

The Consequences of Systemic Regulation for U.S. Regional Banks

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Executive Summary

Reflecting the significant change made on July 20, 2015 by the Federal Reserve for the broader framework of systemic-capital regulation, this study concludes that the direct costs of systemic standards for a sample of U.S. bank holding companies (BHCs) may be at least \$2 billion, resulting in a possible reduction of credit in the markets served by the largest of these BHCs of 5.7 to 8 percent.

Over a five-year period, this reduction in lending by regional banks could total approximately \$14 to \$20 billion.

This paper assesses the direct and indirect costs of subjecting traditional U. S. BHCs with assets over \$50 billion to the systemic-regulatory and resolution framework mandated in the 2010 Dodd-Frank Act. It reflects quantitative and qualitative analyses by Federal Financial Analytics, Inc. and represents the firm's views. We note that simple cost numbers without context are an ill-advised guide to policy, especially given the unquantifiable economic and human costs of systemic crises. However, a clear understanding of costs weighted against the benefits not only of stability, but also the role smaller banks play in the financial market will inform policy on pending legislative and regulatory matters. All costs have consequences and we thus here lay out those that can be clearly attributed to systemic rules applied to BHCs with assets above \$50 billion.

The study also concludes that eliminating statutory requirements for many systemic standards would have minimal effect on applicable prudential and resolution standards. We find that the stress-test, risk-management, and resolution-planning standards would not change so materially as to result in significant cost savings to affected regional BHCs or to pose new financial-stability risk. We also conclude that the continuation of these standards, combined with the traditional nature of these BHCs, makes it increasingly unlikely that failures across a wide spectrum of smaller BHCs could have systemic impact, including in regional financial markets that are also served well by the largest U.S. banks and non-banks. Cost savings where applicable will, however, enhance the relative competitiveness of regional BHCs and thus permit the continuation of banking services well adapted to local market conditions and community needs.

If banks exit traditional lending and deposit-taking services due to heightened, unnecessary regulatory cost, then markets may be under-served and increasingly vulnerable to higher-risk, higher-priced offerings that raise consumer-protection and market-stability risk. Due to the absence of like-kind regulation for like-kind financial products, significant market distortions are already evident. The absence of effective prudential and resolution standards for many of these "shadow banking" providers poses risks that will increase if regulatory costs applicable to banking organizations are disproportionate to risk, with research presented here demonstrating that a significant transition of consumer and small-business lending is already under way.

Key Points

- Subjecting twenty traditional BHCs to the additional rules required by the Dodd-Frank Act for BHCs with assets over \$50 billion costs these BHCs at least \$2 billion a year. This cost could reduce new lending by banks subject to the GSIB add-on charge by 5.7 percent to 8 percent.
- Systemic regulation is warranted where there is systemic risk, but it adds significant cost and reduces the ability of banks to meet market needs when rules are disproportionate to risk. If banks exit traditional lending and deposit-taking services due to unnecessary regulatory cost, then markets may be under-served and increasingly vulnerable to higher-risk, higher-priced offerings that raise consumer-protection and market-stability risk. Due to the absence of like-kind regulation for like-kind financial products, significant market distortions are already evident.
- Eliminating statutory requirements for many systemic standards would have minimal effect on applicable prudential and resolution standards. Regional BHCs are already subject to stringent stress testing, resolution-planning, credit-exposure limits, and risk-management standards. Federal and state regulators also have extensive powers to sanction individual banking organizations without resort to systemic regulation.
- Measuring systemic risk solely by size is no longer viewed as an effective method of determining systemic-risk potential. Many regulators and policy-makers now believe that governing activities and practices are a better way to contain systemic risk.

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I. Introduction

Congress is now considering legislation that would revise the threshold set in 2010 by the Dodd-Frank Act for the amount of assets that triggers systemic regulation for U.S. bank holding companies (BHCs).¹ Various proposals to do so have been introduced, including one bill—S. 1484—approved by the Senate Banking and Appropriations Committees for further consideration.² House legislation³ has also been introduced and may advance in the fall.

The issues surrounding this systemic-designation threshold for BHCs are controversial. Some have recommended that the current threshold—\$50 billion in consolidated assets—be raised to a higher dollar amount. For example, Federal Deposit Insurance Corporation (FDIC) Vice Chairman Hoenig has proposed a different approach in which activities and exposures—not size—would determine systemic status.⁴

The Senate legislation mandates designation above \$500 billion, but permits the Financial Stability Oversight Council (FSOC) and Federal Reserve Board (FRB) to name systemic BHCs below this threshold based on risk characteristics. Advocates for change believe the flexible approach better reflects risk and addresses costs otherwise unnecessary for smaller BHCs that impede their ability to serve local markets. However, others oppose any change on grounds that it would unduly loosen the post-crisis reform framework or pose systemic risk should more than a few BHCs with assets over \$50 billion fail at the same time.

This paper takes no position on the specifics of the legislation. Instead, it lays out the structure of rules that would apply to BHCs with assets over \$50 billion if the current threshold is retained and provides quantitative and qualitative analytics on the cost of these standards, as well as on potential offsetting benefits of retaining current rules or revising the designation threshold.

We thus lay out the cost of the Dodd-Frank systemic rules for a sample of traditional U.S. BHCs with assets above \$50 billion, focusing not on what this means to BHCs and their shareholders, but rather on how these costs could translate into broader macroeconomic or policy consequences. We here also lay out the over-arching rationale in the Dodd-Frank Act and subsequent regulation for the designation criterion—that firms that fail will do great damage that cannot be contained with existing resolution mechanisms (i.e., bankruptcy and the authority of the FDIC to resolve troubled insured depositories). Much in the current framework of enhanced prudential regulation is designed to address the negative externalities referenced above. We thus analyze the construct of current resolution mechanisms for BHCs with assets over \$50 billion and any potential negative externalities that might warrant more stringent regulation than that applied to smaller BHCs.

¹ Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203 (Jul. 21, 2010), § 165, available at <http://www.gpo.gov/fdsys/pkg/PLAW-111publ203/pdf/PLAW-111publ203.pdf>.

² Financial Regulatory Improvement Act of 2015, S. 1484, 114th Cong. (2015), available at <https://www.congress.gov/114/bills/s1484/BILLS-114s1484pcs.xml>.

³ Systemic Risk Designation Improvement Act of 2015, H.R. 1309, 114th Cong. (2015), available at <https://www.congress.gov/114/bills/hr1309/BILLS-114hr1309ih.pdf>.

⁴ FDIC Vice Chairman Thomas Hoenig, At the Interagency Outreach Meeting on The Economic Growth and Regulatory Paperwork Reduction Act, Federal Reserve Bank of Kansas City, August 4, 2015, available at <https://fdic.gov/news/news/speeches/spaug0415.html>.

II. Analytical Objectives

We do not here suggest that cost-benefit analytics should be the sole guide to financial law or rule. Simple quantitative analytics are often ill-suited for meaningful cost-benefit conclusions. Direct and indirect costs are often hard to quantify from robust, comparable public information that measures real costs—not just those resulting from record-keeping or similar administrative tasks, expensive though these sometimes may be. Further, benefits—i.e., a lower probability of costly bank failures and/or financial crises—are difficult both to prove and quantify.

Nonetheless, numbers that reflect real direct and indirect costs inform policy-making and refine trade-off decisions.⁵ Thus, we define the rules that govern U.S. BHCs under the current Dodd-Frank framework and quantify meaningful direct costs where possible from analytics verifiable from public data. We also describe indirect costs—especially those that may pose long-term policy problems—for further consideration in light of expectations that more rules always mean less risk.

This paper is intended to inform the pending debate, not to advocate for any specific solution to it. It thus does not recommend a specific designation threshold, designation criteria, or any other changes to the Dodd-Frank Act. Instead, after laying out the cost of systemic regulation, we assess whether its offsetting benefit—which we view as resolvability without resort to taxpayer bail-outs or other negative externalities—is meaningfully addressed by these rules. If it is, then the cost of all these rules has an offsetting policy benefit; if costs are not meaningfully outweighed, then the costs have unintended and undue implications for the ability of smaller BHCs to compete against non-banking firms increasingly active in traditional financial services.

The transformation of the U. S. financial market into one with still more reliance on less-regulated companies has long-term implications for financial stability, consumer protection, and local credit availability. These considerations are thus also analyzed below.

III. Dodd-Frank Systemic Standards

To evaluate the impact of the Dodd-Frank Act's designation thresholds, it is first important to know what follows upon designation. For non-bank institutions that might be deemed systemically-important financial institutions (SIFIs), the law gives FSOC considerable designation discretion based on broad risk indicators. So far, only four non-bank SIFIs have been designated. However, the law sets the \$50 billion threshold cited above for BHCs, giving FSOC no discretion comparable to that for non-bank SIFIs, although the FRB may differentiate systemic BHC regulations by size or risk indicators. To date, the FRB has generally not done so, instead indicating that examiners will implement new systemic standards based on each BHC's size, complexity, activities, or other factors. The FRB has, however, singled out eight very large BHCs designated as global systemically-important banks (GSIBs) that are subject now to an enhanced supplementary leverage ratio⁶ and to a risk-based capital surcharge.⁷

⁵ Greg Ip, *Missing in Financial Rules Debate: Hard Numbers*, Wall Street Journal, May 13, 2015 at <http://www.wsj.com/articles/missing-in-financial-rules-debate-hard-numbers-1431545139>.

⁶ Office of the Comptroller of the Currency (OCC), FRB, and FDIC, *Regulatory Capital Rules: Regulatory Capital, Enhanced Supplementary Leverage Ratio Standards for Certain Bank Holding Companies and Their Subsidiary*

Although the law does not differentiate BHCs by size or other criteria above the \$50 billion threshold, it does stipulate the standards that must apply to them. These must be more stringent than those applicable to other BHCs and encompass:

- **Capital Standards:** These generally require higher risk-based capital and leverage rules for BHCs with assets above \$50 billion, but the statute gives the FRB flexibility here. The Board, along with other banking agencies, has thus not imposed the advanced version of the U.S. Basel III rules on BHCs and banks with assets below \$250 billion not affiliated with large BHCs.
- **Liquidity Requirements:** The FRB and banking agencies impose the most stringent form of these rules on banks and BHCs with assets over \$250 billion.⁸ BHCs and banks between \$50 billion and \$250 billion are subject to liquidity rules considerably more stringent than those applicable to other banks, but BHCs with assets above \$50 billion but below \$250 billion have a modified version of the rules. The FRB has also imposed additional liquidity requirements applicable solely to BHCs with assets above \$50 billion.
- **Resolution Planning (i.e., “living wills”):** The FDIC and FRB have phased in these requirements for BHCs above \$50 billion, but not materially varied the standards required of these BHCs.⁹
- **Credit-Exposure Limits:** These govern credit risk to single counterparties and have not been finalized for systemic BHCs.
- **Contingent Capital:** Here, the FRB has express authority not to govern smaller BHCs. It remains to be seen if it will do so when the U.S. moves to implement global rules mandating “total loss absorption capacity,” a form of contingent capital, although it now appears likely that it will not do so.¹⁰
- **Enhanced Disclosures:** So far, these have been imposed in concert with other rules and thus apply to BHCs with assets above \$50 billion depending on the underlying regulation.
- **Stress Tests:** These govern BHCs with assets over \$50 billion in their most stringent form (albeit on a phased schedule). The law also requires stress tests designed by companies—not the FRB—for banks and BHCs with assets over \$10 billion.

