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"Bank Capital and Liquidity Regulation"

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Bank Capital and Liquidity Regulation

Chairman Shelby, Ranking Member Brown, and distinguished members of the committee, thank you for convening today's hearing on bank capital and liquidity regulations, and for inviting me to testify. I am a resident scholar at the American Enterprise Institute, but this testimony represents my personal views. My research is focused on banking, regulation, and financial stability. I have prior experience working on banking and financial policy issues at the Federal Reserve Board, the IMF and the FDIC. I served a three-year term as chairman of the Research Task Force of the Basel Committee on Banking Supervision. It is an honor for me to be able to testify before the committee today.

I will begin with a high-level summary of my testimony:

- Complex banking regulations are only justified when the complexity is necessary to mitigate the problem that requires a regulatory response.
- The Basel-based capital regulations adopted by the U.S. bank regulatory agencies are increasingly complex, and yet there is scant evidence that the complexity is necessary to meet the primary regulatory goals articulated in Congressional legislation.
- Basel-based regulatory capital ratios have been used to implement prompt corrective action legislation, but they have a terrible record of performance.
- Simple transparent measures of bank solvency—the so-called nonperforming asset coverage ratio (or NACR)—identifies weak and failing depository institutions far more efficiently than Basel-based regulatory capital measures.
- Academic studies suggest that deposit insurance fund losses could be reduced substantially by simply replacing Basel regulatory capital ratios with the NACR in the prompt corrective action rules.
- New minimum total loss absorbing capacity (TLAC) rules will make the capital regulations even more complex for large bank holding companies.
- The TLAC regulations will not solve the too-big-to-fail (TBTF) problem if TLAC resources are unavailable because the Secretary of Treasury cannot invoke a Title II resolution.
- TLAC "clean holding company requirements" make it less likely that the Secretary will be able to invoke Title II.
- The proposed use of TLAC resources in the Single Point of Entry resolution strategy extends new government guarantees to more than $4 trillion in liabilities that are issued by the subsidiary banks of TLAC holding companies and are currently uninsured.
- Because TLAC imposes no constraints on the use of TLAC funds, there is no guarantee that TLAC will reduce the TBTF interest rate subsidy.
- All TLAC goals can be achieved by raising the capital requirements on TBTF bank subsidiaries and allowing the TLAC holding companies to fund the new capital with debt.
- Under the LCR and NSFR liquidity regulations, covered companies must simultaneously: (1) hold sufficient high quality liquid assets to fund operations for 30 days by fire-selling the assets; and (2) construct their asset, liability and off-balance sheet exposures so that they can wind down the institution for 12 months without access to any new funding.
- Regulatory agencies have not conducted an adequate cost-benefit analysis to support the need for the NSFR.

1. Introduction

Complex banking regulations often are justified on the grounds that the complexity is necessary to ensure the "safety and soundness of the financial system." Few question this blanket assertion even though the attributes that characterize a "safe and sound" financial system have never been articulated by the Congress or the bank regulatory agencies that formulate bank regulations. The Dodd-Frank Act compounds this problem by introducing new regulations and regulatory responsibilities with the sole objective of preventing another financial crisis regardless of any countervailing considerations of the social costs that will be incurred to prevent a crisis.

In the Dodd-Frank Act, Congress directs regulators to develop and impose whatever regulatory constraints are necessary to ensure that the largest regulated financial institutions are safe from failure, and regulators have been hard at work to complying with these orders. Unfortunately, in issuing Dodd-Frank Act directives, Congress failed to appreciate that the resulting "safe" financial system that will be created by the new Dodd-Frank regulations is unlikely to be a "sound" financial system that efficiently meets the needs of the economy.

When a financial system is regulated to the point of being overly safe, financial institutions are forced to focus on satisfying government regulations instead of meeting the needs of their customers. Such a system will not efficiently meet the financial needs of the real economy. The allocation of credit will be distorted by the need to meet government safety mandates.

Government regulators should not be running privately owned banks. A sound and efficient financial system must be governed by market forces. It must have minimal barriers to entry, allow institutions to innovate to meet the needs of their customers, and it must allow poorly managed institutions to fail.

The current system of regulation looks nothing like an ideal system. It has discouraged new depository institution formation[1] and encouraged internationally active banks to reduce their foreign business exposures.[2] It has focused on generating minimum capital and liquidity regulations that are intended to make it virtually impossible for large institutions to fail. It values

[1] See, for example, http://www.americanbanker.com/news/law-regulation/fdic-to-slash-probation-time-for-new-banks-1080290-1.html

[2] See, for example, http://www.wsj.com/articles/when-bigger-isnt-better-banks-retreat-from-global-ambitions-1464628433

large institution safety over all else, without undertaking a serious effort to gauge the impact of new regulations on economic growth. While it is difficult to prove cause and effect, it unlikely to be pure coincidence that the U.S. economy has posted the weakest recovery on record under this new financial regulatory paradigm where, increasingly, banking regulators are running the banks.

A more balanced approach to financial regulation would focus on a simplified set of rules that allow institutions to enter, innovate, compete and fail. Regulations should not be so complex that that they are unintelligible to lawmakers, bankers and investors, and cannot be satisfied without the assistance of an army of specialized compliance experts. Regulations should be tailored so that banks are allowed to satisfy the needs of their customers while making a profit, without being constrained by unnecessary and socially counterproductive "safety and soundness" regulations.

When regulating insured depository institutions, the regulations that govern institution failures are particularly critical for promoting a safe and well-functioning financial system. If policy makers handle bank failures properly, many of the other management decisions related to bank safety and soundness can be left to bankers. The regulations surrounding bank failure are of primary importance because, unless regulations are properly constructed and enforced, banks can continue to raise funds using insured deposits and use them to "gamble for resurrection." This problem is especially severe when a bank is in an exceptionally weak financial condition.

Insured depositories do not go bankrupt like traditional non-bank corporations because they can always borrow more insured money to pay their bills.[3] Banks can continue to operate when their book equity is zero or even negative. In such instances, banks will be tempted to gamble on high risk investments in the hope of producing large payoffs that would alleviate the banks precarious financial condition. The only way a bank fails is if regulators "pull the plug," that is, revoke the bank's charter and suspend its deposit insurance coverage.

If regulators do not "pull the plug" quickly enough, a failing bank can make investments that generate losses that are passed on to the Deposit Insurance Fund (DIF). When a failed-bank's losses require DIF assistance, the failed bank's equity investors have passed their losses

[3] This is of course over-simplified. Banks also can borrow from the Federal Reserve if they have appropriate collateral and the Fed believes they are solvent. Also many larger banks issue non-deposit claims that might be difficult to roll-over should the bank's solvency condition deteriorate. Weak banks may face regulatory restrictions on the use of brokered deposits and not be able to replace this non-insured funding. In such cases, the bank would be closed by regulators for failing to have adequate liquidity presumably before the largest portion of the non-insured debt matures.

onto other banks that pay into the deposit insurance system. The mutualization of losses is problematic. Bank shareholders retain the profits when the bank invests successfully and so they should bear losses when the bank's investment decisions sour. When losses can be passed on to the DIF, the expected returns bank shareholders earn on bank's investments is distorted in a way that favors making high risk investments. With good luck, the bank's shareholders keep the profits; a bad investment generates a loss for the DIF. It is exactly like betting with other people's money.

In theory, a failing bank should generate a loss for the DIF only in cases when the bank's equity value is negative or nearly negative when the bank is closed.[4] To prevent weak banks from gambling for resurrection and passing their losses to the DIF, Congress passed the Federal Deposit Insurance Improvement Act of 1991 (FDICIA) which instituted Prompt Corrective Action or PCA. PCA requires regulators to close weak insured depository institutions when the institutions still have a positive equity value so bank shareholders still have something to loose and not pass losses on to the DIF.

PCA requires bank examiners to close a bank within 90 days once its tangible equity capital ratio falls to 2 percent, or its Tier 1 leverage ratio or Tier 1 risk-based capital ratios falls below 3 percent. If everything works exactly as planned, the FDIC should have a modest buffer to cover the cost of managing the receivership, and only in exceptional cases should the failure impose losses on the DIF.

