology that was used to determine the estimated compliance costs for the six U.S. GSIBs with greater than $500 billion in total assets.

16 *See supra* The Clearing House, *Estimating the Regulatory Costs for U.S. GSIBs* at 1.

17 *See id*. at 2.

1. GSIB SURCHARGE

U.S. regulators are expected to propose a risk-based capital surcharge for the largest U.S. banks in the near future.[18] This surcharge ("GSIB surcharge") is expected to be modeled on the Basel III GSIB Surcharge and to require affected institutions to hold additional common equity capital between 1% and 2.5% (and possibly as high as 3.5%) of risk-weighted assets as an additional loss-absorbency requirement,[19] in addition to the 7% common equity requirement in the final Basel III rules.[20] The GSIB surcharge is intended to increase the resiliency of GSIBs and to reduce the impact of their failure on other institutions and the broader financial system. Moreover, one of the stated purposes of the surcharge is to "level the playing field" by offsetting any possible competitive advantage that GSIBs might experience due to TBTF perceptions.[21] GSIBs would be required to maintain minimum capital levels that are 14% to 36% higher than the minimum requirements for all other banks.[22]

The TCH July 2014 Study estimated that the six U.S. GSIBs with more than $500 billion in assets would be required to raise additional Tier 1 common equity of $114 billion under the Basel III GSIB Surcharge if it were adopted in the United States.[23] The TCH July 2014 Study also calculated the cost to those six banks of holding this additional Tier 1 common equity by multiplying the additional common equity required under the rule by the additional cost of funding through equity rather than debt and adjusting for the reduced funding costs for these banks as a result of holding more Tier 1 common equity and less debt.[24] Based on this calculation, The TCH July 2014 Study estimated that the total cost associated with the GSIB surcharge for the six U.S. GSIBs with more than $500 billion in assets would be between $7.6 and $7.9 billion.[25]

TCH July 2014 Study: GSIB capital surcharge

Description of regulation	Estimation methodology	Lower bound	Upper bound
GSIBs must hold an additional 100-250 bps of CET1 as a percentage of RWA above Basel III minimum ratios.	Additional common equity x Equity premium over cost of debt funding - Reduction in cost of equity due to deleveraging	[$114B x (11.1% - 3.0%) = $9.2B] - [$763B x 0.21% = $1.6B] = $7.6B	[$114B x (11.1% - 3.0%) = $9.2B] - [$763B x 0.17% = $1.3B] = $7.9B

Note: Additional capital required above minimum requirements to meet GSIB surcharge is based on 1Q 2014 Basel III RWAs.

18 *See* Janet Yellen, Chair, Board of Governors of the Federal Reserve System, Testimony before the House Committee on Financial Services (Feb. 11, 2014) (projecting a proposed risk-based capital surcharge in "the near term").

19 *See* Basel Committee on Banking Supervision, *Global Systemically Important Banks: Updated Assessment Methodology and the Higher Loss Absorbency Requirement* (July 2013).

20 *See, e.g.*, 12 C.F.R. 217.10(a)(1) (setting forth a minimum common equity ratio of 4.5% applicable to all bank holding companies and Federal Reserve System state member banks) and 12 C.F.R. 217.11(a)(4)(ii) (requiring all bank holding companies and Federal Reserve System state member banks to maintain a capital conservation buffer consisting of common equity equal to 2.5% or more of risk-weighted assets in order to avoid limits on capital distributions and discretionary bonus payments).

21 *See supra* Basel Committee at 4.

22 Once implemented in the U.S., the GSIB surcharge is likely to result in the U.S. banking system holding four times the amount of Tier 1 capital that it was required to hold before the financial crisis. The Clearing House, *How Much Capital is Enough*, at 6 (Sept. 16, 2011), *available at* https://www.theclearinghouse.org/~/media/Files/Association%20Documents/20110926%20TCH%20Study%20Capital%20Levels%20and%20G-SIB%20Surcharges.pdf.

23 *See supra* The Clearing House, ***Estimating the Regulatory Costs for U.S. GSIBs*** at 3.

24 *See id*.

25 *See id*.