Insured Depository Institutions, 79 FR 24528 (May 1, 2014), available at <http://www.gpo.gov/fdsys/pkg/FR-2014-05-01/pdf/2014-09367.pdf>.

⁷ FRB, *Regulatory Capital Rules: Implementation of Risk-Based Capital Surcharges for Global Systemically Important Bank Holding Companies*, 12 C.F.R. §217, (2015), available at

<http://www.federalreserve.gov/newsevents/press/bcreg/bcreg20150720a1.pdf>.

⁸ OCC, FRB, and FDIC, *Liquidity Coverage Ratio: Liquidity Risk Measurement Standards*, 79 FR 61440 (October 10, 2014), available at <http://www.gpo.gov/fdsys/pkg/FR-2014-10-10/pdf/2014-22520.pdf>.

⁹ FRB and FDIC, *Resolution Plans Required*, 76 FR 67323 (November 1, 2011), available at <http://www.gpo.gov/fdsys/pkg/FR-2011-11-01/pdf/2011-27377.pdf>.

¹⁰ Financial Stability Board (FSB), *Adequacy of Loss-Absorbing Capacity of Global Systemically Important Banks in resolution* (Nov. 10, 2014), available at <http://www.financialstabilityboard.org/wp-content/uploads/TLAC-Press-release.pdf>.

- Risk-Management Standards: As finalized, these include requirements for chief risk officers and an array of new procedures designed to ensure proper and independent risk management at all BHCs with assets over \$50 billion.¹¹ Again, similar but less stringent standards apply to BHCs with assets over \$10 billion.

The Dodd-Frank Act also requires that any company found by the FSOC to pose a “grave threat” be subject to a 15:1 debt-to-equity ratio. The Federal Reserve’s 2012 proposal laying out the systemic framework addresses what would happen upon any such designation, giving affected firms at least 180 days to meet the new requirement.¹² This standard is in essence a backstop mandated by Congress to give regulators authority quickly to rein in a high-risk financial company (with this provision like most others governing all systemic financial companies, not just BHCs). It is thus an additional tool that can be deployed to govern problematic companies—or to threaten them to reduce risk—regardless of the designation thresholds and procedures elsewhere laid out in the law and subsequent regulation.

The law also stipulates “early-remediation” standards for BHCs with assets over \$50 billion. These have to date been issued only in proposed form.¹³ They build on the prompt corrective action (PCA) standards that already govern all BHCs and banks to reduce regulatory discretion and, should a BHC fall below the “well-capitalized” level, eliminate it in many respects. Failure to comply with most of the systemic-BHC standards outlined above would also trigger strict early-remediation.

The Dodd-Frank Act also requires that any BHCs acquiring an insured depository across state lines demonstrate to the Federal Reserve that it is well-capitalized both before and after the acquisition. This requirement would not be lifted if only the \$50 billion threshold were adjusted, but the definition of “well-capitalized” could be revised because regional banks not deemed systemic would not be covered by the supplementary requirements described above. As a result, the well-capitalized standard would be less stringent, and regional-bank transaction capacity could increase. Regional banks with assets over \$50 billion would thus have greater capital capacity for merger-and-acquisition activity. A change in the \$50 billion threshold would expressly alter provisions in the Act¹⁴ that limit the ability of BHCs above \$50 billion to acquire an otherwise-permissible non-banking company. This provision now limits the ability of these BHCs to acquire non-banking companies active in areas such as securities, insurance, lending, and financial technology.

IV. Shift to Shadow Banking

If banks—big, small, or regional—are stressed for earnings due to management mistakes, reluctance to change, or generally-adverse business conditions, then that is the luck of what one might call the capitalist draw. Banks, like other publicly-held companies, are in business for shareholder return. If

¹¹ FRB, *Enhanced Prudential Standards for Bank Holding Companies and Foreign Banking Organizations*, 12 C.F.R. § 252 (2014), available at <http://www.gpo.gov/fdsys/pkg/FR-2014-03-27/pdf/2014-05699.pdf>.

¹² FRB, *Enhanced Prudential Standards and Early Remediation Requirements for Covered Companies*, 77 FR 594 (Jan. 5, 2012), available at <http://www.gpo.gov/fdsys/pkg/FR-2012-01-05/pdf/2011-33364.pdf>.

¹³ *Id.*

¹⁴ Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203 (Jul. 21, 2010), § 163, available at <http://www.gpo.gov/fdsys/pkg/PLAW-111publ203/pdf/PLAW-111publ203.pdf>.

they do not achieve this to investor satisfaction due to market factors, then the BHC either changes or disappears when markets are efficient and serve customer need.

If, however, competitiveness is driven not by traditional business forces, but instead by government policy, then business-model challenges are rightly a policy consideration. If a BHC changes, this may be beneficial—i.e., the company is more resilient—but results can also be unintended and have long-term, negative consequences for market stability and customer service. We here evaluate the extent to which the direct and indirect costs of the Dodd-Frank rules combine with the overall cost of the post-crisis regulatory framework to accelerate the transition of traditional banking services to “shadow banks” and the impact of any such change.

“Shadow banks” is a generic term adopted not to signify that these non-bank providers of traditional financial services are shady, but rather that they generally operate outside the regulatory, transparency, and other policy requirements governing chartered banking organizations. This is warranted when the business model of a shadow bank is materially different from that addressed by bank regulation or when activities are not directly or indirectly backed by taxpayers (e.g., through deposit insurance or central-bank access). But, if regulation is the driving force that differentiates where like-kind activities land—that is, in banks or shadow institutions—then the impact of regulations driving activities outside the ambit of prudential regulation requires careful consideration.

A. Impact on Bank Assets

The FSB provides the most reliable estimate of the scope of shadow banking, with its most recent study showing that U.S. shadow banks held 129 percent of the assets in traditional banks in 2013.¹⁵ One might argue that the dramatic presence of non-bank financial providers in the U.S. reflects the longstanding role of capital-market financing in this country, and this is one reason why the U.S. percentage for shadow banks in the FSB survey is by far the largest observed. However, it is also clear that shadow banks play a major and growing role even in the far more traditional deposit and lending services provided by the regional banks analyzed here and also by the very smallest banks. Some of this change is surely due to varying investor appetites for risk and greater willingness to innovate, but much is also due to the sharp differences in applicable regulation and resulting competitiveness advantages.

In its most recent assessment of banking-system risk,¹⁶ the Office of the Comptroller of the Currency observed that, “Banks continue to face competitive pressure from nonbank firms expanding into traditional banking activities.”¹⁷ Those detailed in the OCC’s report include commercial lending—once the bread-and-butter of banking, but now an area where even mid-sized companies are increasingly served by non-banking entities such as business development companies and private-equity firms.¹⁸

¹⁵ FSB, *Global Shadow Banking Monitoring Report 2014*, (October 30, 2014), available at http://www.financialstabilityboard.org/wp-content/uploads/r_141030.pdf?page_moved=1.

¹⁶ OCC, *Semiannual Risk Perspective from the National Risk Committee*, (Spring 2015), available at <http://www.occ.gov/publications/publications-by-type/other-publications-reports/semiannual-risk-perspective/semiannual-risk-perspective-spring-2015.pdf>.

¹⁷ *Id.*

¹⁸ Christine Idzelis and Craig Torres, *Risky Loans Shunned by Banks Are Booming in Wall Street’s Shadow*, Bloomberg Business, May 22, 2015 at <http://www.bloomberg.com/news/articles/2015-05-22/wall-street-flouts-fed-standards-to-fund-high-risk-loans>.

The OCC report not only raises the specter of significant weakening in the U.S. banking system as a result of this market transformation, but also notes market risks resulting from the ability of non-banks to engage in leveraged lending despite regulatory efforts to constrain this at banks.¹⁹ Commercial-real-estate lending is also problematic, with the OCC noting the growing role of insurance companies, private-equity firms, and securitizers. A recent study has posited that regulation has a particularly strong impact on small and mid-size business borrowers because large companies have access to the debt market.²⁰ This makes these borrowers particularly fertile ground for non-bank products if banks are unable to serve their credit needs.

A similar picture is seen upon examination of consumer lending. The OCC report does not detail the major changes in mortgage finance, but a recent study has found that non-banks accounted for 42 percent of total dollar-volume originations in 2014 compared to just 12 percent in 2010.²¹ The same study determined that non-banks were responsible for 28 percent of outstanding servicing balances among the top forty servicers in 2014, versus just eight percent in 2010.²² These nonbank seller-servicers, some of whom regulators fear pose significant counterparty and consumer risk, have taken up a once-core banking activity, in part due to rules such as new capital charges for mortgage servicing rights.

New entrants into other retail finance markets—e.g., those offering person-to-person financing—are also rapidly restructuring consumer and small-business lending, with large finance companies and technology firms also playing major roles. A new study has estimated that non-bank competition in traditional consumer and small-business lending products could cost BHCs as much as \$11 billion per year in profit.²³ Given the importance of regional BHCs in these markets, the costs would be particularly heavy for the BHCs in this sample not just in terms of lost profitability, but also to their ability to meet market need and offer their traditional financial-intermediation services. Given that, as noted, smaller companies are most dependent on bank-credit channels and systemic-capital surcharges may adversely affect regional-bank balance-sheet capacity, higher capital intended for risks not generally presented by traditional, regional BHCs could have significantly adverse consequences in local markets.

B. Liabilities

To analyze the impact of rules on the ability of banks to serve their customers, one must look not only at assets (i.e., loans), but also at the ability of banks to gather needed funds. This process—gathering funds and using them to make loans—is known as financial intermediation and it is the basic business of banking. Bank deposit-taking also ensures a secure “store of value” for customers—that is, a repository

¹⁹ OCC, FRB, FDIC, *Interagency Guidance on Leveraged Lending*, FDIC FIL-13-2013 (Mar. 22, 2013), available at <https://www.fdic.gov/news/news/press/2013/FR-LL-Preamble-and-Guidance.pdf>.