For PCA to work properly and shutter weak banks before they have an opportunity to impose losses on the DIF, regulators must (1) have an accurate measure of the resources available to buffer a bank's losses when it shuttered; and (2) act in a timely manner to shutter weak banks.

2. Simple Solvency Measures vs Complex Basel Regulatory Capital Ratios

PCA Capital Ratios and Regulatory Intervention

PCA rules classify banks as well capitalized, adequately capitalized, undercapitalized, significantly undercapitalized and critically undercapitalized according to the magnitude of a bank's regulatory capital ratios. PCA requires supervisors to intervene and impose mandatory

[4] The FDIC charges a failed bank receivership for the costs it incurs in managing the receivership, so even if the true value of bank equity is positive when a bank is closed, the failure might generate some small losses for the deposit insurance fund.

changes on bank management practices and require capital restoration plans for banks that are rated undercapitalized and significantly undercapitalized. Should a bank be classified as critically undercapitalized, its primarily Federal regulator must close the bank and appoint the FDIC as receiver, or, with the consent of the FDIC, take an alternative action if the latter action is consistent with PCA goals.

The PCA intervention and closure rules are based on regulatory measures of bank capital which have evolved over the last quarter century as the Basel Committee on Banking Supervision introduced and serially revised their rules governing the minimum regulatory capital requirements for internationally active banks. While only a handful of U.S. banks are truly active internationally, U.S. bank regulatory agencies have incorporated the Basel Committee's definitions of regulatory capital into the regulatory capital definitions used to monitor the solvency condition of U.S. depository institutions.

U.S. PCA bank regulations currently reference four different measures of bank regulatory capital: common equity tier 1 capital; tier 1 capital; tier 2 capital; and, tangible equity. The definitions of the four capital measures and the regulatory ratios that use them are reported in Table 1.

Prior to the recent financial crisis, PCA used four regulatory capital ratios to rate a bank's capital adequacy: a bank's leverage ratio, its Tier 1 risk-based capital ratio, its total risk-based capital ratio and its tangible equity ratio. More recently, bank regulators have adopted amendments to the definitions of PCA capital ratios to make them consistent with Basel III international capital standards. At present, a bank's PCA capital adequacy rating is determined by five regulatory capital ratios: the bank's total risk-based capital ratio; its Tier 1 risk-based capital ratio; its common equity Tier 1 risk-based capital ratio, its Tier 1 leverage ratio and its tangible equity to asset ratio. The PCA regulatory capital ratios and corresponding regulatory capital definitions are reported in Table 1.

A bank's PCA capital adequacy rating is determined by a comparing the bank's five PCA capital ratios with set PCA thresholds. The current PCA regulatory capital ratio requirements for each specific PCA capital adequacy rating are reported in Table 2.[5]

[5] The capital definitions are those that appear on FFIEC call reporting forms and the PCA thresholds are taken from the current FDIC "Risk Management Manuel of Examination Policies" (2.1-8).

If a critically undercapitalized bank cannot quickly raise new capital or find an acquirer, PCA requires that it be closed and resolved by the Federal Deposit Insurance Corporation which administers failed bank receiverships. The FDIC liquidates the bank's assets and pays liability claims, including those of insured depositors, according to a specific priority established in law.

Table 1: Regulatory Capital Ratios and Regulatory Capital Definitions

PCA Regulatory Capital Ratios	Definition
Common Equity Tier 1 risk-based capital ratio	Common Equity Tier 1 capital divided by risk-weighted assets
Tier 1 risk-based capital ratio	Tier 1 capital divided by risk-weighted assets
Total risk-based capital ratio	The sum of Tier 1 and Tier 2 capital divided by risk-weighted assets
Leverage ratio	Tier 1 capital to average total assets minus ineligible intangibles
Tangible equity to total assets ratio	Tangible equity divided by total assets
Regulatory Capital Definitions	
Common Equity Tier 1 Capital (CET1)	Qualifying common stock and related surplus net of treasury stock, retained earnings, and qualifying components of accumulated other comprehensive income, qualifying common equity tier 1 minority interests, plus or minus regulatory adjustments.
Tier 1 Capital	The sum of "Common Equity Tier 1 Capital" and "Additional Tier 1 Capital". It includes: common equity plus noncumulative perpetual preferred stock plus minority interests in consolidated subsidiaries less goodwill and other ineligible intangible assets. The amount of eligible intangibles (including mortgage servicing rights) included in core capital is limited in accordance with supervisory capital regulations.
Tier 2 Capital	Tier 2 capital components consist of a limited amount of subordinated debt, cumulative perpetual preferred stock, allowance for loan and lease losses, total mandatory convertible debt and a portion of unrealized gains on available-for-sale equity securities. The maximum amounts of supplementary items that qualify as Tier 2 capital is limited to 100 percent of Tier 1 capital. In addition, the combined maximum amount of subordinated debt and intermediate-term preferred stock that qualifies as Tier 2 capital is limited to 50 percent of Tier 1 capital.
Tangible Equity	Tangible equity is total bank equity plus qualifying minority interests in subsidiaries plus other allowable additions to Tier 1 capital less the sum of: net unrealized gains(losses) on available-for-sale securities; accumulated net gains (losses) on cash flow hedges; non-qualifying perpetual preferred stock; disallowed goodwill and intangibles; the cumulative change in fair value of all financial liabilities accounted for at fair value that is included in retained earnings and it attributable to changes in the bank's own credit worthiness; disallowed servicing assets and purchased credit card relationships; and, disallowed deferred tax assets.

Table 2: PCA Capital Adequacy Requirements

PCA Capital Adequacy Rating	Total RBC Ratio	Tier 1 RBC Ratio	CET1 RBC Ratio	Tier 1 Leverage Ratio	Tangible Equity-Asset Ratio
Well Capitalized	≥ 10%	≥ 8%	≥ 6.5%	≥ 5%	> 2%
Adequately Capitalized	≥ 8%	≥ 6%	≥ 4.5%	≥ 4%	> 2%
Undercapitalized	< 8%	< 6%	< 4.5%	< 4%	> 2%
Significantly Undercapitalized	< 6%	< 4%	< 3%	< 3%	> 2%
Critically Undercapitalized					≤ 2%

Prompt Corrective Action and the Financial Crisis

The definitions of a bank's regulatory capital and the rules governing the minimum required levels of bank capital adequacy are complex presumably because regulators have determined that the complexity enhances regulators' ability to satisfy the objectives Congress established when it legislated PCA objectives. But recent events call such a presumption into question. History shows that the complex system of Basel-based regulatory capital requirements did not enhance the performance of Prompt Corrective Action during the recent financial crisis.

If everything works as planned, under the PCA closure rules, the FDIC should have a buffer to cover the cost of managing a failed bank receivership and a bank failure should impose only minimal losses on the Deposit Insurance Fund. Unfortunately, a large body of evidence suggests that PCA has not worked as planned.[6] While the average book value of failed banks' equity the quarter before failure has increased under PCA, deposit insurance loss rates have also increased—not decreased as PCA intended.

In the most recent financial crisis, estimates suggest that the average PCA capital ratio in the final quarter before banks failed was +1.5 percent.[7] Prior to FDICIA, over the period 1986-1992, bank capital ratios averaged about -1.5 percent the final quarter before institutions were closed.[8] The imposition of PCA is associated with a higher bank capital ratios at the time a bank fails, but average failed bank loss rates have also increased.

[6] See, for example, GAO (2011), Financial Stability Oversight Council (2011), GAO (2015), Chernykh and Cole (2015), Cole and White (2015) or Balla, Prescott and Walter (2015).
[7] The estimates are for banks that failed between 2007 and 2013 as calculated by Balla, Prescott and Walter (2015).
[8] *Ibid.*

Table 3 reports estimates of the average loss rates on FDIC managed receiverships before FDICIA and after FDICIA using data reported by the FDIC. These calculations exclude the losses from savings and loan institutions that were resolved by FSLIC or RTC because these loss rates are unlikely to be comparable to the loss rates on bank failures resolved using the Bank Insurance Fund.

