



THE MINNEAPOLIS PLAN  
TO END TOO BIG TO FAIL

DECEMBER 2017

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COMMENTS & RESPONSES

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# The Minneapolis Plan to End Too Big To Fail

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## COMMENTS PROVIDED AND RESPONSES

**T**he Federal Reserve Bank of Minneapolis issued a draft Plan to End Too Big to Fail on November 16, 2016. The Plan included a request for comment that contained 11 specific questions for respondents to address. In addition, the Minneapolis Fed has presented the Plan in a number of forums, also with the goal of soliciting comments.

This section of the Final Proposal details the comments we received in the process, our responses to the comments, and the revisions, if any, made to address the comments. We organize the comments by the relevant question they addressed. Note that we summarize the comments we received rather than providing them verbatim, both for brevity and to increase their clarity. The substance of the comments we received has not been changed. We thank all those who took the time to provide comments.

## A | BENEFIT AND COST ANALYSIS OF HIGHER MINIMUM EQUITY REQUIREMENT

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The Minneapolis Plan would increase the minimum equity capital requirement for banks with assets over \$250 billion, reflecting an underlying analysis of the benefits and costs of higher capital.

### (Q1) Are there improvements that the Federal Reserve Bank of Minneapolis could make to its calculation of the benefits of this aspect of the proposal?

#### COMMENT 1.

The Minneapolis Plan overstates the reduction in the chance of a crisis from higher capital because it does not account for the lower capital levels that banks in the rest of the world will have. Lower capital levels in the rest of the world will lead to continued crises outside the United States, which will spill over to the United States.

#### RESPONSE 1.

We do not agree that our estimates overstate the benefits of more capital because we are not accounting for lower capital levels in other countries. Our estimates of the benefits of higher capital derive from calculations that look at the losses from banking crises across many countries. We use these data to calculate the amount of capital a country's banking system would have needed to avoid the banking crisis that did occur. The empirical data we use reflect data and experiences from countries with different capital standards. In that sense, these data already account for the fact that a crisis in a country with low levels of capital can spill over to a country with higher levels of capital.

In a separate point, the fact that other countries are willing to bail out creditors of TBTF banks in their countries works to the benefit of the United States, as taxpayers in foreign countries pay the costs that could otherwise accrue to a U.S. household or firm. Finally, we think supervisors would naturally review the exposure of banks in the United States to the failure of foreign banks and respond by reducing that exposure if it grew too high.

#### COMMENT 2.

William Cline from the Peterson Institute for International Economics argues that the Minneapolis Plan understates the chance of a crisis in banking systems that have low levels of capital. He claims that, as a result, the Minneapolis Plan understates the benefits of adding even small amounts of capital to a banking system that has a low level of capital. In sum, Cline believes that adding what

the Minneapolis Plan would see as too little capital to an already low level would have a big effect on reducing the chance of a crisis, in contrast to the findings in the Minneapolis Plan.

## RESPONSE 2.

Cline’s comment is right in a narrow technical sense, but it does not fundamentally change the results or recommendations of our Plan. As discussed below, Cline is correct that we do not have all the information available to determine precisely the losses avoided for countries with low levels of capital that experience a “not-so-costly” crisis. But adding that information would make our analysis show even larger benefits from the equity levels we recommend. That is, the benefits of adding every additional unit of equity in our analysis would be higher if we addressed Cline’s concern, justifying even higher recommended equity levels for systemic banks.

The Minneapolis Plan calculations rely on an International Monetary Fund (IMF) database of bank crises described in the November 2016 draft Plan. We use those data to estimate the probability that a banking crisis will occur. We do so by simply totaling the number of crises that occur in all countries in the database and dividing by the product of years in the database and countries in the database. The resulting number is the unconditional chance of a crisis.

We also calculate the losses associated with each crisis in the database. To be precise, we make these calculations only for countries that had a crisis and do not consider losses that take place in noncrisis years. With this information, we can estimate the chance that a crisis had a particular cost. That chance is a conditional chance because it depends upon a crisis having occurred.

Next, we use the conditional loss data to determine the number of bailouts that could have been avoided if banks in a country had held a range of equity levels. We do this by assuming that a bailout would not have occurred if banks had held equity capital greater than or equal to particular loss levels. For example, a country that had a banking crisis and losses that amounted to 15 percent of banking system assets would have avoided the bailout if the banking system had held more than 15 percent of equity capital as a percentage of bank assets.

Finally, we combine the chance of having a crisis in the first place with the estimate of the number of crises that could have been avoided for particular levels of equity capital. This gives us joint probabilities, which we called bailout probabilities in the November 2016 draft Plan.

Cline’s comment alludes to the fact that these bailout probabilities are not exactly the same as the chance of a bailout taking place in a country, given a certain level of capital in that country’s banking system. This is true because our calculations do not incorporate information about losses and levels of capital in countries that had such losses but did not have banking crises.

Addressing this omission would require additional data and estimation and would increase the complexity of our analysis. In theory, what we, and Cline, would like is the probability of a bailout conditional on banks’ capital ratios (which we do not have).

However, it turns out that these additional data, and any added complexity from making estimations from these data, are unnecessary. By ignoring the information about what happens when crises do not take place, we assume that the chance of a bailout occurring when the banking industry holds low levels of capital is lower than it otherwise would be. This means that the bailout probabilities we report are a lower bound of what we would compute if we had all the data we wanted. It also means that the effect on our analysis is to reduce the benefit of adding more capital to the banking system. In summary, if we had the additional information, the chance of a bailout occurring at low levels of capital would go up and the benefits of adding more equity to the banking system would also go up. Fixing our calculations as Cline suggests would support even higher levels of equity than those reported in the Plan.

### COMMENT 3.

The Minneapolis Plan does not account for the fact that increasing equity capital at a bank can lead it to take on less risk than it would otherwise. The Plan focuses on the loss-absorbing capacity of equity to reduce the chance of a crisis, but not this feature of reducing risk-taking. As such, the Plan calls for too much equity.

### RESPONSE 3.

We explained why we do not account for the claim that higher equity capital leads banks to take on less risk on page 17 of the November 2016 draft Plan: “In our analysis, we do not account for the potential that higher equity capital could reduce risk-taking. Instead, we account only for the loss-absorbing capacity of capital that makes failure less likely in the face of any given shock. We take this view because (a) the effect of higher capital on risk-taking of banks is not clear and (b) assuming that capital can only absorb losses rather than change behavior makes our estimates of benefits more

conservative.” On the same page we point to analysis finding that higher equity requirements can induce banks to actually take on more risk, not less, suggesting ambiguity in the literature about how more equity influences bank risk-taking. This doubt also supports our position of not including an assumption that higher equity leads to less risk-taking.

**(Q2) Are there improvements that the Federal Reserve Bank of Minneapolis could make to its calculation of the costs of this aspect of the proposal?**

**COMMENT 4.**

The Minneapolis Plan overstates the costs of higher capital. It does so because it views higher equity as more costly than other sources of funding. In contrast, the famous Modigliani-Miller theorem posits that debt and equity have similar costs to a firm. Moreover, recent research on the topic suggests that higher equity requirements do not impose a higher cost than other funding sources.

**RESPONSE 4.**

There is a wide range of estimates for the size of the Modigliani-Miller offset. Barth and Miller (2017) find no offset while Clark, Jones, and Malmquist (2017) find an average offset of 85 percent, with the largest banks enjoying a full offset. Other estimates, such as Cline (2015) and Miles, Yang, and Marcheggiano (2012) fall somewhere around a 50 percent offset.

Given that the literature does not narrow down precisely what value to choose, we use a midpoint of the full- and no-Modigliani-Miller effect options by assuming a 50 percent pass-through of the higher funding costs from banks to their customers. Beyond choosing a figure that reflects the uncertainty of the literature, this approach is consistent with our recommendation: Higher equity capital requirements apply to only a small set of covered banks. The vast majority of commercial banks would not have to increase their equity funding and so would not necessarily increase loan rates to the same extent.

We also already provide data in Table 5 in the November 2016 Plan on the effect of altering the Modigliani-Miller offset.

To provide additional information, we have, in the Final Proposal, revised the November 2016 draft Plan to include additional information captured in the following table. The table assumes that only 25 percent of the increase in funding costs implied by higher equity requirements is passed



through to bank customers. Assuming a stronger Modigliani-Miller effect essentially cuts the output cost of higher equity in half. That moves the marginal cost curve down, leading to a net benefit-maximizing capital ratio of about 34 percent instead of 22 percent.

### Sensitivity of Minneapolis Plan Net Benefits to Pass-Through Assumption

	Minimum Capital Requirement	Chance of Bailout (next 100 years)	Net Benefits (relative to 2007) (% of gross domestic product)	
			Pass-Through Assumption 25%	50%
2007	4%	84%	—	—
Current	13%	67%	18	12
Step 1	23.5%	39%	30	19
Step 2	38%	9%	35	15

Note 1: Pass-through is the percent of costs that banks pass on to customers from increasing funding from equity. Zero pass-through means no costs are passed on, while 100% means all costs are.

Note 2: The results reported in the Minneapolis Plan reflect a “Pass-Through” assumption of 50%.

Note 3: All results are reported relative to 2007.

#### COMMENT 5.

The Minneapolis Plan overstates the costs of a higher equity capital requirement because it does not reflect changes to monetary policy that would occur if the Minneapolis Plan went into effect. In particular, if the Minneapolis Plan reduced bank lending, the Federal Open Market Committee (FOMC) would follow a more expansionary policy, which would offset the effects of higher equity requirements.

#### RESPONSE 5.

The commenter is incorrect. We do account for expected changes in monetary policy in response to the higher equity capital requirement.

Specifically, as indicated on page 33 of the November 2016 draft Plan, we compute the cost of a higher bank equity capital requirement by running simulations of the Board of Governors FRB/US model. In particular, those simulations increase corporate bond spreads to account for the increased cost of funding for banks due to the higher equity requirement. Our simulations start with the FRB/US model in a steady state and run for 10 years. We assume that the change in GDP at the end of the simulation relative to the baseline steady state level is the permanent cost of higher bank

equity. The simulation specifically allows for a change in monetary policy. Technically speaking, the simulation allows the federal funds rate to adjust endogenously according to an inertial version of the Taylor rule. Put less technically, there are rules of thumb that link changes in economic conditions to changes in monetary policy. Our simulation follows one of those rules of thumb. In particular, the funds rate declines in response to the increased bond spreads, reducing the costs of higher equity. The funds rate winds up about 25 basis points below its baseline, steady state value.

The approach we took was conservative. For example, we could have adjusted part of the rule of thumb in the model in a relatively standard way (e.g., an intercept adjustment), which would have had the effect of altering the long-run neutral rate of interest to account for the increased spreads associated with higher bank equity. But this approach eliminates any long-run deviation of output from its baseline path, which has the effect of making the cost of additional bank equity zero.

#### **COMMENT 6.**

The Minneapolis Plan does not account for the shift in business away from banks facing the higher equity requirements. Customers of banks facing higher equity requirements will face higher-cost products and services or, if the bank shrinks, they will not be able to obtain the services or products they need. As a result, customers will shift their business to other banks, perhaps foreign banks that have less equity. This shift has several potential outcomes that the Minneapolis Plan does not account for and that reduce the benefits of the Plan. First, the shift will make the new firms from which U.S. businesses and households receive services too big to fail if they were not already, including firms in other countries. Second, bank customers will not receive the benefit of economies of scale from large U.S. banks. Finally, it will reduce the viability of the largest banks in the United States.

#### **RESPONSE 6.**

The Minneapolis Plan did implicitly consider the potential costs of higher equity requirements and the potential that they could lead to a shift in business away from such firms. At the most general level, the Minneapolis Plan tries to fix a social problem: The enormous costs of the failure of the largest banks in the United States fall onto taxpayers and not the creditors of those banks. Our Plan tries to reduce these social costs and does so by imposing the higher costs of large bank failures back onto bank creditors. The lower potential profits and issues with business models that result are intentional features of the Plan. Put another way, our Plan increases net benefits for society and not for banks and their shareholders.

In terms of the specific comments:

First, as noted in Response 1, the fact that banks in other countries are or may become too big to fail does not reduce the benefits of the Minneapolis Plan. The United States is trying to maximize benefits to its citizens, and the support other countries offer banks does not reduce the benefits of the Minneapolis Plan. Moreover, the Minneapolis Plan anticipates and welcomes the movement of business to smaller domestic banks. This shift reduces the potential spillovers from large bank failures while ensuring that customers receive the services they need.

Second, page 12 of the November 2016 Plan already explains how we take account of potential economies of scale in banking.

Third, as just noted, the Minneapolis Plan will leave a stronger banking system in the United States than the one that exists today. The situation today is one characterized by a small number of huge banks benefiting from government support. Under our Plan, the cost of that support is recognized and leads banks to organize themselves in a manner consistent with the outcome that market forces would otherwise produce.

Finally, we agree that there are costs and benefits to the Minneapolis Plan. We already account for those costs as fully as we can.

#### **COMMENT 7.**

The Minneapolis Plan overstates its benefits by choosing the highest cost of a crisis from the estimates produced by the Basel Committee on Banking Supervision (BCBS). The “middle” estimate of the cost of a crisis, which is 63 percent of GDP, is more plausible than the “high” estimate we use, which is 158 percent of GDP. The higher figure is particularly suspect given that the United States is unlikely, the commenter argues, to experience the more expensive crisis that other countries faced.

#### **RESPONSE 7.**

We disagree. On pages 23 and 33 of the November 2016 draft Plan, we explain how we chose the cost of a crisis from the prior analysis by the BCBS (2010). The cost of a crisis is the drop in output relative to the precrisis trend and can be temporary or permanent. We think the most appropriate way to measure this cost is by assuming a permanent drop in GDP from the precrisis path, particularly in

light of the global financial crisis. Indeed, the U.S. experience justifies this approach. Since the 2007 crisis, real GDP at the end of 2016 was at least 10 percent below a trend estimated through 2007.

The BCBS reviews the literature on the cost of a crisis and finds that 158 percent GDP is a good estimation of the permanent loss. In contrast, the 63 percent cost figure is the median of all studies estimating the cost of a banking crisis, including four of the 13 studies reviewed that argue that the cost is temporary. We do not believe mixing permanent and temporary cost estimates together is a defensible approach.

More specifically, the 63 percent figure comes from a paper (Boyd, Kwak, and Smith 2005) that reports both permanent and temporary cost figures. The permanent loss figure from that same paper was 302 percent, a figure we find technically much more robust than the 63 percent from that specific paper and, in fact, the highest estimate cited by the BCBS long-term economic impact report.

#### **COMMENT 8.**

Analysis from The Clearing House (TCH) finds that the Minneapolis Plan is more costly than the November 2016 draft Plan states. Specifically, TCH argues that the Minneapolis Plan has net costs, not net benefits. (See the TCH blog post of November 18, 2016.)

#### **RESPONSE 8.**

TCH analysis contains two errors. First, TCH appears to have confused the expected gain from reducing the probability of a crisis with the residual expected costs. In particular, our analysis concludes that the annual probability of a crisis under current regulations is 1.1 percent and would fall to 0.5 percent under Step 1 of the Minneapolis Plan. Using TCH's preferred cost of a crisis of 63 percent of GDP, the expected loss falls from 63 percent\*0.011 = 0.69 percent to 63 percent\*0.005 = 0.315 percent for a gain of 0.375 percent of GDP (i.e., the expected loss from a crisis falls by 0.375 percent annually). The TCH post has the 0.315 percent and 0.375 percent figures reversed. Correcting this error reduces the TCH "cost" from \$16,000 per person to \$13,000.

The second and more serious point relates to TCH's computation of the present value of net benefits. In sum, if we use the TCH approach, our net benefits are actually much higher than reported in the November 2016 draft Plan. Why? TCH converts the annual costs and benefits from percentages of GDP to present value per capita dollar terms. TCH assumes a 5 percent discount rate and nominal

GDP growth of 4 percent. These assumptions imply that an asset that pays \$1 today and grows at the same rate as nominal GDP has a present value of \$101. The problem with the TCH approach is that it ignores the fact that the loss from crisis is already in present value terms. In particular, the BCBS (2010) study uses a 5 percent discount rate (the same as TCH), but assumes no growth. For example, the 158 percent figure we use for the loss from a crisis is derived by discounting a permanent 7.5 percent of GDP loss at 5 percent. The 63 percent loss value TCH prefers is equivalent to a 3 percent permanent loss. If we were to discount that 3 percent annual loss the way TCH discounts the costs, the present value of the loss from a crisis would be 303 percent of GDP. Translating that into dollar terms results in per capita net benefits of \$72,000.

#### COMMENT 9.

Several comments focused on our discussion of costs, particularly on Table 1 on page 1 of the November 2016 draft Plan. Specifically, commenters were not clear on the precise definition of costs used in that discussion. For example, was the cost figure an annual loss amount? Was the cost figure a percentage of GDP in the current year?

#### RESPONSE 9.

In response to the comments, we have changed Table 1 and related text to better describe what the cost figures represent. We also respond specifically to several comments we received:

- The November 2016 draft Plan reports cost figures like 24 percent and 41 percent of GDP. Does that mean your proposal will cost \$8 trillion each year given that GDP is \$19.5 trillion?

No. The 24 percent figure is the percent difference between (a) what the baseline path of GDP would have been absent Step 1 of our proposal and (b) what GDP will be with Step 1 of our proposal. The 24 percent figure also accounts for the fact that dollars today are worth more than dollars in the future. In other words, it is the “present value” of all the future differences between these two GDP figures.

In terms of 2017 nominal GDP, the 24 percent in Table 1 of the November 2016 draft Plan was about \$4.7 trillion.

Alternatively, we could describe the costs as follows: Each year, there is an annual cost to higher capital. We can express that cost as the percent difference between GDP under Step 1 and what GDP

would have been, say, under current capital requirements or under the capital requirements as of 2007. In Table 1, that annual difference is about 1.1 percent. We add up these annual differences over time. In fact, we add them up for every year in the future. But we need to account for the fact that a given amount of GDP in the future is not the same as that amount today. People value dollars they get in the future less than dollars they receive today. We apply a “discount” factor to each of these percent differences we calculate annually. And we add these up forever (over an “infinite horizon”). For Step 1 relative to the 2007 regulation, the total of all of this addition equals 24 percent.

- The cost figures are quite high as reported, correct?

No, they are not. Asking about the magnitude of costs requires one to ask, “Relative to what?” We noted that the present value cost of Step 1 is about \$4.5 trillion. But this cost comes with benefits. Specifically, by raising equity requirements, we are reducing the chance of a banking crisis, and there is some chance of a crisis each year. So the benefits of our Plan equal the reduction in the chance of having a crisis in a given year multiplied by the cost of a crisis. That is the amount of money we are saving society by raising equity requirements.

The annual chance of a crisis under Step 1 of our Plan is 0.50 percent compared with 1.79 percent under the 2007 regulations. So the chance of a crisis goes down 1.29 percentage points. The cost of a crisis is 158 percent of GDP (which is the present value of a permanent reduction in GDP due to a crisis of 7.5 percent). The reduced chance of a crisis occurring in a given year multiplied by the cost of a crisis (158 percent times 1.29 percent) equals 2 percent of GDP annually. So Step 1 saves society 2 percent of GDP annually. Adding that annual figure up over time and accounting for the value of current dollars relative to future dollars yields 43 percent of GDP, or \$8 trillion. Recall that the cost of Step 1 is \$4.5 trillion. So, on net, Step 1 has benefits that are almost twice as high as costs. What about Step 2? Using this same approach, the benefits of the higher equity exceed the costs of the higher equity by roughly \$3 trillion.

- How does your cost estimate compare with how much GDP fell after the 2008 financial crisis?

Real GDP fell 4.2 percent from 2007Q4 to 2009Q2 (peak to trough). In the most current public FRB/US database as of this writing (released November 8, 2017, [https://www.federalreserve.gov/econres/files/data\\_only\\_package.zip](https://www.federalreserve.gov/econres/files/data_only_package.zip)), potential output rose 3.9 percent over that same period, so

relative to “trend,” GDP fell 8 percent. This output seems lost forever. That is, the economy seems to be growing at the same trend as before, but is not growing so quickly as to erase the gap that developed after the crisis. This means that the economy has lost about 8 percent of GDP each year for the rest of time. This figure for the United States is very close to the annual loss figure for a crisis used by the BCBS. The BCBS assumes that an economy loses 7.5 percent of GDP permanently.

#### **COMMENT 10.**

William Cline from the Peterson Institute for International Economics argues that the use of the FRB/US model to estimate the cost of the Minneapolis Plan is flawed. Cline argues for the use of an approach relying on a simpler production function and against allowing for monetary policy to respond.

#### **RESPONSE 10.**

We disagree.

The approach preferred by Cline estimates the output losses from higher capital requirements directly from a production function. In Cline’s approach, higher capital leads to higher borrowing costs for firms, less investment, a lower capital stock, and less output. However, under his approach, investment is very likely to fall by a larger amount than household saving. If saving and investment are not equal (or do not change by the same amount if they were equal before the change in capital requirements), the amount of output produced will not equal the amount used for consumption or investment. Saving will therefore have to fall when the interest rate falls. So carried to its logical conclusion, Cline’s approach requires lower interest rates, just as we allowed in our model-based approach.

#### **(Q3) Are there improvements that the Federal Reserve Bank of Minneapolis could make to its proposed minimum equity requirement for large banks?**

#### **COMMENT 11.**

Capital standards require measures of equity and other potential sources of capital and measures of assets. Two main categories of capital standards are those that “risk-weight” assets and those that do not, which are called risk-weighted asset (RWA) standards and leverage standards, respectively.

The Minneapolis Plan would raise equity requirements for banks with assets over \$250 billion

relative to the current requirement. However, it raises the leverage ratio proportionately more than it raises the RWA ratio.

#### **RESPONSE 11.**

We propose a minimum capital ratio of 23.5 percent of risk-weighted assets for covered banks. We use 13 percent as the measure of the current risk-weighted capital ratio. The increase from the current ratio to the proposed one is 81 percent. The comment suggests that we should translate our risk-weighted asset-based target to a leverage ratio by applying that same 81 percent increase to the current minimum leverage ratio requirement.

We do not use that approach; we use a different approach to transform our risk-weighted capital ratio target to a leverage ratio target. Our approach is based on the fundamental fact that the difference between a risk-weighted and a leverage approach to capital standards is the risk-weighting scheme. Those risk weights determine the relationship between total RWAs in the banking system and total unweighted assets. The latter is used in the leverage ratio. We use that relationship to convert our risk-weighted target to a leverage standard. We prefer our approach to the one suggested in the comment because it seems less ad hoc. We discuss the approach we took to translating our recommended RWA ratio to a leverage ratio in Appendix A of the Final Proposal.

We add that our choice of 13 percent as the current RWA ratio target reflects an inherent conservative bias on our part. We could have reasonably chosen a smaller number to represent the current RWA standard. If we had chosen a smaller number to represent the current state, the gap between the current RWA and our proposed RWA requirement would be larger.

Finally, the choice we made of using a simple leverage ratio in our proposal, which has on-balance-sheet assets as its denominator, has important implications for how we translate our RWA target into a leverage ratio. We discuss why we use the simple leverage ratio approach in Comment/Response 12.

#### **COMMENT 12.**

The Minneapolis Plan conducts its benefit and cost analysis on a risk-based capital ratio with CET1 in the numerator and risk-weighted assets in the denominator. It does not conduct that analysis using the simple leverage ratio requirement recommended in the Plan. The Minneapolis Plan should



report benefit and cost analysis for the simple leverage ratio as well. Indeed, the leverage ratio has advantages over the risk-based capital ratio. In particular, the risk-based capital ratio may understate the capital needed by banks because it does not capture the true risk of assets. For example, the risk-based capital ratio may treat debt issued by countries as low risk and thus require little equity to absorb losses from that debt when, in fact, the debt is very risky and banks should hold lots of equity against future losses.

#### **RESPONSE 12.**

We fully support the use of both a minimum risk-based capital ratio and a leverage ratio approach. But, as we note in footnote 5 on page 7 of the November 2016 draft, “We [would] not rely exclusively on a leverage ratio because that approach treats all assets as equally risky and thus can also not accurately set capital relative to the risk the bank takes on.” Thus we already take account of the commenter’s concern about use of the RWA as a minimum standard.