²⁰ Steve Strongin, Amanda Hindlian, Sandra Lawson, et al., *A Two-Speed Economy*, (Goldman Sachs Global Markets Institute, April 2015), available at <http://www.goldmansachs.com/our-thinking/public-policy/regulatory-reform/2-speed-economy-report.pdf>.

²¹ Marshall Lux and Robert Greene, *What’s Behind the Non-Bank Mortgage Boom?*, (Harvard Kennedy School, June 2015), available at <http://www.hks.harvard.edu/centers/mrcbg/publications/awp/awp42>.

²² *Id.*

²³ Ryan M. Nash and Eric Beardsley, *The Future of Finance, Part 1: The rise of the new Shadow Bank*, 3 (Goldman Sachs Global Investment Research, March 3, 2015), available at http://www.betandbetter.com/photos_forum/1425585417.pdf?PHPSESSID=7406416a94128a8eca87ec315399c75c.

of customer funds that is secure from any loss of principal, especially when sums are protected by deposit insurance. The critical importance of both financial intermediation and this store-of-value function is reflected in the unique benefits enjoyed by banks—i.e., deposit insurance and access to central-bank liquidity—as well as by the body of rules designed to ensure that both deposit-taking and lending (along with other banking activities) are safe, sound, and—of critical importance—stable in both good and bad times. If providers of funds are unable to gather them or lend them out under stress scenarios, markets become “procyclical”—that is, they experience volatile boom-bust cycles with adverse macroeconomic effect.

This procyclicality was evident during the 2007-08 crisis in the role played by Bear Stearns, Lehman Brothers, AIG, the U.S. government-sponsored enterprises, and the Reserve Primary Fund. Several recent studies have evaluated the role “shadow liabilities” played not only at each of these institutions and the resulting crisis, but also in the overall vulnerability of U.S. financial markets to procyclicality.²⁴ Much in this work focuses on the ability of the very largest U.S. banks to engage in activities like repurchase agreements that support market liquidity, but it also makes clear that cash-equivalent instruments like money-market funds (MMFs) have become major alternatives to traditional bank deposits. Investments gathered for MMFs and mutual funds do not offer protection against loss of principal, despite the fixed net-asset values (NAVs) associated with many funds. These funds may also not support transaction and payment processing in an equivalent fashion to bank deposits, creating barriers to investor liquidity and market function. To the extent they intermediate funds provided by their investors—i.e., by holding these investments in funds comprised largely of corporate loans—they do so without any of the capital restrictions applicable to banks. The rationale for this is that investors—not the offering investment company—take risk, which is correct with regard to how these funds are structured. However, yield or other features of asset-management products—while arguably appropriate in their own context—may be enhanced by the general absence of prudential regulation, creating strong drivers under normal conditions for funds previously housed in regional-bank deposits to flow to non-bank “shadow liabilities.”

C. Risk of Market Transition to Shadow Banking

To be sure, shadow banking can encourage market innovation, as well as provide products and services not suitable for regulated banks with a federal backstop for depositors and liquidity facilities at the FRB. Balancing these benefits with risk is a critical undertaking for both U.S. and global bank regulators in the wake of the financial crisis.²⁵ Policy in the U.S. and across the globe remains fragmentary, with actions in the U.S. largely focused on designating a few non-bank SIFIs and constraining MMF liquidity risk.

²⁴ Alan Moreira & Alexi Savov, *The Macroeconomics of Shadow Banking* (July 2014), available at http://www.newyorkfed.org/research/conference/2014/wholesalefunding/TheMacroeconomicsofShadowBanking_Moreira.pdf; Francesco Ferrante, *A model of endogenous loan quality and the collapse of the shadow banking system* (March 2015), available at <http://www.federalreserve.gov/econresdata/feds/2015/files/2015021pap.pdf>; and Joe Peek and Eric S. Rosengren, *The Role of Banks in the Transmission of Monetary Policy* (September 9, 2013), available at <http://bostonfed.org/economic/ppdp/2013/ppdp1305.pdf>.

²⁵ FSB, *FSB launches and invites feedback on its Peer Review on implementation of the FSB policy framework for shadow banking entities*, (July 2, 2015), available at <http://www.financialstabilityboard.org/2015/07/fsb-launches-peer-review-on-the-implementation-of-its-policy-framework-for-shadow-banking-entities-and-invites-feedback-from-stakeholders/>.

It is, however, clear from this body of research that the transition of key functions from traditional BHCs is well under way and poses an array of potential concerns that are exacerbated to the extent regulatory forces distort normal market function. Risks to consider include:

- **Procyclicality:** As noted, non-banks lack central-bank access, deposit insurance, and an overall business model predicated on continuing financial intermediation. Should a hedge fund active in mortgage finance determine under stress that it cannot or should not accumulate more mortgage assets, it can shift to other asset classes. Banks with established mortgage-finance operations are more likely to continue to offer mortgages, protecting market liquidity and macroeconomic resilience. This is because such banks have extensive origination, servicing, and securitization infrastructure that cannot be readily deployed to other activities. If these are suddenly shuttered, significant internal disruptions and supervisory problems ensue at banks which may not be applicable to non-bank participants in residential-mortgage finance. Banks in all business lines are also subject to stringent loan-loss reserve requirements under prudential standards above and beyond those stipulated by accounting standards. These provide a cushion above and beyond capital (not generally held in significant amounts at shadow firms) with which to absorb loss and insulate markets from boom-bust cycles.
- **Security:** Funds housed in non-banks are exposed to risk of loss of principal—i.e., that the amount of funds may be less upon an effort to retrieve them. This can be due to the risk taken with these funds or the lack of liquidity with which to honor redemption demands. When funds housed in non-banks are also used for transaction-execution purposes, risk of loss of principal may be greater due to internal complexity at non-bank providers of payment services, who often rely on third-party service providers.
- **Uncertain Monetary-Policy Transmission:** U.S. monetary policy, like that in much of the world, is premised on the role banks play in financial intermediation. Several recent studies have concluded that the transition of markets, especially those germane to shadow liabilities, may make it considerably more difficult for central banks to meet their goal of preventing both unemployment and inflation.²⁶
- **Compliance:** Although the banking industry has not always ensured internal controls and borrower protection to either its satisfaction or that of the public, traditional banks have established compliance programs recently improved at considerable cost to the industry and to the BHCs in this study. Many shadow banks active in key asset classes, especially those relevant to lower-income consumers, lack either these embedded compliance systems or the governance necessary to monitor them. Regulation ensuring compliance can also be a patchwork of state and/or federal rules for non-banks, in sharp contrast to the many standards clearly governing all of the BHCs in this study and the rest of the U.S. banking industry.

²⁶ Peek and Rosengren, *The Role of Banks, op. cit.*; CGFS, *CGFS Papers No 54: Regulatory change and monetary policy*, (May 30, 2015), available at <http://www.bis.org/publ/cgfs54.pdf>.

V. Resolvability

Perhaps the most significant aspect of the Dodd-Frank Act is its effort to end too big to fail (TBTF) financial institutions not only through tougher rules that curb negative externalities, but also by new resolution protocols that limit the ability of failing financial institutions to damage financial stability or national prosperity. The law does this in two ways:

- first, living wills described below must plan for BHC resolution under the U.S. Bankruptcy Code or applicable insolvency law, not any form of government support, including that provided elsewhere in the law; and
- the orderly liquidation authority (OLA) resolution option discussed below.

If BHCs can demonstrate resolvability under bankruptcy, then they are unlikely to pose systemic risk, especially if their negative externalities are otherwise minimal as measured under the designation criteria discussed below. We here thus examine the extent to which the regional BHCs studied here are likely to be resolvable without resort to governmental support.

OLA does not directly provide this government support—it is very difficult to initiate and intended to be accomplished without any taxpayer backstop. A series of pending U.S. rules are being implemented to ensure that this in fact occurs should OLA ever be deployed. However, even if it is, and then even if taxpayer support is required, systemic institutions would need to reimburse the taxpayer for any such assistance provided to a failed competitor.

A. Marketplace and FDIC Resolutions

The regional BHCs in this sample are generally traditional BHCs with few non-traditional activities. Where these do exist (e.g., travel-agency services), they generally do not involve balance-sheet or other financial risks, nor are they as complex, concentrated, or inter-connected in the global financial system as activities like securities financing, payment-and-settlement services, or wholesale finance (i.e., those cited by the Office of Financial Research (OFR) as potential sources of systemic risk).²⁷ The resolvability framework of these BHCs is thus considerably different than that of many GSIBs.

Historically, regional BHCs have not had to be resolved through bankruptcy and FDIC receiverships because the U.S. banking system was resilient enough to absorb troubled institutions through merger-and-acquisition (M&A) transactions. Some of these were structured by the FDIC (so-called purchase-and-assumption transactions) under the statutory mandate that any M&A in which the FDIC participates be done at the least cost to the Deposit Insurance Fund and, by inference, the taxpayer.²⁸ Many other M&As occurred prior to FDIC intervention because weakened BHCs sought a private-sector resolution that preserved as much value as possible for their shareholders. These transactions also ensured continuing customer service and, in many cases, improved service due to the better infrastructure of an acquiring BHC and its wider range of product offerings. There is, of course, always a loss of local-

²⁷ OFR, The Puzzle of Low U.S. Treasury Yields, (Apr. 27, 2015), available at <http://financialresearch.gov/financial-markets-monitor/files/OFR-FMM-2015-04-27-puzzle-of-low-us-treasury-yields.pdf>.

²⁸ Federal Deposit Insurance Act of 1950, Pub. L. No. 81-797 (Sept. 21, 1950), § 13(c)(4), available at <https://www.fdic.gov/regulations/laws/rules/1000-1500.html>.

community knowledge in M&A transactions, especially when a relatively small bank is acquired by a far larger one.

M&A is thus a ready resolution option for troubled BHCs and their subsidiary banks that either avoids or minimizes cost to the FDIC and the overall marketplace. During the crisis, only the very largest BHCs had the capital capacity to acquire large, failing BHCs. This further concentrated the U.S. banking system and led to additional M&A constraints in the law, including a new limit on the percentage of overall financial liabilities any financial-services company may hold.²⁹ The GSIB capital constraints and other factors also make it very difficult going forward for the largest U.S. BHCs to acquire other U.S. banking organizations. These leave three remaining possible participants in future M&A transactions:

- non-banks, with M&A here now easier due to the expiration of the three-year moratorium in Dodd-Frank on such transactions.³⁰ Non-bank acquisitions of larger BHCs raise the shadow-banking issues referenced above;
- foreign financial institutions, with several of these playing increasingly important roles in the U.S. financial system; or
- other regional BHCs.