Table 3: Loss Rates on FDIC Receiverships before and after FDICIA

	Pre-PCA 1986-1991	Post-PCA 1992-2014
number of receiverships	1021	549
total assets of banks at time of failure	149,086,233	243,375,351
total receivership losses	20,792,247	46,801,222
asset-weighted average loss rate	13.95%	19.23%
simple average loss rate	21.74%	23.58%

Source: Author's calculations based on publically available FDIC insurance resolution data (HOSB data). Assets and Losses are in 1000s of dollars. The calculations exclude FSLIC and RTC receiverships because the experience of the 1980s savings and loan crisis are expected to differ from bank resolution costs for reasons other than PCA. The simple average loss rate is the simple average of the individual receivership loss rates.

The public data on FDIC receiverships suggests that failed bank loss rates have increased under PCA. While the exact cause of the increase in loss rates is unclear, the data show that PCA has not been effective at reducing loss rates to the deposit insurance fund.[9] The reason that PCA has not worked as envisioned is an inherent weakness in the Basel-based definitions of regulatory capital.

[9] There are many potential explanations for why failed bank receivership loss rates may have increased. One possible explanation is if loss rates are linked to the severity of a financial crisis. It is reasonable to think that the more severe a crisis, the greater the reduction in the demand for a failed bank's deposit franchise or assets. However, it is an open question whether the banking crisis of the late 1980s was more or less severe than the most recent banking crisis. An alternative explanation is regulatory forbearance. Losses tend to accumulate if weak and failing banks are not closed promptly. Some [Cole and While (2015)] have argued that the regulators were especially slow in closing banks in the most recent crisis. This might happen for example if PCA capital ratios are a lagging measure of a bank's true capital adequacy condition and thereby retard PCA's mandatory closure process.

Banks loans will appear profitable until the bank, the bank examiner, or its auditor requires the bank to reserve for possible loan losses. Reserves for the potential losses on loan, leases or held-to-maturity securities reduce the bank's reported income and the carrying value of its loans, leases and securities. The large losses suffered by the recent FDIC failed bank receiverships—notwithstanding the fact that many of these banks entered resolution with positive PCA capital ratios—is a clear indication that these banks had not adequately provisioned for losses in the quarters prior to their failure.

Because regulators have been too cautious in forcing banks to provision for substandard and doubtful loans, leases and held-to-maturity securities, bank regulatory capital ratios are a lagging indicator of bank solvency. Without proper provisioning, regulatory capital ratios can significantly overstate the solvency condition of banks, especially when the economy enters the downturn phase of a credit cycle.

Bank regulators are often reluctant to force banks to make provisions before losses materialize. One important reason is the conflict between generally accepted account practices and conservative regulatory practices. Accountants object to banks recording loan loss provisions (and reducing reported income) unless there is ample evidence that loan losses are inevitable. During late stages of a credit cycle boom, before defaults materialize and collateral backing loans and securities depreciates, accounting standards give banks an authoritative argument for resisting regulatory suggestions for increased provisions. Regulators can be reluctant to require provision when accounting standards do not require them.

The Nonperforming Asset Coverage Ratio

The source of weakness in the current PCA framework is PCA ratios inability to anticipate bank losses as they actually materialize. In its 2011 recommendations for PCA reforms, the GAO (p. 25) found that bank nonperforming assets were highly predictive of a subsequent deterioration in bank performance in the recent financial crisis:

> *[L]arge differences in the level of nonperforming loans between healthy banks (our peer group) and banks that ultimately failed were evident well before the bulk of bank failures in 2009–2010. Starting in 2006, the difference between the two groups of banks increased as nonperforming loans grew dramatically over the next 3-4 years for banks that ultimately failed, but only modestly for healthy banks*

The idea of modifying the PCA rules to use a solvency measure driven by the level of nonperforming assets instead of regulatory capital has been further developed by Chernykh and Cole (2015). They investigate the viability of using a nonperforming asset coverage ratio or NACR[10] to create accurate warning signals well before regulatory capital measures signal bank weakness. A bank's nonperforming asset coverage ratio, or NACR is defined as,[11]

NACR= [book equity – nonperforming assets+ loan loss reserves] ÷ total bank assets

where nonperforming assets are defined as,

nonperforming assets = 20% assets past due 30 to 89 days
+ 50% assets past due 90 days or more
+ assets in nonaccrual status
+ real estate owned assets

NACR is easily calculated using regulatory data on a bank's nonperforming assets. Data on a bank's loans and leases that are overdue 30-89 days, over 90 days, nonaccrual assets, and the value of repossessed real estate are reported quarterly on a bank's regulatory call reports. These data are made publicly available with a very short time delay.

The NACR statistic assume that the bank will suffer losses should its nonperforming assets be liquidated. The loss assumptions are: 20 percent on its assets past due 30 to 90 days; 50 percent on its assets past due 90 days on which the bank is still accruing interest; and 100 percent on assets for which it is no longer allowed to accrue interest income; and 100 percent on repossessed real estate.

These NACR loss assumptions are simple rules of thumb that are widely used by bank examiners to quickly judge the adequacy of a bank's loan loss reserves. If a bank's past due and nonperforming assets increase, and it does not commensurately increase its loan loss provisions, the bank's NACR ratio will decline and reflect asset quality weakness. In contrast, the bank's PCA regulatory capital ratios may not reflect any change in the bank's condition.

Chernykh and Cole (2015) show that NACR is a timelier and more accurate predictor of bank failure than the PCA Basel-based capital ratios used during the prior crisis. In related research, Cole and White (2015) estimate that, if PCA had used a closure rule of NACR≤ 2% in

[10] Chernykh and Cole use the acronym NPACR. In Kupiec (2016) I shorten the abbreviation to NACR.
[11] This definition of NACR must be multiplied by 100 to be expressed as a percentage.

the recent financial crisis, DIF losses would have been reduced by about 27 percent from current FDIC resolution cost estimates.

Another way to assess the performance of Basel-based bank regulatory capital ratios is to compare them over time to the simpler and more transparent NACR alternative solvency measure. Between 2001 and 2015, the U.S. banking system went through a full boom-bust-recovery cycle. If bank regulatory capital ratios are truly indicative of the solvency condition of the banks in the system, then we would expect to see a clear boom-bust-recovery pattern in the evolution of the distribution of the banking system's regulatory capital ratios over this period. If banks are allowed to maintain optimistic loan loss reserves, then banks' regulatory capital ratios will fail signal the true deterioration in the condition of the banking system.

For each year between 2001 and 2015, I use the December regulatory "call report" data and calculate for each bank its Tier 1 leverage ratio, its Tier 1 risk based capital ratio (Tier 1 RBC) and its nonperforming asset coverage ratio (NACR). Then for every year, and each ratio, I rank banks according to their solvency ratios—from smallest to largest. From the ranked data, I construct the sample cumulative probability distribution for the banking systems' solvency ratios. For example, the cumulative probability distributions for banking system's respective solvency ratios as of December 2008 are plotted in Figure 1.

The plots in Figure 1 provide three different characterizations of the solvency condition of the U.S. banking system as of the end of December 2008. The NACR line crosses the 0-axis at about 3.5 percent, meaning that, should all banks be closed and liquidated at year-end 2008, 3.5 percent of the banks in the system would be expected to generate a loss before charging any FDIC administrative cost of liquidating the receiverships. According the Basel-based Tier 1 leverage ratio and Tier 1 risk-based capital ratios, none of the banks in the system had negative capital, and all were well above the 3 percent "critically undercapitalized" PCA threshold, suggesting that all of these banks would have a positive value in liquidation.[12]

[12] To make the graph scale manageable, Figure 1 cannot show the details of the distributions below the 1 percent quantile. In the very extreme left tail of the banking system distribution of solvency ratios, the Basel-based ratios do identify some distressed banks. Each Basel-based ratio suggests that 6 banks had negative capital (the 0.07 percent quantile of the system distribution), and roughly 20 banks violated the 3 percent critically undercapitalized PCA threshold (the 0.20 percent quantile of the system distribution). In other words, the Basel-based ratios suggest only a handful of banks are in trouble while the NACR suggests that hundreds of banks are insolvent on a liquidation basis (3.5 percent of banks in the system=291 individual banks).