Our cost and benefit analysis would also not change if we applied it to our recommended leverage ratio of 15 percent. This result occurs because of the way we derive the leverage ratio. As generally described in Response 11, the leverage ratio in the Minneapolis Plan is a linear transformation of the RWA target. As such, conducting our cost and benefit analysis on one versus the other would not alter our bottom line findings. Put another way, the capital targets in the Minneapolis Plan are not dependent upon whether we focus on a risk-based capital ratio or a simpler leverage ratio due to our assumption about the relationship between risk-weighted asset and total asset measures. We make this point clearer in Appendix A of the Final Proposal.

#### **COMMENT 13.**

Commenters made two related points regarding the measurement of assets in capital standards and the Minneapolis Plan. These points were motivated by a belief that certain types of capital standards are superior to others. In particular, bank regulators should seek to avoid capital measures that understate the amount of assets a bank holds, as that error will overstate their capital ratio because the measure of assets is the denominator of the capital standard (e.g., the capital standard is a measure of equity divided by a measure of bank assets).

First, some commenters argued that generally accepted accounting principles (GAAP) in the United States understate the assets of banks because that approach does not sufficiently account for the derivative exposures of banks. They argue that the international financial reporting standards

(IFRS) do a better job of measuring the complete exposure to banks from derivatives. These commenters asked if the Minneapolis Plan used GAAP or IFRS measures of assets and to explain why we did not use IFRS if that was the case.

Second, some commenters argued that we should use measures of the leverage ratio that, akin to the IFRS point above, have a broad measure of total assets. For example, the so-called supplemental leverage ratio uses a broader measure of assets or exposures relative to more simple measures of the leverage ratio that the Minneapolis Plan uses.

### RESPONSE 13.

We respond to the two-part comment separately.

First, we are not aware of a data source containing the IFRS data needed to carry out our calculations. At best, we could have tried to make use of average relationships between IFRS and other data to transform our calculations into IFRS terms. But this type of adjustment would not change our results.

We did use a simple measure of the leverage ratio. We did not use a measure of the leverage ratio with a broader measure of assets when we converted our risk-weighted figure to a leverage figure for four reasons.

- There is no one single “correct” leverage ratio. There are multiple measures that are all legitimate. Throughout our analysis, we used the basic approach when we had multiple, reasonable options. We used that approach in this case as well.
- Many important uses of capital measures continue to use the simple leverage figure. For example, we believe the “stress test” run by the Federal Reserve System is a particularly important supervisory exercise for the most systemically important banks. The stress test continues to use a simple leverage ratio measure, among others, in determining the post stress capital position of banks.
- Third, the broad measures of leverage allow for certain nonequity forms of capital to count in the numerator of the ratio. We oppose such inclusion.
- Fourth, the data to convert our risk-weighted target to a leverage target using the broad measure of assets were not available for inclusion in the November 2016 draft Plan.

The data are now available to allow for conversion of the risk-weighted target into a leverage measure using the broad measures of assets. For the sake of transparency, we calculated how our risk-weighted recommendation would translate into a leverage ratio using the broad measure of assets. The 23.5 percent risk-weighted target would translate into a 13 percent leverage ratio using the broad measure of assets. Recall that transformation goes from 23.5 percent to 15 percent when we use a simple leverage ratio approach.

All that said, we are open to using a leverage ratio with a broader measure of assets or the IFRS accounting approach once our Plan is adopted.

#### **COMMENT 14.**

The Minneapolis Plan is silent on the continued use of “stress testing” for the largest banks in its proposal. If the Plan envisions dropping stress testing, explain why.

#### **RESPONSE 14.**

The November 2016 draft Plan, on page 13, notes, “Our proposal almost always builds on the current reform effort, which we think could make banks more resilient to a shock that hits a single firm during good times. We only seek to modify the minimum capital requirements and long-term debt/TLAC proposal for covered banks.” To be even more explicit, we support the continued use of stress testing for the largest banks. We also believe many of the proposals from former Governor Daniel Tarullo (2016, 2017a) on reforming the stress test are worthy of further study.

#### **COMMENT 15.**

A strength of analysis used by the Bank for International Settlements (BIS)—which includes work by the Basel Committee on Banking Supervision (BCBS), the Financial Stability Board (FSB), and the Macroeconomic Assessment Group (MAG)—is the use of multiple modeling approaches to determine what constitutes the appropriate minimum capital requirement. The Minneapolis Plan seems to rely on just one method, which makes its results less robust and compelling.

#### **RESPONSE 15.**

Page 21 of the November 2016 draft Plan highlights analysis using different approaches than our own that nonetheless come to similar conclusions. Additional analysis since the release of the November 2016 draft Plan further supports our suggested minimum equity levels. We highlight that analysis here:

- Passmore and von Hafften (2017) find that the most systemically important banks should face an extra capital surcharge of between roughly 7 percentage points and 14 percentage points on top of their current minimum levels of capital. This surcharge, at its upper ends, would bring capital to a level at or above the proposed minimum of the Minneapolis Plan.
- Firestone, Lorenc, and Ranish (2017, p. 1) conclude that “optimal bank capital levels in the United States range from just over 13 percent to over 26 percent,” with the higher range meeting or exceeding the Minneapolis Plan’s proposed minimum level.
- Egan, Hortacsu, and Matvos (2017, p. 170) report, “Our results suggest that capital requirements below 18 percent allow for equilibria with substantial probabilities of bank default and large welfare losses.” We find the analysis in Egan, Hortacsu, and Matvos (2017, pp. 204-06) to strongly support a capital requirement of right around 23 percent (as found in the Minneapolis Plan) and to potentially support a much higher level (e.g., around 39 percent) consistent with Step 2 of the Plan.
- Schnabl (2017, p. 44) reviews a wide range of analysis of minimum capital requirements and summarizes that “the required thresholds vary greatly across proposals with recommended capital ratios ranging from 9% to 30%. It is clear that all recommendations come with a number of assumptions on the economic magnitude of the costs and benefits of bank capital. Even though there is no unanimous consensus on the recommended level, none of the proposals recommends a number clearly below 10%, and most proposals recommend a number significantly above 10%. A prudent regulator may prefer a threshold that puts more weight on some of the higher estimates.”
- Barth and Miller (2017) find that increasing the minimum leverage ratio requirement to 15 percent—which matches our recommendation—passes a benefit and cost test.
- Perri and Stefanidis (2017, p. 3) find, “Quantitatively, however, to achieve a sizeable reduction in the probability of bailout, capital requirements should be increased significantly, in the 20% to 30% range.” They find that these results support the recommendation of the Minneapolis Plan but use a completely different methodology to obtain that result.

**COMMENT 16.**

The authors of the Minneapolis Plan could improve it by recommending improvements to Title I and Title II of the Dodd-Frank Act, which concern recovery and resolution planning. In a related point, some commenters asked how resolution would work under the Minneapolis Plan for the largest banks, assuming that even the higher levels of equity are insufficient to prevent failure.

**RESPONSE 16.**

The November 2016 draft Plan articulates a clear view on Title I and II on pages 13 and 14. We note support for efforts taken under these titles and view them as complements to our Plan. We believe authorities should try to use these tools to perform a resolution of a large bank if necessary. We also heard from experts during the production of the Minneapolis Plan calling for a so-called Chapter 14 approach to modifying the bankruptcy code that would facilitate large bank resolution. We would be open to such efforts to improve resolution, although it is not yet clear if Chapter 14 is superior to the Title I and II approaches. In general, we think improved resolution will help address the failure of a single large bank. We do not see improved resolution as able to address more systemic weakness in the financial system. In any case, we note that a resolution regime would not likely prevent the need for government support for bank creditors in the case that losses were larger than the equity requirements we call for.

**COMMENT 17.**

The Minneapolis Plan makes no explicit mention of market discipline as a means to end TBTF. Replacing regulator discretion with market discipline is necessary.

**RESPONSE 17.**

We agree. But creditors of banks must believe they will suffer losses in the event of a bank failure in order for market discipline to replace regulator discretion. The question is, therefore, how to convince bank creditors that they are truly at risk of loss. The simplest answer is to focus on creditors on whom the U.S. government has historically been willing to impose losses. Equity holders are that group of bank creditors. For that reason, the Minneapolis Plan focuses on common equity as the most robust form of capital for absorbing losses. Under current proposals, long-term debt counts toward measures of total loss-absorbing capacity (TLAC). We do not believe long-term debt will actually absorb losses in a time of market stress, particularly since it has not done so in the past.

**COMMENT 18.**

The Minneapolis Plan focuses on bank holding company size rather than banking activity. Banking activity leads the government to support banking firms in times of distress rather than bank size per se.

**RESPONSE 18.**

The Minneapolis Plan accounts for both size of bank and bank activities. Specifically, the treatment that banks face under the Minneapolis Plan varies by two factors: asset size and systemic risk. Banks that are larger and more systemically important face higher capital charges under the Minneapolis Plan. An important measure of systemic importance is the particular activities that the firm engages in. Under the Minneapolis Plan, the Treasury Secretary will have to certify when banks are not systemically important. The Secretary must review the systemic risk of covered banks, but can identify banks that would otherwise be “not covered” as systemically important with the need to face higher equity capital requirements.

**COMMENT 19.**

Addressing TBTF requires the government to set equity requirements at the bank level, not at the bank holding company level as the Minneapolis Plan does.

**RESPONSE 19.**

We disagree. The Minneapolis Plan sets equity requirements at the holding company level for two reasons. First, the government provided support in the last crisis at the holding company level for some firms. Second, issuing increased equity at the banking subsidiary may not adequately protect the bank from losses that threaten the parent company. These losses can arise from any part of the organization.

**COMMENT 20.**

Equity requirements should be based on the liabilities of banks, not on the assets.

**RESPONSE 20.**

The government can express equity requirements as a ratio with many options for what is used as the denominator. Our analysis, like all others we are aware of, uses a measure of assets as the denominator. Governments may use assets as the denominator because the losses that equity absorbs come from these assets. Moreover, the underlying data on losses and capital we use for our calculation express capital with assets in the denominator. We agree that certain liabilities pose risk to banks to

the degree to which their holders can run. We believe higher equity levels make running less likely, but the thrust of our Plan is to use equity to absorb losses.

**COMMENT 21.**

The Minneapolis Plan has an equity requirement that does not vary over time with, for example, the riskiness of the financial system. This limitation of the Minneapolis Plan, some commenters noted, prevents the Minneapolis Plan from operating in a countercyclical fashion.

**RESPONSE 21.**

The November 2016 draft Plan, on page 7, notes that the equity capital requirement under the Plan does not vary by bank or over time. We justify that approach, noting that “we prefer a less-complex capital regime.” We still believe the benefits of simplicity outweigh the benefits of varying the requirement by bank or over time.

**COMMENT 22.**

The Minneapolis Plan recommends that equity absorb potential large losses. It would be more efficient and effective to allow banks to tap into reinsurance-type markets or arrangements to shift large losses from the bank to other parties.

**RESPONSE 22.**

The Minneapolis Plan uses equity to absorb losses because there is a strong record of equity playing that role, and it is simple. Creating a contingent approach to absorbing losses for the largest and most systemically important banks does not have the benefits of requiring more equity and adds the drawback of complexity. Contingency approaches are complicated, which means they have a lower chance of working in a crisis.

**COMMENT 23.**

The Minneapolis Plan should allow some banks that have assets greater than \$250 billion to not face the higher 23.5 percent equity requirement. Some of these banks may pose less risk than others, for example. More generally, some commenters argued that the \$250 billion threshold was set too low.

**RESPONSE 23.**

The Minneapolis Plan chose the \$250 billion threshold because that figure, per footnote 2 on page 1 of the Plan, is “consistent with an important definition of systemically important banks.” We believe

that all systemically important banks should face the higher equity requirement so that the failure of one such bank does not endanger the others. We agree that no threshold for this purpose is perfect, but we believe this one is reasonable.

**COMMENT 24.**

The Minneapolis Plan does not use any of the various forms of contingent capital that have been proposed. The Plan would be more effective if such forms of capital were used. Such capital is lower cost and is loss-absorbing.

**RESPONSE 24.**

Pages 10 and 11 of the November 2016 draft Plan explain why we believe common equity is superior to contingent capital. In short, we do not think contingent capital will prove loss-absorbing when it needs to be. Recent evidence from Europe supports this belief. Bailouts of three banks by the Italian government and the European Union in June of 2017 highlight the issue. Minneapolis Fed President Neel Kashkari (2017) argued that these bailouts are a “reminder that only equity can be counted on to protect taxpayers.”

**COMMENT 25.**

Analysis conducted under the auspices of the BIS finds that a lower level of equity, relative to the one proposed in the Minneapolis Plan, would prove sufficient to guard against banking crises. The BIS analysis is superior.

**RESPONSE 25.**

Pages 20 and 21 of the November 2016 draft explain why the Minneapolis Plan calculations differ from those conducted by the BCBS/BIS/FSB/MAG. We use a different approach requiring fewer assumptions, which we believe is superior to the approach of the BCBS/BIS/FSB/MAG. Our results are also consistent with the level of loss-absorbing capacity that the Federal Reserve argued large banks should have.

**COMMENT 26.**

The Minneapolis Plan should show “confidence intervals” for its calculations.



**RESPONSE 26.**

Our analysis does not lend itself to the calculation of confidence intervals. Instead, and to meet the same objective, we show the results of sensitivity analysis. We also note the uncertainty of our analysis in footnote 4 on page 5 of the November 2016 draft Plan.

**COMMENT 27.**

The Minneapolis Plan increases the amount of equity capital that the largest and most systemically important banks must issue. To facilitate the raising of this equity, the Minneapolis Plan should offer recommendations that allow investors to put equity into a bank but not face the burden of becoming a bank holding company.

**RESPONSE 27.**

It is not clear that any change in policy is required to address the concern of the commenter. The analysis to determine if an investor must become a bank holding company is complex and multifaceted, and we do not attempt to capture it fully in this response. But as a general rule, the Federal Reserve will require an investor that owns around 5 percent or more of a bank to be a bank holding company. However, the Federal Reserve has allowed corporate investors who pledge, through a series of commitments, to remain passive owners to control up to 25 percent of a bank and not become a bank holding company.

**B | BENEFIT AND COST ANALYSIS OF A “SYSTEMIC RISK CAPITAL CHARGE”**

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The proposal would create a systemic risk capital charge for all firms that the Treasury Secretary fails to certify as no longer systemically important.

**(Q4) Are there improvements that the Federal Reserve Bank of Minneapolis could make to its calculation of the benefits of this aspect of the proposal?**

No comments were received for this question.

**(Q5) Are there improvements that the Federal Reserve Bank of Minneapolis could make to its calculation of the costs of this aspect of the proposal?****COMMENT 28.**

Several commenters argued, in varying ways, that the Minneapolis Plan still allows a material chance of a bailout due to the “herding” of banks that do not face higher equity requirements under the Plan. The concern is that these smaller and less systemically risky banks will take on the same types of risks and thus tend to fail at the same time. The combined damage caused by multiple failures will result in bailouts similar to those that would occur if a larger bank fails. These commenters thus concluded that the Minneapolis Plan does not really end government support in response to a crisis.

**RESPONSE 28.**

We believe comments on the potential herding of banks without higher equity requirements have some merit, but are greatly overstated in terms of practical effect. As noted on page 12 of the November 2016 draft Plan, it seems likely that banks will continue to use a variety of business models and take on risks that are not highly correlated in the future. Institutions that break themselves up as a result of our Plan are likely to have less-correlated business models. In addition, the costs of having many smaller banks fail, such as during the savings and loan crisis of the 1980s and 1990s, are material but not nearly as large as those of the financial crisis of 2007-08.

**(Q6) Are there improvements that the Federal Reserve Bank of Minneapolis could make to its proposal calling on the Treasury Secretary to certify that firms are no longer systemically important?**

**COMMENT 29.**

Several commenters argued that the Treasury Secretary would not be able to effectively carry out the Minneapolis Plan recommendation that it certify banks as no longer systemically important. In particular, these commenters thought the Treasury Secretary would not have staff with sufficient expertise to carry out the task and would not have access to data and other key inputs to complete the task effectively.

**RESPONSE 29.**

We disagree with the claim that the Treasury Secretary has insufficient resources to certify firms as no longer systemically important. As we argue on page 25 of the November 2016 draft Plan, “The Treasury can take advantage of the full range of data collection and analysis across the federal government to help it identify and respond to systemic risk and financial instability.” We are also confident that the administration would request whatever additional support needed for the Treasury Secretary to carry out this task. It is worth noting that the Treasury Secretary already plays a key role under the Dodd-Frank Act in systemic risk identification and response (e.g., chairing the Financial Stability Oversight Committee).

**COMMENT 30.**

The Minneapolis Plan does not give the Treasury Secretary sufficient guidance for certifying firms as no longer systemically important.

**RESPONSE 30.**

The Minneapolis Plan directs the Treasury Secretary to give detailed guidance for determining the degree of systemic risk posed by a bank. Specifically, on page 25 of the November 2016 draft Plan, we note that “the Treasury Secretary would not start with a blank slate. There is a set of metrics and measurements that bank supervisors, including the Board of Governors, use to assess the systemic risk posed by banks. They do so in the context of applying a so-called SIFI [systemically important financial institution] surcharge to GSIBs [globally systemically important banks]. We would call on the Treasury to look to this measurement approach used by other regulators in making its certification

that a bank does not pose systemic risk. Of course, this need not be the only methodology, but it could contribute to its assessment.”

#### **COMMENT 31.**

The Minneapolis Plan does not account for the marginal costs and benefits of the systemic risk charge in its recommendations.

#### **RESPONSE 31.**

Pages 24 and 25 of the 2016 draft Plan provide the exact type of analysis on marginal benefits and costs the commenter calls for.

#### **(Q7) Are there alternative frameworks the Federal Reserve Bank of Minneapolis could use in reducing systemic risk of large financial firms?**

#### **COMMENT 32.**

The Minneapolis Plan seeks to reduce/eliminate TBTF by making it less likely that the most systemically important banks fail. This approach is inferior to one that focuses on reducing the underlying cause of the risk-taking that leads banks to fail. The roots of such risk-taking are contractual incentives for bank employees and leadership to take on too much risk and weak corporate governance that does not prevent such excessive risk-taking.

#### **RESPONSE 32.**

We agree that the Minneapolis Plan focuses on limiting the damage from a shock to the financial system rather than trying to eliminate those shocks from occurring in the first place. We are not aware of evidence supporting the notion that governments can eliminate shocks to the financial system. These shocks have come from different sources over time, including damage to the infrastructure supporting banks, consumer loan concentrations, commercial loan concentrations, trading related assets, exposures to foreign banks, and many others.

The comment also suggests that there is a clear understanding that a few underlying factors cause shocks to the financial system. We fundamentally disagree. The Federal Reserve’s post-financial-crisis approach to monitoring threats to financial stability takes a similar strategy by focusing on factors that can spread instability rather than trying to identify the source of shocks to the financial system.

Moreover, the notion that simple changes to corporate governance and contractual arrangements used by financial firms will bring an end to banking crises seems optimistic. We note that such banking crises have been a feature of financial systems across time and countries. Yet contractual arrangements and corporate governance have varied across time and place.

**COMMENT 33.**

The Minneapolis Plan identifies TBTF banks based on their size. Yet other factors besides size make them systemically risky. The Plan should account for many factors beyond size in determining which banks are TBTF.

**RESPONSE 33.**

The Minneapolis Plan does not simply rely on size. The Plan requires the Treasury Secretary to determine if a TBTF bank no longer poses systemic risk. This assessment should review a number of attributes of the bank beyond size.

**COMMENT 34.**

The Minneapolis Plan assumes that the presence of large and potentially systemically risky banks will lead to banking crises and financial instability. But Canada has a banking system dominated by a small number of very large banks and has avoided some of the costs of financial crises that the United States has faced. This suggests that the United States could maintain its current system of large banks without the threat of a banking crisis that the Minneapolis Plan posits.

**RESPONSE 34.**

Recent analysis of the financial crisis experience of Canada and the United States points to long-standing differences in the financial systems of the two countries to explain why Canada did not have a banking crisis when the United States did. (See Bordo, Redish, and Rockoff 2011 and Haltom 2013.) This analysis views differing outcomes between the two countries in 2007, for example, as deriving from decisions and factors from the early 19th century. This long-term view does not suggest that the United States should accept a few systemically important firms dominating the banking system because Canada ended up with such a system.

This analysis of the Canadian banking system also argues that its composition of highly concentrated banks comes with the cost of oligopoly pricing. (See Boone and Johnson 2010.)

Finally, some analysts note that Canada has a very large government safety net for financial assets and institutions.

**COMMENT 35.**

It is unclear if the discount window will continue to play its current role under the Plan. In particular, does the Minneapolis Plan view the provision of liquidity from the discount window as a form of bailout that should not continue?

**RESPONSE 35.**

The Minneapolis Plan envisions the discount window playing the role it does today. The Plan seeks to avoid the provision of equity/capital to banks, not liquidity to otherwise solvent institutions.

## C | SETTING A SHADOW BANKING TAX

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The proposal would levy a tax on shadow banks.

**(Q8) Are there improvements that the Federal Reserve Bank of Minneapolis could make to setting a tax on shadow banks within the framework set forth in the proposal?**

### **COMMENT 36.**

The shadow banking tax proposed by the Minneapolis Plan does not have supporting benefit and cost analysis. As such, it is not clear if this proposal represents sound policy.

### **RESPONSE 36.**

The cost and benefit analysis we conducted for banks is embedded in our shadow banking tax proposal. First, consider the cost of our proposal. The purpose of the shadow banking tax is to prevent intermediation activities from moving out of the regulated banking sector into the generally unregulated shadow banking sector after the higher equity requirement of Step 1 is imposed. As a result, the tax would raise the cost of funds for shadow banks, increasing the rates they would charge their borrowers, analogous to what would happen in the regulated sector. Our cost calculations are based on the higher cost of borrowing for lenders caused by higher equity requirements. The analysis does not distinguish the firm, bank or nonbank, making the higher-cost loan. So our calculations of the cost of equity already include the costs imposed by the shadow banking tax.

As for the benefits, we have very little data describing the balance sheets of the firms in the shadow banking sector. We have implicitly assumed that by limiting the growth of the shadow banking sector with the tax, we have prevented risk from moving from the regulated sector to the shadow sector. Thus, the benefits from the tax should be similar to the benefits from the higher equity requirement. We now make these points explicit in the revised Minneapolis Plan.

### **COMMENT 37.**

Imposition of the shadow banking tax will alter the behavior of shadow banks. In particular, it will lead them to increase their leverage through activities that do not face the tax. The tax appears to be set on simple measures of leverage. In response, shadow banks will take on leverage that is hard to detect, such as through derivative transactions. Thus, leverage for shadow banks could grow despite the tax.

**RESPONSE 37.**

We agree, per the comment, that shadow banks will seek to evade the tax just as many firms and households engage in activity to reduce their tax burden. We believe the government should modify the administration and definitions associated with the tax over time in response to such behavior. We have modified the text to make that point clear.

**COMMENT 38.**

Shadow banks could herd to a common risk, perhaps as they seek to avoid the tax. This outcome could lead to the failure of many larger shadow banks at the same time, which would pose systemic risk. Alternatively, the failure of many smaller shadow banks could cause sufficient weakness in the real economy as to necessitate a government bailout.

**RESPONSE 38.**

We do not see the herding of small shadow banks as posing a material risk. These shadow firms would each have assets under \$50 billion. Failures of such firms seem unlikely to pose risk to the real economy. Moreover, the tax should discourage leverage, which is a major source of risk in the first place.

**COMMENT 39.**

The Minneapolis Plan argues that the shadow banking tax equalizes the funding costs between banks and shadow banks, as those terms are used in the Plan. This assertion is not correct. The shadow banking tax equalizes the incremental cost of each additional unit of equity for banks and shadow banks.

**RESPONSE 39.**

This comment is incorrect. The tax does equalize funding costs by assumption. We assume that returns on equity and debt are the same for banks and shadow banks and that they hold equally risky assets. We set the tax to equalize the funding costs across the two types of firms. We agree that if we were to relax our assumptions about equal riskiness of assets, computing the appropriate tax rate would also involve computing an equivalent capital requirement (i.e., a shadow bank with riskier assets should have a higher fraction of equity financing). We do not have information about the riskiness of shadow bank assets to make these calculations.



**COMMENT 40.**

A commenter suggested an alternative method for setting the shadow banking tax. Specifically, the commenter suggested varying the tax with the leverage of the shadow bank, imposing a nonlinear tax schedule to encourage shadow banks to limit debt to 76.5 percent of assets, or computing firm-specific capital requirements and imposing them directly.

