Testimony of

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Director of the Committee on Capital Markets Regulation

Before the

Committee on Banking, Housing, and Urban Affairs

United States Senate

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Thank you, Chairman Shelby, Ranking Member Brown, and members of the Committee for inviting me to testify before you today on bank capital and liquidity regulation. I am testifying in my own capacity and do not purport to represent the views of any organizations with which I am affiliated, although some of my testimony is based on the work of the Committee on Capital Markets Regulation (CCMR). My testimony will focus on two key aspects of capital and liquidity regulation. The first is a general overview of the effectiveness of capital and liquidity regulations in reducing systemic risk. Secondly, I will discuss the process by which regulators impose capital and liquidity requirements, with a particular focus on Federal Reserve stress testing of financial institutions.

A capital requirement is a mandated minimum level of equity and subordinated debt (i.e. "capital") as a percentage of a bank's assets. In general, capital requirements have one primary goal – to ensure a minimum level of capital capable of absorbing a bank's potential losses.

The capital requirements in the U.S. today are largely based on the international standards set under Basel III, but are stricter in some respects. Similar to Basel III, we require banks to hold total minimum Tier I and Tier II capital of 8 percent of risk-weighted assets and total minimum common equity of 4.5 percent of risk-weighted assets. By 2019, these requirements will rise to 10.5 percent and 7 percent, respectively. Also similar to Basel III, we apply an additional capital surcharge for the largest banks. However, while Basel III has a top surcharge of 2.5 percent, the U.S. surcharge can reach as high 4.5 percent.[1] In total, a U.S. banking institution with a 4.5 percent surcharge would face a total capital requirement of 15 percent of common equity on a risk-weighted basis when the phase-in is complete in 2019. Basel III has also established a leverage ratio of capital to total assets of 3 percent. U.S. regulators have added on top of this an enhanced requirement for the largest U.S. bank holding companies, increasing the leverage ratio to 4 percent for the eight largest bank holding companies and 5 percent for their insured depository institutions.

Capital requirements are aimed at reducing systemic risk in several ways.

First, capital can reduce the probability of a bank failing. This is important because the failure of several important banks at the same time, from an external shock

[1] See Federal Reserve Press Release, July 20, 2015, available at https://www.federalreserve.gov/newsevents/press/bcreg/20150720a.htm

like the housing price collapse in 2007, could endanger the stability of the financial system and, in turn, the economy. Capital erects a bulwark against such failures.

Second, capital can help to minimize the possibility that connections between banks can lead to a chain reaction of failures. If bank A has a credit exposure to bank B, then bank A's failure would cause losses for bank B that could cause bank B's failure. This could, in turn, trigger the failure of other connected financial institutions.

Third, adequate levels of capital can reduce moral hazard by making it less likely that banks will take risks that could endanger their solvency. This is because the private suppliers of capital would lose their investment if the bank failed and so they will seek to prevent their bank from taking undue risks. Insured depositors do not have similar monitoring incentives.

One should bear in mind that if we could resolve failing banks through effective and swift reorganizations, without the use of public capital, then a bank's failure would be less likely to put the entire system at risk. Minimum capital requirements would therefore be less necessary to protect against bank failures, because the systemic consequences of such a failure would be reduced. Unfortunately, as of now, such a resolution procedure is still a work in progress.

Although capital requirements can serve these important purposes, at any realistic level they cannot prevent the financial contagion that we experienced in 2008, where widespread fears over the stability of the financial system led to a run on short-term funding in both the bank and non-bank sector. Indeed, contagion was the key systemic risk concern in the prior financial crisis and will be the key concern in any future crises.

But capital is not the solution to contagion, because in the midst of a crisis, no reasonable amount of capital will hold up against the panic of short-term debt holders. Even higher capital proposals, such as Admati and Hellwig's suggestion of 20 to 30 percent of total assets, would not prevent failures in the face of contagion.[2] The only sure-fire level of capital that can prevent failure would be 100 percent. However, this would preclude banks from holding any debt, including deposits of any kind. The resulting massive contraction of credit would be completely unacceptable.