2. ENHANCED SUPPLEMENTARY LEVERAGE RATIO

In April 2014, U.S. regulators adopted a final rule imposing an enhanced supplementary leverage ratio requirement on U.S. GSIBs above the leverage capital requirements already imposed generally under Basel III.[26] Further, the new rule established a revised definition of total leverage exposure—the denominator of the leverage ratio—which incorporates certain off-balance sheet exposures not included in the general U.S. Basel III leverage capital requirement and causes the surcharge to be even larger than when calculated under Basel III.

Like the GSIB surcharge, the enhanced supplementary leverage ratio was designed, in part, as an offset to "counterbalance possible funding cost advantages that [GSIBs] may enjoy as a result of being perceived as "too big to fail."[27] This leverage rule will impose significant costs on large banks in the event that leverage is the binding capital constraint. Further, this rule could have negative market effects by driving banks to exit certain low-risk, low-margin markets, such as the markets for credit and liquidity facilities and trade finance, which would have adverse consequences for those banks, their customers, and U.S. financial stability.[28] The TCH July 2014 Study estimated that the six U.S. GSIBs with greater than $500 billion in assets must raise an additional $176 billion under the U.S. enhanced supplementary leverage ratio.[29] This estimate was reached by multiplying the additional common equity that would be required to meet the enhanced supplementary leverage ratio by the increased cost to the banks of funding themselves with equity as opposed to debt, and adjusting for the lower funding costs associated with deleveraging.[30] TCH July 2014 Study estimated that the cost of raising the $176 billion more in equity funding required by the enhanced supplemental leverage ratio for the six banks evaluated would be between $10.1 and $12.0 billion.[31]

TCH July 2014 Study: Enhanced supplementary leverage ratio

Description of regulation	Estimation methodology	Lower bound	Upper bound
US-based GSIBs must hold a supplementary leverage ratio of 200-300 bps above the minimum Basel III leverage ratio.	Additional common equity x Equity premium over cost of debt funding - Reduction in cost of equity due to deleveraging	[$176B x (10.89% - 3.0%) = $13.9B] - [$938B x 0.40% = $3.8B] = $10.1B	[$176B x (10.93% - 3.0%) = $14.0B] - [$938B x 0.21% = $2.0B] = $12.0B

Note: Additional equity required to meet SLR, estimated 09/2013 TCH study.

26 79 Fed. Reg. 24,523 (May 1, 2014).

27 *Id.*

28 *See* The Clearing House, comment letter regaarding Regulatory Capital Rules: Regulatory Capital, Enhanced Supplementary Leverage Ratio Standards for Certain Bank Holding Companies and Their Subsidiary Insured Depository Institutions (Oct. 21, 2013), *available at* https://www.theclearinghouse.org/~/media/Files/Association%20Documents/20131021%20TCH%20Comments%20on%20U%20S%20Leverage%20Ratio%20Proposal.pdf.

29 *See supra* The Clearing House, *Estimating the Regulatory Costs for U.S. GSIBs* at 3.

30 *See id.*

31 *See id.*

3. TOTAL LOSS ABSORBING CAPACITY

Another requirement that likely would increase regulatory costs for the largest banks is a possible future rule on total loss absorbing capacity ("TLAC", sometimes called a "long-term debt" requirement) that likely would require the largest financial institutions to maintain a sufficient "cushion" of loss-absorbing capital and debt to facilitate a single-point-of-entry ("SPOE") resolution. International regulators announced an agreement regarding minimum 'total loss absorbing capacity' at the November 2014 G-20 Summit. The proposal requires the largest banks to have minimum amounts of TLAC that would be available to absorb losses in the event of their insolvency and fund their resolution using the SPOE approach.[32] In such an event, the unsecured debt would be used to recapitalize a newly-formed holding company created under the Orderly Liquidation Authority in Title II of the Dodd-Frank Act.

In addition to facilitating an orderly resolution without taxpayer assistance under the SPOE approach, regulators have stated that the long-term debt requirement could have the additional effect of counteracting any funding advantage of the largest banks and could be calibrated to eliminate any "non-market advantages."[33]

The TCH July 2014 Study, which was issued prior to the recent FSB proposal and therefore based on earlier assumptions, concluded that the increased cost to the U.S. GSIBs with more than $500 billion in assets associated with a long-term debt requirement could be between $1.5 billion and $2.9 billion, based on the assumptions in the study.[34] Based on the most recent global and U.S. regulatory pronouncements, it appears that the TLAC requirements actually enacted may be more stringent than the upper range assumed for purposes of the TCH July 2014 Study, such that actual costs are likely to be higher than estimated in the July 2014 study. TCH is currently conducting more detailed, updated research in this area to estimate theimpact of more recent proposals.