**RESPONSE 40.**

We discuss this and other alternative approaches on page 29 of the November 2016 draft Plan. While we agree that the assets of shadow banks are likely to have different risk properties than those held by covered banks, we chose to make several simplifying assumptions that led us to recommend a simple tax on shadow banks. We would be open to consideration of more general tax schedules, but that would require more data on shadow banks than are currently available.

**COMMENT 41.**

The Investment Company Institute (ICI), which asked for its comments to be on the record, argued against the imposition of bank-like regulation on mutual funds. The ICI argued that mutual funds do not operate like banks and that their failure does not occur in the same way or have the same implications as bank failure. Finally, the ICI claimed that the tax on mutual funds would harm investors. The full comment can be found here: <https://www.ici.org/pdf/30544a.pdf>.

**RESPONSE 41.**

We agree that mutual funds are not like banks, and the Minneapolis Plan does not treat the two types of firms the same. Moreover, the tax on shadow banks should be of no concern for firms that do not take on leverage. Mutual funds that do not take on leverage will pay no tax.

**(Q9) Are there alternative frameworks the Federal Reserve Bank of Minneapolis could use in setting a tax on shadow banks? What are they? How would a fee be calculated using these alternative frameworks? Why are they superior to the framework used in the proposal?**

**COMMENT 42.**

It would be superior to set equity requirements for shadow banks at the level needed to achieve the same chance of avoiding a banking crisis as was set for banks.

**RESPONSE 42.**

Page 29 of the November 2016 draft Plan addresses this comment. We note the advantages in theory of setting the same capital requirements across sectors to address TBTF. However we noted the practical limitations, and near impossibility, of implementing this approach. There are too many firms and legal frameworks covered by the “shadow bank” label to allow one common capital requirement approach.

## D | RIGHT SIZING COMMUNITY BANK SUPERVISION AND REGULATION

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The proposal would create a separate and more appropriate supervisory and regulatory regime for community banks.

### **(Q10) Are there specific features of such a regime that the current proposal should include but does not?**

#### **COMMENT 43.**

Step 4 of the Minneapolis Plan reforming community bank supervision and regulation does not recommend changes to consumer-related regulation or supervision. Yet community banks have identified consumer-focused supervision and regulation as a major source of cost without a simultaneous increase in benefits. The Minneapolis Plan is deficient unless it targets consumer regulation and supervision.

#### **RESPONSE 43.**

We have revised our Plan to reform community bank supervision and regulation, which we discuss in Comment/Response 44 below. However, we continue to exclude consumer supervision and regulation from the Plan. We argue on page 13 of the November 2016 draft Plan that fixing TBTF is a necessary first step to reducing regulatory burden on community banks: “We think reforms for community banks will not occur when the threat from the banking system to the economy remains large.” This explains why we discuss reforms for community banks in a plan aimed at systemically important banks. But this same rationale would not justify including consumer regulation and supervision in our scope. Put another way, we do not review consumer regulation and supervision because these rules and laws seek an objective—“consumer protection”—not directly linked to the TBTF problem or the solution we offer.

#### **COMMENT 44.**

Several commenters noted that the Minneapolis Plan calls for a separate and more appropriate supervisory and regulatory regime for community banks, but that the Plan provides insufficient detail to evaluate how the Plan would achieve this goal. This makes the Plan less credible. In related comments, several commenters noted that other sources, such as Thomas Hoenig, vice chairman of the Federal Deposit Insurance Corporation, had offered plans to provide improved supervision and

regulation for community banks and noted that it was difficult to compare these alternative plans with this aspect of the Minneapolis Plan.

#### RESPONSE 44.

We agree that Step 4 of the Minneapolis Plan calling for reform of the solvency regulation and supervision of community banks would benefit from additional detail. We had hoped to support the recommendations of banking agencies charged with reviewing banking regulations under the Economic Growth and Regulatory Paperwork Reduction Act (EGRPRA). The agencies had suggested that they would offer recommendations to make community bank supervision and regulation more effective. But the recommendations from EGRPRA do not go far enough. Our view is similar to those of other observers, such as the Independent Community Bankers of America (2017a), which argued that the “statutorily required EGRPRA report to Congress ... falls far short of making the substantial impact on regulatory burden that ICBA has advocated in several comment letters and meetings since this EGRPRA review launched nearly three years ago.”

The call for additional reform can also be found in the letter former Federal Reserve Governor Daniel Tarullo (2017b) sent to Congress in conjunction with the EGRPRA report. Tarullo offered two broad conclusions while making the overarching point that a broader review and reform effort than that conducted under EGRPRA was needed. Tarullo argued that

- “quite different regulatory configurations should apply to banks of different sizes and activities, which pose quite different risks to the financial system. ... There are some core forms of prudential regulation that ought to be conceived of differently for different tiers of banks. Foremost among these are capital requirements.”
- “examination and supervisory processes can be as much or more costly for these banks as the underlying regulations themselves. ... There is need for a complementary effort to streamline the *supervision* of community banks by, for example, reducing the number of on-site examinations.”

Finally, there are well-known and more comprehensive community bank regulatory reform recommendations from sources such as Hoenig (2016), the American Bankers Association, and the Independent Community Bankers Association of America (2017b). Policymakers should look to these compilations in formulating policy recommendations.

With these comments as context, we have modified the Minneapolis Plan to include these more specific reforms:

1. We previously called for “simple but appropriate standards for these [community] banks.” We now explicitly call for a shift to a capital regime for banks with less than \$10 billion in assets, where the risk-weighting is much less complicated and would largely mirror Basel I. Consistent with the November 2016 draft Plan, we do not support returning to a period where debt-like instruments can count as “capital.”
2. We previously called for a “less-costly and less-complex system of supervision focused on fundamental sources of risk.” We make this recommendation, which applies to solvency-related supervision, more detailed in two ways.

First, we propose a new, more risk-focused framework in which examiners implement supervision. In this framework, the default mode for supervision would be to review only (a) how banks comply with specific laws passed by Congress (and the rules and guidance issued to implement those laws) or (b) operations, policies, or procedures of a bank for which the banking agencies have empirical evidence supporting a correlation with materially weaker bank conditions (i.e., the case where bank operation, policy, or procedure, if ineffective, is associated with worsening of bank conditions). We believe such evidence exists with regard to certain asset concentrations, funding strategies, interest rate risk profiles, and growth patterns, among other variables. We are more skeptical that such evidence exists with regard to a wide range of other activities and requirements that supervisors currently review. We think such a requirement would reduce costs to banks to a substantial degree without making them more risky.

We recognize that there may be cases where supervisors cannot readily carry out the empirical analysis to show a correlation between a bank practice or policy and weaker banking conditions. For example, it may be difficult to gather data demonstrating that weakness in an internal audit program at a bank is correlated with future weakness because such data may not exist. As such, we would allow supervisors to have an exemption process to these two limits in our proposed framework, but would expect supervisors to use it sparingly.

Second, we recommend specific changes that community banks have called for:

- a. Moving to a two-year examination cycle for banks that have an overall satisfactory supervisory rating and are well-managed and capitalized.
- b. Eliminating the need for appraisals for well-collateralized commercial loans (e.g., with loan-to-value ratios above an appropriate amount identified by the banking regulators) made by community banks headquartered in rural areas. Rural areas appear to have very few appraisers.
- c. Allowing all mortgages held in portfolio by community banks to count as “qualified” mortgages under the Dodd-Frank Act.<sup>1</sup>
- d. Reducing the call report to items for which the banking agencies can affirmatively show a link to the forecasting of future bank weakness or other clear surveillance benefits.
- e. Applying the Federal Reserve’s Small Bank Holding Company statement to noncomplex holding companies with assets of \$10 billion or less.
- f. Requiring an independent commission to analyze the costs and benefits of the shift to the Current Expected Credit Loss accounting standard and to opine on the net benefits of modifying or eliminating this standard.

We would retain the right of bank supervisors to examine banks sooner than this two-year cycle, require appraisals, and so on, but would shift the default position to these recommendations.

3. On page 13 of the November draft Plan, we called for the “repeal [of] solvency and other noncompliance-related provisions of the Dodd-Frank Act that apply to community banks and that do not have a strong link to their chance of failure.” We now specifically call for exemption from the Volcker rule for community banks and either elimination of new Dodd-Frank data collections under the Home Mortgage Disclosure Act or the Community Reinvestment Act or legal protections for banks that show a good faith effort to comply with the rules, but have errors in reporting.<sup>2</sup>

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<sup>1</sup> We view the qualified mortgage rule to have both solvency and consumer drivers and thus include it in our analysis.

<sup>2</sup> We view these disclosures as having both transparency and consumer drivers and thus include them in our analysis.

We believe these changes will make supervision and regulation more effective by focusing on key risks and more efficient by reducing resources allocated to lower-risk activity. The downside of our approach is the potential that supervisors will have to react quickly to a worsening of conditions at a bank rather than catching it earlier under the current regime. We do not see this concern as particularly relevant because our reforms continue to focus on supervision of high-risk areas such as credit and capital and allow supervisors to accelerate their reviews if needed.

**(Q11) Are there specific features of such a regime that the current proposal includes that it should not?**

**COMMENT 45.**

The Minneapolis Plan calls for the deregulation of community banks. Deregulating community banks is a bad idea because these institutions take on risks that lead to failure or impairment, which have real social and economic costs.

**RESPONSE 45.**

The Minneapolis Plan does not call for deregulation in either the November 2016 draft Plan or the Final Proposal. As discussed on page 13 of the 2016 draft Plan, our proposal for community banks would focus supervision and regulation on activities, such as concentration of assets or rapid growth, linked to bank weakness. We believe there are regulations and supervisory practices that impose costs on community banks but do not generate commensurate benefits. We suggest taking steps to eliminate these net costly regulations or supervisory practices.

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THE MINNEAPOLIS PLAN  
TO END TOO BIG TO FAIL

DECEMBER 2017

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SUMMARY FOR POLICYMAKERS

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# The Minneapolis Plan to End Too Big To Fail

## SUMMARY

The Minneapolis Plan reduces the risk of a financial crisis, and resultant bailout, over the next 100 years to 9 percent, with the net benefits equaling 15 percent of gross domestic product (GDP), as shown in Table 1. The current regulations, put into place after the 2008 financial crisis, are considerably less effective in reducing risk, lowering the 100-year chance of a bailout from 84 percent to 67 percent.

**TABLE 1**

### Key Findings of the Minneapolis Plan

	Chance of Bailout (next 100 years)	Net Benefits (relative to 2007) (% of gross domestic product)
2007 Regulations	84%	—
Current Regulations	67%	12%
Minneapolis Plan	9%*	15%

\* Note: This calculation assumes that all systemic banks remain so and are therefore subject to the higher capital requirements of Step 2 of the Minneapolis Plan.

## SUMMARY OF THE MINNEAPOLIS PLAN

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### 1. What is the TBTF problem the Minneapolis Plan is designed to solve?

Banks are TBTF when their failure or potential insolvency can cause widespread damage or “spillovers” to other banks, financial markets, and the broader economy. When facing such a devastating outcome for their citizens, governments are usually forced to step in with taxpayer bailouts to stabilize the TBTF firms. Such bailouts are not made to support the banks themselves, but to prevent the fallout on Main Street. In most other sectors of the economy, firms are able to fail without requiring taxpayer bailouts or triggering widespread economic damage. The goal of the Minneapolis Plan is a financial system that enables the U.S. economy to flourish without exposing it to large risks of financial crises or without requiring taxpayer bailouts.

### 2. What will the Minneapolis Plan accomplish?

The Minneapolis Plan is designed to reduce the risk of a financial crisis and bailout to as low as 9 percent while passing a benefit and cost test. We estimate that the current regulations put into place after the 2008 financial crisis reduced the 100-year chance of a bailout from 84 percent to 67 percent. The Minneapolis Plan reduces that risk to 9 percent and provides an overall net benefit to the economy. There is a trade-off involved in ensuring greater safety in the U.S. economy; we show that the added safety here is well worth the cost.

### 3. What are the keys to ending TBTF?

Ending TBTF means either substantially reducing the chances of failures (and hence bailouts) of TBTF firms or restructuring the financial system such that banks are no longer so large, important, or interconnected that their failures cause widespread harm to the economy. Policymakers could make banks less likely to fail by requiring that they issue more equity to absorb losses. Governments could also reduce the damage caused by failures by forcing banks to reorganize themselves such that their failures will be unlikely to spread to other firms. We do not think a mandate prohibiting bailouts is credible, because tying policymakers’ hands without addressing the underlying risks from TBTF firms could inflict widespread damage on the U.S. economy. The risks posed by large banks must be addressed before bailouts can be prevented.

#### 4. What is the Minneapolis Plan?

The Minneapolis Plan to end TBTF has four steps:

- *Step 1. Dramatically increase common equity capital, substantially reducing the chance of a bailout*

The Plan requires the largest banks to issue common equity equal to 23.5 percent of risk-weighted assets, with a corresponding leverage ratio of 15 percent. This level of capital maximizes the net benefits to society from higher capital levels. This first step substantially reduces the chance of a public bailout relative to current regulations from 67 percent to 39 percent. This substantial improvement in safety comes with net benefits.

- *Step 2. Call on the U.S. Treasury Secretary to certify that individual large banks are no longer systemically important or else subject those banks to extraordinary increases in capital requirements, leading many to fundamentally restructure themselves*

Once the new 23.5 percent capital standard has been implemented, the Plan calls on the U.S. Treasury Secretary to certify that individual large banks are no longer systemically important. The Plan gives the Treasury Secretary discretion in making this determination so that the Secretary can rely on the best information and analysis available. If the Treasury Secretary refuses to certify a large bank as no longer systemically important, that bank will automatically face increasing common equity capital requirements, an additional 5 percent of risk-weighted assets per year. The bank's capital requirements will continue increasing either until the Treasury Secretary certifies it as no longer systemically important or until the bank's capital reaches 38 percent, the level of capital that reduces the 100-year chance of a bailout to 9 percent.

Step 2 is a critical step for ending TBTF. Under the current regulatory structure, there is no explicit timeline for ending TBTF and regulators never have to formally certify that they have addressed systemic risk. Instead, banks and designated nonbank financial firms under the current regime can continue to operate under their explicit or implicit status as TBTF institutions potentially indefinitely. The Minneapolis Plan reverses this approach and gives the Treasury Secretary a new responsibility, with a hard deadline. Within five years of implementation of the Minneapolis Plan, the Treasury Secretary either will certify that large banks are no longer TBTF or those banks will face extraordinary increases in equity capital requirements.

We believe that these automatic increases in capital requirements will lead banks to restructure themselves such that their failure will not pose the spillovers that they do today and thus will not lead to bailouts. We chose the capital level that reduces the probability of a bailout in Organisation for Economic Co-operation and Development (OECD) countries to the lowest level possible while keeping total costs below benefits. This level of capital is appropriate for the largest banks that remain systemically important, as their failure alone could bring down the banking system.

The only banks that could remain systemically important after the Minneapolis Plan has been fully implemented would have 38 percent common equity capital, with a risk of failure that is exceptionally low. Regulators have taken a similar approach with nuclear power plants: While not risk-free, they are so highly regulated that the risks of failure are effectively minimized. Step 2 of the Minneapolis Plan reduces the chance of a future bailout to 9 percent over 100 years.

- ***Step 3. Prevent future TBTF problems in the shadow financial sector through a shadow banking tax on leverage***

The Minneapolis Plan levels the cost of funding between banks subject to a 23.5 percent capital requirement and shadow banks through a tax on leverage on shadow banks larger than \$50 billion of 1.2 percent (120 basis points). This tax rate will apply to shadow banks that do not pose systemic risk as certified by the Treasury Secretary. A tax rate equal to 2.2 percent will apply to the shadow banks that the Treasury Secretary refuses to designate as not systemically important. Thus, the shadow banking tax regime mirrors a two-tier capital regime. These taxes should reduce the incentive to move banking activity from highly capitalized large banks to less-regulated firms that are not subject to such stringent capital requirements. Nonbank financial firms that fund their activities with equity will not be affected.

- ***Step 4. Reduce unnecessary regulatory burden on community banks***

Ending TBTF means creating a regulatory system that maximizes the benefits from supervision and regulation while minimizing the costs. The final step of the Minneapolis Plan allows the government to reform its current supervision and regulation of community banks to a simpler and less-burdensome system while maintaining its ability to identify and address bank risk-taking that threatens solvency.

Together, the higher capital requirements on banks and a tax on leverage in the shadow banking

system will result in a financial system that is much more stable and poses a substantially lower risk of failure that could lead to a bailout.

### **5. What will the financial system look like after the Minneapolis Plan has been implemented?**

After the Minneapolis Plan has been fully implemented, we expect the financial system to have fewer mega banks and less concentration of banking assets. The banking sector will be much more resilient to shocks because the sector as a whole will be much better capitalized. Any firms that are still systemically risky at that point will have so much capital that their risk of failure will have been truly minimized.

### **6. Is this a breakup proposal?**

The Minneapolis Plan does not set a size limit on banks per se, but we fully expect banks facing the higher capital levels in Step 1, and especially those facing the substantial increases in Step 2, to face increased pressure to consider breaking themselves up. Large banks already face pressure from shareholders to reorganize in response to increased regulation. We expect these pressures to increase substantially as a result of the Minneapolis Plan. These banks' profitability will fall as a result of higher capital standards. In effect, we expect that institutions whose size doesn't meaningfully benefit their customers will be forced to break themselves up. And when they do, the resulting entities will not be systemically important. However, institutions whose scale provides real value to their customers should be able to maintain their size while being much safer as a result of the substantially increased capital requirements provided by Step 1 or Step 2 of the Minneapolis Plan.

### **7. What types of systemic risk is the Minneapolis Plan addressing?**

The Minneapolis Plan is designed to address two types of systemic risk, and Step 1 and Step 2 work in concert to achieve this:

- 1) A systemwide economic shock could hit the entire financial sector, potentially leading to a severe economic downturn. This is essentially what happened in 2008 when the U.S. housing market collapsed and many banks, large and small, were exposed to large losses from their mortgage portfolios. Step 1 of the Minneapolis Plan raises the capital level of all large banks to 23.5 percent to make sure that they have enough capital to withstand such a major shock across the whole system. Like building a wall against a tidal wave, it is impossible to protect against all possible risks. Our analysis suggests that 23.5 percent is approximately the optimal capital level for Step 1 when considering both benefits and costs.

2) The failure of an individual institution can pose a systemic risk if that institution is particularly large, interconnected, and important to the financial system. When the capital position of all large banks is increased to 23.5 percent in Step 1, the financial system as a whole will be much more resilient against the failure of any individual firms. In addition, the largest and most complex or most important banks that are systemically risky will be subject to the higher capital requirements of Step 2, up to 38 percent. At these much higher capital levels, these banks will have even stronger incentive to restructure themselves so that they no longer have the potential to trigger widespread economic damage. If the firms choose not to restructure themselves, they will have a large enough capital buffer that their risk of failure is effectively minimized. Again, this is regulation akin to that of a nuclear power plant: If a nuclear power plant melts down, it can cause widespread harm to society. Instead of banning nuclear power plants, the U.S. government regulates them so tightly that their risk of a meltdown is minimized.

## APPLICATION AND TIMING OF THE MINNEAPOLIS PLAN

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### 8. Which financial firms does the Minneapolis Plan apply to?

The Minneapolis Plan applies to bank holding companies (BHCs) located in the United States with assets greater than \$250 billion. The proposed shadow banking tax applies to specified firms with assets greater than \$50 billion (measured by on-balance-sheet assets, off-balance-sheet assets, and assets under management). We assume that regulations for BHCs with less than \$250 billion in assets and shadow banks with less than \$50 billion will be unaffected by the Minneapolis Plan, although the Treasury Secretary will have the discretion to review the systemic importance of any financial firm.

### 9. Why have a shadow banking tax?

A shadow banking tax is needed because shadow banks were a significant part of the last financial crisis, and reforms must be a part of any solution. One of the major concerns of new regulations created as a result of the Dodd-Frank Wall Street Reform and Consumer Protection Act and a concern we share in developing our own proposal is that we might simply encourage activity in the banking system to move to less-regulated shadow banks, such as hedge funds. If the same activity merely moves to other corners of the financial system, has safety been enhanced?



In order to address this risk, the Minneapolis Plan proposes a tax on the borrowings of shadow banks such as hedge funds, mutual funds, and finance companies of 1.2 percent, or 120 basis points, for those certified as not systemically important by the Treasury Secretary. We calculate that this charge is roughly equivalent to having a 23.5 percent minimum capital requirement for shadow banks. The tax will be 2.2 percent for those the Treasury Secretary refuses to certify as not systemically important. We apply these taxes to large shadow banks with assets greater than \$50 billion as measured by assets on balance sheet, off balance sheet, or under management. The tax will apply to firms' nonequity funding—anything other than high-quality common equity. This tax will ensure that all financial firms, including nonbanks, take into account the potential for excessive borrowing to lead to negative spillovers to the rest of the economy and should discourage activity to move from banks to large shadow banks as a result of increased capital requirements.

If risk moves from the largest banks to many small shadow banks, each independently making its own investment decisions, it is very likely that systemic risk will have been reduced. Hence, we apply our new tax only to large shadow banks, those with more than \$50 billion in assets, to avoid creating new systemic risks. If large shadow banks do not use leverage to fund their investments, they will not be subject to the new tax.

#### **10. Who will the shadow banking tax apply to? Why not insurance companies?**

We rely on work of the Financial Stability Board (FSB) to identify types of firms that are considered shadow banks. We include:

1. Funding corporations
2. Real estate investment trusts
3. Trust companies
4. Money market mutual funds
5. Finance companies
6. Structured finance vehicles
7. Broker/dealers
8. Investment funds
9. Hedge funds

Our approach does not put insurance firms into the group of shadow banks facing our proposed

new tax. Supporting this decision is the view that insurance firms do not engage in the maturity transformation or reliance on short-term funding that typically generates systemic risk. We view additional analysis on the systemic risk posed by insurance firms as useful and important to determining if these firms should be subject to a shadow banking tax.

### **11. Over what time period will the Minneapolis Plan be implemented?**

Step 1, the new capital standard of 23.5 percent, and the shadow banking tax will be phased in over a period of five years to give regulated entities time to implement the new regulations. At that point, the Treasury Secretary must certify that individual firms are no longer systemically important. If the Secretary refuses to make that certification, individual banks will be subject to dramatically increasing capital standards and individual shadow banks to the higher tax rate.

## **COMMUNITY BANK REFORMS**

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### **12. How will the Minneapolis Plan supervise and regulate community banks?**

The focus of our Ending TBTF initiative is addressing the systemic risks posed by large financial institutions. Enacting the Minneapolis Plan for large banks will enable reforms for community bank regulation to proceed. Key features of the proposal to right-size community bank supervision and regulation are as follows:

- Make the capital risk-weighting regime for community banks much less complicated, so that it largely mirrors Basel I.
- Create a default mode for supervision of community banks where supervisors would only review, subject to an exception process, (1) how banks comply with specific laws passed by Congress (and the rules and guidance issued to implement those laws) or (2) operations, policies, or procedures of a bank for which the banking agencies have empirical evidence supporting a correlation with materially weaker bank conditions.
- Impose a wide range of specific risk-focused reforms including but not limited to a longer exam cycle, appraisal reform, reductions in call report collections, and a review of the Current Expected Credit Loss accounting standard.

- Repeal solvency and other noncompliance-related provisions of the Dodd-Frank Act that apply to community banks and that do not have a strong link to their chance of failure.

## LEGISLATIVE AND REGULATORY ISSUES

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### 13. Will the Minneapolis Plan require new legislation?

Yes. We believe Congress should take action to implement this new Plan. First, the changes we propose are far-reaching and transformational. Ultimately, the public must decide how much safety they want in order to avoid a taxpayer bailout and what cost they are willing to pay for that safety. Congress is the appropriate body to make that determination on behalf of its constituents, rather than regulators. Second, some aspects of the Plan, such as calling on the Treasury Secretary to certify that banks are no longer TBTF and implementing the new shadow banking tax, would require new legislation. Finally, we support codifying the new capital standards into law to make them hard to change.

Societies often forget the lessons of past crises and end up repeating their mistakes. It usually doesn't happen quickly—oftentimes it is a future generation that repeats past mistakes. The goal of the Minneapolis Plan is to implement a legislative and regulatory system that will allow the U.S. economy to flourish while institutionalizing the lessons from past crises so that future generations don't repeat past errors. We would not want future policymakers to lower their guard when the economy seems strong.