Figure 1: Cumulative Distribution of U.S. Insured Depository Institutions Solvency Ratios in December 2008

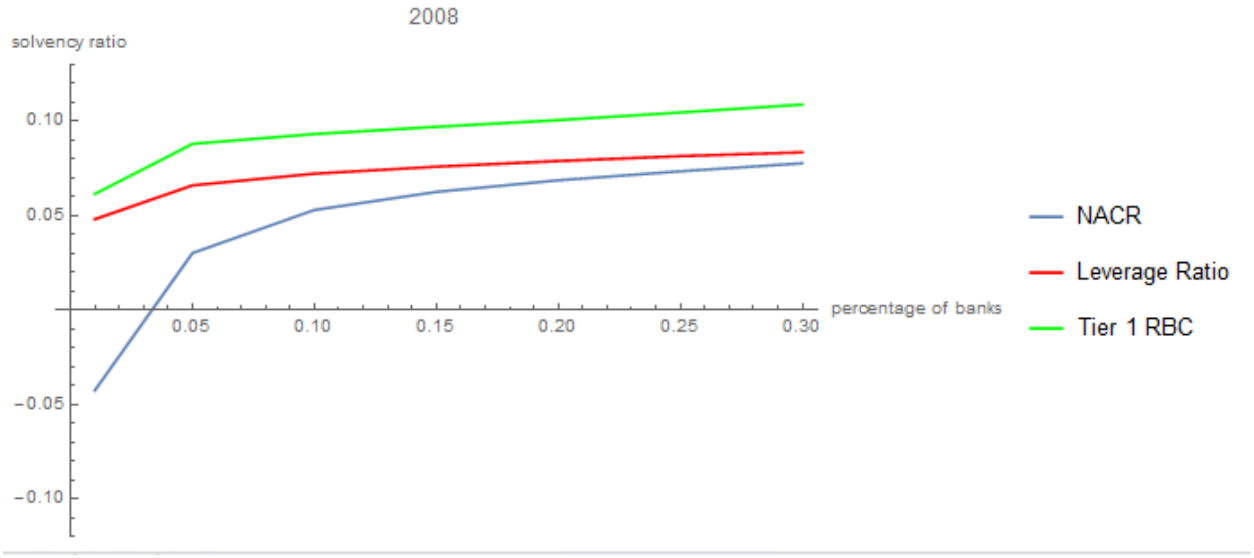
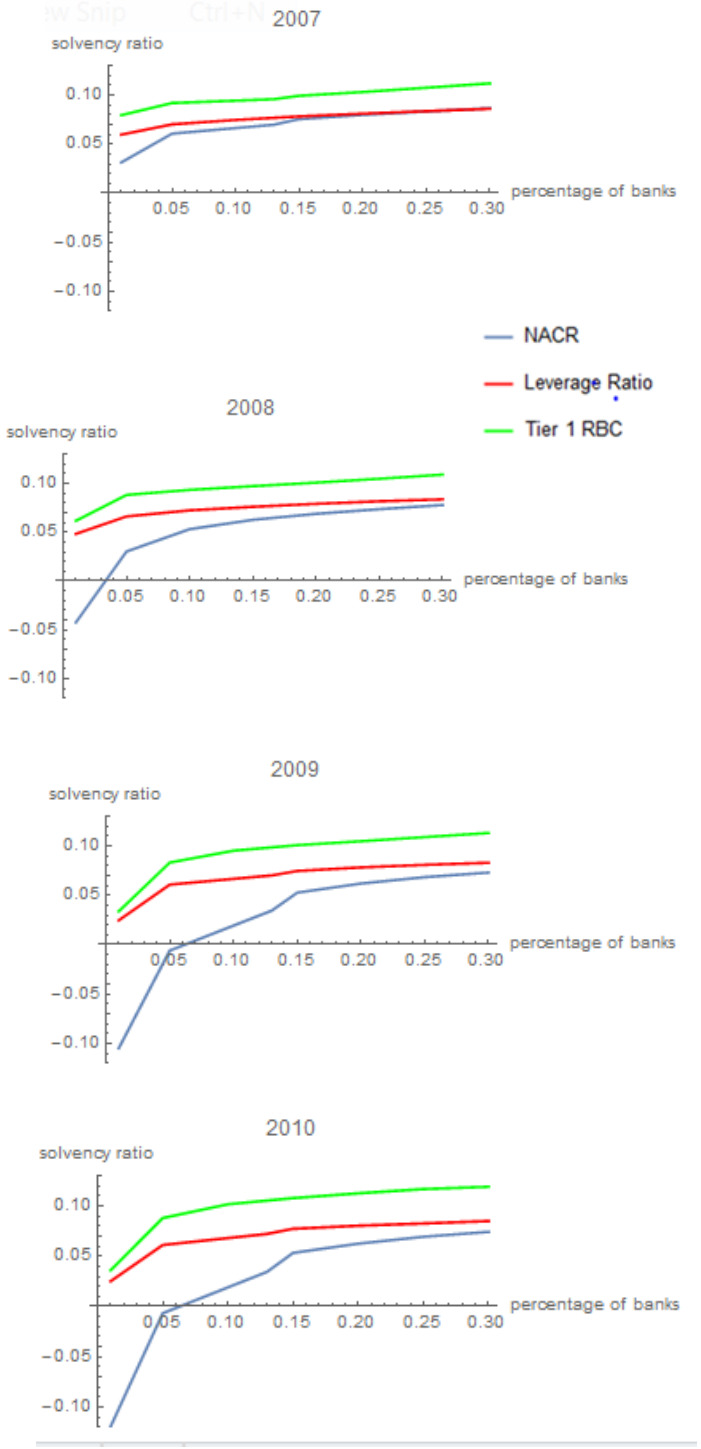


Figure 2 shows how these three alternative measures characterize the evolution of the solvency condition of the weakest 30 percent of the banks in the system over the core years of the financial crisis. In Figure 2, the NACR solvency ratio mirrors the true weaknesses as they develop in the banking system while the Basel-based Tier 1 leverage ratio and Tier 1 RBC ratio barely register any change in the solvency conditions of these banks over the financial crisis period.

The complexity of the Basel-based measures of bank regulatory capital do not enhance regulators' ability to meet the objectives that Congress set out in PCA legislation. The simple and transparent NACR ratio outperforms the complex collection of Basel regulatory capital measures.

The Basel-III changes that have been incorporated into bank regulatory capital definitions will not lead to improved PCA performance. Minimum regulatory capital regulations and prompt corrective action rules need to be amended to replace Basel-based capital measures with a solvency measure sensitive to the adequacy of loan loss reserves relative to nonperforming and nonaccrual assets

Figure 2: Evolution of Banking System Solvency Measures through the Financial Crisis



It would be straightforward to design a simplified regulatory capital and prompt corrective action framework using the NACR for the majority of banks in the system that would

perform far better than the current complex system of capital regulation.[13] The PCA could be modified to use NACR or a measure closely related to NACR in place of the Basel-based capital ratios.[14] The PCA system could be reduced to focus on two thresholds: (1) and high NACR threshold that requires regulators to closely examine the institution and impose any remedial measures that may be required to return the institution to a safe operating conditions; and (2) and lower NACR threshold that requires an acceptable capital restoration plan, franchise sale or resolution within 90 days of triggering the threshold.

While the exact levels of these two PCA thresholds would undoubtedly be the subject of debate, existing evidence suggests that thresholds set close to 6 percent and 3 percent respectively would be adequate to satisfy Congressional PCA objectives for the vast majority of depository institutions. PCA rules could also be amended to include an additional buffer in the minimum PCA thresholds for the largest depositories, those U.S. institutions considered to be "systemically important." These higher PCA thresholds would substitute for the GSIB[15] capital surcharges currently imposed under the Basel III based rules.

3. Complex Minimum TLAC Rules will not Solve TBTF

Federal Reserve Board's proposed Total Loss Absorbing Capacity or TLAC regulation will require GSIB parent holding companies to issue and retain an outstanding balance of TLAC-compliant subordinated debt whose sole purpose is to absorb losses in a Dodd-Frank Title II resolution.