TCH July 2014 Study: Possible future rule on total loss absorbing capacity

Description of regulation	Estimation methodology	Lower bound	Upper bound
GSIBs required to hold additional loss absorbency at the BHC level.	Additional loss absorbency required (in $ billions) x Additional funding cost per dollar of loss absorbency	$104B x (1.85% - 0.38%) = $1.5B	$195B x (1.85% - 0.38%) = $2.9B

32 *See* Financial Stability Board, *Adequacy of Loss-Absorbing Capacity of Global Systemically Important Banks in Resolution* (Nov. 10, 2014).

33 *See* Jeremiah Norton, Board of Directors of the FDIC, Remarks at the American Bankers Association Annual Convention, New Orleans, LA (Oct. 21, 2013).

34 *See supra* The Clearing House, *Estimating the Regulatory Costs for U.S. GSIBs* at 4.

4. LIQUIDITY COVERAGE RATIO

U.S. banking regulators have also finalized a rule requiring that all internationally active U.S. banks—generally, banks with more than $250 billion of consolidated assets or more than $10 billion of on-balance sheet foreign exposure—maintain a minimum liquidity coverage ratio that is consistent with Basel III and enhanced prudential measures mandated under the Dodd-Frank Act.[35] Each bank subject to the rule is required to hold high quality liquid assets in an amount greater than its estimated 30-day net outflows under a stress scenario. Banks with $50 billion or more of total consolidated assets, but less than $250 billion, would be required to hold high quality liquid assets sufficient to cover a 21-day stress scenario.

The TCH July 2014 Study estimated that U.S. banks would have to increase their holdings of high quality liquid assets by between $660 billion and $1.440 trillion by January 1, 2017, depending on what measures banks may take to reduce their estimated short-term net outflows (such as shrinking wholesale deposits or committed credit facilities), and that the U.S. GSIBs with more than $500 billion in assets would be responsible for raising approximately 44% of this amount.[36] The cost associated with holding high quality liquid assets for the six U.S. GSIBs with more than $500 billion in total assets was calculated by multiplying the total amount of high quality liquid assets those banks would have to hold by the cost of holding those assets, which is the sum of the opportunity cost of holding liquid assets and the negative yield resulting from holding those assets, or, 113 basis points.[37] Using this calculation, the compliance costs associated with the liquidity coverage ratio were estimated to be between $3.3 billion and $7.2 billion.[38]

TCH July 2014 Study: Liquidity coverage ratio

Description of regulation	Estimation methodology	Lower bound	Upper bound
All US advanced-approach banking organizations must hold an LCR equal to 100% of 30-day net cash outflows in high quality liquid assets (HQLA).	Additional HQLA x GSIB share of added HQLA x Negative carry on HQLA plus opportunity cost of HQLA	$660B x 44% x (48 bps + 65 bps) = $3.3B	$1,440B x 44% x (48 bps + 65 bps) = $7.2B

Note: Liquidity shortfall as of 4Q 2010, taken from 12/2012 TCH study. 44% represent the GSIB share of U.S. deposits. 48 bps represents average negative carry on HQLA. 65 bps represents opportunity cost of holding liquid assets, estimates as option-adjusted spread of AA corporate bonds over Treasuries, as of July 2014.

35 "Liquidity Coverage Ratio: Liquidity Risk Management, Standards, and Monitoring," 78 Fed. Reg. 71818 (Nov. 29, 2013).

36 *See supra* The Clearing House, *Estimating the Regulatory Costs for U.S. GSIBs* at 3.