### 14. What is different about the Minneapolis Plan compared with current regulations?

There are a number of important differences between the Minneapolis Plan and current regulations:

- The Minneapolis Plan does not count debt as a resource to absorb bank losses. Only common stock is counted in the financial cushion that banks can use to absorb losses in the Minneapolis Plan. Other current proposals under which certain debt is meant to take losses in a crisis are problematic because when the crisis indeed hits, policymakers will be reluctant to actually impose losses out of concern that this step would exacerbate the crisis. It is better to rely on equity, rather than debt, to take losses.
- Step 1 of the Minneapolis Plan provides a much higher minimum capital requirement for all U.S. banks with assets greater than \$250 billion, 23.5 percent, and it does not vary from year to year.

- c. Step 2 of the Minneapolis Plan calls on the Treasury Secretary, within five years, to certify that individual banks are no longer systemically important. Absent that certification, banks will face substantially increasing capital requirements, leading many banks to choose to restructure themselves. Current regulations do not force a firm deadline on regulators to decisively address systemic risk.
- d. The Minneapolis Plan addresses the potential for systemic risk to shift from banks to shadow banks by recommending a new type of tax of 120 basis points on borrowings for shadow banks with total assets above \$50 billion (220 basis points for those that remain systemically important following the Treasury Secretary's certification process). Like the FSB, we count firms like hedge funds, other investment funds, and finance companies as shadow banks. The tax applies only to their leverage, so only firms that borrow to fund their investments would face a tax. No such tax currently exists.
- e. Finally, the Minneapolis Plan rationalizes the regulations of community banks.

### **15. What elements of current regulations does the Minneapolis Plan propose to keep?**

The Minneapolis Plan builds on current efforts to address TBTF, which include higher liquidity standards, new approaches to resolution and recovery planning, and efforts to make derivative markets safer, among many other efforts. The changes we propose are to the capital regime, the determination of whether banks are systemically important by the Treasury Secretary, the implementation of the new tax on shadow banks, and the call for simpler, less-burdensome regulations on community banks. The regulation of banks with assets greater than \$10 billion and less than \$250 billion will be unaffected by the Minneapolis Plan.

### **16. Why is the risk of a future bailout for current regulations so much higher than for the Minneapolis Plan?**

While we and the Federal Reserve System Board of Governors agree that 23.5 percent is a reasonable level of loss absorption for large banks in Step 1, the Board of Governors counts debt as absorbing losses. We do not. Our analysis assumes that in a future systemic crisis, debt will not get converted to equity (as was the case in the recent crisis). Hence, our equity requirement is almost twice as high as required under current regulation, where common equity is set at 13.0 percent and a bailout is

triggered as soon as that equity is wiped out. In the Minneapolis Plan, common equity is set much higher, at a minimum of 23.5 percent under Step 1, resulting in a substantial increase in safety and reduced risk of a future bailout.

### **17. Doesn't the Minneapolis Plan ignore the progress that has been made beyond just capital requirements, for example, in liquidity requirements, stress testing, and resolution?**

It is true that progress has been made across a number of fronts, but a requirement for higher capital, the buffer to absorb losses, is the single best tool we have to improve the safety of the banking system. Current regulations acknowledge the need for much higher levels of loss-absorbing capacity, but they mistakenly include long-term debt, which has repeatedly failed to absorb losses in past crises.

## **BENEFITS AND COSTS**

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### **18. Does the Minneapolis Plan pass a benefit and cost test?**

Yes. Assessing benefits and costs of current and potential alternative regulations is at the core of our work to end TBTF. Like terror events, financial crises are hard to predict and hard to prevent. People understand that regardless of how much the United States spends on homeland security, the risk of terrorism can never be reduced to zero. And people understand that increased safety usually comes with increased costs, such as for more law enforcement. The challenge is to find the right balance of safety and costs.

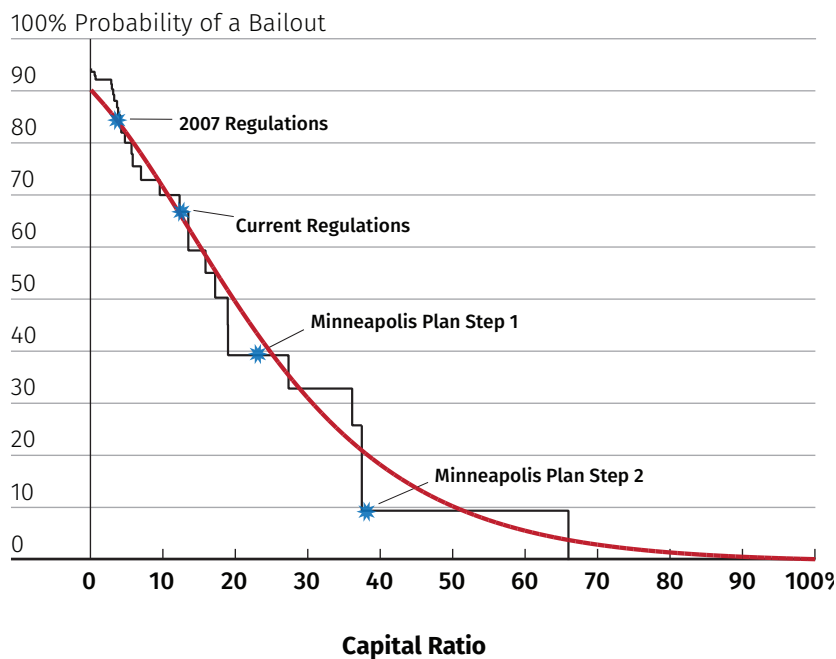
That is our approach to ending TBTF. We want to achieve as much safety as possible while imposing as few costs as possible on the economy. We believe the Minneapolis Plan achieves this balance, but also provides the public with the information they need to make their own assessment of these trade-offs.

### **19. Why is a minimum of 23.5 percent capital the right level for large banks?**

We studied analyses from the Board of Governors, the Bank for International Settlements (BIS), the FSB, the International Monetary Fund (IMF), and leading academics as well as conducted our own analysis. Based on the data and analyses available, we determined that a capital level around 22 percent maximizes net benefits to society, considering the benefits of safety and the costs of slower

GRAPH 1

## Probability of a Bailout in the Next 100 Years by Capital Ratio



Source: Calculations by the Federal Reserve Bank of Minneapolis

economic growth. Graph 1 reports the marginal costs and the marginal benefits of increasing capital. We assume that costs increase with increased capital levels due to higher borrowing costs in the economy. We assume that benefits increase with a reduction in the probability of a future financial crisis. We chose the precise number of 23.5 percent based on the Board of Governors' proposal—which is now a final rule—for the amount of loss-absorbing capacity the most systemically important banks must have. We believe their analysis is reasonable and have adopted it as our minimum capital requirement in Step 1.

### 20. Won't such high capital levels hurt economic growth?

We believe the cost of higher capital is low compared with the benefits of increased safety. Our analysis suggests that the total costs to society of the Minneapolis Plan are approximately 24 percent

of GDP for Step 1, whereas the cost to society of a typical financial crisis is approximately 158 percent of GDP. The Minneapolis Plan will have paid for itself many times over if it avoids one financial crisis.

### **21. How does the Minneapolis Plan calculate the costs of these regulatory changes?**

We use the same method used by the BIS to estimate costs. This method recognizes that more capital is costly. The higher cost shows up as higher loan rates for borrowers. This reduces lending and investment, which lowers GDP. We estimate this cost through our own calculations and using the Federal Reserve's model of the economy, FRB/US.

### **22. How does the Plan calculate the risks of future bailouts?**

As it is for natural and man-made disasters (such as earthquakes and terrorist events), it is difficult to predict financial crises or even estimate their likelihood or severity. All regulators who want to limit future bailouts must rely in part on the historical experience with these rare but costly events. And we look to these data as well.

While we considered work from regulators and academics around the world, we focused on analysis from the IMF, which reviewed data on past banking crises, public bailouts, and capitalization levels of various banking systems. We are the first to admit that this is an imperfect science, but we believe our approach is sound and relies on the best data and analyses available.

### **23. Why doesn't the Minneapolis Plan reduce the chance of a future bailout below 9 percent?**

Capital in large banks is the equivalent of building a wall to protect against a tidal wave. Societies have to decide how high a wall to build and how much they can afford to spend to protect against a possible future flood. We believe the Minneapolis Plan offers an appropriate balance of safety at a reasonable cost. Ultimately, the public needs to decide how much safety they are willing to pay for.

We set our goal to reduce the chance of a future bailout to less than 10 percent, which requires a capital level up to 38 percent, where total benefits to society still exceed total costs. Increasing capital levels further could push the bailout odds lower still, but total costs will exceed the benefits at some point.

Moreover, some leverage in the financial system is useful. After all, banks are in the business

of transforming borrowed funds, including deposits, into loans. We are proposing a considerable increase in equity funding in the financial system, but not a system funded entirely with equity, as some experts have proposed.

**24. Why does the Minneapolis Plan impose a 23.5 percent equity capital requirement in Step 1 on banks larger than \$250 billion when those banks had to have been certified by the Treasury Secretary to not be systemically important in order to avoid Step 2? If they aren't systemically important, why impose Step 1 at all?**

Banks that are only subject to Step 1 will no longer be systemically important because many will have responded to the threat of the higher capital standards of Step 2 by lowering their own risk so that they are not TBTF and can earn the Treasury Secretary's certification and remain in Step 1. They will do this by shedding assets and restructuring their business lines so that their failure cannot inflict systemic harm on the banking sector. But the potential for an individual bank to trigger systemic damage is not merely a function of that individual bank's assets and liabilities; it is also a function of the strength and capital position of the rest of the banking sector. For example, if an individual bank with \$250 billion in assets failed when all other banks with \$250 billion or more assets had at least 23.5 percent capital, we believe such a failure would likely not pose a systemic risk. However, if that individual \$250 billion bank failed when all other large banks were lightly capitalized, that failure might pose a systemic risk. Hence, the minimum 23.5 percent capital requirement for all large banks is essential to enabling individual firms to make themselves no longer TBTF.

**25. What happens if a crisis hits that is so large that even the higher capital level in the Minneapolis Plan is not enough?**

Unfortunately, it is impossible to know just how big an economic shock the U.S. economy may face in the future. Just as it is impossible to design a building that can withstand an earthquake of unlimited intensity, it is impossible to completely eliminate the possibility of a future bailout. Our experience and analyses suggest that if the capital in the banking system is wiped out due to massive losses, the government will likely have to step in with some form of bailout, as it did in 2008. That should be far less likely under the Minneapolis Plan than under current regulations but, in either case, if losses exceed capital for many large banks at the same time, we believe policymakers will need to turn to taxpayers to support the financial system. As in 2008, the costs to Main Street if the financial system were allowed to collapse will likely far exceed the cost of a bailout.

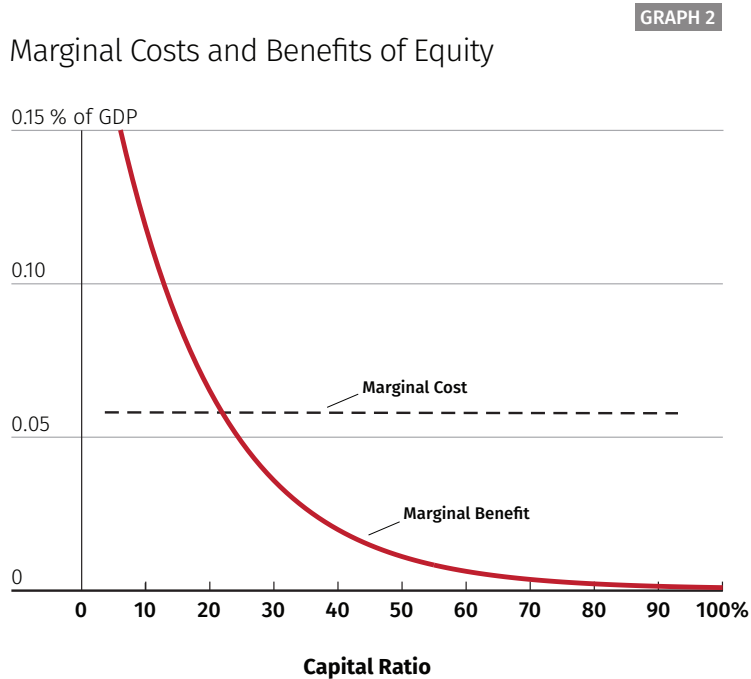


**26. How will the Treasury Secretary determine that banks no longer pose systemic risk in Step 2?**

Regulators around the world use a common approach to measure the systemic risk of banks when it comes to setting the capital that these banks must issue. Specifically, this common approach is used to set the “systemically important financial institution capital surcharge.” These metrics reflect the regulatory state of the art today. The Minneapolis Plan calls on the Treasury Secretary to look to this measurement approach used by many regulators in making the certification that a bank does not pose systemic risk, but would not limit the Treasury Secretary’s assessment to this one approach. Banks would face automatic, substantial increases in their equity capital requirements unless the Treasury Secretary deems them no longer systemically important. We believe that banks facing such increasing capital standards will likely restructure their operations such that they no longer are systemically important and thus do not have a material chance of needing a bailout.

**27. How did the Plan determine the maximum capital level of 38 percent in Step 2?**

One of the goals of the Minneapolis Plan is to reduce the chance of a future bailout to less than 10 percent. We set the maximum level of capital at 38 percent to achieve that goal, while also ensuring that total benefits exceed total costs to society as shown in Graph 2.



Source: Calculations by the Federal Reserve Bank of Minneapolis

## IMPORTANT CONSIDERATIONS

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### **28. Why isn't debt counted as capital in the Minneapolis Plan?**

We learned from past financial crises, including the 2008 crisis, that nothing beats equity for absorbing losses. Equity holders have long taken losses in the United States and thus expect that outcome. Moreover, equity holders cannot run during a crisis. In contrast, debt holders of the most systemically important banks in the United States and around the world have repeatedly experienced bailouts and likely will expect such an outcome during the next financial crisis. Indeed, the most recent crisis showed that even some debt holders who had been explicitly told that they would take losses during a crisis got bailed out.

Governments are reluctant to impose losses on debt holders of a TBTF bank during a crisis because of the risk of contagion: Debt holders at other TBTF banks may fear they will face similar losses and will then try to pull whatever funding they can, or at least refuse to reinvest when debt comes due. This is why, regardless of their promises during good times, governments do not want to impose losses on debt holders during a crisis. History has repeatedly shown this to be true and, while we can hope for the best, there is no credible reason to believe this won't be true in the next crisis. Only true equity should be considered loss-absorbing in a crisis.

### **29. Won't long-term debt be less costly than equity in terms of economic growth?**

Some proponents of the current regulatory framework argue that since long-term debt is cheaper than equity for banks to issue, it will therefore have a smaller impact on lending rates for borrowers and, hence, economic growth compared with issuing more equity. Yet these same regulators argue that this long-term debt really will face losses in a crisis. In other words, they argue that investors will misprice these securities, demanding small compensation for the risk they are taking. Over time, such mispricing is unlikely to be sustained. Either the securities really will face the risk of losses (in which case they will be priced more like equity—providing little benefit in terms of economic growth) or the securities really won't face losses, in which case they are not useful for preventing financial crises and bailouts. Counting on long-term debt to be both loss-absorbing and low cost is simply not credible.

### **30. Isn't long-term debt superior to equity by allowing for recapitalization of failed banks?**

Some regulators have argued that long-term debt is critical to giving them additional financial

resources to recapitalize a bank once it has failed and gone through the resolution process. They worry that a bank issuing more equity will have no funds left to recapitalize it post-resolution. All the equity, they argue, would be gone by the time the bank goes into resolution.

This is not an argument in support of issuing more debt. Instead, it is an argument for closing banks before they are totally insolvent. Regulators could close banks with low but still positive equity. Such a system would leave regulators with the same financial resources they have today with none of the complexity and uncertainty of the current regulatory framework.

### **31. The Minneapolis Plan will likely reduce the number and size of large banks. Aren't large banks needed for a strong economy?**

Large global banks add value to the economy by providing services that small, regional banks cannot. However, the benefit of large banks comes with extraordinary risks of financial instability. The Minneapolis Plan assesses the benefits and costs of large banks and of increased safety. We attempt to achieve the appropriate balance that will allow the U.S. economy to flourish without taking unacceptable risks.

### **32. Don't bank supervisors already have to reduce the systemic risk of the largest banks to immaterial levels?**

No. While regulators are working to reduce systemic risk, they never have to formally make the certification that banks are no longer systemically important. As a result, banks may be able to enjoy their explicit or implicit TBTF status potentially indefinitely. It is true that supervisors, through the living will process, have to determine if BHCs can effectively go through the commercial bankruptcy regime. Moreover, the Financial Stability Oversight Council (FSOC) can potentially act if a firm poses a grave threat to the financial stability of the United States (but only after a series of votes at the FSOC and the Board of Governors). However, there is no mandate that regulators must act. In contrast, the Minneapolis Plan forces the government to certify that banks are no longer systemically important within five years of the Plan's implementation.

### **33. Why not reintroduce Glass-Steagall?**

By itself, Glass-Steagall would not have prevented the 2008 crisis, and we doubt that it would prevent a future crisis. It is true that a reintroduction of Glass-Steagall would likely result in somewhat smaller and less-complex financial institutions, but we do not believe it would substantially reduce

systemic risk or the risk of a future taxpayer bailout. Many banks whose activities were restricted to either the commercial or the investment banking sectors ran into trouble in 2008, illustrating that trouble was not limited to firms engaged in both types of operations. Increased capital levels are much more likely to improve the safety and soundness of the U.S. financial system than a reintroduction of Glass-Steagall.

#### **34. Why not just put the big banks in a form of bankruptcy and/or the resolution system set up by Dodd-Frank?**

A bankruptcy-based approach does not credibly reduce the risk of a bailout. Bankruptcy and the new resolution system under Dodd-Frank rely on imposing losses on creditors during a crisis to prevent a bailout. The debt becomes a source of equity for the firm leaving reorganization. As previously explained, we do not think that is a credible option for the largest, most systemically important banks, because it may lead to contagion to other banks and potentially trigger widespread economic damage. Bankruptcy and the Dodd-Frank resolution system should be viable options for banks that emerge after implementation of the Minneapolis Plan because they will likely be smaller, less complex, and safer.

#### **35. New proposals have come out from Congress and the Trump Administration. How do those proposals compare to the Minneapolis Plan?**

The House of Representatives passed the Financial CHOICE Act on June 8, 2017. The Treasury Department released “A Financial System That Creates Economic Opportunity: Banks and Credit Unions” on June 12, 2017. Each includes some measures to try to reduce the risk of financial crises and bailouts, among a wide range of other provisions. The Financial CHOICE Act would create an “off-ramp,” allowing banks with a leverage ratio of 10 percent to not face a host of banking regulations, such as the Comprehensive Capital Assessment and Review (i.e., the “stress test”) and post-financial-crisis liquidity rules. The Treasury report is less definitive, suggesting the consideration of such an off-ramp and referencing, by example, a higher leverage ratio of 10 percent.

Our analysis indicates that a 10 percent leverage ratio would only reduce the odds of another financial crisis in the next 100 years to 50 percent, which we believe is far too high. We also do not support the “off-ramp” approach. We believe banks will not take the off-ramp, resulting in no reduction in risk for taxpayers from current high levels. The Minneapolis Plan is far more aggressive in addressing TBTF than either the CHOICE Act or the Trump Administration’s regulatory proposal.

Our recommended leverage ratio, if measured in the same way as the CHOICE Act, is 33 percent higher.

### **36. Why not just wait until the next crisis and implement another TARP program?**

Some experts have argued that preventing financial crises is too costly and that it may be cheaper to address the problem once it happens. They argue that increasing capital standards requires society to pay every year with slightly lower economic growth and that perhaps the economy would be better off with a higher growth rate between crises. We believe the Minneapolis Plan will allow the economy to enjoy strong growth with fewer and less-severe financial crises than the current regulatory framework. Ultimately, the public must decide whether they want to prevent financial crises or clean up after them. And if cleaning up after a crisis is indeed the preferred approach, uncertainty remains as to whether future legislators would approve another TARP program.

In 2008, policymakers and Congress had no choice but to deal with the crisis once it began. Even though the direct fiscal costs of the TARP program were very small compared with the size of the U.S. economy, the cost of the crisis was nonetheless devastating for Main Street. We think our regulatory system can and must do better.

### **37. Since the Minneapolis Plan draft was released in November 2016, several analytical studies have been released assessing benefits and costs of higher capital standards. What do they conclude?**

Many economists have published studies in 2017 assessing capital standards for large banks, and nearly all of their analysis supports the higher equity levels that we recommend (23 percent range or even higher on a risk-weighted asset basis or 15 percent on a leverage basis). This result is powerful precisely because these economists do not use our methodology, but come to the same conclusion. Chair Janet Yellen (2017) summarized some of this same research recently, noting that “this research points to benefits from capital requirements in excess of those adopted.” We summarize this analysis in more detail in our accompanying comment and response document (see Comment/Response 15). In total, these studies highlight a growing consensus among experts that capital standards for large banks should be raised to protect taxpayers.

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THE MINNEAPOLIS PLAN  
TO END TOO BIG TO FAIL

DECEMBER 2017

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FINAL PLAN

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## SECTION 1

## Summary of the Minneapolis Plan to End Too Big to Fail (TBTF)

The Minneapolis Plan reduces the risk of a financial crisis, and resultant bailout, over the next 100 years to 9 percent, with the net benefits equaling 15 percent of gross domestic product (GDP), as shown in Table 1.<sup>1</sup> The current regulations, put into place after the 2008 financial crisis, are considerably less effective in reducing risk, lowering the 100-year chance of a bailout from 84 percent to 67 percent.<sup>2</sup>

We carefully assess both benefits and costs of the Plan and, despite the notably higher equity capital requirements, the Minneapolis Plan still passes a benefit and cost test relative to current regulations.

TABLE 1

## Key Findings of the Minneapolis Plan

	Chance of Bailout (next 100 years)	Net Benefits (relative to 2007) (% of gross domestic product)
2007 Regulations	84%	—
Current Regulations	67%	12%
Minneapolis Plan	9%*	15%

\* Note: This calculation assumes that all systemic banks remain so and are therefore subject to the higher capital requirements of Step 2 of the Minneapolis Plan.

<sup>1</sup> This Plan is the final version of a draft originally released in November 2016. Much of the November 2016 draft analyzed the benefits and costs of imposing higher capital requirements on select banks. The data and results of the benefit and cost analysis in the final Plan are the same as those used in the November 2016 draft Plan. Specifically, the November 2016 Plan was based on data on returns, loans, and risk-weighted assets through the end of 2015. When we repeated the computational exercises with updated data through the end of 2016, the results remained essentially unchanged, so we have not revised the results and figures.

<sup>2</sup> Throughout the Plan, our calculations for Step 2 assume that all banks considered systemically important in Step 1 remain so and are subject to significantly higher capital requirements than those laid out in Step 1. However, covered banks may take action to shed their designation as systemically important.



In brief, the Minneapolis Plan will (Step 1) increase the minimum capital requirements for “covered banks<sup>3</sup>” to 23.5 percent of risk-weighted assets, (Step 2) force covered banks to be no longer systemically important—as judged by the U.S. Treasury Secretary—or face a systemic risk charge (SRC), bringing their total capital up to a maximum of 38 percent over time, (Step 3) impose a 1.2 percent tax on the borrowings of shadow banks with assets over \$50 billion for entities considered not systemically important by the Treasury Secretary and a 2.2 percent tax for shadow banks that are considered systemically important, and (Step 4) create a much simpler and less-burdensome supervisory and regulatory regime for community banks. Covered banks and shadow banks will have five years after enactment of the minimum capital requirements and shadow banking tax to come into compliance. The assessment of systemic risk by the Treasury Secretary will begin at this five-year mark.

We come to this recommendation after spending two years reviewing and analyzing the TBTF problem, consulting with a broad range of experts and the greater public, and releasing a draft proposal and responding to comments we received on it.

The main points and findings of our Plan and analysis are the following:

**The TBTF problem is one of the U.S. economy’s most serious long-term risks.**

The TBTF problem arises when the largest and most systemically important banks fail and impose their losses onto other banks. The spread of these losses fuels contagion as turmoil spreads throughout financial markets and into the rest of the economy. As the U.S. economy experienced in the most recent crisis, these spillover losses have the ability to cause massive and widespread economic devastation. When faced with economic catastrophe, government leaders are inevitably compelled to stop the hemorrhaging by bailing out large banks, bank managers, and those who lent money to the banks.

In 2008, the risk of contagion presented by TBTF banks was central to the financial crisis. As a result, trillions of dollars in American wealth was destroyed. Even now, nine years later, the effects of the crisis continue to be felt throughout the economy.