The most effective means of combatting contagion is through central bank use of "lender-of-last-resort" liquidity authority and expanded deposit guarantees. During the recent financial crisis, these very means were used to combat contagion. The Fed employed its authority as lender of last resort and the FDIC enhanced deposit guarantees. Much of the Fed lending was conducted through its section 13(3) emergency powers to provide liquidity to nonbank financial institutions.

Unfortunately, Dodd-Frank has pared back many of the very powers that were so successfully deployed during the crisis. The Fed's 13(3) authority and the FDIC's authority to expand deposit insurance have been weakened. We are currently in a world exposed to contagion, but the Fed and FDIC have less effective weapons at their disposal to fight it. Ironically, this lack of contagion-fighting tools could put more pressure on Congress to bail out large financial institutions in the future.

In addition to the limitations on the ability of minimum capital requirements to prevent contagion, devising the content of capital requirements is a daunting task. As mentioned earlier, capital requirements can take the form of a simple leverage ratio,

[2] A. Admati et al., "Fallacies, Irrelevant Facts, and Myths in the Discussion of Capital Regulation: Why Bank Equity is Not Socially Expensive" 55 (Oct. 22, 2013), http://www.gsb.stanford.edu/sites/default/files/research/documents/Fallacies%20Nov%201.pdf.

which compares the bank's capital to its total assets, or more complicated risk-based measures that include risk-weightings of assets.[3] Both simple leverage ratios and risk-based capital ratios have a role in the regulatory framework, but each are flawed in different respects.

The main problem with a leverage ratio is that it requires precisely the same amount of capital for all asset classes, irrespective of their various risk profiles. Effectively, a leverage ratio is a risk-weighted assets approach under which all asset classes are assigned a risk weight of 100%. As a result, the regulatory cost of capital is the same for both high- and low-risk assets, giving bank management an incentive to increase return on equity by investing in high-risk assets with higher returns. Such incentives are inconsistent with prudent risk management and sound banking practice. Indeed, before 1986 the U.S. relied exclusively on a leverage ratio and the weakness of this approach spawned risk-weighting through the Basel Accords.

However, risk-weighted measures are also flawed, primarily due to the difficulty of assigning appropriate risk weights. Under the first Basel Accord, which applied to U.S. banks during the 2008 financial crisis, banks were required to hold 8% capital against all corporate loans—whether to IBM or a fly-by-night startup. On the opposite side of the spectrum, banks were not required to hold any capital against Government debt—whether to Uncle Sam or Greece—reflecting the desire of governments to drum up demand for their debt securities. Finally, banks were only required to hold 4% capital against residential mortgages, whether prime or subprime, as part of the U.S. government's housing promotion policies—and we all know how that turned out. Under the second Basel Accord, large banks were permitted to base their capital calculations on internal

[3] This is part of the Basel approach.

models, which could be opaque and lacked consistency across banks. Smaller banks had to use a more standardized approach based on external credit ratings, and we also know the widespread problems with credit ratings.

The Basel approach to accounting for a financial institution's operational risk has also been flawed. Operational risk is fundamentally different from all other risks taken by banks, such as market and credit risk, but is much harder to measure and model. It accounts for roughly 9 to 13 percent of the total risk of a bank, with legal liability being a major component of it.[4] Despite its importance, however, the approach to measuring operational risk to date has been overly complex and has lacked comparability across institutions.

The Basel III regime has recognized many of these flaws and has made some progress toward addressing the deficiencies in the risk-based system by narrowing the definition of bank capital to rely more heavily on equity, the strongest forms of capital, and improving the calibration of risk-weights, including the treatment of securitized assets and off-balance sheet exposures. It is also currently exploring more reliance on standardized measures as compared with banks' internal models for both credit risk and operational risk. However, getting the standardized measures correct is no easy task and poses as many problems, if not more, than the use of internal models.