37 *See id.*

38 *See id.*

5. NET STABLE FUNDING RATIO

A related reform by the Basel Committee on Banking Supervision—to be implemented in the U.S. as part of the Dodd-Frank Act—would require banks to maintain a stable funding profile in relation to the composition of their assets and off-balance sheet activities.[39] The net stable funding ratio is intended to promote the resiliency of banks over a one-year time horizon by requiring banks that hold less liquid assets to fund their activities with more stable funding sources, thereby reducing funding mismatches. A bank's liabilities would be assigned an available stable funding factor between 0% and 100%, with regulatory capital, other capital instruments with a maturity of more than one year, and retail deposits and deposits by small and medium-sized enterprises receiving the highest stability weights.

The TCH July 2014 Study estimated that the U.S. banking industry would need to increase its available stable funding by between $290 billion and $1.6 trillion, depending on how certain additional deposit categories and other liabilities are weighted, with U.S. GSIBs with more than $500 billion in assets being required to raise 57% of this amount.[40] The amount of new required stable funding would be partially offset by the additional equity the banks would be required to hold pursuant to the GSIB surcharge and the enhanced supplemental leverage ratio. Therefore, the cost associated with funding through more stable debt was calculated by multiplying the difference between the amount of stable funding required to be raised and the value of the offset as a result of holding additional required equity by the difference between the cost of long-term funding and short-term funding, or, 147 basis points.[41] This calculation resulted in an estimated final cost to the banks to comply with the net stable funding ratio of between $1.9 billion and $12.3 billion.[42]

TCH July 2014 Study: Net stable funding ratio

Description of regulation	Estimation methodology	Lower bound	Upper bound
Each bank required to maintain available stable funding (ASF) that exceeds its required stable funding (RSF).	Shortfall in available stable funding x GSIB share of the shortfall - Capital raised from other rules replacing 10yr wholesale debt x (Cost of long-term funding – cost of short-term funding)	($290B x 54% - $28.9B) x 147 bps = $1.9B	($1,600B x 54% - $28.9B) x 147 bps = $12.3B

39 *See* Basel Committee on Banking Supervision, *Basel III: The Net Stable Funding Ratio* (Oct. 2014).

40 *See supra* The Clearing House, *Estimating the Regulatory Costs for U.S. GSIBs* at 4. The calculations in the TCH July 2014 Study relied on a 2013 study by The Clearing House analyzing an earlier version of the Basel Committee's net stable funding ratio, and do not account for any changes in the Basel Committee's net stable funding ratio framework announced in October 2014. *See* The Clearing House, *Assessing the Basel III Net Stable Funding Ratio in the Context of Recent Improvements in Longer-Term Bank Liquidity* (Aug. 2013), *available at* https://www.theclearinghouse.org/publications/2013/basel-nsfr-study; Basel Committee on Banking Supervision, *Basel III: The Liquidity Coverage Ratio and Liquidity-Risk Monitoring Tools* (Jan. 2013).

41 *See id.*

42 *See id.*

6. DEPOSIT INSURANCE FUND ASSESSMENTS

Changes in how the Deposit Insurance Fund ("DIF") is funded has imposed significant additional costs on the largest financial institutions. As explained in *Working Paper #2: Access to Deposit Insurance and Lender-of-Last-Resort Liquidity*,[43] the Dodd-Frank Act directed the FDIC to change its method for determining assessments for deposit insurance coverage from a system based on the domestic deposits of an insured depository institution ("IDI") to a system based on an IDI's total consolidated assets.[44] This change has shifted much of the cost of deposit insurance from small and mid-sized banks, which rely most heavily on deposits for funding, to large banks that typically have more diverse sources of funding.

In effect, banks are being assessed for deposit insurance on their insured deposits and on their non-deposit liabilities, which remain uninsured. This new assessment system dramatically departs from Section 7(b)(1) of the Federal Deposit Insurance Act, which requires that the assessment system be risk-based and that the risk have two essential components: (i) the potential of failure of a bank as reflected in the probability of loss due to the composition and concentration of the institution's assets and liabilities, and (ii) the likely amount of any loss on failure.[45] Instead of accurately reflecting risk to the DIF, the new assessment system appears intended to shift a substantial part of the FDIC assessment burden to large banks that rely less on deposits as a source of funding.[46]

The TCH July 2014 Study estimated that an additional $3 billion in FDIC assessments will be required as a result of these changes.[47] Of this additional amount, 93% will be required from the U.S. GSIBs with more than $500 billion in assets, which is equivalent to approximately $2.8 billion.[48] ■

TCH July 2014 Study: Deposit Insurance Fund Assessment Changes

Description of regulation	Estimation methodology	Lower bound	Upper bound
FDIC revised assessment formula. Introduction of scorecards (CAMEL ratings and the ratio of higher risk assets to Tier 1 capital).	Increase in FDIC assessment of member banks x GSIB share of member banks	$3B x 93% = $2.8B	$3B x 93% = $2.8B

43 *See supra Working Paper #2: Access to Deposit Insurance and Lender-of-Last-Resort Liquidity* at 9-10.