My analysis of the proposal suggests that TLAC will not remove the risk that the largest financial institutions may require future taxpayer assistance should the country face another financial crisis. Indeed the uncertainties associated with using TLAC in a Dodd-Frank Title II resolution are likely to create a new important source of systemic risk — uncertainty about which investors bear losses in a GSIB resolution — a risk that did not exist in the prior financial crisis. Moreover, the language of the proposed TLAC rule promises new protections to a huge volume of outstanding GSIB operating subsidiary liabilities. These new protections will provide tangible

[13] Additional research is needed to determine whether the NACR could be further improved. For example, I can imagine that for some banks PCA performance might be further improved by including some portion of a bank's undrawn committed lines of credit in the nonperforming loan measure. I am not aware of any research that has investigated such a modification.
[14] An empirical argument for the 6 percent and 3 percent thresholds are discussed in Kupiec (2016).
[15] GSIB is an acronym for global systemically important bank.

too-big-to-fail (TBTF) benefits to eight GSIBs that are not accessible to smaller institutions that are not eligible for a TLAC-Title II resolution. As a result, TLAC will not end TBTF, but instead will ensure that the largest financial institutions continue to benefit from a funding cost advantage created by their GSIB status as the TLAC plan makes it clear that regulators intend to preserve GSIB subsidiary institutions intact while smaller institutions will continue to fail and be liquidated under deposit insurance resolution rules.

The TLAC Notice of Proposed Rulemaking, and the companion Financial Stability Board TLAC proposal[16], argue that TLAC will solve a number of important policy issues. However, neither document provides evidence to support these claims. There are many conceptual and practical issues raised by the TLAC proposal.

The first issue of concern is regulators' failure to address or discuss the possibility that that TLAC will not work as planned. The TLAC proposal presumes that a Title II resolution can be used to keep a GSIB's critical operating subsidiaries open and operating. But what happens if a Title II resolution cannot be authorized? While this is clearly a possibility under the Dodd-Frank Act language that authorizes the use of Title II orderly liquation authority, the TLAC proposal is completely silent on this issue.

Secondly, TLAC relies on the use of a Title II resolution, but the "clean" parent holding company requirements in the TLAC proposal make it *less* likely that a GSIB parent company would be in danger of default if a critical operating subsidiary failed. The clean parent requirements will make the parent holding company less exposed to liquidity pressures and make it more difficult for the Secretary of Treasury to conclude that a GSIB parent company is in danger of default. Should the courts subsequently rule in favor of GSIB parent company shareholders and TLAC investors who seek damages for the illegal seizure of their property in a Title II resolution, taxpayers will ultimately be on the hook for the losses regulators illegally transferred to parent holding company investors.

A third important but unrecognized issue created by the TLAC proposal is that TLAC extends new government guarantees on nearly $5 trillion in GSIB subsidiary liabilities that are not currently insured by Federal deposit insurance. The government charges nothing for the new guarantees extended in the TLAC proposal, but merely asserts that TLAC debt investors will suffer the losses that would otherwise have been imposed on the subsidiary liabilities of these GSIBs

[16] http://www.fsb.org/wp-content/uploads/TLAC-Condoc-6-Nov-2014-FINAL.pdf

should these subsidiaries face losses that tested their solvency. The assertion that the losses associated with these new guarantees will be paid for by TLAC investors incorrectly presumes that a Title II resolution is always an option when a critical GSIB subsidiary fails.

A fourth issue is that TLAC requirements, as they are currently proposed, will *not* remove or even limit the TBTF interest rate subsidy currently enjoyed by the largest financial institutions. The proposed TLAC regulation requires GSIB parent holding companies to issue and maintain minimum amounts of TLAC-compliant debt, but the proposal does not restrict how new TLAC funds are used. The GSIB's investment strategy for TLAC funds has important implications for a GSIB's TBTF funding subsidy. Unless TLAC funds are down-streamed to critical operating subsidiaries—primarily large subsidiary banks—and the funds are used to replace insured deposit funding (the first best solution) or at least be required to replace uninsured subsidiary liabilities, the GSIBs' TBTF funding cost subsidies will not be reduced. Indeed, the TBTF subsidies are likely to increase if investors believe the government's promise to protect nearly $5 trillion in formerly uninsured subsidiary liabilities to be credible.

Finally, TLAC adds new complexity to a complex system of capital and other prudential regulations. Virtually all of the regulatory goals of TLAC could be achieved by imposing higher minimum regulatory capital requirements on GSIBs' critical operating subsidiaries.[17] Higher minimum capital requirements at GSIB critical operating subsidiaries is a much more transparent approach than the TLAC proposal. Furthermore, it would not suffer from the legal uncertainties that may prohibit Title II resolution and protect TLAC investors from bearing losses. A detailed discussion of these fives important issues follows.

The alleged benefits of TLAC are only available in a Dodd-Frank Title II Resolution. If the GSIB parent holding company is not eligible for a Title II resolution, TLAC investors will not be required to bear the loss of a failing bank subsidiary.

Before TLAC can be available to recapitalize failing subsidiaries, the GSIB parent company must be in default or in danger of default and the Secretary of the Treasury must substantiate that the GSIB's failure in a bankruptcy proceeding would cause serious disruptions to the US financial system.

[17] The new equity at subsidiaries could be funded with parent holding company debt issues similar to what is envisioned in the proposed TLAC regulations. However, in my opinion, there is no need to require holding companies to issue debt. The holding company management should decide how to raise any needed capital injection.

The Dodd-Frank Act created Orderly Liquidation Authority in Title II to allow financial institutions to fail using an administrative process managed by the FDIC instead of resolving the institution in judicial bankruptcy. The underlying assumption, although never substantiated, is that a government-run resolution process is quicker, more orderly, and less destructive of remaining franchise value than a court-administered bankruptcy.[18]

The TLAC rule is intended to facilitate a Title II resolution using the FDIC's proposed single point of entry (SPOE) resolution strategy.[19] Under this strategy, the parent holding company is taken into a Title II receivership. Resources owned by the GSIB parent company's shareholders and TLAC debt investors are then used to recapitalize the failing GSIB's operating subsidiaries, or at least the ones that regulators believe must be kept open and operating in order to prevent a wider financial crisis.

The regulatory view expressed in the Federal Reserve Board's TLAC proposal as well as in the FDIC's proposed SPOE strategy is that the survival or failure of the GSIB's parent holding company has no bearing on US financial stability. The GSIB parent company is viewed as a shell corporation with little or no interaction with financial markets outside of the GSIB group. The parent merely owns financial claims issued by its subsidiaries and manages the group.[20] Regulators believe that GSIBs are important to financial stability only because they own and manage important operating subsidiaries—large bank subsidiaries, broker dealers, or other large financial subsidiaries—that provide critical financial services that must be maintained to avoid triggering a financial crisis.

If a so-called "clean" GSIB parent company[21] suffers losses that put it in danger of default, it is only because one or more of its critical operating subsidiaries has suffered losses which are large enough to render one or more of the GSIB's operating subsidiaries insolvent. To prevent these operating subsidiaries from failing, the government will take the GSIB parent company into

[18] In a recently published paper, two FDIC economists show that the bank receivership process on average takes more than twice as long (about 5 years on average) as a bankruptcy proceeding (about 2 years on average). See Bennett and Unal (2014), "Understanding the Components of Bank Failure Resolution Costs," Financial Markets, Institutions & Instruments, pp. 349-389. Post-FDICIA through 2014, the simple average loss rate on failed bank receiverships calculated from publically available FDIC data is 23.6 percent.

[19] https://www.fdic.gov/news/board/2013/2013-12-10_notice_dis-b_fr.pdf

[20] Indeed the "clean parent holding company" requirements proposed in the TLAC rule are intended to limit the parent companies transactions to ensure that failure of the parent company does not trigger the failure of its operating subsidiaries.

[21] A clean GSIB parent company is essentially a parent company that does not have outstanding financial contracts or investments other than its investment in operating subsidiaries that could trigger a parent company default.

a Title II receivership and use its assets to recapitalize the GSIB's operating subsidiaries and keep them from failing. Thus, if regulators believe that the continued operation of a large bank, broker dealer, or other GSIB operating subsidiary is critically important to financial stability, the FDIC will use parent company resources to cover the failing subsidiaries' losses and recapitalize the subsidiary to keep it from failing. This process is the only strategy the FDIC has made public for using its Title II resolution powers to "liquidate" a large failing financial institution without triggering a financial crisis.