In the end, even with the Basel III revisions, both the leverage and risk-weight approaches remain problematic. There is still much disagreement regarding appropriate risk-weighting, whether it should be done by government dictate or bank models, as well

[4] See Mark Ames, Til Schuermann & Hal Scott, Bank Capital for Operational Risk: A Tale of Fragility and Instability, 2014, available at http://fic.wharton.upenn.edu/fic/papers/14/14-02.pdf.

as lack of consensus around the use of simple leverage ratios versus risk-based capital requirements. If one tries to compensate for these flaws by even higher levels of capital than we are now imposing, one is faced with a possible significant contraction of credit, which would have consequences across the entire economy. We must be careful not to let our fear of bad times stifle the possibility of good times.

Before turning to liquidity, I want to briefly mention a new objective that has become a driver of increased capital requirements—to pressure large banks to shrink in order to have a lower capital burden.[5] The underlying idea is that shrinking large financial institutions would make our financial system safer. However, I have seen no evidence supporting this. Indeed, history has demonstrated that financial systems of all shapes and sizes are vulnerable to panic and crashes. In fact, the fragmented system of small banks in the U.S. was a constant source of instability in the 19th and early 20th centuries.[6] If we think large banks may be bad for financial stability, this should be further analyzed, and I commend Neel Kashkari at the Minneapolis Fed for facilitating such a debate. And if we conclude that the existence of large banks increases the likelihood of a financial crisis, then we should require their shrinkage directly, not through the back door of capital requirements (or for that matter for flunking living wills tests).

Although we have always known that liquidity was important, particularly as a means to deal with contagious runs, liquidity requirements are a much more recent form

[5] See Federal Register Vol. 80, No. 157, available at https://www.gpo.gov/fdsys/pkg/FR-2015-08-14/pdf/2015-18702.pdf

[6] See, e.g., Michael D. Bordo et al., Why Didn't Canada Have a Banking Crisis in 2008 (or in 1930, or 1907) (Nat'l Bureau of Econ. Research, Working Paper No. 17312, 2011), http://www.nber.org/papers/w17312.

of prudential regulation and one that did not exist before the 2008 crisis. Before and during the crisis we relied on the Fed to be the liquidity provider, but the heavy criticism of the Fed's role as lender of last resort in 2008 has resulted in a new policy, requiring banks to have their own liquidity as a first line of defense against bank runs. This is despite the fact that it may be more efficient to provide liquidity on a collective basis through the central bank. More specifically, Basel III introduced the liquidity coverage ratio ("LCR") and the net stable funding ratio ("NSFR"). The LCR has a 30-day horizon, requiring a minimum amount of high quality liquid assets ("HQLA") to cover expected funding run-offs. The NSFR has a 1-year horizon.

However, the effectiveness of these new liquidity requirements is unproven. The amount of needed liquidity depends on assumptions about the runoff rates of various types of funding. For example, liquidity regulation assumes that retail funding is much more stable than wholesale funding—while this was true in 2008, Fed lending and the expansion of guarantees may have contributed to this. In the future, Fed lending and an expansion of guarantees may not be available. Further, in the Fed's proposal issued last week to implement the NSFR, the Fed stated that the NSFR builds on the same goals as the LCR, but over a longer horizon.[7] However, contagion and financial crises are issues of short-term panic. It is difficult to imagine a year-long liquidity crisis for a bank, so the justification for the NSFR seems considerably weaker than for the LCR.

There is also a concern that high liquidity requirements for banks could actually decrease liquidity in a crisis. This is because banks that formerly lent to other banks in

[7] See Federal Register Vol. 81, No. 105, available at https://www.gpo.gov/fdsys/pkg/FR-2016-06-01/pdf/2016-11505.pdf.

need of funding during a crisis may now hoard their liquid assets to comply with the new liquidity requirements. While the Fed has said that they would suspend or relax the LCR in a crisis,[8] how this would happen and to what banks it would apply is very unclear. And during normal times, liquidity may also be negatively affected by the combination of the Volcker rule, which limits proprietary trading, and the leverage ratio, which makes it uneconomical for a bank to hold any liquid assets in excess of those required. For example, one measure of bond market liquidity is trading depth, or the trading volume as a share of the outstanding stock of an asset class. Since 2007, U.S. treasuries have lost 70% and U.S. corporate bonds have lost 50% of their trading depth. U.S. high-yield debt is down 30%. So, there is some evidence that bond market liquidity has declined in recent years. Of more concern, however, is how these markets would function under stress—on this subject we need to know much more.