44 *See* Dodd-Frank Act § 331 ("assessment base" is equal to "the average consolidated total assets of the insured depository institution during the assessment period; minus . . . the sum of . . . the average tangible equity of the insured depository institution during the assessment period").

45 *See* 75 Fed. Reg. 72582, 72612 (Nov. 24, 2010).

46 *See* The Clearing House, Comments Re: RIN 3064-AD66: Notices of Proposed Rulemaking — Deposit Insurance Assessment Base and Rates and Large Bank Pricing, 8 (Jan. 3, 2011).

47 *See supra* The Clearing House, *Estimating the Regulatory Costs for U.S. GSIBs* at 4.

48 *See id.*

V. Conclusion

While there is consensus that the largest banks no longer enjoy a funding advantage as a result of the perception of government support, the regulatory burdens imposed on the largest banks, some of which were designed, in part, to offset any possible TBTF competitive advantage, remain in effect and continue to impose significant costs on those institutions. The TCH July 2014 Study estimated that the regulatory burdens uniquely imposed on U.S.-based GSIBs with greater than $500 billion in assets would impose aggregate costs on those firms between $27 and $45 billion *per year*.[49] Policymakers must consider these significant offsetting regulatory costs that have been imposed on large institutions in evaluating any future regulations that may be considered to address TBTF perceptions, particularly in the absence of any evidence of a current funding advantage for the largest banks. These offsetting costs also should be weighed in any future consideration of the existence of any potential funding preference or other economic advantage enjoyed by the largest banks. ■

49 *See id.* at 1.

Appendix A: Estimating the Regulatory Costs for U.S. GSIBs (July 31, 2014)

Estimating the Regulatory Costs for U.S. GSIBs

July 31, 2014

Executive Summary

Context

- "Our goal has been to establish regulations … that aim to offset any remaining too-big-to-fail subsidies these [GSIBs] firms may enjoy." Gov. Tarullo, Feb. 6, 2014.
- This study includes US-based GSIBs with more than $500B in assets (JPMorgan Chase, Bank of America, Citi, Wells Fargo, Goldman Sachs, and Morgan Stanley).
- We analyze the annual cost of compliance with: (1) GSIB capital surcharge, (2) enhanced supplemental leverage ratio, (3) liquidity coverage ratio, (4) net stable funding ratio, (5) possible future rule on long-term debt, and (6) Tester amendment.
- We exclude offsets that are hard to quantify, e.g., CCAR.
  - thus underestimating the overall costs of compliance.

Key Findings

- The total impact of the analyzed policies is between **$27B and $45B** in annual costs.
- We report a range and not a single estimate, reflecting:
  - uncertainty in the final form of regulation and
  - methodological assumptions.