When it comes saving a large failing GSIB bank subsidiary, one that renders the GSIB parent company in danger of default, there is an important legal obstacle that could prevent the FDIC's from using the SPOE plan. The problem arises when the parent company resources are insufficient to recapitalize the failing GSIB bank subsidiary to keep the bank from failing. New TLAC requirements are regulators' proposed fix for this potential problem.

If the GSIB's failing subsidiary is an institution other than a bank,[22] the FDIC is empowered to borrow from the Treasury using the Dodd-Frank Orderly Liquidation Fund to inject resources to keep a GSIB subsidiary from failing. However, Dodd-Frank expressly prohibits the use of the Orderly Liquidation Fund if the proceeds of the loan are used to benefit the Deposit Insurance Fund. It is difficult to see how using borrowed orderly liquidation funds to recapitalize a failing bank subsidiary would not violate this provision of Dodd-Frank Act.

The regulatory solution is to require GSIBs' parent holding companies to maintain a minimum amount of outstanding long-dated subordinated debt (TLAC debt). The resources generated by this TLAC debt can be used recapitalize a failing bank subsidiary in a Title II resolution after the parent company's equity capital is exhausted. TLAC debt, in conjunction with the parent holding company minimum regulatory capital requirements, are intended to be large enough to absorb any failing subsidiary bank's losses (absorbed by equity) and then to recapitalize the subsidiary institution using resources contributed by the GSIB parent company's TLAC debt investors, so that the bank subsidiary remains adequately capitalized, open and operating.

Another problem arises if TLAC debt resources are unavailable to recapitalize a GSIB's failing subsidiary bank. This problem could happen, for example, if the subsidiary bank failure does not put the GSIB's parent company in danger of default, or if the Secretary of the Treasury decides against using Title II. In a recently published paper, Peter Wallison and I demonstrate that

[22] I use the term bank to refer to any insured depository institution.

many of the GSIBs' parent companies could absorb the capital losses associated with the failure of their largest bank subsidiary without themselves becoming insolvent.[23] If this were to happen, Title II orderly liquidation is not an option, and TLAC debt resources will be unavailable to recapitalize the failing bank subsidiary.

Some might argue the Federal Reserve's source of strength powers will allow the Federal Reserve Board to require the GSIB's parent company to recapitalize a subsidiary bank regardless of the bank's loss. However, prior legislation and the courts have set limits on the losses the Federal Reserve Board can impose on a bank's parent holding company using its source of strength powers.[24] The balance of the evidence leaves open the possibility that a large bank subsidiary of a GSIB could fail without putting the GSIB parent company in danger of default which would prevent the use of a Title II resolution.

Another scenario in which Title II may be unavailable is a condition similar to the last financial crisis. Should a number of GSIBs simultaneously suffer losses and be in danger of default, the Secretary could authorize multiple Title II resolutions. However, such an action would place a large percentage of U.S. banking system assets under direct government control and FDIC management. It is improbable that the FDIC staff would have the capacity to manage multiple Title II resolutions simultaneously. It is also highly unlikely that financial markets would be calmed by the prospect of multiple simultaneous Title II resolutions. In fact, the act of taking multiple GSIBs into a Title II resolution would almost certainly spark a financial crisis that would shut down normal financial market functions.

If a Title II resolution is unavailable, a large GSIB bank subsidiary would either have to be rescued with taxpayer support, sold to another large healthy GSIB creating a new larger GSIB, or be allowed to fail and be resolved in a Deposit Insurance Fund receivership. Regulators have already argued that the GSIB subsidiary bank failure option would likely have systemic implications—which is reason for Title II, SPOE and TLAC in the first place. However, with Title II powers now in place, and the regulators' TLAC and SPOE plans to use them publically revealed, the failure option becomes even more problematic. TLAC and SPOE promise to protect *all* the

[23] Paul Kupiec and Peter Wallison (2015). "Can the 'Single Point of Entry' strategy be used to recapitalize a systemically important failing bank?" *Journal of Financial Stability*, 20, pp. 184–197.
[24] I provide an extensive review of the history and litigation associated with the Federal Reserve Board's source of strength doctrine in, Kupiec (2015), "Is Dodd-Frank Orderly Liquidation Authority Necessary to Fix Too-Big-to-Fail?" http://ssrn.com/abstract=2678234 or http://dx.doi.org/10.2139/ssrn.2678234

liabilities of important GSIB operating subsidiaries. Reneging on these explicit promises would almost certainly strengthen the negative systemic impact of a large bank failure compared to market reactions in the last financial crisis.

To summarize, even if the TLAC rule works according to the Federal Reserve Board plans in a Title II resolution, there is no guarantee that a Title II resolution will be available should a large systemically important bank subsidiary fail. If Title II is unavailable, the TLAC and FDIC SPOE plans cannot be used to keep the large systemically important bank subsidiaries open and operating. Absent open bank assistance, the failing GSIB bank subsidiary will face the deposit insurance bank resolution process, a fate which regulators believe could spark a wider financial crisis. The proposed TLAC and related SPOE proposals do not address this possibility.

The "clean" parent holding company provisions of the proposed TLAC rule will make it more difficult to use a Title II resolution.

The current TLAC proposal will increase the probability that regulators could face a large systemically important bank failure without being able to use a Title II resolution. The "clean" parent holding company component of the TLAC rule limits a GSIB parent company's use of short-term debt and its issuance of qualified financial contracts. In reality, the inability of a financial institution to roll over its maturing short-term debt, or the default on its qualified financial contract collateral agreements are the primary reasons why financial firms are forced into bankruptcy. Typically, bankruptcy is triggered by an inability to meet liquidity demands and is only rarely if ever triggered by long-term debt covenant violations or balance sheet insolvency.

By limiting the short-term liquidity demands faced by a GSIB's parent company, the "clean" parent holding company requirements in the current TLAC proposal will make it less likely that a GSIB parent company will be in default or in danger of default should a large bank subsidiary suffer crippling losses. If the GSIB parent's capital structure is primarily comprised of equity and long-term subordinated debt with little repo or other short-term debt financing that is vulnerable to "run" risk, there is little likelihood that a parent GSIB would quickly and unquestionably become in danger of default. The use of Title II, if approved, would undoubtedly spark court cases and years of litigation as parent company investors pursued compensation for the unlawful taking of their property.

The proposed TLAC rule extends trillions of dollars in new implied government guarantees for the liabilities issued by GSIB subsidiaries.

The TLAC proposal, and the closely related FDIC SPOE resolution strategy, discuss a Title II resolution strategy that will protect *all* the liabilities of GSIB operating subsidiaries, or at least those that regulators deem "critically important" for the function of the US financial system. The regulators' public plans envision that, should any of these operating subsidiaries suffer losses that endanger their solvency, the losses will transferred to the GSIB's parent company using a Title II resolution and the liabilities of the operating subsidiaries will be fully protected against loss. Thus the TLAC proposal, in effect, extends an implied government guarantee to all the liabilities issued by GSIB operating subsidiaries.

Based on publicly available data from September 2015, the bank subsidiaries owned by the eight U.S. GSIBs had total assets of $7.54 trillion. GSIB assets comprise about 47.4 percent of all assets in the U.S. banking system. GSIB subsidiaries issued about $6.73 trillion in liabilities, or about 47.7 percent of all liabilities issued by U.S. banks. Of the GSIBs' subsidiary bank liabilities, about $2.4 trillion are explicitly insured by Federal deposit insurance. Thus, as a result of the new TLAC proposal, the government will guarantees $4.33 trillion in additional liabilities that are not currently insured.[25]

In return for new government protection on $4.33 trillion GSIB subsidiary bank liabilities, the government charges nothing. In theory, the TLAC bond investors are the ones providing this new insurance coverage.[26] However, these TLAC investors will earn a risk premium for years but potentially never suffer insurance losses if the distressed subsidiary bank cannot be rescued using a Title II resolution.

Requiring TLAC debt at the parent holding company does not necessarily remove large institution TBTF interest rate subsidies.