Regional BHCs are, however, hampered by all of the restrictions described here in making new acquisitions of size. As noted, they—like all other U.S. BHCs—must demonstrate that they will be well-capitalized before and after an M&A transaction to obtain FRB approval. The higher the capital standards, the less likely this will be. As a result, Dodd-Frank systemic provisions, which materially increase the difficulty of achieving this well-capitalized status, may make it less likely that regional BHCs will acquire other U.S. BHCs.

This will lead either to greater M&A in this sector by non-banks and foreign firms or a larger number of resolutions for the FDIC. In the absence of buyers willing to engage in purchase-and-assumption transactions, the cost to the FDIC in these cases is likely to be considerably higher going forward.

B. Systemic Resolutions

As noted at the outset of this paper, some have suggested that none of the added cost, reduced credit availability, or other considerations analyzed in this paper argue for greater flexibility in regional-BHC regulation. They fear that, in the absence of full-force systemic regulation for BHCs down to the Dodd-Frank \$50 billion threshold, systemic risk could manifest itself across so many regional BHCs all at once as to pose systemic risk akin to that of a single GSIB or other financial behemoth.

As noted, none of the BHCs in this study appears to exhibit any of the size, complexity, inter-connectedness, or cross-border factors used to date to designate SIFIs. It is very clear that none of the regional BHCs studied here is a provider of critical-infrastructure services, let alone of any such services at such scale as to make it difficult for another provider to substitute for any or indeed all of these regional BHCs. Several BHCs analyzed here are large credit- and charge-card providers, but this market is dependent for payment infrastructure largely on third-party providers not basing their survival on any

²⁹ Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203 (Jul. 21, 2010), § 622, available at <http://www.gpo.gov/fdsys/pkg/PLAW-111publ203/pdf/PLAW-111publ203.pdf>.

³⁰ *Id.*, § 603.

of these BHCs. No BHC studied here provides custody, prime-brokerage, derivatives, or other services deemed critical at scale.

As a result, there are likely to be only two scenarios that would create a simultaneous implosion of so many regional BHCs all at once as to constitute a systemic crisis in which an OLA intervention might be required:

- an external threat that strikes many U.S. financial-services firms at once. The 9/11 attacks are a case in point, with cyber-attack and geopolitical risk now top concerns in the arena of what are often called exogenous shocks. Many rules now govern regional BHCs in the same way as larger BHCs (e.g., with respect to cyber resilience), and the recovery-and-resolution plans required of them also address these risks. Access to the FRB for liquidity support under conditions like a terrorist attack are also a critical support of all banking organizations. The additional layers of systemic regulation largely do not improve resilience or recovery following exogenous shock beyond these steps; and
- correlated risk across the sector resulting from a set of correlated lending or related decisions (e.g., endogenous shocks) that weaken many regional BHCs at the same time and to a scale the FDIC alone cannot handle. The array of prudential and concentration rules applied to regional BHCs regardless of the Dodd-Frank systemic standards are expressly designed to prevent high-risk behavior at each BHC. Growing interest at the FRB in “macroprudential” regulation—that is, monitoring risks across the banking system—has also significantly improved supervision in this area and thus reduced the likelihood of a highly-correlated endogenous shock across the twenty BHCs analyzed here.

VI. Regional BHC Systemic-Risk Potential

The \$50 billion threshold discussed throughout this paper and the rules governing BHCs above this limit are principally contained in Title I of the Dodd-Frank Act, which is separately entitled the “Financial Stability Act” within the body of Dodd-Frank to distinguish its purpose from the law’s many other provisions. As this title suggests, the purpose of Title I is to ensure that new standards supplement those in place prior to the crisis to ensure financial stability—that is, to prevent a repeat of the 2007-08 systemic-risk debacle. Other provisions in the Dodd-Frank Act address other financial-stability issues—e.g., over-the-counter derivatives—as well as other concerns—e.g., enhanced consumer or investor protection. However, the clear purpose of Title I and, within it, the \$50 billion threshold, is to prevent renewed systemic risk to the greatest extent possible.

In the years since these requirements were enacted, global and U.S. regulators have enhanced their understanding of the systemic risk posed both within and outside of traditional banks. This has led not only to the GSIB designation and regulatory standards, but also to growing consensus that systemic risk is often best addressed by rules that govern activities and practices, not those that designate institutions regardless of their risk to financial stability.³¹ We here thus assess the potential that one or even all of the BHCs analyzed in this study could pose the risk to financial stability as initially feared when the Dodd-Frank Act was enacted in 2010.

³¹ John Heltman, *Fed’s Tarullo Favors Activities-Based Regulation for Asset-Managers*, American Banker, June 4, 2015 at <http://www.americanbanker.com/news/law-regulation/feds-tarullo-favors-activities-based-regulation-for-asset-managers-1074709-1.html>; Thomas Hoenig, Regulatory Relief, *op. cit.*

In 2014, when the FRB proposed the new GSIB capital surcharge, Chair Yellen and others posited that “negative externalities” dictate systemic risk.³² “Negative externalities” is an economics term meaning that what one party does may not harm it, but still has damaging effects on others—i.e., that a large BHC’s failure might not harm senior management, directors, or even shareholders, but nevertheless damages the broader financial system or even the national economy.

To assess the potential for regional BHCs to prove systemic, it is thus necessary to identify any negative externalities they might generate. If a BHC as small as \$50 billion could do meaningful damage to U.S. or global financial stability as it falters or fails, then the new systemic framework atop the newly-strengthened prudential one is likely appropriate. If a BHC above \$50 billion’s financial-stability risk results not from size, but rather from other factors—e.g., the nature of its activities or the lack of an effective resolution protocol—then a simple size criterion may mask major risk factors that can be more effectively addressed with targeted systemic regulation and resolution protocols. To evaluate this question, it is useful to analyze both the activities conducted in these BHCs and the rules and resolution frameworks governing them.

A recent brief by the OFR (housed within the Treasury Department to inform FSOC deliberations) has analyzed the systemic criteria used by the FSOC based on the Dodd-Frank Act.³³ The FSOC designation criteria are stipulated in the Dodd-Frank Act to set the parameters for naming non-bank SIFIs.³⁴ There are no comparable statutory criteria for BHCs, with the law instead using the \$50 billion size threshold as a make-or-break criterion.

Reflecting thinking since the 2010 law set these standards, the 2015 OFR paper concludes that size is a poor criterion by which to judge systemic risk. Size is in part found by OFR to be a poor guide to risk due to measurement problems related to netted exposures, a problem due in part to the manner in which accounting criteria measure risk in complex netted transactions like securities financing. Regional BHCs in this study do not generally engage in securities-financing or significant derivatives-trading activities for third parties. The OCC’s most recent survey of trading activity finds that six of the largest banks control 96.5 percent of derivatives dealing, making it clear that the insured depository institution (IDI) subsidiaries of regional BHCs are not significant players in this arena. Relative to the largest banks, the size criterion may thus portray more risk at regional banks than is in fact on their actual balance sheets.

Further, several other designation criteria for BHCs found by OFR to be more meaningful than size are generally inapplicable to regional BHCs. For example, factors OFR believes more useful to systemic designation than size—e.g., key features of shadow banking, clearing-and-settlement activities—are largely inapplicable to the regional BHCs in this study. Most of those studied here are also not engaged in significant cross-border activities. Where a parent company is not domiciled in the U.S., the U.S. operations here are nonetheless housed in BHCs and thus “ring-fenced” from the parent company,

³² FRB, *Transcript of Open Board Meeting*, (Dec. 9, 2014), available at

<http://www.federalreserve.gov/mediacenter/files/open-board-meeting-transcript-20141209.pdf>.

³³ Meraj Allahrakha, Paul Glasserman, and H. Peyton Young, *Systemic Importance Indicators for 33 U.S. Bank Holding Companies: An Overview of Recent Data*, 15-01 OFR Brief Series, (Feb. 12, 2015) available at <http://financialresearch.gov/briefs/files/2015-02-12-systemic-importance-indicators-for-us-bank-holding-companies.pdf>.

³⁴ Financial Stability Oversight Council (FSOC), *Authority to Require Supervision and Regulation of Certain Nonbank Financial Companies*, 12 C.F.R. § 1310 (2013), available at <http://www.gpo.gov/fdsys/pkg/CFR-2013-title12-vol9/pdf/CFR-2013-title12-vol9-part1310.pdf>.

especially with regard to the U.S. IDI. The complexities resulting from many operations across many countries in a wide range of activities and services captured by the cross-border and complexity designation criteria thus do not here apply. The BHCs studied here and their IDIs also do not engage in activities at such scale as to pose “substitutability” problems—that is, the possibility that no alternative provider could step in should a BHC be unable to continue to offer its products and services.

VII. Costs and Additional Implications of the \$50 Billion Threshold

The regional BHCs analyzed here (see Annex A) are all U.S. BHCs now above the \$50 billion threshold that are not GSIBs or principally engaged in non-banking activities, or BHCs owned by foreign parent companies that engage in non-traditional activities. The BHCs within the size thresholds excluded from these analyses are covered by the systemic regulations discussed below, but the quantitative and qualitative implications of these costs vary significantly from traditional BHCs and among themselves. The BHCs not analyzed here often have anomalous data due to the nature of their activities (e.g., securities brokerage, insurance) and reliance on parent-company capital, liquidity, risk-management, or other resources. For the analyses below, we rely on public data described in each section.

In Annex B we describe the methodology used for the calculations below.

A. Capital Requirements

1. Heightened Capital Requirements

Like the largest U.S. BHCs, the regional BHCs in this study have substantially increased their capital since the financial crisis. Based on the regulatory definition of Tier 1 capital,³⁵ we find that the regional banks in our study increased their regulatory-eligible capital by \$80.1 billion from \$196.1 billion in the fourth quarter of 2009 to \$276.1 billion as of the fourth quarter of 2014. This capital increase does not only reflect greater asset totals at these BHCs; the ratio of risk-based capital also rose from 10.6 percent to 11.9 percent over this same period.

Like GSIBs—indeed, like all U.S. BHCs—the regional banks studied here must meet risk-based capital ratios (i.e., ratios that measure eligible capital against total on- and off-balance sheet assets according to risk) and leverage ratios (a capital requirement that assesses capital against on-balance sheet assets regardless of risk), with the largest regional banks—i.e., those with assets above \$250 billion—also subject to a leverage charge against off-balance sheet assets regardless of risk.³⁶ At the close of 2014, the weighted average leverage ratio of the banks in this sample stood at 9.6 percent.