In thinking about capital and liquidity requirements one very fundamental point must be kept in mind—they only apply to banks (albeit money market funds now also have SEC imposed liquidity requirements). This is significant in a financial system where non-bank financial institutions are of increasing importance.[9] The Financial Stability Board ("FSB") reports that the overall size of the non-bank financial sector stands at $80 trillion as of its November 2015 report.[10] In addition, non-bank financial assets have consistently increased by over $1 trillion annually from 2011 through 2015 and, on a percentage basis, the FSB finds that assets of non-bank financial intermediaries has

[8] See speech given by Daniel K. Tarullo, Federal Reserve Board Governor, on Liquidity Regulation at the Clearing House 2014 Annual Conference, Nov. 20, 2014.
[9] Financial Stability Board, *Global Shadow Banking Monitoring Report 2015* 1 (Nov. 2015), *available at* http://www.fsb.org/wp-content/uploads/global-shadow-banking-monitoring-report-2015.pdf.
[10] *Id.* at 2.

reached 59% of aggregate GDP.[11] The costs of meeting capital and liquidity requirements will undoubtedly spur even more growth of the nonbank financial sector. However, given the different business models of other financial firms, such as money market funds, insurance companies and broker-dealers, it would not make sense to impose bank capital and liquidity requirements on them. Indeed, in an Advanced Notice of Proposed Rulemaking released on June 3rd, the Fed indicated its intent to adopt capital requirements that are specific to the insurance industry and not to simply apply bank capital standards.[12]

I turn now to the second part of my testimony, about the *process* for establishing capital and liquidity requirements. Generally, the U.S. regulatory agencies "gold plate" (enhance the stringency of) the Basel requirements and then implement them through rulemakings that must comply with the requirements of the Administrative Procedure Act, which provides for notice and comment, as well as judicial review. Although this process could be improved by a cost-benefit requirement—that is a broad subject for another day that goes well beyond just capital and liquidity regulation.

Of possible concern is the Basel process itself. Once Basel adopts a requirement, the 28 countries that comprise the Basel Committee on Banking Supervision (BCBS), which include the United States, are expected to comply by implementing the international requirements into domestic law. Thus, while the U.S. banking agencies engage in a notice and comment procedure in implementing the Basel Accords domestically, there is very little room for these agencies to depart from what has already

[11] *Id.* at 10.

[12] Board of Governors of the Federal Reserve System, Capital Requirements for Supervised Institutions Significantly Engaged in Insurance Activities, Advanced Notice of Proposed Rulemaking, June 3, 2016, p. 26, http://www.federalreserve.gov/newsevents/press/bcreg/bcreg20160603a1.pdf

been agreed. To the BCBS's credit, this problem has been greatly alleviated by the BCBS itself providing notice and comment procedures as part of their own standards setting process.

But today, the Basel standards are only a piece of the total capital requirements picture. For U.S. banks, stress testing by the Federal Reserve is often the binding capital constraint, meaning that banks are required to hold more capital to pass stress tests than to comply with Basel requirements as implemented in the U.S. And based on recent comments from the Fed, the capital requirements imposed through stress tests will soon be increased even further for the largest U.S. banks.[13]

The Fed adopted rules creating a stress testing process for large financial institutions under its supervision after the financial crisis.[14] The Fed currently conducts an annual stress test as part of the Fed's annual assessment of the capital planning processes used by certain large financial institutions, known as the Comprehensive Capital Analysis and Review (the "CCAR").[15]

The Fed uses the results of the stress tests to assess the ability of those institutions to absorb losses and maintain minimum regulatory capital ratios in stress situations, and ultimately, under the CCAR, to determine whether to object to the capital distribution plans of those institutions. If an institution fails the Fed's stress tests, the Fed can prevent an institution from returning cash to shareholders through dividends or stock buybacks.