The Federal Reserve's proposed TLAC regulation will require GSIB parent holding companies to issue and retain an outstanding balance of subordinated debt. However, it does not place any restrictions on how TLAC funds are used. Unless TLAC funds are required to be "down

[25]In these calculations, I have only assumed that regulators would only consider large subsidiary banks to be critical. If it turns out that regulators protect all GSIB subsidiary liabilities using TLAC and SPOE, the subsidiary liabilities that will be protected total about $7 trillion.

[26] According to my calculations, the GSIB parents would have been required to maintain, in total, roughly $575 million in outstanding TLAC debt should the rule have been in force as of September 2015.

streamed" to GSIB bank subsidiaries as "back-to-back" TLAC debt or subsidiary equity, and the proceeds are used by the subsidiary to invest in safe assets or retire insured deposits, TLAC at the holding company will not reduce the GSIB's implicit TBTF funding cost subsidy. This result is formally proved in Kupiec (2016a), "Will TLAC Regulations Fix the G-SIB Too-Big-to-Fail Problem."

GSIB interest subsidiaries are generated when some GSIB liabilities are implicitly or explicitly insured by the government, but the government does not charge a fair insurance premium for the guarantee. Within a GSIB, these subsidies arise when a bank subsidiary's insured deposits are charged less than a fair market insurance premium for the guarantee, or if investors believe that the GSIB's uninsured liabilities are likely to receive government protection from default even though there is no explicit insurance guarantee.

The TLAC proposal not only keeps the guarantee on all GSIBs' bank subsidiary insured deposits, it also explicitly guarantees *all* of the liabilities issued by GSIB subsidiary banks and other critical operating subsidiaries. Thus the TLAC proposal effectively extends government guarantees beyond insured bank deposits to an additional $4.33 trillion in GSIB bank subsidiary liabilities. If the goal is to reduce TBTF subsidiaries, the proceeds from parent TLAC debt should ideally be used to replace explicitly insured bank deposits.[27] A second best alternative is to require TLAC debt to replace uninsured GSIB bank subsidiary liabilities. This requirement at least partially limits the extent by which TLAC and SPOE expand government guarantees.

However, the current TLAC proposal places no restrictions on the use of TLAC funds. Without restrictions, the GSIBs will raise the required TLAC funds but invest them in a way that maximizes their TBTF funding cost advantage. Given the expanded implicit default protection promised GSIBs' subsidiary liabilities, in my assessment, the current TLAC rule will increase—not decrease — the funding cost advantage enjoyed by GSIBs.

The proposed TLAC regulation adds complexity to a regulatory system already plagued by overly complex capital and other prudential regulations. There is a simpler, more transparent way to satisfy TLAC regulatory goals.

If the goal of TLAC is to keep critically important GSIB operating subsidiaries open and operating, why not just raise the minimum regulatory capital requirements on critically important

[27] The same effect occurs if the subsidiary banks uses TLAC fund to purchase default free US Treasury securities.

subsidiaries? The capital would be immediately available to keep critical operating subsidiaries open and operating without regard to the legal availability of a Title II resolution. There would be no extension of additional government guarantees to liabilities of GSIB operating subsidiaries. Moreover, there would be no question that GSIBs' systemically important subsidiaries had sufficient capital to absorb exceptionally large losses and continue to be adequately capitalized and operating in financial markets.

There is a cost to this alternative approach of raising operating subsidiary minimum capital requirements. Keeping TLAC at the parent holding company reduces the amount of TLAC needed because regulators can (in theory) rely on loss diversification across GSIB subsidiaries. Since only some GSIB subsidiaries are likely to incur losses while others subsidiaries will post profits, the resources needed to recapitalize losses at critical operating subsidiaries will be smaller if regulators can keep TLAC at "the top of the house" and distribute it to GSIB operating subsidiaries only when needed.

Because the higher minimum capital solution does not count on loss diversification, the resources needed to increase capital at each critical operating subsidiary may be larger than the proposed minimum TLAC debt requirement. However, the higher minimum capital solution removes the problem that a Title II resolution may not be possible and so TLAC may not be available when it is needed.

The cost of requiring "fortress" balance sheets at systemically important GSIB subsidiaries can be reduced if GSIB parent holding companies are allowed to raise the required funds by issuing debt at the parent holding company level and down-stream funds as equity to systemically important operating subsidiaries. Implemented in this way, the proposal to increase minimum capital requirements at critical operating subsidiaries is equivalent to the current TLAC proposal in many ways. It will require parent holding companies to issue TLAC-like debt, but in addition, it will require the GSIB parent company to down-stream the proceeds of the TLAC debt issue as equity to systemically important operating subsidiaries to satisfy higher minimum regulatory capital requirements. This is a much simpler and more transparent solution to the issues that regulators are trying to solve with the TLAC proposal.

4. Minimum Liquidity Regulations

U.S. regulations will incorporate two new Basel III regulations that are designed to ensure that large covered depository institutions maintain adequate liquidity. The first ratio, the so-called Liquidity Coverage Ratio or LCR, is designed to ensure that a large institution has sufficient liquidity to survive a 30-day stress period in which it experiences a run on its short-term funding sources which forces the institution to liquidate its high quality liquid assets to meet redemptions and other payment liabilities. In other words, the bank must have enough high quality liquid assets (HQLA) so that it could survive for 30-days if it had to dump them on the market in a "fire sale" in order to meet customer redemptions. The U.S. LCR regulations took effect in January 2015 and will be fully phased in by January 2017.

The second liquidity regulation, the Net Stable Funding Ratio or NSFR, seeks to ensure that a bank's source funds and its need for funds are balanced over the subsequent 12-month period so that the institution will not ever face the need to engage in "fire sale" financing should it lose access to new funding.[28] Between these two regulations—should they work as regulators envision—large banks will always own enough low-yielding highly liquid assets to sell in a 30-day asset fire sale, but will never face the need to do so since the institution's balance sheet is structured in a way that allows it to postpone holding a fire sale for up to a year even if new funding sources for the bank completely run dry. The NSFR has been released for public comment (due August 5, 2016) with a target implementation date of January 1, 2018.

The premise behind the need for imposing an NSFR is that a large bank may need to survive an extended period—up to a year—under market conditions in which new deposits and uninsured funding sources completely disappear. The regulation presumes that a bank can survive this stress without having to fire sale its assets provided it properly structures its balance sheet so that it has just the right balance of equity, liability maturity structure and mix of counterparties willing to maintain funds in the bank. The regulation imposes a rules that specify the amount of "stable available funds" the bank must retain to survive this year of stress.

The NSFR rule is complex. The total available stable funds the bank holds is calculated as a weighted sum of bank equity and liability categories, were the weights on liability categories depend on the type of liability (deposit, non-deposit), the maturity of the liability, and the

[28] The NSFR proposal states (p. 151), "…[M]aintenance of a more resilient funding profile heading into a period of significant stress can lessen pressure on a covered company or modified NSFR holding company to sell illiquid assets or reduce credit availability in response to the stress."

attributes of the counterparty that supplied the funds (retail, wholesale, nonfinancial, financial). The bank's demand for net stable funds (or NSF) is calculated as a weighted sum of the book value of assets and off-balance sheet exposures from undrawn commitments and derivatives. Assets are assigned a liquidity weight according to a regulatory assumptions about an exposure's credit quality, the tenor of the cash flows produced by the exposure, and the type of counterparty (wholesale, retail, financial, nonfinancial). Cash, reserves and HQLA holdings require no stable funding support since they can be liquidated within the year time frame notwithstanding the fact a bank that satisfies the NSFR regulations is not supposed to be forced to sell liquid assets within the year, and should they do so, they would be in violation of the LQR regulation.

A covered institution is supposed to satisfy both the LQR and the NSFR on a continuous basis. Between these two liquidity regulations, banking regulators have decided that the best way to prevent a financial crisis is to require very large depository institutions—indeed ***all*** large depository institutions—to manage their balance sheets and asset holding so that their cash flows would be matched if they were forced to wind themselves down over the course of a year without selling any of their liquid assets (to satisfy the LQG regulation) and without access to any new funding. It is difficult to believe that large banks could satisfy both rules without incurring significant costs, especially when interest rates are normalized and long maturity assets over a significant yield premium over short-dated assets. If there is any appreciable cost of complying by these regulatory constraints, it is difficult to see how requiring all institutions to self-insure against a systemic liquidity crisis would be a cost-efficient solution for crisis management.