To date, the Federal Reserve has not specified how it will treat these regional banks under the Dodd-Frank standards described above. It is possible that no additional capital increases will be required, although it is unclear if keeping capital rules constant—especially for BHCs with assets between \$50 billion and \$250 billion—would satisfy the statutory requirement to differentiate BHCs above and below \$50 billion. We therefore take as a proxy for possible capital costs above and beyond those borne by

³⁵ OCC, FRB, 78 FR 62018 (Oct. 11, 2013), *op. cit.*

³⁶ OCC, FRB, and FDIC, 79 FR 24528 (May 1, 2014), *op. cit.*

the regional banks the risk-based and leverage rules applicable to U.S. GSIBs. Each of these is calculated as follows:

- **Risk-Based Capital:** The Federal Reserve’s final GSIB surcharge adds an additional capital requirement atop the basic risk-based capital standards.³⁷ Assuming a one percent surcharge (the lowest possible), the regional BHCs with assets above \$250 billion could need to hold at least an 8 percent common-equity tier 1 capital ratio, up one percent from the 7 percent minimum. Like the GSIBs, many regional BHCs already hold enough excess RBC to bring them into compliance with a surcharge requirement along these lines. However, assuming the banks need to maintain their current capital buffers, the additional capital needed to be raised by those BHCs in the group with total assets above \$250 billion to meet the incremental GSIB requirement would be \$9.7 billion.
- **Leverage:** The largest U.S. BHCs are subject to an “enhanced supplementary leverage ratio” (ESLR) which, for BHCs, is 5 percent. Insured depositories must, however, hold a 6 percent ESLR. Given that insured depositories are the preponderance of assets at regional banks, there are few opportunities to offset the ESLR for them at the BHC level and we thus assume a *de facto* ESLR of 6 percent. As noted, the combined weighted leverage ratio for these BHCs as of fourth quarter 2014 was 9.6 percent; furthermore, no BHC in the sample was below 6 percent. As a result, the ESLR would not directly affect the leverage ratio for any of the regional BHCs in the sample.

2. Capital Costs

The costs of holding additional capital are direct and indirect. Using well-established models to assess the direct cost of adding capital to the issuing company, we find that the cost to these BHCs of the higher post-crisis capital they have raised so far is \$6.6 billion. This is a significant cost to shareholders, but one that may be worthwhile given the greater resilience resulting from higher capital. It is, however, not clear that more capital at greater cost has beneficial social and financial-stability effects, especially if the capital buffer is intended by policy-makers to offset systemic risk not presented by these regional BHCs. The cost of meeting the additional systemic capital standards outlined above for those banks with assets above \$250 billion would be \$800 million. Taken together with the many other regulatory costs imposed by application of the new Dodd-Frank framework and systemic surcharges atop the tougher rules already being implemented, the direct cost of this higher, systemic capital for those regional BHCs with assets above \$250 billion is a significant earnings and credit-availability consideration.

Indirect capital costs are also significant. Numerous sanctions apply to banks that cease to be well-capitalized. These include:

- market expectations that all BHCs remain well-capitalized to preserve their strategic options and avoid sanction; and
- barriers to dividend payments and an increasingly stringent series of restrictions on management discretion as capital ratios falter. This is now required for insured depositories

³⁷ FRB, 12 C.F.R. § 217 (2015), *op cit.*

under the prompt corrective action (PCA) provisions of the FDIC Improvement Act.³⁸ If regional BHCs are subject to the systemic early-remediation rules outlined above, these sanctions would become more binding and thus likely lead BHCs to hold still larger capital buffers.

Due to these indirect costs, most BHCs maintain buffers well above the lowest-possible amount of capital they calculate would be needed to meet the strict letter of the RBC and leverage capital rules. The higher the threshold for achieving well-capitalized status, the larger the buffer and the greater the cost of holding additional regulatory capital. It is not, however, possible to calculate the likely buffer level without incorporating into this analysis stress-test results and other idiosyncratic factors for each BHC in this sample.

3. *Costs to Credit Availability*

Academic literature differs on whether more regulatory capital diminishes credit availability, although many in the industry firmly believe it does. Here, we review these issues to lay out the potential implications for credit availability if regional BHCs are subjected to systemic-capital requirements.

Some research argues against a link between higher capital and fewer loans on grounds that the cost of capital drops as the amount of capital rises because investors take less risk at better-capitalized companies and thus demand a lower risk premium for their equity.³⁹ This is traditional economic reasoning, but it does not appear to have worked for large banking organizations in the wake of the financial crisis. A new study demonstrates that this economic theory in fact has not worked for banks in the past forty years, apparently because investors are willing to buy capital at higher-risk banks in hopes of higher return, altering the supply and demand relationship behind expectations that capital costs drop as investor supply rises.⁴⁰

Another line of academic reasoning posits that higher capital does not adversely affect overall credit availability, but only that for higher-risk loans and similar obligations.⁴¹ The reasoning here is that risk-based capital rules penalize risky banks, and thus create incentives to encourage lower-risk lending, increasing sound credit.⁴² This line of reasoning ignores the leverage requirement referenced above. As noted, the leverage standard is not only risk-neutral, but now also quite large for the largest BHCs. As a result, it may well create perverse incentives for higher-risk lending, in which banks seek to arbitrage the costs and benefits of both the RBC and leverage regimes to sustain earnings and meet market demand.

³⁸ Federal Deposit Insurance Corporation Improvement Act, Pub. L. No. 102-242 (Dec. 19, 1991), § 131, available at <http://thomas.loc.gov/cgi-bin/query/z?c102:S.543.ENR>;

³⁹ Begenu, Juliane, *Capital Requirements, Risk Choice, and Liquidity Provision in a Business Cycle Model* (Harvard Business School Finance 2015), available at <http://dx.doi.org/10.2139/ssrn.2576277>.

⁴⁰ Malcolm Baker and Jeffrey Wurgler, *Do Strict Capital Requirements Raise the Cost of Capital? Bank Regulation, Capital Structure and the Low Risk Anomaly* (Harvard Business School 2014), available at http://www.hbs.edu/faculty/Publication%20Files/Wurgler_Paper_78db6340-ae41-4630-8e25-d990b547171b.pdf.

⁴¹ Anat R Admati, Peter M. DeMarzo, Martin F. Hellwig, and Paul C. Pfleiderer, *Fallacies, Irrelevant Facts, and Myths in the Discussion of Capital Regulation: Why Bank Equity is Not Socially Expensive* (Rock Center for Corporate Governance at Stanford University, 2013) available at <http://dx.doi.org/10.2139/ssrn.1669704>.

⁴² *Id.*

There is, indeed, quantitative research validating the link between higher capital and an adverse effect on credit supply.⁴³ This study found that a higher capital requirement ratio of 100 basis points “induces, on average, a cumulative fall in lending growth of between 5.7 and 8 percentage points.”⁴⁴ Based on these formulas and other methodology in this research, we calculate that, had the systemic capital requirements been in effect for the larger regional banks (those with assets today above \$250 billion) beginning in 2009, then the growth of lending by these banks over the 5 year period through fourth quarter 2014 would have been reduced by \$14 billion to \$20 billion. That is, the added cost of the systemic-capital requirements for the sample BHCs (\$9.7 billion in added capital at a cost of \$800 million) would have resulted in a decline of credit availability to the non-financial private sector from these banks of \$14 billion to \$20 billion. While these numbers are not large in the context of overall bank lending during this five year period, they could be significant if the types of borrowers utilizing regional banks—e.g., small businesses—had limited access to alternative funding for affordable, prudent credit.⁴⁵

B. Liquidity

1. Regulatory Framework

Although capital is often seen as the hallmark reform of the post-crisis framework, a new set of liquidity rules is at least as important—and expensive. Many analysts believe that the 2007-08 crisis was caused first by solvency problems in the huge volumes of high-risk mortgage-backed securities (MBS) and related assets that were concentrated holdings at many bank and non-bank financial institutions (including even central banks). As investors rushed to sell their holdings as prices plummeted, counterparties often lacked ready access to liquid funding for purchases of these assets—a market shock-absorber—even at bargain-basement prices, forcing still more downward spirals, liquidity freezes, and ultimately the Great Recession that only narrowly spared the globe from a Great Depression.

Based on global standards, the liquidity framework now being implemented in the U.S. has two parts:

- a liquidity coverage ratio (LCR), which requires holdings of high-quality liquid assets (HQLAs) sufficient to handle funding outflows under stress over thirty days. The U.S. has implemented

⁴³ Shekhar Aiyar, Charles Calomiris, & Tomasz Wieladek, *Does Macro-Prudential Regulation Leak? Evidence from a U.K. Policy Experiment*, (Journal of Money, Credit and Banking, Supplement to Vol. 46, No. 1, February 2014).

⁴⁴ *Ibid*, page 201.

⁴⁵ The important role of regional banks in providing credit to small businesses is evidenced in their role in the Small Business Administration 7(a) program where six of the regional banks included in our sample were included in the top twenty SBA 7(a) lenders for fiscal year 2015 (through the third quarter) and accounted for twenty-six percent of the loan volume originated by these top SBA lenders. See https://www.sba.gov/lenders-top-100?order=total_loans&sort=desc. Further, 2012 Community Reinvestment Act data analyzed by the Small Business Administration ranked five regional banks in the top ten of banks that lend to small businesses. See <https://www.sba.gov/sites/default/files/2013-Small-Business-Lending-Study.pdf>. Small business reliance on banks for financing is also evidenced in remarks made by Treasury Secretary Timothy Geithner at the 2009 Small Business Financing Forum, where he said that small businesses receive 90 percent of their financing from banks. See http://c.ymcdn.com/sites/www.wipp.org/resource/resmgr/Access_to_Capital/Small_Business_Financing_For.pdf?hhSearchTerms=%22small+and+business+and+financing+and+forum+and+2009%22.

the LCR, including a “modified” version designed to be less onerous for banks with assets between \$50 billion and \$250 billion;⁴⁶ and

- a net stable funding ratio (NSFR), which Basel has now finalized,⁴⁷ and which the U.S. has pledged to adopt. The NSFR mandates sufficient HQLAs to withstand liquidity risk over a one-year horizon.

The U.S. has added its own third leg to the liquidity-regulatory framework. This comes in part from the proposed FRB capital-surge standards noted above for GSIBs. It includes a capital add-on for exposure to short-term funding risk that makes the U.S. capital requirement considerably more stringent than the global standards referenced above. The U.S. has also gone further than global regulators with regard to qualitative liquidity-risk management standards. In 2010, the banking agencies issued a set of principles governing matters like governance, validation, and internal controls.⁴⁸

The Federal Reserve has also finalized liquidity-risk management standards that are considerably more stringent and binding for BHCs with assets over \$50 billion than those generally governing banks and BHCs. The key feature of these additional liquidity-risk management standards for BHCs in this sample is a required buffer above and beyond the LCR and, upon its finalization, also above the NSFR.