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<sup>3</sup> “Covered banks” are bank holding companies in the United States with assets equal to or greater than \$250 billion. We choose the \$250 billion level as our initial threshold, as this size is consistent with an important definition of systemically important banks. For example, the Federal Reserve requires banks of this size to comply with the Liquidity Coverage Ratio. Covered banks as of the November 2016 draft Plan were Bank of America Corporation, Bank of New York Mellon Corporation, Citigroup, Capital One Financial Corporation, Goldman Sachs Group, HSBC North America Holdings, JPMorgan Chase & Company, Morgan Stanley, PNC Financial Services Group, State Street Corporation, TD Group U.S. Holdings, U.S. Bancorp, and Wells Fargo & Company. We do not address the treatment of financial market utilities in our Plan. Note: As of June 30, 2017, State Street Corporation had dropped below \$250 billion.

### **Despite reforms, the TBTF problem persists.**

Soon after the crisis, policymakers moved swiftly to approve reforms to the financial system to help move the country in the right direction. These reforms have indeed strengthened the financial system, and we support many of these efforts. However, some experts agree that TBTF still exists today because current plans to address it have not been fully implemented. More importantly, we believe that the government's current plan, even when fully implemented, will not sufficiently minimize the threat of TBTF.

The current plan fundamentally rests on the belief that the government will, through a complicated scheme, force debt holders of TBTF banks to absorb losses—even when the economy and financial markets appear weak. Yet our experience in the 2008 crisis teaches us that when markets show weakness, even debt holders of TBTF financial firms who were informed that they would bear losses in such times of distress do not actually incur any hit. This recent lesson of history and human behavior in times of market stress makes clear that it is not credible to believe that any scheme, especially a complicated one, would work to impose losses on debt holders of TBTF banks when the next crisis occurs. We have no reason to believe that the government will follow through on its current plan in the next crisis because imposing losses on debt holders of TBTF banks in a weak environment will be viewed as too risky and complex with a high likelihood of intensifying a crisis. In fact, the most recent experience with European debt holders of banks who were supposed to take losses to avoid bailouts confirms our view that debt holders, in general, continue to be protected. (See Kashkari 2017.)

### **A wide range of transformational reforms to end TBTF were considered.**

Within our two-year Ending TBTF initiative, our review included, but was not limited to, breaking up banks, forcing banks to become much safer through higher levels of equity funding, taxing leverage, and improving the resolution regime for banks. In evaluating these various proposals, two guiding principles emerged as the basis of any policy recommendations: Reforms must be simple enough that they can be easily implemented and allowed to work amid the chaos of a crisis, and reforms must pass a benefit and cost test.

As discussed below, our proposal effectively melds ideas from virtually all of these transformative proposals. We advocate for much higher capital requirements for large banks and a tax on leverage for shadow banks. We also believe our Plan will lead covered banks to break themselves up so that

they are no longer considered systemically important while funded with much more equity. The societal benefit will be a financial system featuring smaller banks with a much lower chance of failure. If these smaller banks do fail, they will not trigger contagion to other banks and the broader economy.

We do not view improvements to currently proposed resolution schemes as a viable option because they focus on imposing losses on bondholders during a crisis. We also do not support breakup plans that merely separate investment banking from commercial banking. This latter recommendation focuses on the wrong issue and would not prevent future bailouts.

We have also considered proposals for banking reform issued by the Treasury Department and passed by the House of Representatives in 2017. These proposals do not go far enough to limit the exposure of taxpayers to bank bailouts.<sup>4</sup>

## GUIDING PRINCIPLES OF THE MINNEAPOLIS PLAN

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After two years of study and analysis, we conclude that a higher equity capital requirement is the best reform policy because it is simple to implement and directly addresses the TBTF issue. When covered banks hold more equity capital, their individual likelihood of failure is reduced, and the risk of and magnitude for contagion spreading across banks or throughout the economy is also lower. We stress that the capital must be of high quality. In our Plan, we restrict our definition of capital to be common equity or closely related items.<sup>5</sup> We acknowledge that a byproduct of imposing higher capital requirements onto banks may be the migration of risky activity from the banking sector to

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<sup>4</sup> The House of Representatives passed the Financial CHOICE Act on June 8, 2017. The Treasury Department released “A Financial System That Creates Economic Opportunity: Banks and Credit Unions” in June 2017. Both efforts cover a wide range of reforms that exceed the scope of the Minneapolis Plan. That said, the Financial CHOICE Act would create an “off-ramp,” allowing banks with a leverage ratio of 10 percent to not face a host of banking regulations, such as the Comprehensive Capital Assessment and Review (i.e., the “stress test”) and post-financial-crisis liquidity rules. The Treasury report is less definitive, suggesting the consideration of such an off-ramp and referencing, by example, a higher leverage ratio of 10 percent. As we explain in the rest of the Plan, we call for more equity capital to achieve the reduction in bailout probabilities that we think is sufficient. Moreover, if banks do not choose the off-ramp, they will continue to fund themselves with the inadequate levels of equity capital seen today.

<sup>5</sup> We are counting as “equity capital” or “capital” the items that are allowed to count in the Common Equity Tier 1 requirement, which is defined as common shares for regulatory purposes, surplus stock, retained earnings, accumulated other comprehensive income, and common shares issued by consolidated subsidiaries. The sum of these elements is subject to a limited set of regulatory adjustments. For more specifics, see Federal Register (2013a). This rule implements the Basel III regulatory capital reforms from the Basel Committee on Banking Supervision and certain changes required by the Dodd-Frank Wall Street Reform and Consumer Protection Act.

nonbank financial firms, where capital requirements are lower. We address this unequal treatment across sectors by taxing the borrowings of large nonbank financial firms—also known as shadow banks. This tax would effectively make the cost of funds roughly equivalent between large banks and nonbanks.

In crafting the Minneapolis Plan, one of our concerns was the treatment of community banks. A primary purpose of the Ending TBTF initiative is to reduce the risk of contagion when systemically important banks fail. Community banks, however, do not pose the same level of risk as large banks. It is certainly a traumatic event when a community bank fails. We do not minimize the consequences to those who are forced to take losses in such instances. Such localized failure, however, does not threaten the overall economy. Thus, community banks deserve a separate regulatory and supervisory solvency regime that recognizes their role in the financial system and focuses on the few, but important, factors that truly put them at risk of failure.

#### **The Minneapolis Plan to end TBTF has four steps:**

- *Step 1. Dramatically increase common equity capital, substantially reducing the chance of a bailout*

We will require covered banks to hold equity capital equal to 23.5 percent of risk-weighted assets, with a corresponding leverage ratio of 15 percent. (See Appendix A for a description of how we derive the corresponding leverage ratio.) This level of capital nearly maximizes the net benefits to society from higher capital levels. This first step reduces the chance of a public bailout relative to current regulations from 67 percent to 39 percent. This substantial improvement in safety has a cost, but the benefits exceed the costs by a considerable margin. Covered banks will have five years to come into compliance with this requirement.

- *Step 2. Call on the U.S. Treasury Secretary to certify that covered banks are no longer systemically important, or else subject those banks to further increases in capital requirements, which may lead many to fundamentally restructure themselves*

Once the new 23.5 percent capital standard has been implemented, we will call on the Treasury Secretary to certify that each covered bank is no longer systemically important. Our proposal gives the Treasury Secretary the discretion to make this determination so that the Secretary can rely on the best information and analysis available. We suggest that the Treasury Secretary start

by reviewing existing metrics of systemic risk used to determine current surcharges for global systemically important banks (GSIBs). The Treasury Secretary will also have the authority to look beyond covered banks in making the determination. If the Treasury Secretary refuses to certify that a covered bank is no longer systemically important, that bank will automatically face increasing equity capital requirements, an additional 5 percent of risk-weighted assets per year. This process will begin five years after enactment of the Minneapolis Plan. The bank's capital requirements will continue increasing either until the Treasury Secretary certifies the bank as no longer systemically important or until the bank's capital reaches 38 percent, the level of capital that reduces the 100-year chance of a crisis to 9 percent.<sup>6</sup>

Step 2 is a critical step for ending TBTF. Under the current regulatory structure, there is no explicit timeline for ending TBTF, and regulators never have to formally certify that large banks and shadow banks are no longer systemically important. Instead, banks and designated nonbank financial firms can continue to operate under their explicit or implicit status as TBTF institutions potentially indefinitely. The Minneapolis Plan reverses this approach and gives the Treasury Secretary a new mandate with a hard deadline. Five years after enactment of the Minneapolis Plan, either the Treasury Secretary will certify that large banks are no longer systemically important or those banks will face further increases in equity capital requirements.

We believe that these automatic increases in capital requirements will lead banks to restructure themselves such that their failure will not pose the spillovers that they do today and lead to future bailouts. We chose the capital level that reduces the probability of a bailout in Organisation for Economic Co-operation and Development (OECD) countries to 10 percent or below while keeping total costs below benefits. This level of capital is appropriate for the largest banks that remain systemically important, as their failure alone could bring down the banking system.

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<sup>6</sup> Our assessment that the probability of a bailout falls to 9 percent is contingent on at least some of the systemically important banks covered under Step 1 remaining systemically important and increasing their capital ratios to meet the 38 percent minimum established in Step 2. In the extreme alternative case in which none of them are officially systemically important and continue to have a minimum capital ratio of 23.5 percent, the probability of a bailout would remain at 39 percent as in Step 1. However, to lose their designations as systemically important, the covered banks would have made changes, such as shrinking or changing their business models. In this case, the probability of a bailout would likely be lower than 39 percent, but we are not able to compute a specific value given our analytical approach.

The only banks that would remain systemically important after the Minneapolis Plan has been fully implemented would have 38 percent equity capital, with a risk of failure that is exceptionally low. This is similar to the approach regulators have taken with nuclear power plants: While not risk-free, plants are so highly regulated that the risk of failure is effectively minimized. Step 2 of the Minneapolis Plan reduces the chance of a future bailout to 9 percent over 100 years.

A wide range of research released in 2017, independent of the Minneapolis Plan and using differing methodologies, supports the levels of equity capital we propose. See page 98 of Section 3 for more details on this work.

- *Step 3. Prevent future TBTF problems in the shadow financial sector through a shadow banking tax on leverage*

We discourage the movement of activity from the banking sector to the shadow banking sector by levying a shadow banking tax. The tax equalizes the funding costs between the two sectors. The tax will have two rates. For shadow banks that do not pose systemic risk, as judged by the Treasury Secretary, we would levy a tax on shadow bank borrowing of 1.2 percent. Shadow banks that the Treasury Secretary refuses to designate as not systemically important would face a 2.2 percent shadow banking tax.

Thus, the shadow banking tax regime mirrors our two-tier capital regime. These taxes should reduce the incentive to move banking activity from highly capitalized large banks to less-regulated firms that are not subject to such stringent capital requirements. Nonbank financial firms that fund their activities with equity do not pay the tax. Shadow banks will have five years from enactment of the Minneapolis Plan before they begin paying the shadow banking tax. The Treasury Secretary will start making certifications as to the systemic importance of shadow banks at that point. Here, too, we grant the Treasury Secretary discretion to look across all nonbank financial firms in the certification process.

- *Step 4. Reduce unnecessary regulatory burden on community banks*

Ending TBTF means creating a regulatory system that maximizes the benefits from supervision and regulation while minimizing the costs. The final step of the Minneapolis Plan would allow

the government to reform its current supervision and regulation of community banks to a system that is simpler and less burdensome while maintaining its ability to identify and address bank risk-taking that threatens solvency.

**The rest of this document is organized as follows:**

- Section 2 discusses the proposal in more detail, focusing on key support and motivation for our recommendations.
- Section 3 describes the general empirical approach behind our capital and leverage tax recommendations.
- Section 4 describes the more-technical calculations behind the capital and leverage tax recommendations.
- Section 5 provides a very brief vision for the future of the banking system once the Minneapolis Plan is implemented.
- Appendix A explains why we recommend a leverage ratio target and how we calculate it.
- Appendix B describes some but not all of the input we received in the process of engaging with the public and experts on steps to end TBTF.
- References are compiled at the end of the document.

Our November 2016 draft Plan, a Summary for Policymakers, and a response to the comments we received on our draft Plan can be found at [www.minneapolisfed.org](http://www.minneapolisfed.org).

## SECTION 2

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# Recommendations: Key Support and Motivation

### **We propose to end TBTF through four steps.**

In Step 1, we propose significantly increasing the minimum capital requirements for covered banks. The equity capital requirement would be 23.5 percent of risk-weighted assets. New covered banks that come into existence due to mergers, acquisitions, or the formation of a new holding company will be subject to the requirements upon completion of the corporate action. The Minneapolis Plan will index the \$250 billion in assets threshold that defines covered banks to nominal GDP so that it continues to target relatively large banks in the future. Covered banks will have five years post-Plan implementation before they must comply with this requirement.

In Step 2, the Minneapolis Plan will force these banks to either cease being systemically important—as judged by the Treasury Secretary—or face the SRC, bringing their total equity capital up to a maximum of 38 percent over time. This process will also start five years after enactment of the proposal.

In Step 3, the Minneapolis Plan will impose a tax on the borrowings of shadow banks<sup>7</sup> with assets over \$50 billion. Shadow banks that are not systemically important will face a tax rate of 1.2 percent of borrowings outstanding. The shadow banks that remain systemically important will face a tax rate of 2.2 percent. The Plan will also index the \$50 billion threshold to nominal GDP. This aspect of the Plan will go into effect five years after enactment.

Finally, in Step 4, we propose creating a much simpler and less-burdensome supervisory and regulatory regime for community banks. This recommendation reflects the ultimate goal of our Ending TBTF initiative: to create a safe and sound banking system serving firms and households with effective and appropriately sized regulation and supervision.

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<sup>7</sup> Shadow banks are defined more specifically in Section 3.



In Section 2.1, we provide more details on our proposal.<sup>8</sup> In Section 2.2, we define the nature of the TBTF problem more precisely and explain why this problem remains so important even after the U.S. government has enacted reforms to try to address it. Section 2.3 explains the similarities and differences between our proposal and other potential transformative options to end TBTF. Finally, in Section 2.4, we discuss what our proposal means for other banking supervision and regulation policies, particularly with regard to community banks, but also with regard to current reforms aimed at ending TBTF. Key specifics and methodologies used in this section are spelled out in Sections 3 and 4.

The material in this section and throughout the proposal reflects the product of a two-year effort that included a broad public review of a wide variety of ideas to end TBTF. Appendix B discusses this process and summarizes lessons learned and key points made over the course of our Ending TBTF initiative.

## 2.1 The Minneapolis Plan to End TBTF

In this section, we summarize the key features of each aspect of our Plan. We first offer two ways of understanding the totality of the Plan.

The first way focuses on the treatment of banks and is captured visually in Figure 1. The treatment that banks face under the Minneapolis Plan varies by two factors: asset size and systemic risk. The larger a bank is, the more onerous the capital and regulatory regime it will face. Banks that are systemically risky face a more onerous capital regime than banks that are not. Naturally, firms that are both large and systemically important face the highest capital requirements, while small community banks face the least costly regime, consistent with the risks they pose.

There are three key asset size groupings in the Plan: Banks with assets greater than \$250 billion, banks with assets between \$10 billion and \$250 billion, and banks with assets less than \$10 billion. We define banks with asset sizes less than \$10 billion as community banks. Under our Plan, these banks will face a simpler and more risk-focused capital regime and regulatory and supervisory regime in general than they face today. Banks with assets greater than \$10 billion but less than \$250

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<sup>8</sup> In later sections, we note many sources of uncertainty in our calculations and provide several types of sensitivity analysis. Here we note that any analytical effort to determine an appropriate level of capital or tax for systemically important banks and shadow banks with the goal of eliminating TBTF will face significant uncertainty and sensitivity in its calculations.

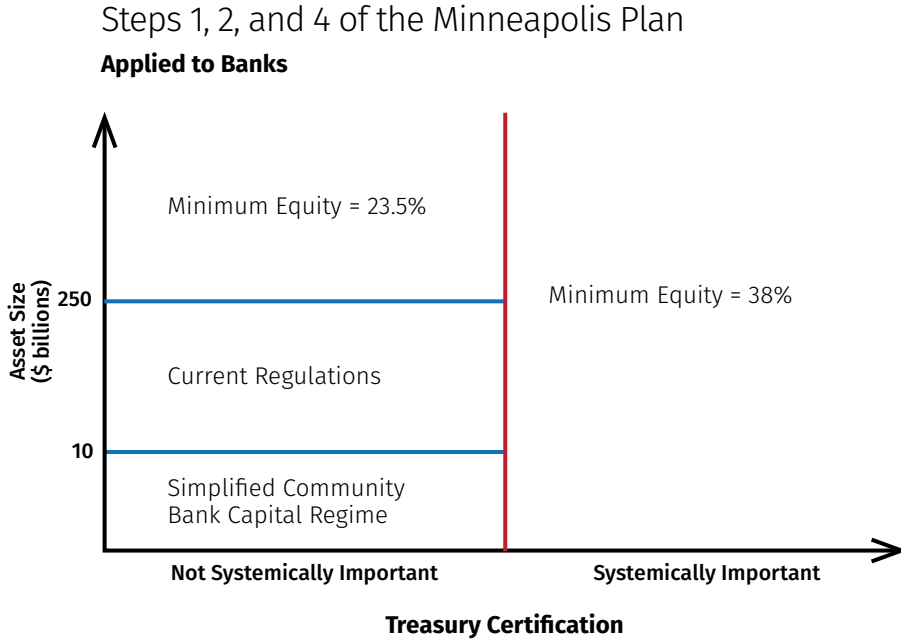
billion will face the same capital and regulatory regime that they face today. Finally, covered banks with assets greater than \$250 billion will have a minimum equity capital requirement of 23.5 percent of risk-weighted assets.

Size intersects with systemic risk to make the final determination of capital and other requirements that the banks face. Under our proposal, the Treasury Secretary will have to certify when banks are not systemically important. The Treasury Secretary will have to review the systemic risk of covered banks but can, at the Secretary's discretion, identify banks with fewer assets as remaining systemically important. Our Plan's default position is that community banks will face an appropriate risk-focused level of capital and other regulations, while banks between \$10 billion and \$250 billion in assets will continue to face the current regime. But it is possible that the Treasury Secretary will deem a relatively larger but not covered bank, with assets greater than \$10 billion but less than \$250 billion, as remaining systemically important.

It is less clear a priori if banks with assets greater than \$250 billion will be designated by the Treasury Secretary as not systemically important. Banks with assets greater than \$250 billion that are designated as not systemically important will face a minimum equity capital requirement of 23.5 percent. Banks that do not receive that designation will face an increasing SRC until they reach a maximum equity capital requirement of 38 percent.

Figure 1 summarizes Steps 1, 2, and 4 of our proposal.

FIGURE 1

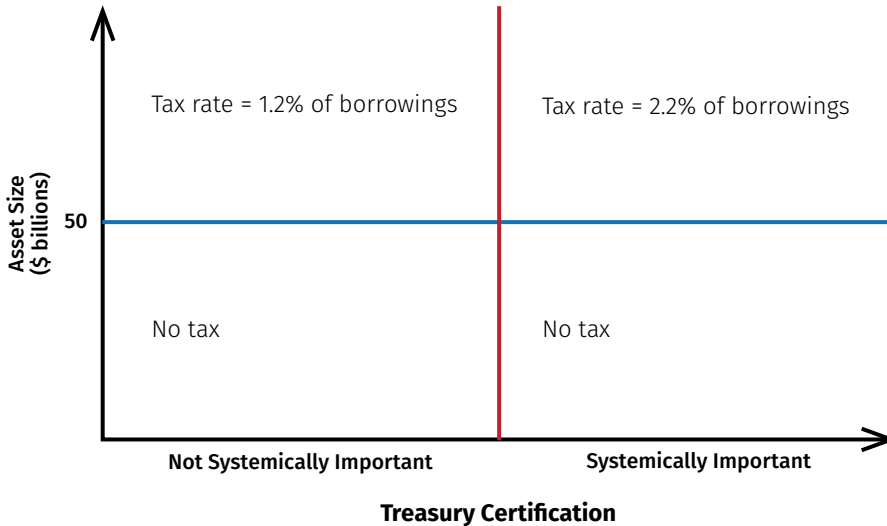


Source: Federal Reserve Bank of Minneapolis

Figure 2 summarizes Step 3 of the Minneapolis Plan, illustrating how the shadow banking tax applies to nonbanks, depending on their Treasury certification (systemically important or not systemically important) and their asset size (more or less than \$50 billion). This tax, by definition, applies to financial firms that are not banks.

FIGURE 2

### Step 3 of the Minneapolis Plan Applied to Shadow Banks



Source: Federal Reserve Bank of Minneapolis

A second way to understand the Minneapolis Plan focuses on the relationship between the two capital levels the Minneapolis Plan imposes on banks. Our Plan has a minimum capital requirement (Step 1) and a higher SRC level of capital (Step 2). The minimum capital requirement applies to banks that the Treasury Secretary certifies do not pose systemic risk. The higher capital level applies to banks that continue to pose systemic risk. Banks that are only subject to Step 1 will no longer be systemically important because many will have responded to the threat of the higher capital standards of Step 2 by lowering their own risk so that they can earn the Treasury Secretary’s certification. They will do this by shedding assets and restructuring their business lines so that their failure cannot inflict systemic harm on the banking sector. But the potential for an individual bank to trigger systemic damage is not merely a function of that individual bank’s assets and liabilities. It is also a function of the strength and capital position of the rest of the banking sector. For example, if an individual \$250 billion-plus bank failed when all other \$250 billion-plus banks had at least 23.5 percent capital, we believe that failure would likely not pose a systemic risk. However, if that individual \$250 billion bank failed when all other large banks were lightly capitalized, that failure could pose a systemic

risk. Hence, the minimum 23.5 percent capital requirement for all large banks is essential to enabling individual firms to make themselves no longer TBTF. The higher level of capital is needed for the banks that continue to pose systemic risk to get their chance of failure down to minimal levels.

We now discuss more details of our Plan.

### *2.1.1 Step 1. Minimum Capital Requirement Proposal.*

#### **Key features:**

- Only common equity or closely related items count toward the requirement. Common equity is the most robust form of capital for absorbing losses.
  - Under current Federal Reserve-issued rules, long-term debt counts toward measures of total loss-absorbing capacity (TLAC). We do not believe long-term debt will actually absorb losses in a time of market stress. Historical evidence shows that only bank equity holders absorb losses. In contrast, there is little U.S. evidence to support the notion that bank debt holders will absorb losses. There would be tremendous downside to taxpayers if the government counted on debt holders to absorb bank losses and they did not.
- The 23.5 percent figure will apply to covered banks.
- The proposal also does not vary the minimum level of equity capital by bank or over time. This approach does have a potential downside of imposing similar capital requirements on banks with different levels of systemic risk. Despite this downside, we prefer a less-complex capital regime. Our benefit and cost analysis leads us to conclude that 23.5 percent is the right minimum level of capital that all covered banks should maintain.
- The 23.5 percent capital level is measured as a share of risk-weighted assets. The equivalent leverage ratio is 15 percent of total assets as discussed in Appendix A.
- We chose this level of minimum capital based on a benefit and cost analysis and by referencing current proposals.

We detail our methodology in Sections 3 and 4. In summary, we consider the benefit of higher capital to be its ability to reduce the likelihood of a banking crisis. We look at historical data on banking crises to calculate how a change in the capital level of banks would reduce the chance of a country having a crisis and requiring government interventions like liquidity support, restructuring, asset purchases, deposit freezes, or other guarantees. We consider such actions to constitute bailouts. In the historical data we review, there is a one-to-one relationship between calling an event a banking crisis and having a bank bailout.

- o The cost of higher capital is measured as the reduction in GDP that occurs because the cost of lending goes up and, thus, less lending occurs. Here, we follow the general methodology of the regulatory community and apply it using one of the Federal Reserve Board of Governors’s models of the U.S. economy.
  - o This benefit and cost approach finds that a minimum capital requirement of about 22 percent maximizes net benefits. That is, it is the point at which the marginal benefits of increased capital equal the marginal costs.
  - o The exact level of 23.5 percent came from the TLAC proposal issued by the Board of Governors, which has become a final rule. The proposal applied to banks in the United States considered to be GSIBs.<sup>9</sup> The proposal set the amount of financial resources that the Board thought GSIBs should have such that they could come out of an extraordinarily stressful period without relying on public resources. A level of 23.5 percent of risk-weighted assets is the level of TLAC that the Board proposed requiring of JPMorgan Chase at the time the proposed TLAC rule was released, which is the highest requirement for any bank. We believe the Board’s sizing of financial resources that covered banks should have is reasonable.
- Step 1 goes into effect five years after enactment of our proposal.