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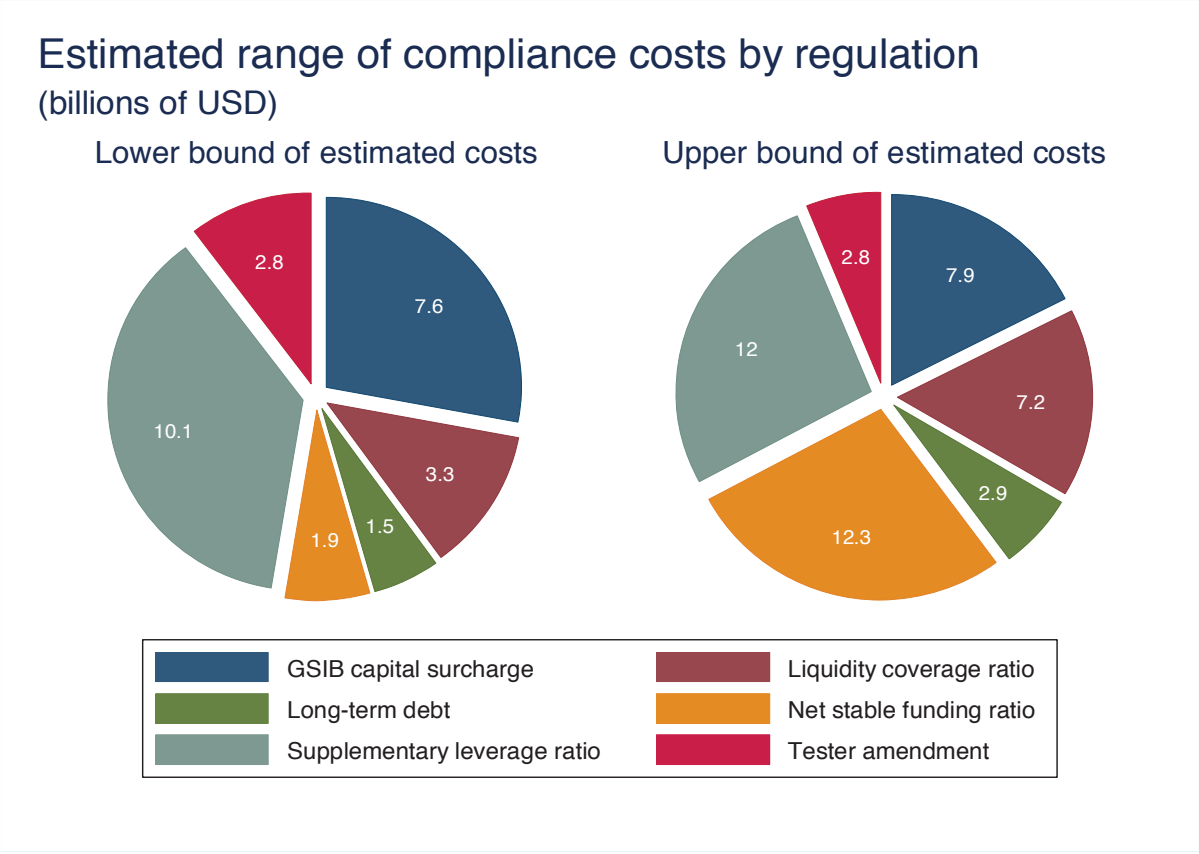
Summary of Results (1/3)



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Summary of Results (2/3)

	Description of regulation	Estimation methodology	Lower bound	Upper bound
1 GSIB capital surcharge	▪ GSIBs must hold an additional 100-250 bps of CET1 as a percentage of RWA above Basel III minimum ratios.	Additional common equity x Equity premium over cost of debt funding - Reduction in cost of equity due to deleveraging	[$114B x (11.1%-3.0%) = $9.2B] - [$763B x 0.21% = $1.6B] = $7.6B	[$114B x (11.1%-3.0%) = $9.2B] - [$763B x 0.17% = $1.3B] = $7.9B
	Note: Additional capital required above minimum requirements to meet G-SIB surcharge is based on 1Q 2014 Basel III RWAs.			
2 Enhanced supplementary leverage ratio	▪ US-based GSIBs must hold a supplementary leverage ratio of 200-300 bps above the minimum Basel III leverage ratio.	Additional common equity x Equity premium over cost of debt funding - Reduction in cost of equity due to deleveraging	[$176B x (10.89%- 3.0%) = $13.9B] - [$938B x 0.40% = $3.8B] = $10.1B	[$176B x (10.93%-3.0%) = $14.0B] - [$938B x 0.21% = $2.0B] = $12.0B
	Note: Additional equity required to meet SLR, estimated 09/2013 TCH study.			
3 Liquidity coverage ratio	▪ All US advanced-approach banking organizations must hold an LCR equal to 100% of 30-day net cash outflows in high quality liquid assets (HQLA).	Additional HQLA x GSIB share of added HQLA x Negative carry on HQLA plus opportunity cost of HQLA	$660B x 44% x (48 bps + 65 bps) = $3.3B	$1,440B x 44% x (48 bps + 65 bps) = $7.2B
	Note: Liquidity shortfall as of 4Q 2010, taken from 12/2012 TCH study. 44% represent the GSIB share of U.S. deposits. 48 bps represents average negative carry on HQLA. 65 bps represents opportunity cost of holding liquid assets, estimates as option-adjusted spread of AA corporate bonds over Treasuries, as of July 2014.			