2. Regional-Bank Issues

HQLAs are defined in all of these rules narrowly to ensure that they are assets with very limited risk of loss of principal (e.g., U.S. Treasury obligations) that can be readily sold without significant price fluctuations or other impediments to sale under even acute stress scenarios. As a result, HQLAs are very safe, a condition that also means they are very low-margin holdings that do not support long-term earnings or, in most cases, private-sector economic activity.

These assets are meant to safeguard bank liquidity, not to meet other goals, and they are thus an added cost when held for compliance purposes. This cost has been significantly increased in recent years because the new leverage rules described above apply to HQLAs. Many HQLAs bear no or very low risk-based capital requirements, but the leverage rules apply to them to the same extent but at even higher cost as they do to higher-risk assets with economic value (e.g., consumer lending). HQLAs thus eat up balance-sheet capacity that could otherwise be used to engage in financial intermediation.

This may be warranted for prudential purposes for regional BHCs as well as for larger GSIBs—several large regional savings-and-loan companies (e.g., Indy Mac, WaMu) failed during the financial crisis due to the combination of poor federal regulation and solvency and liquidity strains that afflicted global banks. However, it is important to recognize that HQLAs do indeed bear direct and indirect costs that, in concert with the new systemic risk-management standards, may be unnecessarily high for regional banks, and adversely affect their ability to ensure ongoing credit and related financial-intermediation

⁴⁶ OCC, FRB, FDIC, *Liquidity Coverage Ratio: Liquidity Risk Measurement Standards Final Rule*, 79 FR 61440 (Oct. 10, 2014), available at https://fdic.gov/news/board/2014/2014-09-03_notice_dis_b_fr.pdf.

⁴⁷ Basel Committee on Banking Supervision (BCBS), *Basel III: The Net Stable Funding Ratio*, (Oct. 2014), available at <http://www.bis.org/bcbs/publ/d295.pdf>.

⁴⁸ OCC, FRB, FDIC, Office of Thrift Supervision (OTS), National Credit Union Administration (NCUA), Conference of State Bank Supervisors (CSBS), *Interagency Policy Statement on Funding and Liquidity Risk Management*, (Mar. 17, 2010), available at <http://www.federalreserve.gov/boarddocs/srletters/2010/sr1006a1.pdf>.

services in regional markets that may be less well-served by larger banks or non-bank financial-services firms.

3. Potential Costs

As with capital, there are both direct and indirect costs to regional banks subject to liquidity-risk ratios and management standards principally designed for larger banks. It is, however, more complex to calculate these costs not only because the liquidity framework is still being implemented, but also because current regulatory reports and shareholder disclosures do not clearly break out which HQLAs are held for business reasons and which additional ones are for regulatory compliance. We thus provide some possible approaches to assessing these costs to support further consideration of the need to subject regional banks to systemic liquidity requirements.

a. Direct Costs

A recent report from the OFR⁴⁹ sought to determine the cause of increasingly short supplies of U.S. Treasury obligations, a phenomenon sparking growing fears of market illiquidity and, perhaps, systemic risk. OFR argued that large Treasury holdings in the U.S. financial system may derive from several factors (e.g., flight-to-quality demands sparked by accommodative monetary policy in the Eurozone), but regulatory considerations are also evident. Reflecting this, OFR noted that U.S. banks have added \$185 billion of U.S. Treasury securities since January of 2014—a 45 percent increase. The regional banks in our survey sample hold 19.5 percent of U.S. bank assets, and thus can be reasonably assumed to hold \$36 billion of this total increase, although numbers surely will vary considerably on a bank-by-bank basis.

As noted, U.S. Treasury obligations carry no risk-based capital requirement, but they are subject to the leverage charge. Applying to this total increase in U.S. Treasury securities the weighted leverage charge referenced above of 9.6 percent, we calculate that these additional Treasury securities require \$3.46 billion of additional capital. Applying to this the cost-of-capital formula also referenced above, we conclude that the added cost of just this one category of HQLA to the regional banks surveyed here is \$292 million. The capital requirements applicable to these HQLAs thus have material impact on the cost of doing business as a regional bank and the ability of these banks to hold other assets—e.g., loans to their customers.

b. Indirect Costs

As noted, the U.S. has two risk-management regimes for liquidity: an inter-agency set of principles governing all banks and BHCs, and new ones for all BHCs with assets over \$50 billion. The final rule does not differentiate between BHCs with \$50 billion in assets and GSIBs on grounds that the systemic liquidity rules are minimums for all BHCs above the \$50 billion threshold, regardless of the characteristics that otherwise differentiate regional BHCs from the largest ones. It is thus unclear if the FRB would waive these standards where it no longer clearly empowered to impose systemic liquidity standards on any large BHC not designated as a SIFI.

⁴⁹ OFR, (Apr. 27, 2015), *op cit*.

Key aspects of the systemic-liquidity standards require:

- the aforementioned liquidity buffer;
- extensive new governance standards for boards, senior management, treasury, risk-management, audit, and other functions;
- a series of new internal systems and reports that then must be reflected in new regulatory and public disclosures;
- liquidity stress-test requirements; and
- contingency-funding plans.

The final FRB rule provides no detail on the cost of these standards other than a total number of hours for preparing requisite regulatory reports. Costs of this sort make it very difficult to provide effective cost-benefit analyses, as noted in a Federal Financial Analytics paper on this question.⁵⁰ Regulatory reporting is usually the least costly burden associated with new rules, as well as one with minimal strategic consequence. Rather, the indirect costs of this rule are those associated with the new management controls and information systems briefly described above.

Further, direct quantitative costs likely ensue from both the liquidity buffer and the contingency-funding plan. The FRB rule does not specify how much the buffer must be above the LCR or, upon its finalization, the NSFR, nor does it provide specifics on the contingency-funding buffer. Assuming that the buffers above the LCR would need to insulate the bank to at least 10 percent more liquidity stress, one can assume that HQLA balances would need to rise 10 percent. This would, based on the methodology described above, require at least an additional \$3.6 billion in HQLAs at an additional \$346 million in capital costing a further \$29.2 million. The total of the added costs to regional BHCs of systemic liquidity regulation thus comes to a minimum of \$321.2 million spent to raise the needed additional capital related to HQLAs.

C. Stress Testing

As noted above, the Dodd-Frank Act includes two mandatory stress tests:

- one designed by the FRB usually called the “CCAR” for BHCs with assets above \$50 billion, which reaches quantitative conclusions constrained by qualitative capital-planning regulations⁵¹ for this same group of BHCs. The FRB sets the stress scenarios and then computes resilience based on extensive data supplied by the BHC; and
- company-run stress tests judged by the FRB, OCC, or FDIC for banks and BHCs with assets over \$10 billion. These are based on the FRB stress tests, but are executed by the bank or BHC—not the regulator—without the overlay of qualitative standards. They are thus considerably more

⁵⁰ Federal Financial Analytics, *Operational Impediments to Effective Financial Regulation* (October 22, 2012), available at http://www.fedfin.com/images/stories/client_reports/operational%20impediments%20to%20effective%20financial%20regulation.pdf.

⁵¹ FRB, *Capital Plan and Stress Test Rules*, 79 FR 64026, (Oct. 27, 2014), available at <http://www.gpo.gov/fdsys/pkg/FR-2014-10-27/pdf/2014-25170.pdf>.

idiosyncratic—i.e., better honed to the specific circumstances of each bank or BHC, but less comparable across the industry.

The major difference between the FRB's CCAR exercise and the company-run tests is that the FRB may expressly and immediately disapprove a large BHC's plans to pay dividends or repurchase shares—i.e., to undertake capital-distribution actions when the FRB believes these would leave the BHC under-capitalized under stress or, even if capital is sufficient, a BHC's planning controls are deemed lax. The FRB and other banking agencies do not have the authority under the company-run tests to do so, instead using these tests—still extensive and costly—as guides to possible supervisory issues. Banks and BHCs with assets between \$10 billion and \$50 billion under these tests cannot be judged to have failed them for purposes of limiting capital distributions, but there is significant supervisory follow-up to remedy concerns.

Were the \$50 billion systemic threshold altered, the FRB might nonetheless not be willing to leave capital distributions solely to a large BHC's discretion. It is thus possible that regional BHCs with assets over \$50 billion would still be required to conduct stress tests even if no longer automatically subject to CCAR. Regional banks are now beginning to file CCAR tests with the FRB, and have thus developed the complex infrastructure, capital-planning capacity, and internal controls required for CCAR, which in some cases does permit them to consider key risks in a less-complex manner than that demanded of the GSIBs. Some BHCs and their boards may well not wish to dismantle this stress-test operational capacity even if the FRB were to allow this because of the added knowledge and greater resilience it provides. The need to ensure that a BHC will be well-capitalized before and after an acquisition (see above) may also warrant rigorous stress testing given that the FRB is likely to demand that this be demonstrated in concert with any application in this arena.

To be sure, even some flexibility with regard to stress testing could reduce costs to regional banks. A recent study⁵² has calculated that the CCAR tests cost between 3 and 5 basis points (bps) for every dollar of total assets, with banks closer to \$50 billion in assets experiencing 5bps, and those with assets above \$120 billion having costs of 3bps. Using this approach, the annual cost of CCAR to the sample of regional BHCs surveyed here is \$848 million.

Another study disputes these economies of scale within the CCAR process, finding that the FRB-supervisory standards are essentially as costly for the smallest BHCs above the \$50 billion threshold as for the GSIBs. Its estimate for larger banks (not necessarily GSIBs) puts the annual spending for CCAR at as much as \$60 million a year.⁵³ Given the remaining need to meet company-run tests and the desire of BHCs to remain well-capitalized, much of this cost is likely to continue to ensure robust test protocols. However, a savings of as much as half of this sum might be possible due to the better applicability of these tests to individual banks and BHCs and, thus, their scalable cost. A savings of \$30 million a year for each of the BHCs in this sample would result in an annual savings of \$600 million.

⁵² Kevin Barker, Isaac Boltansky and Jason Stewart, *SIFI Change is a Significant Benefit for Regional Banks*, (Compass Point Research & Trading, LLC., September 11, 2014).

⁵³ David Little, *CCAR and DFAST Stress Testing Survey Insight*, IV, Moody's Analytics Risk Perspectives: Integrated Risk Management (Nov. 2014), available at <http://www.moodyanalytics.com/Publications/Risk-Perspectives/2014/RP04/Risk-Perspectives-Integrated-Risk-Management/Rethinking-Risk-Management/CCAR-and-DFAST-Stress-Testing-Survey-Insight>.