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<sup>9</sup> The TLAC proposal as applied to the GSIBs is found at <http://www.federalreserve.gov/aboutthefed/boardmeetings/ltd-chart-20151030.pdf>. For the TLAC proposal, see Board of Governors (2015c). For the final rule, see <https://www.federalreserve.gov/newsevents/pressreleases/bcreg20161215a.htm>.

### *2.1.2 Step 2. Systemic Risk Charge.*

#### **Key features:**

- Five years after the enactment of our proposal, and every year thereafter, the Treasury Secretary must certify that covered banks are not systemically important. The Treasury Secretary will also have the discretion to review the systemic risk posed by any bank.
- Firms that receive that certification continue to face the minimum capital requirement spelled out in Step 1 of our Plan.
- Firms that do not receive this certification face an SRC, which will increase by 5 percentage points each year until either the Treasury Secretary makes the certification or the equity capital level reaches 38 percent.
- 38 percent equity capital represents the level that is needed to drive the chance of a bailout to 9 percent.
- We encourage the Treasury Secretary to start the analysis of a bank's systemic risk with the same metrics regulators use today for measuring that risk.
- We believe that many firms currently considered systemically important will restructure themselves to greatly reduce their systemic risk rather than issue equity up to the maximum SRC.
- Firms that do issue equity equal to the maximum SRC will have a much lower chance of failure (and consequent bailout), as well, given their exceptionally high ability to absorb losses.

### *2.1.3 Step 3. Shadow Banking Tax.*

#### **Key features:**

- The Treasury Secretary will, within five years, certify if shadow banks are not systemically important and will have the discretion to review all nonbank financial firms when certifying that a given firm is not systemically important.

- A two-tier shadow banking tax rate system mirrors our two-tier capital proposal.
- The tax applies to borrowings of shadow banks.
- A lower tax rate equal to 1.2 percent of borrowings applies to shadow banks with assets that exceed \$50 billion that are not systemically important.
- A higher tax rate equal to 2.2 percent of borrowings applies to shadow banks with assets that exceed \$50 billion that are systemically important.
- We describe the methodology by which we set the tax in Sections 3 and 4. The general idea is that the government should want the overall cost of funds within the shadow banking system to be the same as in the traditional banking system. We calculate the shadow leverage tax rate so that the 1.2 percent tax rate equalizes the funding costs of banks and shadow banks at the 23.5 percent capital requirement. The 2.2 percent tax rate makes funding costs equal at the SRC of 38 percent. This outcome will discourage the movement of leveraged activity from the standard banking sector to the shadow banking sector. Moreover, this tax effectively removes the tax preference for debt issuance for shadow banks.
- The tax will apply to firms specified in our proposal as nonbanks or shadow banks. We rely on the work of the Financial Stability Board (FSB) to identify types of firms that are considered shadow banks. We include hedge funds, mutual funds, and finance companies as shadow banks under this approach. The Treasury Secretary will have the discretion, however, to look beyond this list of shadow banks in certifying that a given financial institution is not systemically important.
- The tax will go into effect five years after enactment of the Minneapolis Plan.
- We make very conservative assumptions in making this calculation. At the same time, we recognize that the analytical framework to support the shadow banking tax is in early stages of development.



#### *2.1.4 Step 4. Right-Sized Community Bank Supervision and Regulation.*

##### **Key features:**

- Make the capital risk-weighting regime for community banks much less complicated, so that it largely mirrors Basel I.
- Create a default mode for supervision of community banks where supervisors would only review, subject to an exception process, (a) how banks comply with specific laws passed by Congress (and the rules and guidance issued to implement those laws) or (b) operations, policies, or procedures of a bank for which the banking agencies have empirical evidence supporting a correlation with materially weaker bank conditions.
- Impose a wide range of specific risk-focused reforms including but not limited to a longer exam cycle, appraisal reform, reductions in call report collections, and a review of the Current Expected Credit Loss accounting standard.
- Repeal solvency and other noncompliance-related provisions of the Dodd-Frank Act that apply to community banks and that do not have a strong link to their chance of failure.

## **2.2 TBTF Remains a Critical Threat**

In this section, we first define what we mean by too big to fail, explain why TBTF is so important, and discuss why current reform efforts do not end TBTF.

*2.2.1 Defining the problem.* Banks are TBTF when their failure or potential insolvency threatens to spill over to other banks and financial markets and ultimately to the rest of the economy. Such spillovers can greatly reduce economic output and throw the economy into a recession or even depression. These spillovers are inherently problematic, even when they do not result in a bailout of banks. But bailouts are part of the standard government response to significant potential and actual bank spillovers, even though it is widely agreed that the creditors of large banks, not the public, should bear the losses of bank failure. Governments view bailouts as the only realistic option they have to address the threat of spillovers that arises when the largest banks get into financial trouble.

This definition of the TBTF problem leaves two general solutions to it. Policymakers must either make it less likely that a bank gets into trouble or limit spillovers when a bank does get into trouble. Government could make banks less likely to fail by requiring that they have more financial resources to absorb losses, for example. Another option for governments to reduce spillovers is to force banks to organize themselves in such a way that their failure is unlikely to spread to other firms. Some have argued that there is a third option: Announce that the government will not bail out banks. We do not think that a mandate prohibiting the government from responding to a large bank failure is credible. Such a restriction on a government response will not work because the underlying problem of spillovers remains, and the government will ultimately have to act or spillovers will cause damage to Main Street.

**2.2.2 Importance of TBTF.** The potential economic significance of TBTF is straightforward. As Minneapolis Fed President Neel Kashkari (2016a) argued,

The externalities of large bank failures can be massive. I am not talking about just the fiscal costs of bailouts. Even with the 2008 bailouts, the costs to society from the financial crisis in terms of lost jobs, lost income and lost wealth were staggering—many trillions of dollars and devastation for millions of families. Failures of large financial institutions pose massively asymmetric risks to society that policymakers must consider. We had a choice in 2008: Spend taxpayer money to stabilize large banks, or don't, and potentially trigger many trillions of additional costs to society.

The view Kashkari expressed seems widely held and explains the global effort to address TBTF in a truly massive way, even if those responses to the crisis impose some costs to the economy.

**2.2.3 TBTF remains a serious danger.** Some banks are currently TBTF. There is general, but not universal, agreement on this point simply because post-financial-crisis reform efforts, such as those created by the Dodd-Frank Act, that some believe will end TBTF have not yet been fully implemented. Consider the new resolution regime, which is a cornerstone of the current effort to end TBTF. One option under current law is for banks to go through the commercial bankruptcy regime. In 2016, five of the eight bankruptcy plans submitted by the largest domestic banking organizations were jointly deemed “not credible” by the Federal Reserve and the Federal Deposit Insurance Corporation, and two more plan submissions were deemed as such by one of the two agencies, but not the other. In 2017,

none of the banks' plans were deemed "not credible" by either the Federal Reserve or the FDIC, but four banks were informed that they had "shortcomings" to overcome with their next submission, and all eight were told that more work was required in four areas. While this is an improvement over the 2016 evaluation, there is still material uncertainty about how easy it would be for these eight firms to proceed through commercial bankruptcy in the event of insolvency.<sup>10</sup>

The central question is, Will banks remain TBTF once the current reforms go fully into effect? Supporters of the reform efforts noted above say no. We disagree.

First, at least some of the reforms put into place seem aimed at preventing a reoccurrence of the last crisis. For example, some reforms focus on aspects of the current derivative, proprietary trading, or securitization markets because of the role they played during the run-up to the crisis. But a lesson from the 2008 crisis is that policymakers will not see the next cause of a banking panic coming, and the exact form the crisis will take will not be the same as the last crisis. (See Kashkari 2016a.)

Second, the current reform effort to end TBTF relies on the TLAC proposal requiring the government to impose losses on debt holders of the most systemically important banks in a stressed economic or financial environment. We believe this proposal is fundamentally unsound and will not work in practice because:<sup>11</sup>

- The proposal is not compatible with the incentives of policymakers. As Kashkari (2016c) argued, "Do we really believe that in the middle of economic distress when the public is looking for safety that the government will start imposing losses on debt holders, potentially increasing fear and panic among investors? Policymakers didn't do that in 2008. There is no evidence that their response in a future crisis will be any different." Some may respond that debt holders under current plans will receive warning that they are at risk of loss. This warning, they argue, will make policymakers more comfortable in following through. But the government has issued such warnings in the past, with regard to so-called subordinated debt holders, and did not follow

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<sup>10</sup> For an alternative view, see FDIC Chairman Martin Gruenberg's statement from April 2016: "In my view, we are at a point today that if a systemically important financial institution in the United States were to experience severe distress, it would be resolved in an orderly way under either bankruptcy or the public Orderly Liquidation Authority." (See Lambert 2016.)

<sup>11</sup> See Kashkari (2016b), discussing his lack of confidence that the contingent convertible debt included in the TLAC plan will actually face losses in a crisis. For additional discussion on the challenge in converting debt to equity in the TLAC context, see Flannery (2016).

through in a crisis. Unfortunately, these warnings are not credible. This point was proved most recently when bank debt holders in Italy received protection despite holding debt designed to be “bailed in.” (See Kashkari 2017.)

- This approach is more complex relative to our preferred option of requiring covered banks to issue more equity. Equity holders have a long experience of suffering losses from bank failures in the United States. The government should just require banks to issue more equity if the government wants a straightforward way of imposing losses on the funders of banks. Requiring the debt holders to effectively recapitalize a failing bank during a crisis just increases the risk of contagion and systemic risk.
- We do not find key specific arguments for requiring debt to absorb losses over equity to be well reasoned.

Some supporters of the current debt-focused plans argue that having a smaller equity cushion will prompt supervisors to act more quickly as the equity is erased by losses. At that point, the supervisors can move the firm into resolution where the debt converts and becomes the equity of the recapitalized new firm, thus avoiding a taxpayer bailout. Supporters of this view believe that a bank funded with more equity will see losses exceeding the equity and thus have nothing left over for the recapitalization of the firm by the government. This argument does not make sense to us. The concern that supervisors cannot act when a firm still has positive equity should naturally lead policymakers to support rules allowing early closure; that is, requiring banks to issue more equity and mandating that government close banks when equity is still positive.<sup>12</sup> This is not a novel idea. Indeed, the closure regime before the crisis—called Prompt Corrective Action—required this step. However, it failed because triggers for closure were based on measures of equity that overstated the solvency of weak banks.

Another key rationale for the equity and debt split focuses on the cost of debt versus equity. Requiring banks to issue only equity raises concerns about the cost of regulation because equity costs more than debt. Allowing firms to issue debt, some argue, is cheaper. But this alleged benefit of the

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<sup>12</sup> We do not include a requirement in our proposal to close covered banks when they still have a material positive capital level, but we are open to such proposals.

debt-focused plans may not come to fruition. The debt securities will end up being priced like equity if the bondholders are actually going to face losses. At that point, the government would have given up the benefits of equity, while society would not have actually received the benefit of cheaper debt.

Finally, TBTF firms have already begun efforts to reduce their capital cushions. Requested payouts post the 2017 stress test “are near 100% of banks expected earnings over the next year.” (See Hoffman and Tracy 2017.) For example, in 2017, Citigroup intends to pay out 132 percent of expected earnings. Similarly, Morgan Stanley’s expected payout ratio exceeds 100 percent of expected earnings.<sup>13</sup> Moreover, public statements by a number of TBTF firms reveal their desire to operate with even lower capital ratios in the future. JPMorgan is among these firms, as are Citigroup, Wells Fargo, and Bank of America.

In sum, we believe equity is the best guard against a banking crisis and the related bailout of unsecured bank creditors. Some losses in the future could exceed the high levels of equity our Plan requires. Consider a case where a single bank holding the high level of equity we recommend gets into financial trouble. As a result, the bank suffers losses that exceed its equity. The post-financial-crisis resolution framework could avoid a bailout for that firm if conditions were right (e.g., the overall economy is strong). But we do not think the current regime could avoid a bailout for losses exceeding our proposed high levels of equity during periods of market stress. At that point, we see public recapitalization, at least at the point of crisis, as the most credible response.

### 2.3 Other Transformative Options and Minneapolis Plan Similarities to Breakup Plans

We began the Ending TBTF initiative with a commitment to review a wide range of transformative changes. We specifically noted three reforms at the outset: requiring more capital, breaking up the biggest banks, and taxing leverage. During the initiative, we heard extensively about these three options. We also heard in detail from supporters of the current regime, including those who would prefer to focus on what are incremental changes in the resolution framework currently under way. We have already explained our reasons for rejecting a stay-the-course approach.

In this section, we describe the similarities between our Plan and those that break up banks. In short, we believe our Plan achieves the same objectives of break-up-the-banks proposals, but through a slightly different route.

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<sup>13</sup> Estimates are based on FactSet data and Wall Street Journal reviews of corporate filings.

*2.3.1 Breakup plans, and similarities to Minneapolis Plan.* We heard from supporters of two types of breakup plans. First, we reviewed plans that would put a cap on the size of banks, perhaps as a share of GDP.<sup>14</sup> Second, we discussed plans that would limit the types of activities that banks can engage in, which would temporarily reduce their size. Efforts on this dimension include “reinstating Glass-Steagall,” as its proponents often put the issue.

The key similarity between our Plan and breakup plans is that both target the reduction of systemic risk through restructuring of TBTF banks. Step 2 of our proposal would apply the SRC to covered banks that the Treasury Secretary fails to certify as no longer posing systemic risk. The Treasury Secretary could use state-of-the-art measures of systemic risk in this determination, which focus on factors like banks’ size, complexity, and interlinkages. We believe most banks will take the steps necessary to reduce their systemic risk along these dimensions to avoid the SRC. Less systemic risk means less chance of spillovers, which reduces the need for a bailout. The logic and goal just described are the same for breakup plans and the Minneapolis Plan.

Our tax on shadow banks has a similar feature. We have one tax rate for large shadow banks that are not systemically important, as judged by the Treasury Secretary. We propose another tax rate for shadow banks that remain systemically important. This regime encourages shadow banks to make themselves less systemically important.

Superficially, the other similarity between our Plan and many breakup plans is that both do not try to specify exactly how the breakup or systemic risk reduction must occur. However, in our Plan, when banks are deciding if and how they will respond to the SRC, they would have to take account of their sources of systemic risk and spillovers, and also the benefits and costs of their current organization. Our Plan tries to force banks to break themselves up such that the resulting entities are not systemically important. This feature of our Plan could differ from other plans that do not limit the systemic risk posed by post-breakup entities.

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<sup>14</sup> One prominent breakup plan comes from Simon Johnson of MIT. Johnson’s plan focuses on reorganizing financial institutions into smaller entities so that any potential firm failure would be mitigated by its smaller footprint. Specifically, Johnson proposes capping the largest banks at 2 percent of GDP. As of the third quarter of 2017, the size cap would apply to any bank larger than \$390 billion in assets. And if bank boards of directors and senior management did not comply with the size limitation, the bank would be subject to “significantly higher capital requirements.” (See Johnson 2016.)

The similarities between our proposal and other breakup plans may concern some observers. In particular, critics view breakup plans as potentially ineffective and costly. The plans could be ineffective if they yield a group of smaller banks that would all fail in the face of a common shock, reflecting the potential for many banks to “herd” around the same risk (e.g., commercial real estate or exposure to developing countries). The breakup plans could be too costly if there are very large economies of scale to aspects of banking that are lost when covered banks break up.

We view these potential costs as real, but probably overstated in the context of our proposal. First, we try to account for the potential for a common shock to large banks by ensuring that the minimum equity capital requirement is much higher than it is today. This would make it much less likely that the idiosyncratic failure of one of the covered banks would threaten the solvency of another, because all banks would have very high levels of capital. Moreover, we do not expect all banks that result from a breakup to be mirror images of each other. Just as large banks today follow different business strategies, we expect banks of the future to do the same and thus not have exactly the same exposure to risk factors. This combination of future outcomes suggests that the failure of a few large but not systemically important banks at the same time should have a much lower systemic outcome under our Plan than it would today.

Second, and in terms of economies of scale, we agree that the breakup of certain firms could result in smaller firms that benefit less from such economies.<sup>15</sup> But measurement of these economies of scale is statistically difficult given the limited number of mega banks, the fact that they have been in existence for such a short period of time, and the challenge of defining what banks “produce” in the first place.<sup>16</sup> Thus, it is not clear if the costs from potential loss of economies of scale are large relative to the benefits from reducing the chance of a crisis. Moreover, the Minneapolis Plan would allow firms to maintain their economies of scale if they funded themselves with a much higher level of equity. If the benefits of scale are very large, then society would continue to gain from them. Finally, we note that the frameworks used by supervisors to measure the benefits and costs of higher capital and other regulations after the 2008 crisis do not view potential reductions in economies of scale as a reason to avoid regulation that could lead firms to change their organizational structure.

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<sup>15</sup> For a discussion of economies of scale in banking, see Hughes (2016).

<sup>16</sup> For a discussion of these issues, see Feldman and DeYoung (2010).

There is one key difference between our Plan and some breakup plans. Those calling to reinstate Glass-Steagall do specify a certain form of breakup, precisely the separation of commercial and investment banking. We understand the concerns that motivate this type of reform. The costs of such a reform may not be large, but we do not see this type of activity restriction as reducing the spillover problem that defines TBTF. The historical record suggests that commercial banks without material investment banking activity and investment banks with relatively little commercial banking activity can have high probabilities of failure and can also generate the type of spillover that prompts a bailout.

## 2.4 Implications of the Minneapolis Plan for Supervision and Regulation Policy

This section reviews two implications of our proposal. First, what does this proposal mean for the supervision of banks that are not TBTF? Second, what does our proposal mean for the various reform efforts already under way?

**2.4.1 Implications for community bank supervision.** As noted, reforming the current supervision and regulation of community banks to a system that is simpler and less burdensome but still robust is a key step in our proposal. In short, an effective plan must try to reduce the costs of regulation for community banks while maintaining rigor in responding to excessive risk-taking. A reformed regime for community banks must recognize that the failure of a community bank is unwelcome for its local community but does not pose a systemic risk for the U.S. economy.

The first step for reforming the so-called solvency supervision and regulation of community banks is for Congress to enact the reform Plan we recommend for covered banks. We think reforms for community banks will not occur when the threat from the larger banking system to the economy remains large.

The second step is for Congress to create a separate solvency supervisory and regulatory regime for all banks with less than \$10 billion in assets. Three key features of the reformed solvency supervision and regulation for community banks we propose are:

1. *Simple and appropriate capital standards for these banks.* The high level of capital that we propose in Steps 1 and 2 the Minneapolis Plan should not apply to community banks. Instead, community banks should face a lower capital requirement, and the method by which banks must determine their capital levels and comply with this new standard should be as simple as possible.



Specifically, we call for a capital regime for these banks where the asset risk-weighting is much less complicated and would largely mirror Basel I. We do not support returning to a period where debt-like instruments can count as “capital.”

2. *A less-costly and less-complex system of supervision focused on fundamental sources of risk.* Community banks face a huge array of complicated and potentially unnecessary solvency supervisory expectations. These expectations cover almost every aspect of bank operations, ranging from how banks interact with vendors to how they calculate their interest rate risk to how they plan for many contingency events. There is also a burdensome process that banks face when they acquire other banks or change their ownership structure. It is not clear that these measures actually reduce the chance of bank failure. Rather, these expectations and rules may just add additional expenses that fall disproportionately on small banks, with little perceptible benefit in risk reduction.

A reformed system of solvency supervision for community banks is possible once TBTF is addressed. This system should be much less complicated and focus only on the key expectations that reduce the chance of failure. For example, this system could concentrate on the amount of equity the bank issues, the rate at which the bank is growing, the concentration and quality of its assets, and the stability of its funding. A much more-focused supervisory solvency system could potentially produce the same benefits as the current system but at a much lower cost. This would then allow community banks to focus on extending safe and sound credit to their local economies.

To be more specific, in this framework, the default mode for supervision would be to review only (a) how banks comply with specific laws passed by Congress (and the rules and guidance issued to implement those laws) or (b) operations, policies, or procedures of a bank for which the banking agencies have empirical evidence supporting a correlation with materially weaker bank conditions (i.e., where ineffective bank operations, policies, or procedures, are associated with worsening of bank conditions).

We believe such evidence exists with regard to certain asset concentrations, funding strategies, interest rate risk profiles, and growth patterns, among other variables. We are more skeptical that such evidence exists with regard to a wide range of other activities and requirements that supervisors currently review. We think such a requirement would reduce costs to banks to a substantial degree without making them more risky.

There may be cases where supervisors cannot readily carry out the empirical analysis to show a correlation between a bank practice or policy and weaker banking conditions. For example, it may be difficult to gather data demonstrating that weakness in an internal audit program at a bank is correlated with future weakness; such data may not exist. As such, we would allow supervisors to have an exemption process to these two limits in our proposed framework, but would expect supervisors to use it sparingly.

We would also support the following specific reforms:

- a. Moving to a two-year examination cycle for banks that have an overall satisfactory supervisory rating and are well managed and capitalized.
- b. Eliminating the need for appraisals for well-collateralized commercial loans (e.g., with loan-to-value ratios above an appropriate amount identified by the banking regulators) made by community banks headquartered in rural areas. (Rural areas appear to have very few appraisers.)<sup>17</sup>
- c. Allowing all mortgages held in portfolio by community banks to count as “qualified” mortgages under the Dodd-Frank Act.<sup>18</sup>
- d. Reducing the call report to items for which the banking agencies can affirmatively show a link to the forecasting of future bank weakness or other clear surveillance benefits.
- e. Applying the Federal Reserve’s Small Bank Holding Company statement to noncomplex holding companies with assets of \$10 billion or less.
- f. Requiring an independent commission to analyze the benefits and costs of the shift to the Current Expected Credit Loss accounting standard and to opine on the net benefits of modifying or eliminating this standard.

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<sup>17</sup> The Federal Banking Agencies released a proposal to increase the dollar threshold at which a bank must obtain an appraisal for a commercial loan. (See Board of Governors 2017.)

<sup>18</sup> We view the qualified mortgage rule to have both solvency and consumer drivers and thus include it in our analysis.

We would retain the right of bank supervisors to examine banks sooner than this cycle, require appraisals, and so on, but would shift the default to these recommendations.

3. *Repeal solvency and other noncompliance-related provisions of the Dodd-Frank Act that apply to community banks and that do not have a strong link to their chance of failure.* Specifically, we call for community banks to be exempted from the Volcker rule for community banks and either elimination of new Dodd-Frank data collections under the Home Mortgage Disclosure Act or the Community Reinvestment Act or legal protections for banks that show a good faith effort to comply with the rules, but have errors in reporting.<sup>19</sup>

We believe these three changes will make supervision and regulation more effective by focusing on key risks and more efficient by reducing resources allocated to lower-risk activity. The downside of our approach is the potential that supervisors will have to react quickly to a worsening of conditions at a bank rather than catching it earlier under the current regime. We do not see this concern as particularly relevant because we continue to focus on supervision of high-risk areas such as credit and capital, and we allow supervisors to accelerate their reviews if needed.

**2.4.2 Implications for Current Reform Efforts, Including Resolution.** As noted, the U.S. government already has under way a massive program to address the TBTF problem, most notably through the Dodd-Frank Wall Street Reform and Consumer Protection Act, but also through other efforts. Our proposal largely builds on the current reform effort, which we think could make banks more resilient to a shock that hits a single firm during good times. We seek to modify only the minimum capital requirements and long-term debt/TLAC proposal for covered banks. We also create the SRC and the requirement that the Treasury Secretary certify when banks are no longer systemically important. The capital and other regimes currently applied to banks that fall between our definitions of covered banks and community banks would not change.

Of course, there will be technical interactions between our proposal and aspects of the current reform effort, but these can be addressed at a future date.

A more fundamental interaction, however, concerns the resolution regime currently under

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<sup>19</sup> We view the qualified mortgage rule to have both solvency and consumer drivers and thus include it in our analysis.

development. That regime consists of two components. The first is the so-called living will process.<sup>20</sup> The second is the special resolution regime that could apply to systemically important banks when, generally speaking, the commercial bankruptcy regime would not prove effective.<sup>21</sup>

We do not believe that these efforts will solve TBTF by themselves, but we see them as useful steps that could complement our proposal. The living will regime could make the firms to which we apply our capital proposal, as well as other firms, easier to resolve. The new resolution regime could make it easier to address any remaining spillover concerns once the Minneapolis Plan has been fully implemented.<sup>22</sup>

Will the combination of the new resolution regime, the Minneapolis Plan, and the other aspects of the current reforms mean that a bailout will never occur? The answer is no. Some risks are impossible to eliminate completely, and assessing benefits and costs is essential to finding the right balance. We believe the Minneapolis Plan reduces the chance of a future bailout as much as possible while passing a benefit and cost test.