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Summary of Results (3/3)

	Description of regulation	Estimation methodology	Lower bound	Upper bound
4 Net stable funding ratio	▪ Each bank required to maintain available stable funding (ASF) that exceeds its required stable funding (RSF). *Note: ASF shortfall as of 4Q 2010 from 08/2013 TCH NSFR study.*	Shortfall in available stable funding x GSIB share of the shortfall - Capital raised from other rules replacing 10yr wholesale debt x (Cost of long-term funding – cost of short-term funding)	($290B x 54% - $28.9B) x 147 bps = $1.9B	($1,600B x 54% - $28.9B) x 147 bps = $12.3B
5 Possible future rule on long-term debt	▪ GSIBs required to hold additional loss absorbency at the BHC level.	Additional loss absorbency required (in $ billions) x Additional funding cost per dollar of loss absorbency	$104B x (1.85% - 0.38%) = $1.5B	$195B x (1.85% - 0.38%) = $2.9B
6 Tester amendment to Dodd Frank	▪ FDIC revised assessment formula. Introduction of scorecards (CAMEL ratings and the ratio of higher risk assets to Tier 1 capital).	Increase in FDIC assessment of member banks x GSIB share of member banks	$3B x 93% = $2.8B	$3B x 93% = $2.8B

Source: Federal Register/ Vol. 77, No. 211, October 2012.

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Appendix B: Developments in Bank Funding Cost Research

Approaches to Measuring Funding Cost Differential and Challenges Presented

Focus	Notable papers *(funding cost differential, bps)*	Sample	Summary of key approaches	Challenges
Deposit rates	Kumar, Lester (2014) (4 bps, over 2010-2012)	• Money market deposit accounts (MMDAs), 2006-2012	• "Bottom up" approach that compares reported interest rates on uninsured deposit accounts, also controlling for macroeconomic, issuer, and issue specific factors as well as value of associated deposit services, notably FDICIA limit • Conduct "natural experiments" that arise from changes in deposit insurance coverage	• Available data on deposit pricing at the institution and product levels are advertised rates, as opposed to actual rates paid • Advertised rates may not provide an accurate view of funding costs, particularly for large (uninsured) accounts
	Jacewitz, Pogach (2014) (39 bps, over 2007-2008)	• Money market deposit accounts (MMDAs), 2005-2010		
	Araten, Turner (2012) (23 bps for deposits, 9 bps overall, median from 2002-2011)	• U.S. BHC data, controlling for firm-specific credit and macro-economic factors, 2002-2011	• "Top down" approach comparing total deposit interest expense after controlling for macroeconomic and issuer factors	
M&A	Brewer and Jagtiani (2011) ($15-23 B in merger premium, over 1991-2004)	• M&A data for eight banks, 1991-2004	• Identification of the "purchase premium" that institutions are willing to pay in M&A deals to attain a certain size	• Purchase premiums are greatly influenced by individual transaction benefits (e.g. diversification) and market environment, making it difficult to compare across deals at different points in time
Equity pricing	Gandhi and Lustig (2011) ($4.7 B in extra market capitalization annually in 2005 dollars)	• Commercial bank stock returns, 1970-2009	• Comparison of stock returns for large BHCs and other banks (historically and in response to events that affect expectations of government support)	• Equity prices have weaker linkages to default and external support expectations (relative to debt pricing)

Hoenig, Thomas (2014), "TBTF Subsidy for Large Banks– Literature Review," Federal Deposit Insurance Corporation, (July).