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[13] See Ryan Tracy and David Reilly, Fed Governors Signal Bigger Bank Capital Requirements Looming, Wall Street Journal, June 2, 2016.
[14] *See* 12 CFR § 252.41 *et seq.*
[15] Ben S. Bernanke, Chairman of the Board of Governors of the Federal Reserve System, Stress Testing Banks – What Have We Learned? (Apr. 8, 2013). The Fed also conducts an annual stress test under Section 165(i) of the Dodd-Frank Act.

In many ways, I think that stress tests, which are dynamic and look to the future, are an effective way to set capital requirements—they are certainly more in line with how firms themselves think about the need for capital. A major problem with the stress tests, however, is that their design is largely secret and not open to public evaluation. To conduct annual stress tests, the Board adopts a number of components that directly affect the outcome of the tests. In particular, the Fed establishes the hypothetical macroeconomic and financial scenarios that underlie the stress tests, e.g. GDP growth and unemployment rates, assumptions regarding institutions' future capital actions and uses economic models to project each institution's capital levels and ratios under hypothetical scenarios. The Fed adopts the framework's components without subjecting them to public notice and comment. In fact, the Fed does not even disclose the models that it uses to make critical projections as to estimated post-stress capital levels

A possible justification of this approach could be that the Fed views the stress tests as part of the supervisory process, or more technically as "adjudications" rather than "rulemaking" under the Administrative Procedure Act (APA). Adjudication is concerned with the operations of individual institutions based on institution-specific facts compared to rules that apply generally to a large number if not all institutions. Adjudication unlike regulation does not require an agency to follow notice and comment procedures. The argument that the components of the stress tests are adopted as part of adjudication is open to debate because, in fact, the stress test components, like the economic scenarios and undisclosed Fed model, are predetermined and are applied uniformly across institutions.

By not proceeding through notice-and-comment rulemaking, the Fed has exposed the legality of those components of the stress tests to potential legal challenge and uncertainty. It is difficult to see why the public should not have the opportunity to comment, for example, on what would be a reasonable GDP assumption in an extreme scenario in the coming year. In the 2014 CCAR (conducted in 2013), the severely adverse scenario assumed a real GDP decline of 4.75 percent in 2014. In reality, real GDP rose 2.4 percent in 2014. Of course, the purpose of the stress test is to use an adverse scenario, but what are the limits of adversity? Could the Fed assume a meteor would hit the earth?

When it comes to the stress test model the Fed uses to predict losses, special considerations may be at play. Former Fed Chair Bernanke suggested that disclosure of the models, which would have to accompany notice and comment, could cause banks to rely solely on the Fed's stress test models and not maintain an independent risk-management system.[16] Governor Tarullo has added that the Fed does not want to "teach to the test" by disclosing the models, thus allowing companies to construct portfolios to game the system.[17] I think these are valid concerns but there still needs to be more model transparency.

The Fed does subject its models to review by a Fed-established Model Validation Council that consists of five outside experts from the academic community.[18] However, the Fed chooses these experts and no transparency is provided regarding the review process or the actual evaluations of the experts. I recommend increased disclosure of the expert opinions. This can be done without disclosing the actual models themselves.

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[16] Ben S. Bernanke, Chairman of the Board of Governors of the Federal Reserve System, Stress Testing Banks – What Have We Learned? (Apr. 8, 2013).
[17] Governor Danial K. Tarullo, Member of the Board of Governors of the Federal Reserve System, Stress Testing After Five Years (June 25, 2014).
[18] See https://www.federalreserve.gov/aboutthefed/mvc.htm.

Submitting the other components of the stress test framework to public notice and comment would seem legally required, and in any event would result in better decision making, increase public confidence in the process and increase the legitimacy of Fed actions.

Thank you and I look forward to your questions.