As noted above, we do believe that a banking crisis large enough to sweep over the capital wall we propose would justify the government response of providing taxpayer support. We also believe that any reform proposal claiming to solve all future banking crises, regardless of size, is not credible. Some crises are so costly that the only appropriate or available response will be a government backstop rather than a resolution regime. Lastly, we do believe that government support in the future could differ substantially from what occurred during the 2008 financial crisis. These support options are not a focus of our current effort.

<sup>20</sup> For more information on the living will process, see the Federal Reserve Board of Governors Resolution Plans website: <https://www.federalreserve.gov/bankinforeg/resolution-plans.htm>.

<sup>21</sup> For more details on this special resolution regime, see Federal Deposit Insurance Corporation (2013). For a more detailed description of the Single Point of Entry Strategy, see Federal Register (2013b).

<sup>22</sup> Some experts have called for a new chapter of the bankruptcy code (Chapter 14) to allow the code to facilitate the resolution of systemically important financial firms. For a discussion of efforts to reform current resolution mechanisms, see Bipartisan Policy Center (2013).

## SECTION 3

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# General Empirical Approach for the Capital and Leverage Tax Recommendations

This section discusses the general empirical approach we used to support our capital and leverage tax recommendations. For each of the recommendations, we summarize the relevant literature, describe our general methodology, identify key choices, provide key results and, where appropriate, discuss alternative approaches and/or sensitivity analyses. Section 4 walks through these calculations in detail. As noted at the start of this Plan, the data and results in this paper are the same as those used in the November 2016 draft Plan unless otherwise noted. Specifically, the November 2016 Plan was based on data on returns, loans, and risk-weighted assets through the end of 2015. We did not update the results and figures because when we repeated the computational exercises with updated data, the results remained essentially unchanged.

### 3.1 Empirical Approach for the Minimum Capital Recommendations

This section reviews our approach for determining the higher minimum capital requirement we are recommending. We also review our approach for setting the SRC, which is an extension of the minimum capital charge approach. Our approach has one underlying tenet: Rely on existing analytical frameworks used by regulators or related groups to analyze the benefits and costs of higher capital requirements. At a very general level, this established approach calculates the benefits of higher capital as arising from fewer banking crises. The costs of higher capital come from increased costs of borrowing, lower investment and spending, and reduced GDP.

**3.1.1 Relevant Literature.** In analyzing the benefits and costs of higher minimum capital requirements, we rely on the framework used by the Bank for International Settlements (BIS)—particularly BIS (2015) and work sponsored by the Financial Stability Board (FSB) (2015b), the Basel Committee on Banking Supervision (BCBS) (2010), and the Macroeconomic Assessment Group (MAG) (2010a,b)—and the International Monetary Fund (IMF). These analyses rely on a broad literature from both policy and academic sources.

To calculate the benefits of preventing a crisis, we follow the method used by IMF staff,

specifically the work of Dagher, Dell’Ariccia, Laeven, Ratnovski, and Tong (DDLRT) published in March 2016. DDLRT approached the question of appropriate levels of bank capital by analyzing a data set of past crises from 1970 to 2011—the International Monetary Fund’s Systemic Banking Crisis Database (IMF database) compiled by Laeven and Valencia (2012). DDLRT compile average peak nonperforming loan (NPL) ratios for each crisis identified. By transforming the NPL ratios into equivalent capital ratios measured using risk-weighted assets, they infer levels of capital that might have prevented the need for the government intervention associated with these bank crises. The estimated capital levels are meant to indicate amounts sufficient to cover industry losses and maintain solvency for the representative banking systems.

The DDLRT analysis focuses on total capital held by a banking system in its determination of capital levels needed to avoid a crisis and bailout. We use these data to determine the capital level that covered banks should hold. This is a reasonable translation for two reasons. First, covered banks held approximately 70 percent of the total U.S. banking system assets as of year-end 2016. Second, some covered banks are so systemically important that their individual failure could cause a crisis. We want these banks to hold the level of capital needed to prevent such a crisis.

In contrast, we follow the BIS approach of assessing the cost of higher capital requirements quite closely. This analysis examined the cost of higher capital requirements through a two-step process. First, it estimated the impact of higher capital requirements on lending spreads. Second, it utilized central bank forecasting models to measure the impact of wider spreads on economic activity. We adhere to the same process and describe it more fully below. This framework is consistent with the literature that finds a negative relationship between capital and lending. (See Peek and Rosengren 1997, 2000.)

**3.1.2 The Benefits of Higher Capital Analysis and Results.** In this section, we describe the general methodology we use, the key assumptions and choices we make, and our key results. We then report results from sensitivity analysis.

*Methodology.* The benefit of higher capital is the avoidance of a banking crisis and the related bailout of banks. The logic is straightforward. Banks with higher capital have a lower chance of failure, all else equal. The smaller the chance of bank failure, the less likely a banking crisis occurs. As noted, there is a one-to-one relation between banking failures and crises and public support for banks in the data we use. The lower the chance of failure and crisis, the lower the chance of bailout.

We implement this intuition by following DDLRT and reviewing the historical experience with banking crises. We use the IMF database to identify the number of crises that could have been avoided if the minimum capital requirement applied to banks in a country with a crisis was greater than or equal to the losses associated with those crises. The IMF database is set up for this exercise. It consists of banking crises that occurred between 1970 and 2011 and the NPL ratios for each of these crises. The data set has 105 crises with associated NPL rates.<sup>23</sup> Twenty-eight of the crises for which we have NPL data occurred in OECD countries.<sup>24</sup> The rest occurred in developing countries. Section 4 provides the technical details of implementing this general approach.

*Key Choices and Assumptions.* First, we rely on the historical record of banking crises. This raises two potential concerns:

1. Banking crises are tail events. Thus, we have few observations. This means we are considering what might occur in the future based on very limited history. As a result, our analysis faces a fundamental and unavoidable level of uncertainty. This challenge is endemic in all analytical efforts to prevent future crises, such as the supervisory stress test. We are trying to prevent events that simply do not occur very often; thus, we have limited experience with them. The BIS made this point in its analysis: “The benefits of prudential regulation are inherently uncertain and difficult to assess. Moreover, while in the case of regulatory capital requirements we can rely on historical evidence, we have only limited historical evidence that we can draw on to quantify the precise impact of TLAC and orderly resolution.” (See BIS 2015.)
2. We are assuming that the historical record regarding banking crises helps inform the future likelihood of crises. This assumption may not hold as well if the world has changed in some important ways relative to the past. Such changes could mean that the chance of having a crisis in the past no longer helps estimate the chance of having a crisis in the future. In particular, there have been a number of regulatory changes aimed at reducing the chance of a future crisis since the 2008 crisis. These changes may make it less likely that a banking crisis will occur in the future.

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<sup>23</sup> The IMF database consists of 147 banking crisis observations. Of those, 105 have associated NPL data. There are 29 OECD events reported in the database. All but one event has an NPL estimate.

<sup>24</sup> See <http://www.oecd.org/about/membersandpartners/> for a list of current OECD countries.

Relying on historical data in this new world could thus overstate the chance of a future crisis. However, there are reasons to discount this concern with regard to our analysis. The historical data could understate future losses as well. Importantly, losses in the past reflect government bailouts to end crises. Losses in the past would have been higher if government had not stepped in. Some financial reforms since the financial crisis might also increase reported losses by, for example, forcing banks and supervisors to recognize losses earlier. Board of Governors analysis suggests that the overstatement of future losses and the understatement that arises from using historical crisis data may offset each other. The Board of Governors noted: “There are reasons to believe that the historical data underestimates the future trend and there are reasons to believe that those data overestimate the future trend. Although the extent of the over- and underestimation cannot be rigorously quantified, a reasonable assumption is that they roughly cancel each other out.” (See Board of Governors 2015a.) Moreover, this concern would apply to the reforms with which we are comparing our proposal, which also relied on the historical record. Finally, as already discussed, we are skeptical about the ability of some of the key reforms enacted to reduce the chance of a bailout.

Another key choice we make to help address the problem of limited data is to rely on cross-country data on financial crises to estimate the chance of a banking bailout in the United States. Of course, the U.S. economy and financial system differ from those of other countries. However, cross-country crisis data are the best information that analysts have for making such estimates, and we follow general practices in using them.

Next, we have to decide whether to use data on all crises, including those in developing countries, or a subset of that data. We use only the crisis data for OECD countries. We acknowledge that there are relatively few banking crises in the IMF database, and looking at a subset of crises makes our already sparse data even more limited. Nevertheless, we think it reasonable to conclude that future banking crises in the United States will be more like those that have occurred in OECD countries than in developing countries.

Another choice concerns the fact that higher capital requirements could make bank failure less likely in more than one way. Besides improving the ability of firms to absorb losses in the face of unexpected shocks, they could induce banks to take on less risk and thus face lower losses in the future. We decided not to account for this potential consequence of higher capital requirements. Instead, we account only for the loss-absorbing capacity of capital that makes failure less likely in



the face of any given shock. We take this view because (a) the effect of higher capital on risk-taking of banks is not clear and (b) assuming that capital can only absorb losses rather than change behavior makes our estimates of benefits more conservative.<sup>25</sup>

Finally, and on a more technical level, we decided to utilize the DDLRT cross-country NPL ratio information as a basis for understanding the size of loss for a given crisis. Like DDLRT, we ignore potential accounting differences and prudential requirements related to NPL ratios that could exist across countries.

*Key Results.* Table 2 reports the key results of the benefits of higher capital using the methodology just described. In Table 2 and subsequent tables, we refer to probabilities of a bailout and costs of regulation associated with several minimum capital requirements over time. Before describing our results, we explain the source of the minimum capital requirement figures:

1. *2007 Regulations:* We want to compare the effect of our proposal relative to prior capital regimes, including the precrisis capital regime. However, the pre- and post-crisis regimes have important differences in what they count as capital and the risk-weighting of assets. We use a 4 percent capital level to capture the precrisis regime. This is the precrisis Tier 1 capital requirement measured as a share of risk-weighted assets. On the one hand, this number overstates the amount of capital required relative to today's regime because it counts as capital items that do not receive that treatment today. Moreover, the risk-weightings from the precrisis period are more favorable to banks than today's. On the other hand, choosing the 4 percent level understates the minimum requirement because aspects of the precrisis system were akin to the capital buffers that we count in our current regulatory minimum figure noted below. We do not count those buffers—arising from the well-capitalized level of capital in the precrisis Prompt Corrective Action regime—in our determination of the precrisis minimum. In sum, this suggests that 4 percent is a reasonable selection, recognizing that there are inherent challenges in comparing pre- and post-crisis capital minimums.<sup>26</sup>

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<sup>25</sup> Calem and Rob (1999) find that higher capital requirements can lead banks to take on more risk.

<sup>26</sup> As described in more detail in Section 4, we must use regulatory data on covered banks to complete the calculations. For example, we use data on capital levels and other bank holding company characteristics. We select those data as of year-end 2015. We use year-end data because they make our calculations more tractable with fewer assumptions and data manipulations.

2. *Current Regulations*: As of October 30, 2015, the TLAC proposal identified the maximum level of loss-absorbing capacity for the eight GSIBs to be 23.5 percent, which includes long-term debt of approximately 10.5 percent and common equity of 13 percent. Thus, we use 13 percent as the measure of current minimum capital regulation. This approach is conservative, as the requirement for most banks is below 13 percent. Moreover, banks can take, and have taken, steps to reduce this minimum requirement. As described above, we consider only equity capital to be loss-absorbing, causing us to label the current regulation as a 13 percent target.
3. *Minneapolis Plan Step 1*: As described in Section 1, our proposal's Step 1 target is 23.5 percent. We choose a level around this amount because of our benefit and cost analysis—a minimum capital level between 20 percent and 25 percent has substantial net benefits. (We describe how we determine net benefits in Section 3.1.4.) We choose the exact figure of 23.5 percent because it matches the reasonable amount of loss-absorbing financial resources that the Board of Governors determined the most systemically important covered bank in the United States should hold.
4. *Minneapolis Plan Step 2*: The level of capital that reduces the 100-year chance of a crisis below 10 percent using the IMF database is 38 percent.

Recall that the benefit of higher capital is the reduction in the chance of a bailout, which occurs when a banking crisis happens. We highlight three rows in Table 2. The first highlighted row reports the chance of a crisis and bailout in the next 100 years given the current minimum capital requirement of 13 percent (noted as Current Regulations). That chance is 67 percent. We then highlight the chance of a bailout in the next 100 years under our proposed minimum level of capital of 23.5 percent. The 100-year chance of a bailout under that regime is 39 percent. Finally, we highlight the chance of a bailout after Step 2 of the Minneapolis Plan, which is 9 percent.

TABLE 2

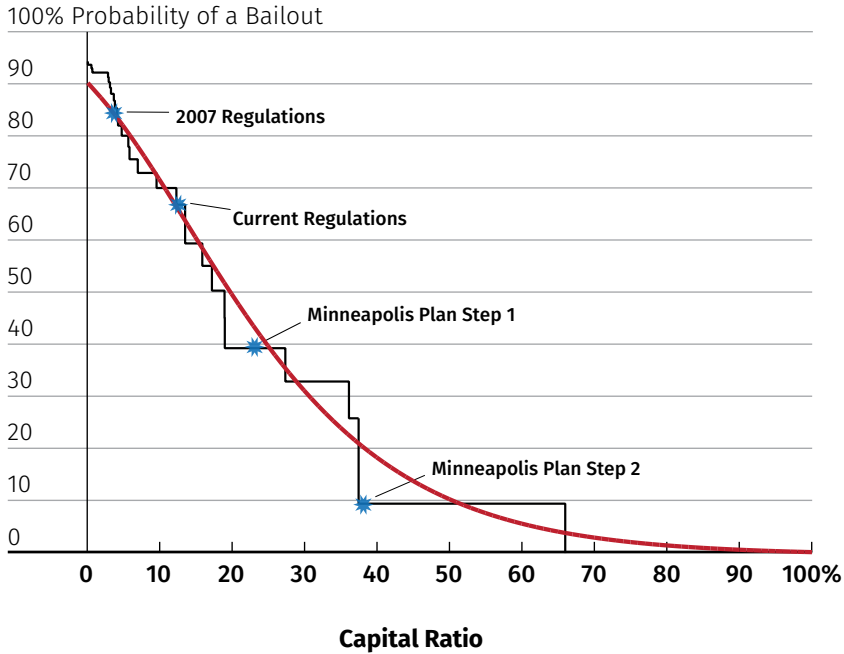
## Chance of a Bailout as a Function of Capital

	Minimum Capital Requirement	Annual Chance of Bailout	100-Year Chance of at Least One Bailout
2007 Regulations	4%	1.79%	84%
	10%	1.19%	70%
Current Regulations	13%	1.09%	67%
	20%	0.50%	39%
Minneapolis Plan Step 1	23.5%	0.50%	39%
	30%	0.40%	33%
Minneapolis Plan Step 2	38%	0.10%	9%
	40%	0.10%	9%

Graph 1 on the following page shows how a change in the capital ratio changes the chance of having a crisis and bailout. This graph also makes clear the limits of working with historical data on banking crises. The black line mapping the relationship between capital ratios is a step function, with portions of the relationship indicating that higher capital ratios would not reduce the chance of a crisis. This reflects the limited observations that are in the IMF data set.

GRAPH 1

## Probability of a Bailout in the Next 100 Years by Capital Ratio



Source: Calculations by the Federal Reserve Bank of Minneapolis

*Alternatives/Sensitivity.* The approach we take to calculating benefits comes with important inherent uncertainty for the reasons already noted. That said, it does not require many assumptions. Thus, there are relatively few variables for which we can choose alternatives to test the sensitivity of our analysis. We did choose to rely on crisis data from OECD countries rather than the full sample. Table 3 reports data if we use the full sample.

There is a relatively technical assumption in the calculation concerning the loss given default (LGD) of failing banks.<sup>27</sup> In this case, LGD is the amount of money that a bank loses when an asset,

<sup>27</sup> DDLRT cite Schuermann (2004), Shibut and Singer (2014), and Johnston Ross and Shibut (2015).

such as a loan or security, enters a state of default. LGD includes the amount that can be recovered. DDLRT cite research that examines recovery rates for securities and loans across different security types, industries, and macroeconomic periods. This work suggests that LGDs can range from 50 percent in normal periods to 75 percent in stressful periods. We take away from this literature that the choice of the LGD comes with much uncertainty, with many factors influencing the LGD. LGDs are higher for more-subordinated securities, for the financial industry, and during economic downturns. LGDs are significantly lower for loans than securities. Furthermore, accounting for industry differences generally removes the importance of economic cycles on the loss rates. Given a set of outcomes ranging from 50 percent to 75 percent across many sets of characteristics, we choose 62.5 percent as the LGD in our calculations, which is the average of 50 and 75. Table 3 provides details of the sensitivity of our probability calculations to this assumption.

Table 3 measures 100-year bailout probabilities for a set of minimum capital ratio targets for the two samples (OECD only and all countries) from the IMF data set. For each data set, the table reports values calculated under a low, medium, and high LGD assumption. Higher LGD choices tend to reduce the benefits of higher capital in these calculations.

TABLE 3

### Sensitivity of Bailout Probability to LGD Assumption and Country Sample Selection

	OECD Countries Only			All Countries		
	LGD Assumption			LGD Assumption		
	50%	62.5%	75%	50%	62.5%	75%
2007 Regulations	80%	84%	88%	91%	92%	93%
Current Plan	55%	67%	70%	86%	88%	89%
Minneapolis Plan Step 1	33%	39%	39%	73%	79%	83%
Minneapolis Plan Step 2	9%	9%	33%	41%	51%	72%

Note: Loss given default (LGD) is the net loss incurred after an asset, such as a loan or security, enters into default. The results reported in the Minneapolis Plan (Table 1) use an LGD assumption of 62.5% and data from OECD countries only. Entries in table are 100-year chance of at least one bailout.

The BIS used an alternative method to calculate the benefits of higher capital in the TLAC proposal. Some BIS calculations justifying higher capital levels find that, relative to our analysis, a lower level of capital would eliminate more future banking crises. Here we explain the differences between our approaches.

Our approach and the BIS approach for calculating the benefits of higher capital have important similarities. Both studies calculate the benefit as equal to the crises avoided by higher capital. Both studies also use the BIS figures for the dollar value saved by avoiding a crisis, which are based on the dollar value of lost GDP from a crisis. Moreover, we both use historical, cross-country data to determine the likelihood of a crisis based on how often crises occurred in the past.<sup>28</sup>

However, we use a fundamentally different approach to calculate how higher capital reduces the chance of a crisis. The BIS looks to a range of models to convert the raw data into an estimate of how higher capital leads to a lower chance of a crisis. The BCBS also looks to reduced-form models, structural calibrated portfolio models, and stress test models to understand the influence of higher levels of capital. The BCBS considers a range of models and finds that 12 percent capital as a share of risk-weighted assets would be associated with a 50 percent chance of at least one bailout over a 100-year period.<sup>29</sup>

We follow DDLRT and do not model this relationship. DDLRT simply calculate the losses associated with a given historical crisis. These losses determine how much capital would be necessary to avoid those crises. We choose the DDLRT approach for two reasons. First, we think the DDLRT approach is the most transparent and requires the fewest assumptions to determine the relationship between capital and the chance of a crisis. The BIS certainly provides details on its calculations. But we believe the DDLRT approach is much easier for an outsider to re-create and judge. Second, the direction of the worldwide regulatory community suggests that the lower levels of capital identified by earlier BIS analysis may be insufficient. In particular, the later BIS analysis behind the TLAC proposal uses a fundamentally different methodology to determine the appropriate level of loss-absorbing capacity for systemically important banks. That analysis supports a much higher level of loss-absorbing capacity than the earlier capital analysis would suggest.<sup>30</sup>

We also note that some BIS analysis of the crisis data would support our recommended level of

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<sup>28</sup> There are a few differences in the data we use relative to the BIS/BCBS. The BCBS analysis includes data from Reinhart and Rogoff (2008). BCBS looks at data from 1985 to 2009, and they look at a different subset of countries than we do (countries in the “G-10 and countries that are members of the Basel Committee on Banking Supervision”).

<sup>29</sup> See BCBS (2010, Table 3). We also note that the capital ratios target coming out of the BIS/BCBS analysis are based on a different definition of capital. This makes direct comparisons with our results more difficult.

<sup>30</sup> The Financial Stability Board’s Impact Assessment assessed the benefits and costs of a TLAC requirement between 16 percent and 20 percent and found that the benefits exceed the costs. (See Financial Stability Board 2015b, p. 5.)

capital. In particular, a review of historical losses and recapitalization needs from the global financial crisis found that the maximum loss and recapitalization need for a systemically important bank was 25 percent of risk-weighted assets (in the case of Fortis). (See Financial Stability Board 2015b.) Our aim is to end TBTF. This goal suggests that we set our minimum capital level at the amount that would have prevented the failure of systemically important banks during the last financial crisis. Indeed, analysis of a broader set of historical banking/financial crises and related losses found that a loss-absorbing capacity of 24 percent of risk-weighted assets would be necessary to absorb the losses from 95 percent of banks.<sup>31</sup> In a relatively similar vein, and even when limiting the analysis to the U.S. experience only, the Federal Reserve found that “the bank holding company with the most severe loss experience during the great financial crisis incurred estimated losses and recapitalization needs of roughly 19 percent of risk-weighted assets.” (See Federal Register 2015.)

The most recent, and in many cases the most rigorous, analyses of the benefits and costs of holding more capital have also supported our key capital recommendation. In particular:

- Passmore and von Hafften (2017) find that the most systemically important banks should face an extra capital surcharge of between roughly 7 percentage points and 14 percentage points on top of their current minimum levels of capital. This surcharge, at its upper ends, would bring capital to a level at or above the proposed minimum of the Minneapolis Plan.
- Firestone, Lorenc, and Ranish (2017, p. 1) conclude that “optimal bank capital levels in the United States range from just over 13 percent to over 26 percent,” with the higher range meeting or exceeding the Minneapolis Plan’s proposed minimum level.
- Egan, Hortacsu, and Matvos (2017, p. 170) report, “Our results suggest that capital requirements below 18 percent allow for equilibria with substantial probabilities of bank default and large welfare losses.” We find the analysis in Egan, Hortacsu, and Matvos (2017, pp. 204-06) to strongly support a capital requirement of right around 23 percent (as found in the Minneapolis Plan) and to potentially support a much higher level (e.g., around 39 percent) consistent with Step 2 of the Plan.

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<sup>31</sup> See the Vickers Report, available at <http://researchbriefings.parliament.uk/ResearchBriefing/Summary/SN06171>.

- Schnabl (2017, p. 44) reviews a wide range of analysis of minimum capital requirements and summarizes that “the required thresholds vary greatly across proposals with recommended capital ratios ranging from 9% to 30%. It is clear that all recommendations come with a number of assumptions on the economic magnitude of the costs and benefits of bank capital. Even though there is no unanimous consensus on the recommended level, none of the proposals recommends a number clearly below 10%, and most proposals recommend a number significantly above 10%. A prudent regulator may prefer a threshold that puts more weight on some of the higher estimates.”
- Barth and Miller (2017) find that increasing the minimum leverage ratio requirement to 15 percent—which matches our recommendation—passes a benefit and cost test.
- Perri and Stefanidis (2017, p. 3) find, “Quantitatively, however, to achieve a sizeable reduction in the probability of bailout, capital requirements should be increased significantly, in the 20% to 30% range.” They find that these results support the recommendation of the Minneapolis Plan but use a completely different methodology to obtain that result.

*3.1.3 Describing the Costs of Higher Capital Analysis and Results.* To calculate the costs of our proposal, we follow the methodology of the BIS and the MAG as closely as we can. We describe the general steps we take under this approach in this section while providing the technical implementation in Section 4.

*Methodology.* The BIS/MAG approach has four main steps. First, the cost of any proposal reflects the amount of new equity capital banks must issue. So we start our analysis by comparing the amount of equity capital banks currently have relative to a target amount. For example, we compare current capital levels for covered banks with the proposed minimum level of 23.5 percent. The difference between the two is the amount of equity capital a bank must raise.