Approaches to Measuring Funding Cost Differential and Challenges Presented

Focus	Notable papers *(funding cost differential, bps)*	Sample	Summary of key approaches	Challenges
Bond spreads	GAO (2014) (30/42 models estimated found a large bank funding disadvantage, in 2013)	• Bond yield spreads, 2006-2013	• Comparison of senior, unsecured bond spreads, controlling for credit risk	• Limited sample of comparable bonds (e.g. similar maturity, embedded optionality, etc.) across bank issuers; broadening sample to other types of financial companies introduces significant heterogeneity • Lack of sample points for small institutions that are less active in debt capital markets than larger peers
	Acharya, Anginer, Warburton (2014) (28 bps, annually from 1990-2010)	• Bonds traded for bank and non-bank financials, 1990- 2012	• Comparison of senior, unsecured bond spreads, controlling for macroeconomic, issuer, and issue-specific factors • Analysis of spread changes around specific events that affect expectations of government support	
	Kumar, Lester (2014) (-8 bps, although not significant, in 2013)	• Top-level- BHC senior unsecured bond spreads for institutions with commercial and investment banking activities, 2009-2013	• Comparison of senior, unsecured bond spreads, controlling for macroeconomic, issuer, and issue-specific factors	
	Santos (2014) (41 bps, average from 1985-2009)	• 8,399 bonds issued by banks, nonbank financial inst. and nonfinancial corp., 1985-2009		
	Strongin, Hindlian, Lawson, Murillo, Sadan, Subramanian (2013) (-10 bps, in 2013)	• Bond prices for six largest U.S. banks, 1999-2013		
	Balasubramnia, Cyree (2012) (-33 bps, post Dodd-Frank enactment)	• Senior bonds, 2009-2011		

Government Accountability Office (2014), "Large Bank Holding Companies: Expectations of Government Support" (July).
Hoenig, Thomas (2014), "TBTF Subsidy for Large Banks– Literature Review," Federal Deposit Insurance Corporation, (July).

Approaches to Measuring Funding Cost Differential and Challenges Presented

Focus	Notable papers *(funding cost differential, bps)*	Sample	Summary of key approaches	Challenges
CDS spreads	Schweikhard, Tsesmelidakis (2012) (126 bps, average from 2009-2010)	• 498 U.S. companies, 2001-2010	• Examination of CDS spreads for large BHCs and other issuers , notably stock-market –implied CDS spreads, to determine how default expectations vary	• Limited CDS issuance for small institutions and for all institutions post-crisis • CDS market can be thin and volatile • Assumes equity holders are not bailed out
	IMF, Global Financial Stability Report (2014) (15 bps, in 2013)	• CDS spread data on bank bonds, 2003-2013	• Comparison of observed CDS spread and fair-value CDS Spread for BHCs	
Credit ratings	IMF, Global Financial Stability Report (2014) (15 bps, in 2013)	• Fitch Ratings, 2005-2013	• Assessment of expected level of government support based on "standalone" vs. "with support" ratings • Use of historical relationships between credit ratings and funding costs to estimate value of subsidy	• Assumes that credit ratings agency models accurately capture firm-specific risks and market perceptions of TBTF. • Credit ratings in general and specifically supported ratings do not track credit spreads. • However, rating assessments appear to be revised infrequently and often as a general matter rather than in an institution-specific way (particularly "with support" ratings)
	Ueda, di Mauro (2012) (80 bps, in 2009)	• Fitch ratings for 895 banks, 2007 and 2009		
	Haldane (2010) ($60 B per year, over 2007-2009)	• Credit ratings, 2007-2009		
	Soussa (2000) (23 basis points, in 1999)	• Fitch Ratings for 120 Banks, 1999		

Hoenig, Thomas (2014), "TBTF Subsidy for Large Banks– Literature Review," Federal Deposit Insurance Corporation, (July).

About The Clearing House

Established in 1853, The Clearing House is the oldest banking association and payments company in the United States. It is owned by the world's largest commercial banks, which collectively hold more than half of all U.S. deposits and which employ over one million people in the United States and more than two million people worldwide. The Clearing House Association L.L.C. is a nonpartisan advocacy organization that represents the interests of its owner banks by developing and promoting policies to support a safe, sound and competitive banking system that serves customers and communities. Its affiliate, The Clearing House Payments Company L.L.C., which is regulated as a systemically important financial market utility, owns and operates payments technology infrastructure that provides safe and efficient payment, clearing and settlement services to financial institutions, and leads innovation and thought leadership activities for the next generation of payments. It clears almost $2 trillion each day, representing nearly half of all automated clearing house, funds transfer and check-image payments made in the United States. See The Clearing House's web page at www.theclearinghouse.org.

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