D. Resolution Plans

The Dodd-Frank Act has two different requirements related to resolving problems at large BHCs and banks that are often confused. Each of these requirements has differing purposes and varying implications for regional BHCs, as follows:

- Resolution Plans: Title I of the Act, which contains the systemic requirements for BHCs with assets over \$50 billion, requires each covered BHC to submit a resolution plan—often called a “living will”—to the FRB and FDIC. This must be done annually, although the plans are phased in based on BHC size. The resolution plan must demonstrate to the satisfaction of both the FRB and FDIC that the BHC and its material operations (other than insured depositories and certain others) are resilient under even acute stress and, in the event they are not, that they can be shuttered under the U.S. Bankruptcy Code. In the event a resolution plan is not deemed “credible” by both the FDIC and FRB, the agencies can order restructuring, divestiture, or other actions following a procedure detailed in the law.
- OLA: Established in Title II of the Dodd-Frank Act,⁵⁴ this lays out how the FDIC may intervene if it, the FRB, Treasury, and the President determine that the failure or potential failure of a financial institution poses systemic risk. There are no size, activity, or charter restrictions on use of OLA other than that the company targeted must be a financial-services one. There are no specific costs associated with OLA and thus none that differentiate regional BHCs from GSIBs or other financial-services firms. However, the FDIC and FRB are contemplating a U.S. version of the global TLAC standards referenced above. It is uncertain if the FRB would mandate these for BHCs below the GSIB threshold, but it has the authority to do so for some or all of them under the Dodd-Frank Act. The global standards are focused only on GSIBs.

Theoretically, a change in the designation threshold affecting BHCs between \$50 billion and any designation threshold would obviate the need for the living wills referenced above. However, in practice this is less likely. Although not required to do so by the Dodd-Frank Act, the FDIC has used its general authority to mandate resolution plans from (IDIs) with assets over \$50 billion⁵⁵ that differ in some material respects that may well make them tougher than the living wills also required under the joint rule of the FRB and FDIC.⁵⁶ Even in the absence of the resolution-plan requirement in Dodd-Frank, the FDIC might well mandate its own living wills—indeed, it proposed doing so even before the law was enacted,⁵⁷ and at the time would have mandated these for IDIs with assets over \$10 billion, not the \$50 billion threshold finally adopted.

Although there is additional cost for resolution plans for BHCs, these are not likely to be significantly larger for traditional U.S. regional BHCs that have also filed resolution plans for their IDIs pursuant to the

⁵⁴ Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203 (Jul. 21, 2010), § 200-217, available at <http://www.gpo.gov/fdsys/pkg/PLAW-111publ203/pdf/PLAW-111publ203.pdf>.

⁵⁵ FDIC, *Resolution Plans Required for Insured Depository Institutions with \$50 billion or more in Total Assets*, 12 C.F.R. § 360.10 (2012), available at <http://www.gpo.gov/fdsys/pkg/CFR-2012-title12-vol5/pdf/CFR-2012-title12-vol5-sec360-10.pdf>.

⁵⁶ FRB, FDIC, *Resolution Plans Required*, 12 C.F.R. § 381 (2011), available at <https://www.fdic.gov/news/board/Sept13no4.pdf>.

⁵⁷ FDIC, *Special Reporting, Analysis and Contingent Resolution Plans at Certain Large Insured Depository Institutions*, 12 C.F.R. § 360 (2010), available at <https://www.fdic.gov/news/board/May01.pdf>.

FDIC rule. As noted, the regional banks in this study are generally traditional banking organizations with much of their risk exposure at the IDI—not BHC—level. There may thus be little material cost increase related to resolution planning due to the Dodd-Frank Act’s systemic-designation threshold. However, the FDIC standards focus more directly on matters of general applicability to traditional banking organizations than the BHC living-will protocols, with the FDIC also having considerably more flexibility in its consideration of them than do the FDIC and FRB under the Dodd-Frank resolution-plan requirements. A change to the \$50 billion threshold could thus have both cost and operational benefits for smaller regional BHCs. It is not, however, possible to quantify them.

E. Risk-Management Requirements

Differentiating the risk-management standards applicable to BHCs designated as systemic institutions and other banks and BHCs is, as with resolution planning, complicated by the landscape of new rules in this arena. As required by Dodd-Frank, the Federal Reserve has finalized the risk-management standards referenced above.⁵⁸ Importantly, these standards are not only applicable to all BHCs with assets above \$50 billion, but also and largely in the same manner to any publicly-traded BHC with assets over \$10 billion. The FRB further has authority also to apply these risk-management standards to even smaller BHCs if they are publicly-traded ones.

In addition, all BHCs and IDIs are subject to supervisory risk-management standards. The regulatory picture here is not as consistent as it is for all IDIs with regard to living wills. So far, only the OCC among the primary federal regulators has issued enhanced risk-management standards for banks with assets over \$50 billion.⁵⁹ The FRB rules for BHCs with assets above \$50 billion and the OCC’s requirements are different in several respects—for example, the OCC focuses in particular on the need for “risk-appetite” policies from a national bank’s board of directors, while the FRB rule mandates a series of structures (e.g., an independent chief risk officer) required by the law. The FRB, OCC, and FDIC also have a series of general risk-management and governance standards throughout the body of their rules governing banks and BHCs of all sizes.

Based on this overlapping regulatory framework, specific direct-cost increases due to the Dodd-Frank requirements for systemic risk-management standards for BHCs with assets above \$50 billion cannot be differentiated. The framework also makes it clear that, were the \$50 billion threshold altered, any larger BHC potentially exempted from the body of Dodd-Frank systemic regulation would remain under a robust risk-management regime likely not materially different than the one now applied to it. Further, many BHCs would likely retain their chief risk officers and new risk-management governance frameworks even in the absence of any mandate to do so.

⁵⁸ FRB, 12 C.F.R. § 252 (2014), *op cit*.

⁵⁹ OCC, *Guidelines Establishing Heightened Standards for Certain Large Insured National Banks, Insured Federal Savings Associations, and Insured Federal Branches; Integration of Regulations*, 79 FR 54517 (Sept. 11, 2014), available at <http://www.gpo.gov/fdsys/pkg/FR-2014-09-11/html/2014-21224.htm>.

F. Credit-Exposure Limits

1. Framework

The Dodd-Frank Act requires that BHCs with assets above \$50 billion be subject to credit-exposure limits often called single-counterparty credit limits (SCCLs). These were proposed in 2012, but have not yet been finalized.⁶⁰ The delay in part was due to ongoing discussion of global credit-exposure standards for internationally-active banks, but these are now complete.⁶¹ Remaining delays may be due to initial results from the quantitative impact survey (QIS) undertaken by the FRB after the proposal was released following preliminary indications that the SCCL proposal could lead to significant market disruption and undue cost. The results of the QIS have not been publicly released.

If the systemic threshold is not changed and the SCCL proposal is finalized largely as is, then designated BHCs would need to limit a wide array of exposures (not just loans) to any single counterparty to no more than 25 percent of a relatively broad definition of their capital. The proposal takes a conservative view of netting and credit-risk mitigation structures, often aggregating these with basic exposures in a manner and on a daily basis that would require extensive changes to systems to track risk transfers rare at regional banks not active in structured finance. The proposal also includes a still tougher standard for BHCs with assets above \$500 billion, limiting their exposures to similar entities to no more than 10 percent of capital as defined for this purpose.

Importantly, current law and rules already impose credit-exposure standards on all IDIs.⁶² Dodd-Frank also expanded traditional loan-to-one-borrower limits applicable to national banks. State-chartered banks may only engage in derivative activities if applicable state law also imposes limits (although these may not be as stringent as those adopted by the OCC). The new restrictions cover many of the non-loan exposures also covered by the SCCLs (e.g., repurchase agreements, securities financing, derivatives).

2. Regional-Bank Implications

Due to these overlapping credit-exposure limits and the uncertain nature of the final FRB rules, it is not possible to anticipate the additional cost to regional BHCs resulting from systemic designation. It is clear, however, that the FRB's SCCL standards would require significant investments in new operational infrastructure and reporting, but cost estimates here are uncertain and, in any case, would form only a small part of the cost of these rules. IDIs housed in regional BHCs not directly covered by the OCC's exposure limits could be subject to less stringent standards based on applicable state law, but quantifying these in the absence of the FRB's rules is not possible.

⁶⁰ FRB, 77 FR 594 (Jan. 5, 2012), *op. cit.*

⁶¹ BCBS, *Supervisory Framework for Measuring and Controlling Large Exposures*, (April, 2014), available at <http://www.bis.org/publ/bcbs283.pdf>.

⁶² Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203 (Jul. 21, 2010), § 601-628, available at <http://www.gpo.gov/fdsys/pkg/PLAW-111publ203/pdf/PLAW-111publ203.pdf>.

G. Early Remediation

1. Framework

As noted, the FRB has proposed early-remediation standards for systemic BHCs, but it has yet to finalize them. The principal effect of early remediation is to build on the PCA framework governing all IDIs regardless of size to limit the FRB's flexibility with the largest BHCs in the event a systemic company falls below capital or other thresholds. Congress stipulated the additional layer of systemic early-remediation authority to ensure that the FRB takes prompt corrective action in cases where emerging risks at one or more systemic companies pose problems above and beyond those to the institution itself—essentially a macroprudential enforcement tool to capture systemic risk that may not be well addressed under PCA for BHCs with extensive non-banking operations. These early-remediation standards thus make it even more critical for BHCs to remain very well capitalized and otherwise in compliance with systemic regulation, essentially making the basic amount of capital needed to be well-capitalized and each rule applicable to each systemic BHC a minimum requirement even if the text of a rule suggests some flexibility.

As noted, insured depositories owned by BHCs above \$50 billion are covered by PCA. Each of their federal and, often, their state supervisors also has broad authority to intervene at any time an activity, practice, or indicator poses risk. The federal agencies also have extensive power under their “reservation of authority” provisions in the full panoply of prudential rules to order a problematic bank or BHC—regardless of size—to remedy problematic practices, curtail capital distributions, or otherwise remedy risky conditions. The Dodd-Frank Act gives the prudential regulators still more power in this regard as described throughout this paper.

2. Costs to Regional Banks

The clearest implication of the early-remediation standard for regional BHCs above \$50 billion as a group is the potential cost of needing to hold a still higher amount of capital above all the minimums described above. As noted, an array of requirements—e.g., the criterion for M&A approval—already make a buffer above well-capitalized thresholds the norm. However, there remains flexibility just to be well-capitalized or even to fall below this only to “adequate” capitalization if stress tests are passed or the BHC's own strategy does not warrant any such buffer. The early-remediation standards would eliminate this flexibility and thus require larger capital holdings above those outlined above with still greater cost to credit availability. It is not possible to calculate this added cost due to all the uncertainties in the current capital and early-remediation framework.