If a single bank in isolation is faced with the envisioned stress situation, even if it is operated in a manner that satisfies both the LCR and NSFR regulations, I would expect the primary federal regulator to intervene using its prompt corrective action powers. A bank that is completely shut out of new funding for an extended period is clearly an institution that is facing a sever safety and soundness issue. Its primary regulator is supposed to intervene, identify the cause of weakness that is preventing the bank from having access to new investor funding, and prescribe a mandatory remedial action plan. If the bank's condition does not improve enough to regain access to funding markets, the bank should be closed or forced to find a qualified acquirer. Since regulators already have this power— and a corresponding responsibility to exercise this

power— under prompt corrective action laws, there is no need for new LCR and NSFR regulations.

Should a number of large banks all face an extended funding drought simultaneously, the underlying cause of the problem would mostly likely be systemic, and not a consequence of weaknesses in individual banks' operations. In this case, the NSFR regulation would not address the underlying cause of the problem. The solution would likely require some type of unanticipated central bank intervention to make liquidity available to the large group of impacted institutions.

The primary impact of the NSFR regulation is to create a buffer interval to lengthen the amount of time that regulators have to respond to a liquidity crisis. While some may argue that the rules will alter bank asset holding and management dynamics so that a liquidity crisis cannot no longer occur, this claim presumes that all of the assumptions underlying the rules continue to hold. For example, the rule will not forestall a systemic liquidity crisis if widely held assets identified as HQLA suddenly became illiquid and lose a substantial portion of their market value (think Greek government bonds or AAA-rated MBS paper).

Still the regulations require changes in the way banks operate that likely will buy the regulators time to craft a response to a systemic liquidity event. While this time new buffer could be valuable for crafting better solutions, it could also give regulators time to ignore a developing systemic liquidity problem, as many believe they did in the early stages of the prior financial crisis.

Even if you are skeptical that the LCR and NSFR regulatory engineering would prevent a financial crisis, there is no harm in imposing the new rules if they do not impose significant costs on the banks or society at large. In fact, the NSFR notice of proposed rulemaking (NPR) suggests that bank regulators have undertaken a formal cost-benefit evaluation of the proposed NSFR rule and found that the costs of imposing the rule are minor while the benefits are potentially very large.

The "costs" discussion in the NSFR NPR (pp.144-149) argues that, based on earlier bank submissions to a Basel-III Quantitative impact study, most firms subject to the NSFR rule already meet the requirements, and those that do not are ***not*** expected to incur "significant costs" in modifying their balance sheets to satisfy the rule. The NPR adds the caveat that that costs of complying with the rule could turn out to be much larger once the yield curve returns to a normal

level and shape.[29] Without supplying and hard evidence of the actual compliance costs that might be incurred by the banks, the NSFR proposal concludes, "operational and administrative compliance costs in connection with the proposed rule are expected to be relatively modest." (p. 147)

Since it is projected to be nearly costless for banks to comply with the NSFR, regulators project that the regulation will have little or no impact on banks' customers,

> *…the agencies do not expect the proposed rule to result in material costs being passed on to customers, for example in the form of higher interest rates or fees. Similarly, the agencies do not expect covered companies of modified NSFR holding companies to materially alter their levels of lending as a result of the proposed rule. (p. 148).*

The conclusion of the regulatory cost analysis in NSFR NPR is that, should the rule be implemented as proposed, it will have no noticeable effect of the interest rates or fees charged by banks or on the loan amounts funded by the banks and holding companies that are subject to the rule.

Given that the rule is supposed to have no noticeable impact on banks' costs or lending activities, the NPR conclusions regarding the potential benefits of implementing the NSFR (p. 149-151) are striking. The regulators claim that the NSFR rule will generate large benefits for society by removing the potential for a future financial crisis.

Regulators justify this claim by referencing a (2010) study by the Basel Committee on Bank Supervision.[30] This study claims that the proposed Basel III changes in bank regulation would significantly reduce the likelihood of another financial crisis. Since financial crisis are expensive for society, and the NSFR proposal was a part of Basel III, the benefits adopting NSFR must be large indeed.

The regulatory "cost-benefit analysis" in the NSFR notice of proposed rulemaking is dubious at best. Bank regulars are simultaneously arguing that the new regulation will not cause banks to change what they do, or impose any additional cost on banks or consumers, but still will generate enormous social benefits by preventing another financial crisis. How can a rule that

[29] The NPR states: "Thus, the agencies do not expect covered companies and modified NSFR holding companies to incur significant costs in connection with balance-sheet adjustments to maintain compliance with the proposed requirements; however, these costs may increase depending on a variety of factors, including future differences between the rates on short- and long-run liabilities."

[30] "An assessment of the long-term economic impact of stronger capital and liquidity requirements," http://www.bis.org/publ/bcbs173.pdf

supposedly has no impact on banks or bank customers prevent the next financial crisis? If sounds like a magical conclusion precisely because it is a magical conclusion.

I was a part of the working group that was tasked with producing the Basle Committee study referred to in the NSFR notice of proposed rulemaking. The working group never met—not once. Group interactions included two chaotic conference calls before a draft paper showed up in working group participants' email less than three months after the group was formed. Members were supposed to propose changes to the draft working paper.

Most of the analysis in the working paper is based on a Bank of England "reduced form" research model. The model was an opaque "black box" to working group members. Regulator policy changes can only be introduced into models of this type by proxy—that is, if the regulation is imposed, certain model parameters are likely to change in some way. Economists make educated guesses as to how parameters will change. The regulatory rules themselves are not in the models explicitly because the rules did not exist when the models were being built or when the data used to estimate the model was generated.

Models like the Bank of England model are typically used to investigate ideas at a conceptual level—that is, will the policy cause "X" to go up? "Y" to go down? This type of models have no proven predictive power and are typically not used to make quantitative forecasts of the impact of policy decisions. No one who understands models like these would take their quantitative forecasts as serious projections. And yet the working group did.

The Basel working group undertook no actual analysis of the proposed U.S. NSFR. The reality is that no one had the capacity to do such an analysis in the very short time frame allowed by the Basel Committee. There was intense political pressure to finalize the Basel III rules. The Basel III "impact studies" were an afterthought when some Basel Committee members realized that they had not produced any cost-benefit analysis to justify their proposals. The committee pressured its research groups to produce economic justifications for the Basel III proposals within an impossible time frame designed to meet Committee political goals. To satisfy the committee, the research groups produced two documents within a few months. In my view, these documents do not report on the results of a serious in depth research effort—they are propaganda produce for political cover.

In the end, I did not permit my name on the working group's paper even though I was the Chairman of the Basel Research Task force and was expected to sign on. I had no access to the

models or the calculations that were being used to justify the study's conclusions and the working group made no effort to address my questions and concerns about the accuracy and validity of the analysis in the final report.[31]

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[31] It is ironic that the Federal Reserve Board is using this study to justify the NSFR. Later in the fall of 2010, FDIC chairman Bair was negotiating with the Federal Reserve Board on the magnitude of the Basel III leverage requirement. Chairman Bair wanted a leverage ratio higher than what the Federal Reserve Board was willing to accept. To make her case, Chairman Bair pointed to the same study the NSFR now references—arguing that the study proves that Basel III costs are likely to be minor and its benefits are likely to be very large. In order to derail chairman Bair's argument, Governor Tarullo and Bank Supervision Director Pat Parkinson reportedly dismissed the importance of the Basel Committee working paper's conclusions by reading to chairman Bair my original detailed email to the Basel Committee working group members critiquing the paper. I do not know how Governor Tarullo and Mr. Parkinson acquired my email to working group members since neither individual was on the working group. When chairman Bair took issue with the Federal Reserve Board's critique of the paper and its findings, Governor Tarullo and Director Parkinson reportedly asked chairman Bair why she did not agree with the critique since it was written by the FDIC's Director of the Center for Financial Research (me). Chairman Bair failed to persuade the Federal Reserve Board on the benefits of a higher leverage ratio. She was furious at being outmaneuvered by the Board based on my critique—which is why I remember the incident so clearly.