H. Additional Systemic Requirements

To date, the Federal Reserve has not acted on any of the additional prudential standards it could apply to designated BHCs. Therefore, their direct or indirect costs cannot be calculated.

VIII. Conclusion

In this paper, we have posited that “hard” costs – i.e., those that can be derived through well-established methodologies applied to publicly-available data, are an important policy consideration, but far from the only one that should guide decision-making on the implications of the Dodd-Frank systemic-regulatory regime when applied to BHCs with assets above \$50 billion. As a result, we start with a series of data points derived from sources cited here and calculate an annual cost to twenty BHCs of at least \$2 billion. Indirect costs also are shown to be considerable, although varying often by each BHC and/or the manner in which pending rules will be implemented and enforced.

These costs are significant both given the relatively small size of these BHCs and ongoing strains on the banking sector, but far from dispositive. We thus expanded our analysis. If these costs are warranted by negative externalities, then they may well be appropriate or even insufficient. Conversely, even if warranted, these costs are excessive if their imposition creates still greater systemic risk or other unintended consequences that could be prevented through application of another policy to address the risks posed by regional BHCs.

Looking at the risk of adding capital and operational costs to regional BHCs, we conclude that these could exacerbate evident trends towards a greater role in financial-intermediation by less-regulated non-banking institutions. In some instances, “shadow banks” add innovation to financial markets and provide products and services in ways not appropriate for banks with the backing of the FDIC and FRB. In other ways, however, shadow banks are using the differential regulatory costs associated with the lack of prudential regulation to gain market edge in ways that may pose significant financial-stability challenges.

The prudential framework governing regional BHCs is shown here largely to match key aspects of the systemic framework, suggesting that added costs for these BHCs may have limited prudential value despite their impact on heightened non-bank financial-market activities. It is also shown here that regional BHCs lack many, if not in fact all, of the characteristics usually associated with the negative externalities resulting from the systemic impact of weakness or, worse, failure. Indeed, the added cost of SIFI regulation may limit the resilience of regional BHCs and their subsidiary insured depositories, increasing resolution risk and, therefore, cost.

Annexes to the Consequences of Systemic Regulation for U.S. Regional Banks

Annex A: List of Surveyed BHCs

The FDIC call reports for the following regional banks were reviewed for the periods beginning fourth quarter 2009 through fourth quarter 2014 (listed by tier 1 capital held in fourth quarter 2014):

- U.S. Bancorp (Minneapolis, Minnesota)
- Capital One Financial Corporation (Tysons Corner, Virginia)
- PNC Financial Services (Pittsburgh, Pennsylvania)
- TD Bank US Holding Company, (Cherry Hill, New Jersey)
- SunTrust Banks, Inc. (Atlanta, Georgia)
- Branch Banking and Trust Company (Winston-Salem, North Carolina)
- Fifth Third Bank (Cincinnati, Ohio)
- Citizens Financial Group, Inc. (Providence, Rhode Island)
- The American Express Company (New York, New York)
- Regions Financial Corporation (Birmingham, Alabama)
- BMO Financial Corporation (Chicago, Illinois)
- Discover Financial Services, Inc. (Riverwoods, Illinois)
- Bank of the West (San Francisco, California)
- KeyBank (Cleveland, Ohio)
- M&T Bank Corporation (Buffalo, New York)
- Northern Trust Corporation (Chicago, Illinois)
- Comerica, Inc. (Dallas, Texas)
- BBVA Compass Bancshares, Inc. (Birmingham, Alabama)
- Huntington Bancshares, Inc. (Columbus, Ohio)
- Zions Bancorporation (Salt Lake City, Utah)

Annex B: Analytical Methodology

During this period, the following BHCs acquired banks that were incorporated in the fourth quarter 2014 data. For this reason, the 2014 BHC numbers were adjusted to account for the subsequent acquisitions to give a more accurate calculation as to the change in both capital and assets for each BHC that occurred over the period in question. Following are the banks that were subject to acquisition by other BHCs and whose total data had to be adjusted for these acquisitions.

- CapitalOne, which purchased ING Direct on July 16, 2011.
- Comerica, which purchased Sterling Bancshares on July 28, 2011.
- M&T, which purchased Wilmington Trust on May 16, 2011.
- PNC, which purchased RBC Bank USA on June 19, 2011.
- TD Bank, which acquired AmericanFirst Bank, First Federal Bank of North Florida, and Riverside National Bank of Florida on April 16, 2010, and also purchased the South Financial Group on May 17, 2010.

- US Bancorp, which acquired First Community Bank on January 28, 2011, and purchased BankEast on January 27, 2012.

Tier 1 capital numbers were obtained for each bank (adjusted for acquisitions noted above) from the FDIC call reports from 4Q 2009 through 4Q 2014. Similarly, the risk weighted assets for each bank were taken from the FDIC call reports for the same time periods. The change in Tier 1 capital for each bank was calculated for the 4Q 2014 period as compared to the adjusted 4Q 2009 period, as was the change in the ratio of Tier 1 capital to total risk weighted assets for each bank. Partial purchases of another bank's deposits or assets were not included in the data.

Those BHCs with total assets exceeding \$250 billion as of the fourth quarter of 2014 included PNC, Capital One, and US Bank. TD Bank held \$247 billion in assets at the end of the fourth quarter of 2014 and has since surpassed the \$250 billion threshold.

Calculating the Cost of Additional Capital

The annual cost of holding the additional capital for each bank was calculated using the capital asset pricing model (CAPM) approach on the assumption that additional equity was issued to meet the higher Tier 1 capital number for each bank. The CAPM model calculates the cost of capital at a given point in time for a given investment by employing the risk-free rate of return available for investors, the risk premium applicable for equity financing and the beta for each bank. The beta for a stock measures the volatility of the bank's equity price as compared to the volatility of the equity markets as a whole. For purposes of this particular CAPM calculation, the risk free rate and the equity premium used were derived from data provided by Aswath Damodaran of the New York University Stern School of Business (available at http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/wacc.htm), and the betas for all but two of the banks were obtained from YCharts (available at <http://ycharts.com>) dated 4Q 2014. The beta for Citizens Financial Group, Inc. was obtained from NASDAQ (<http://www.nasdaq.com/>), dated June 5th. We used an average of the betas of the other 19 regional banks for Bank of the West as a proxy beta.

Thus, to calculate the cost for each bank of holding the additional capital raised from 2009 to 2014, a conversion rate was established by adding to the risk free rate the product of the risk premium for equity multiplied by the bank's beta. This conversion rate was multiplied by the amount of additional Tier 1 capital raised by each bank to arrive at the annual cost of holding the added capital for that bank. The GSIB surcharge is assumed to be a 100 bp add-on to the capital ratio (the lowest possible whole number under the FRB's proposed rule). In calculating the cost of holding additional capital to meet the GSIB requirement, the same conversion factor was applied to the assumed increase in 2014 Tier 1 capital.

Calculating the Negative Impact on Lending from Higher Required Capital Ratios

Aiyar, Calomiris and Wieladek in their February 2014 article in the *Journal of Money, Credit and Banking* (Supplement to Volume. 46, No.1) studied the impact of higher capital requirements on UK banks from 1998 to 2007. Their sample included 104 regulated UK banks and 173 unregulated foreign branches operating in the UK. The authors note on page 182 that, during the time period studied the UK financial

regulator, the Financial Services Authority (FSA) “varied individual banks’ minimum risk-based capital requirements substantially. The extent of this variation across banks in the minimum required risk based capital ratio was large (its minimum was 8%, its standard deviation was 2.2%, and its maximum was 23%). Importantly, the FSA based regulatory decisions on organization structures, systems, and reporting procedures, rather than high-frequency financial analysis. This institutional characteristic allows us to treat changes in regulatory capital requirements as exogenous with respect to bank-specific credit supply, an assertion that we show has substantial empirical support.” The authors sought to determine the credit supply impact of capital requirement changes on the real economy and thus looked only at the changes in bank lending to the nonfinancial corporate sector. They also controlled for variations in bank lending due to changes in loan demand.

Their analysis found “that loan-supply responds negatively to increases in capital requirements. The parameter of interest is tightly estimated across the full range of specifications. Summing across lags of the change in the capital requirement ratio yields estimates between 0.057 and 0.08. That is, an increase in the capital requirement ratio of 100 basis points induces, on average, a cumulative fall in lending growth of between 5.7 and 8 percentage points.” (p.201) The authors also note that “three necessary conditions must hold true if the time-varying, macro-prudential capital requirements envisioned under Basel III are to be effective in controlling systemwide credit growth: (i) equity (the key variable of interest in bank capital regulation) must be a relatively costly source of bank finance, (ii) minimum capital requirement ratios must have binding effects on banks’ choice of capital ratios, and (iii) when macro-prudential regulation diminishes (increases) the supply of credit by banks subject to macro-prudential policy, other sources of credit must not fully offset such changes through increases (decreases) in the credit supplied by those other sources.” (pp. 182-183). For purposes of our analysis with respect to increasing regional bank binding capital requirements by 100 bps, we see the first two of these factors as applicable and the third (the existence of shadow banking) subject to policy and regulatory factors yet to be determined.

To determine the impact of a binding 100 bps increase in the capital ratio of the regional banks studied, we determined the change in loans originated by the regional banks in our group with 2014 total assets at or near \$250 billion from fourth quarter 2009 to fourth quarter 2014 using the FDIC call report data. We then applied the 5.7% and 8% numbers noted above to arrive at the \$14 billion to \$20 billion figure noted in the paper.

Calculating the Cost of CCAR

The cost of complying with CCAR was taken from a Compass Point study (Kevin Barker, Isaac Boltansky and Jason Stewart, *SIFI Change is a Significant Benefit for Regional Banks*, Compass Point Research & Trading, LLC., September 11, 2014), which estimated the cost based upon the asset size (e.g. CCAR cost 3 bps per dollar of assets for banks at \$120 billion in assets and up). We applied those costs to each BHC based upon the amount in assets it held. Anecdotal data supports the higher of the two possible estimates noted in the body of this paper.

Calculating the Cost of Liquidity Regulations

The cost of raising capital against U.S. Treasury obligations purchased to meet liquidity regulations was done by taking the amount in Treasuries added by all banks via the OFR report cited in the paper. We

determine what share of total banking assets each BHC held and multiply the total amount in Treasuries added to estimate the share of Treasuries purchased by each BHC. We then estimate the capital charge by multiplying the amount in Treasuries each BHC added by their leverage ratio. Finally, we use the processes described above to reach the cost of raising this capital.