Second, we determine how much it costs a bank to fund itself with that much new equity capital. We use the following logic to determine the cost of the additional equity. The bank has the choice of funding itself with equity or debt. Debt is cheaper than equity in practice because banks can deduct the interest payments on debt, thus reducing their taxes, but they cannot deduct the dividends they pay on equity. Debt is cheaper than equity for other reasons, even if some models of how firms finance themselves suggest that the two have the same cost. We discuss this point shortly. We calculate the cost of equity as being equal to the return on equity that banks earn, while the cost of debt reflects the interest they pay on debt.



Third, we have to determine how banks respond to the higher costs associated with the larger share of equity funding and what that response means for bank customers and the overall economy. Following the BIS methodology, we assume that covered banks are able to pass through some of these higher costs in the form of higher rates on loans. Key questions are how much of the higher costs the covered banks can pass through and how banks that do not face the higher capital requirement respond. The BIS/MAG analysis assumes that banks pass through all of the additional funding costs to their borrowers. This could be justified if the market for loans were perfectly competitive and all banks were subject to additional capital requirements. But only the covered banks face a higher capital regime under our proposal. As a result, our base case is that banks can pass through only half of the higher costs. We discuss this decision below.

Finally, we must model how higher loan rates affect the economy. Higher loan rates should depress economic activity because they raise the cost of borrowing. Higher borrowing costs reduce investment, which should reduce GDP. But by how much relative to what would have occurred absent our higher capital requirement? To answer this question, we follow the BIS method and rely on models of the economy that central banks already use to simulate how a change in one part of the economy can affect another. In our case, we run such a simulation using the FRB/US model. FRB/US is produced and made available to the public by the Board of Governors.

*Key Choices.* Determining the cost of higher capital requirements using the BIS methodology is much more technical and requires many more choices than the calculation of benefits we described above. But we highlight two particularly important choices.

First, as mentioned, we must decide how much of the higher costs faced by banks get passed on to the economy as a whole. The BIS assumes that the entire amount of the higher capital requirement gets passed through to the economy. (See BCBS 2010, p. 2.) This result would hold in a perfectly competitive banking environment where all banks face the same capital requirements. This assumption seems extreme to us given that we are not imposing higher capital requirements on all banks. Moreover, while banks report that they face high levels of competition on a daily basis, they also report an inability to simply pass through all their costs (e.g., regulatory costs).

Alternatively, the Modigliani-Miller theorem would imply that the relative returns on debt and equity adjust and that bank funding costs are not affected by the higher capital requirement. Admati

et al. (2013) strongly advocate for this approach. The tax benefits of debt as well as regulatory issues make it unlikely that Modigliani-Miller holds exactly (Cline 2015). We take a middle road and assume that banks can pass through half of the cost of higher capital as our main estimate. (We report how sensitive our results are to alternative pass-through rates below.)

Second, we must decide whether higher capital requirements for target banks lead to a temporary reduction in GDP or a permanent reduction. The BCBS primarily reports results under the assumption that higher capital requirements have permanent negative effects on output. (See BCBS 2010, p. 29.) However, it also considers the case of transitory effects, primarily through a “credit crunch.” If higher loan spreads persist indefinitely, as we assume, then the permanent-reduction approach seems the better option and is the one that we have taken.

TABLE 4

### Costs of Capital Requirements Relative to Current Regulations

Capital Requirement		Additional Capital Needed (\$ billion)	Cost of Capital Issued (\$ billion)	Increase in Loan Rates (basis points)	Annual Reduction in GDP (%)	Present Value of Reduction in GDP (%)
2007 Regulations	4%	-692	-47	-51	-0.52	-10.93
	10%	-231	-16	-17	-0.17	-3.63
Current Regulations	13%	—	—	—	—	—
	20%	538	37	40	0.40	8.42
Minneapolis Plan Step 1	23.5%	807	55	60	0.60	12.60
	30%	1,306	89	97	0.97	20.31
Minneapolis Plan Step 2	38%	1,921	131	143	1.41	29.69
	40%	2,075	141	154	1.52	32.01

*Key Result.* Table 4 reports the key inputs into our calculation of the cost of higher capital requirements as well as the ultimate estimated cost. Specifically, we report the amount of additional equity capital banks must issue, the cost of that equity capital, the amount by which estimated loan rates will change, and the impact on GDP associated with the adjusted loan rates. We report these cost data for a range of minimum capital requirements all relative to current regulations. To summarize:

- Moving from the current regulations back to the 2007 regulations would reduce costs and increase GDP because the current regulations impose higher capital standards than the 2007 regulations.

The reduction in costs in this case is about 11 percent of GDP.

- Moving from the current regulations to the Minneapolis Plan Step 1 would increase costs and reduce GDP because Step 1 imposes higher capital standards. The increase in costs in this case is about 13 percent of GDP.
- Finally, moving from the Minneapolis Plan Step 1 to Minneapolis Plan Step 2 would increase costs and reduce GDP further because Step 2 imposes even higher capital standards. The increase in costs in this case is about 30 percent of GDP.

TABLE 5

### Sensitivity of Gross Domestic Product to Pass-Through Assumption

Capital Requirement		Reduction in Gross Domestic Product (%)		
		Pass-Through Assumption		
		25%	50%	100%
2007	4%	—	—	—
Current	13%	0.26	0.52	1.05
Step 1	23.5%	0.56	1.12	2.24
Step 2	38%	0.97	1.93	3.81

Note 1: Pass-through is the percent of costs that banks pass on to customers from increasing funding from equity. Zero pass-through means no costs are passed on, while 100% means all costs are.

Note 2: The results reported in the Minneapolis Plan reflect a “Pass-Through” assumption of 50%.

Note 3: All results are reported relative to 2007.

*Alternatives/Sensitivity.* We report how our results change if we alter the key pass-through decision discussed above. Table 5 reports how reductions to GDP would vary for our 23.5 percent minimum capital requirement if covered banks could pass through more or less than the 50 percent of higher loan rates that we assume. If they could pass through the full amount, the additional cost of our proposed higher minimum capital requirement would double from 1.12 percent of GDP to 2.24 percent. The cost of the proposal would fall from 1.12 percent of GDP to 0.56 percent if they could pass through only 25 percent of the higher funding costs. Table 6 replicates Table 1, comparing that table’s 50 percent pass-through assumption with results under the assumption that banks can only pass through 25 percent of their higher costs, which we consider to be more likely than the alternative of a 100 percent pass-through.

TABLE 6

## Sensitivity of Minneapolis Plan Net Benefits to Pass-Through Assumption

	Minimum Capital Requirement	Chance of Bailout (next 100 years)	Net Benefits (relative to 2007) (% of gross domestic product)	
			Pass-Through Assumption 25%	50%
2007	4%	84%	—	—
Current	13%	67%	18	12
Step 1	23.5%	39%	30	19
Step 2	38%	9%	35	15

Note 1: Pass-through is the percent of costs that banks pass on to customers from increasing funding from equity. Zero pass-through means no costs are passed on, while 100% means all costs are.

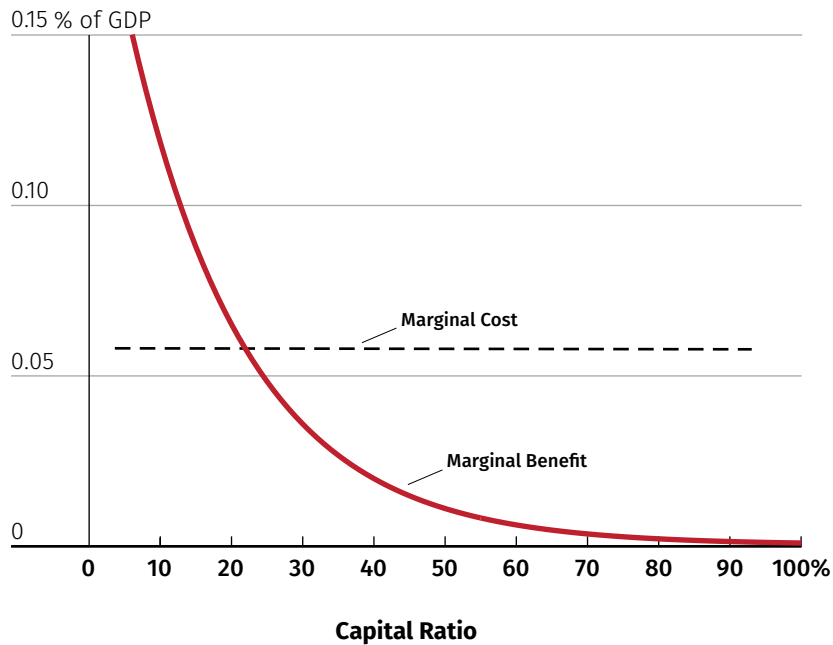
Note 2: The results reported in the Minneapolis Plan reflect a “Pass-Through” assumption of 50%.

Note 3: All results are reported relative to 2007.

**3.1.4 Comparing Costs and Benefits of Step 1.** We noted when describing Table 2 that the 23.5 percent minimum equity capital requirement for covered banks has substantial net benefits. More technically, the 23.5 percent figure is near the point at which marginal benefits equal marginal costs. That is, the cost of one additional unit of capital is equal to the benefit of one additional unit of capital. The costs of higher capital vary (slightly less than) linearly with the required level of capital. As a result, the marginal cost of capital is constant and equal to 5.8 basis points of GDP per percentage point of capital and is shown as the straight line in Graph 2 on the following page.

GRAPH 2

## Marginal Costs and Benefits of Equity



Source: Calculations by the Federal Reserve Bank of Minneapolis

To calculate marginal benefits, we also have to express the benefits of additional capital in terms of output. This means we have to determine what constitutes a reasonable measure of the cost of a crisis. The cost of a crisis multiplied by the chance of a crisis gives us an economic value dollar figure for our benefit calculation. Here, too, we rely on the work of the BIS. As noted, we measure the cost of higher capital as its permanent reduction to GDP. We must measure the cost of a crisis in terms of its permanent reduction in GDP. The BIS finds this amount to be 158 percent of GDP

in present value.<sup>32</sup> The path of output after the most recent financial crisis looks very much like a permanent drop relative to the precrisis trend, and many observers consider that to be the case.

We noted above that our universe of historical banking crises is fairly small, and its distribution is a coarse step function rather than a smooth curve. We will not be able to compare marginal benefits to marginal costs effectively if we use a benefit “curve” that is a step function given that the cost curve is a smooth function. This means we must smooth the benefit data we use to make the marginal benefit and cost comparisons. We use regression analysis along the lines of Board of Governors (2015a) to perform this task.

Finally, we calculate the marginal benefits of higher capital as the incremental reduction in the expected loss of output from a financial crisis. The loss in the event of a crisis is assumed to be constant, but as capital increases, the probability of a crisis falls, but at a decreasing rate. As a result, the marginal benefit of additional capital decreases as the capital requirement increases. This is shown as the red line in Graph 2.

We then determine the point at which the marginal costs of higher capital equal the marginal benefits. Graph 2 shows the marginal benefit and marginal cost curves. The level of capital that sets marginal benefits equal to marginal costs is 22 percent. This is just a little below our Step 1 capital requirement of 23.5 percent, making our choice nearly optimal. Having reviewed our empirical approach for determining the 23.5 percent requirement, we then translate that figure into a 15 percent minimum leverage ratio. Our rationale and empirical method are described more fully in Appendix A.

## 3.2 Calculating the Systemic Risk Charge

**3.2.1 Application of Step 2.** Step 2 of our Plan provides covered banks with two choices, both of which should greatly reduce their potential need for a bailout. Covered banks can restructure or otherwise take steps such that they are no longer systemically important. The Treasury Secretary will

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<sup>32</sup> There is a potentially material but perhaps subtle implication of choosing this particular cost of a crisis figure in our calculation of benefits. We are implicitly assuming that avoiding a banking crisis means that other potentially related events that could also reduce GDP are also avoided. One could imagine that a shock to the banking system that leads to a crisis could independently also shock the rest of the economy. This scenario implies that the economy could have a recession even if the banking crisis is avoided through a proposal like our own. In that case, one would not want to count as a benefit the full reduction in GDP from avoiding a crisis because some fall in GDP might occur even if a crisis does not. We do not make an adjustment to account for this potential for several reasons; most importantly, our overriding strategy of trying to use existing analysis. The BCBS does not make this adjustment in its analysis. We also note that reductions in GDP due to a banking crisis may, in fact, be different from reductions in GDP associated with “regular” recessions. (See Reinhart and Rogoff 2008.) We look only to such banking-crisis related falls in GDP and not regular recessions.

determine if covered banks have reached that goal and will also have discretion to determine if other banks are no longer systemically important. If covered banks do not receive a designation as not systemically important, they will face a capital charge of up to 38 percent, which will be phased in over time. Each year a bank remains systemically important, an additional equity capital requirement of 5 percent of risk-weighted assets will be added to its Step 1 capital charge of 23.5 percent. The 38 percent charge is the point at which the 100-year probability of a crisis falls below 10 percent. At this point, the expected benefits still exceed the expected costs, but not by a large amount. Regardless, at our SRC of 38 percent capital, the likelihood of a financial crisis has been dramatically reduced from 67 percent to 9 percent. Put another way, going above 23.5 percent means that the additional costs exceed the additional benefits, but society is still better off than under current regulations.

We already noted that the 38 percent level for the SRC was chosen to reduce the chance of a bailout to 9 percent while passing a benefit and cost test.<sup>33</sup> In this section, we describe the process by which we think the Treasury Secretary will determine a firm's systemic importance.

*3.2.2 Determining Ongoing Systemic Risk of Designated Systemically Important Banks and Financial Firms.* Step 2 of our Plan gives firms a choice: Cease to be considered systemically important or face the SRC just described. Our Plan will charge the Treasury Secretary with determining if firms remain systemically important. Our charge for the Treasury Secretary regarding determining the systemic risk posed by banks and shadow banks differs from the current framework for assessing the systemic importance of financial firms. Today, the Dodd-Frank Act effectively determines which banks are systemically important, not the Treasury Secretary. The Financial Stability Oversight Committee (FSOC) determines which nonbank financial firms are systemically important.

In our proposal, the Treasury Secretary has responsibility for determining whether or not a bank or shadow bank is systemically important. The FSOC will not carry out its former role in designating nonbank financial firms as systemically important. Of course, systemic risk is inherently hard to measure. Thus, we provide the Treasury Secretary with the ultimate authority to make this determination. The Treasury Secretary can take advantage of the full range of data collection and analysis across the federal government to help identify and respond to systemic risk and financial instability.

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<sup>33</sup> Relative to current regulations, the benefits of this requirement continue to exceed the costs even assuming that all of the banks covered by Step 1 are also covered by Step 2. In this case, we mean total benefits and total costs, not marginal benefits and marginal costs.

The Treasury Secretary would not start the exercise with a blank slate. Bank supervisors, including the Board of Governors, use a set of metrics and measurements to assess the systemic risk posed by banks. They do so in the context of applying a so-called SIFI surcharge to GSIBs.<sup>34</sup> We would call on the Treasury Secretary to look to this measurement approach used by other regulators in determining whether or not a bank poses systemic risk. Of course, this need not be the only methodology, but it could contribute to the Secretary's assessment.

Given that we recommend that the Treasury Secretary start with this approach to assessing systemic risk, it is worth noting that this approach generates a much smaller SRC than our proposal. Thus, we briefly describe why this outcome occurs. The Board of Governors' analysis behind the calibration of the GSIB surcharge chooses an additional amount of capital to equalize the expected loss of a particular GSIB relative to a reference bank holding company that is not a GSIB in the event of a default.<sup>35</sup>

Specifically, a higher capital level is sought for the GSIB to offset the fact that its default would impose more losses on society than a non-GSIB given its systemic nature. Mechanically, this approach attempts to reduce the GSIB's probability of default by an amount that offsets its larger loss given default relative to a non-GSIB.

In the current period, the Board of Governors' approach generates a capital surcharge roughly between 1 and 5 percentage points. As noted, our proposal would impose a much larger effective surcharge for banks deemed systemically important. A bank determined to be systemically important under our proposal could ultimately face a capital charge of up to 38 percent, which is about 15 percentage points higher than banks that the Treasury Secretary affirms are not systemically important.

This difference reflects the fact that we focus on trying to determine the level of equity capital funding banks need to reduce the 100-year chance of a banking crisis to 9 percent. As noted, we use cross-country data on banking crises to make this calculation. In contrast, the Board calibration relies on return on risk-weighted assets experience from large banks in the United States alone and over crisis and noncrisis periods. The use of nonstress periods in this exercise suggests that the

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<sup>34</sup> For a detailed description of the charge, see Board of Governors (2015b).

<sup>35</sup> The underlying data set comes from the Y-9C. It measures returns on risk-weighted assets for the largest 50 bank holding companies quarterly from 1987 to 2014. (See Board of Governors 2015a.)



tail outcomes may not be as extreme as those we are considering. We believe that continuing to focus on the distribution of outcomes from the IMF database is more appropriate and conservative. Specifically, the IMF database includes only financial crisis outcomes.

### 3.3 Empirical Approach for Shadow Banking Tax Recommendations

Setting a capital charge at the level we advocate raises concerns regarding nonbank financial institutions, or shadow banks, with which banks compete but which would not face the same capital standard. The big concern is that bank activities will move to the shadow banking sector, where they could receive less monitoring and fewer constraints. Over time, such movement could erode the ability of the new minimum capital requirement and SRC to end the TBTF problem. This activity could end up being funded with debt, and such leverage is a key source of risk that leads to spillovers. Thus, systemic risk will have shifted rather than declined.

We propose addressing this potential threat by levying a tax on borrowing in the shadow sector. This tax would try to make funding a balance sheet as costly in the shadow sector as in the banking sector. We would apply the tax to the borrowing of firms central to the shadow banking sector, with the determination of those firms informed by FSB analysis. Specifically, we would apply it to firms with assets greater than \$50 billion. We would include off-balance-sheet assets and assets under management in that size definition given the centrality of off-balance-sheet activity to some critical shadow sector firms (e.g., asset managers). Of course, firms and investment vehicles with no borrowings would not pay the tax.

Taxing to discourage borrowing, or at least to not encourage it, in the financial sector is not an original idea (see the literature review below). But there is much less research on applying a leverage tax to the shadow banking system than there is on setting capital requirements. As such, we believe additional analysis and research on this aspect of our proposal will certainly improve it. This additional work would be particularly important for our proposal, as we take a very conservative approach that will impose the tax on borrowing even to firms that have high levels of equity capital.

**3.3.1 Relevant Literature.** Our motivation for the shadow bank surcharge is related to, but different from, most analysis on banks, nonbanks, capital regulation, and taxes or surcharges. The main strand of the literature focuses on the tax-advantaged status of debt in most countries. The favorable treatment of debt in the United States, for example, encourages banks to take on more leverage (all

else equal). Higher leverage raises the chance of bank failure. Moreover, bank failure can impose costs on society that bank owners and managers do not account for, leading to a classic externality problem. This outcome could potentially lead governments to eliminate the preferred status of debt for financial institutions and treat equity more favorably.

Roe and Tröge (2016a,b) argue that reversing the tax-advantaged status of bank debt would substantially decrease the risk in the banking system, allowing for less-stringent bank regulation. De Mooij and Keen (2016) find that favorable tax treatment of debt leads banks to take on more leverage as does Schepens (2015). Panteghini, Parisi, and Pighetti (2012) find that tax reforms in Italy to reduce the tax-advantaged status of bank-issued debt reduced leverage. Devereux, Johannesen, and Vella (2015) have a similar finding, but also report that higher asset risk-taking occurred at the same time leverage fell. Bengui and Bianchi (2014) and Begenau and Landvoigt (2016) examine formally the unintended consequences of regulation over the shadow banking system with the latter estimating an optimal capital charge across the banking and shadow sectors.

Our analysis has some overlap with the literature just summarized. We assume that banks will take on too much leverage under current capital regimes. By too much leverage, we mean that the chance of bank failure remains too high because of the external costs imposed by that failure. But we assume in the Minneapolis Plan that the government will force banks to internalize this externality through a higher capital charge. Thus, the problem is that activity previously conducted in the banking sector may move to the shadow banking sector, which does not face the same capital regime. In response, the government should set a charge that levels this uneven playing field.

In that sense, our review of the literature has focused narrowly on analysis of taxing borrowing in the banking system or at least not subsidizing borrowing in the tax code. There is a much broader and older literature on using taxes to discourage activity that poses spillovers, such as pollution. (See Barthold 1994 and Mankiw 2009.)

There is also a separate and growing literature that examines the risk of the shadow banking system and seeks to limit and manage it using alternatives to a leverage tax. Some of the literature focuses precisely on the potential for higher bank capital requirements to move activity to the shadow sector. See Kashyap, Stein, and Hanson (2010) and Aiyar, Calomiris, and Wieladek (2014) for a discussion of this issue. Ricks (2016) argues for the use of entry restrictions to limit the potential for spillovers from

the shadow banking system. Greenwood, Hanson, and Stein (2016) argue that government should issue additional money-like claims to crowd out the issuance of such short-term debt by shadow banks.

**3.3.2. General Methodology.** Our approach, which we call the “funding equivalence method,” assumes that the new capital charge on banks is optimal and internalizes the externality caused by leverage per Bianchi (2011). The new, higher capital charge increases the overall cost of funds for the bank. The government should want the overall cost of funds in the shadow system to equal the new cost of funds in the banking system in order to level the playing field between sectors. We therefore calculate the charge on the shadow system cost of funds—in particular the costs of debt—so that the cost of funds in the shadow system equals that in the formal banking system. Thus, the shadow system also internalizes the externality of leverage.

We build on Bianchi (2011) by extending the analysis to allow for banks and shadow banks to fund themselves with equity, uninsured debt, and insured deposits. The basic intuition for this approach is as follows: The return on equity is greater than the return on debt, so financial firms would prefer to finance themselves with debt. In this approach, the level of debt without regulation (i.e., a tax on bank debt or a capital charge) is too high due to an externality.<sup>36</sup> The government can counteract the externality by imposing a tax on debt or, equivalently, imposing a minimum capital requirement for banks. Imposing a minimum capital requirement raises the costs of funds and reduces the amount of debt issued by the bank. This reduces the size of bank balance sheets to a more “socially optimal” level.

Under this framework, one can achieve the same “socially optimal” level by imposing a tax on borrowing of shadow banks. That is, given a minimum capital ratio, we can derive an equivalent tax rate for shadow debt borrowing. We take that approach in this section.

Section 4 contains the details of our calculations.

Finally, as a matter of administration, the revenues generated by the tax would not be earmarked for any specific purpose. That is, they would be considered general revenues. Moreover, we expect

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<sup>36</sup> In the decentralized economy, the financial sector is “too big” in the sense that it issues too many loans to the nonfinancial sector (households) that are funded by borrowing on the world market. A tax on bank debt (or a costly capital requirement) raises the cost of bank loans, limiting the size of the financial sector.

shadow banks subject to the tax to take steps to reduce or evade it. We would expect the agency that administers the tax to modify the rules implementing the tax and the methods by which they enforce it in response. This approach should be the case with all well-administered taxes or levies today.

**3.3.3 Key Decisions.** Implementing this approach requires many decisions. First, we use this framework to calculate the tax rate that select shadow banks will pay on all their borrowings. But we could take an alternative approach. Some observers have noted that risk from shadow banks arises from their short-term borrowings. Holders of the short-term liabilities of shadow banks can run, equivalent to runs on banks by depositors. This would suggest that we tax only short-term borrowings of shadow banks. We decided to tax all borrowings for three reasons. First, consistent with an influential framework used by central banks to monitor risks to financial stability, we view leverage as a key source of systemic risk in addition to maturity transformation arising from borrowing short term and holding longer-term assets. (See Adrian, Covitz, and Liang 2014.) Second, we view long-term borrowing as posing its own risk. As noted, we think imposing losses on long-term debt holders of financial firms during periods of market stress can increase financial instability. Finally, by taxing all borrowings, we do not give up the imposition of an additional fee on short-term borrowings.

Second, we must also make a decision about the application of this approach—specifically, which firms will face the tax? To answer this question, we look to the existing literature on shadow banks to determine which types of firms should face the charge.<sup>37</sup> We follow the FSB’s policy framework for the oversight of shadow banks. (See Financial Stability Board 2013.) The FSB instructs authorities to “cast a wide net” and monitor all nonbank credit intermediation. The FSB also urges authorities to focus on activities and firms that increase systemic risk. Within their framework, the FSB begins by identifying nonbanks that engage in financial intermediation activities. It also monitors a narrower set of these firms that perform credit intermediation and have bank-like systemic risks. Thus, we choose to apply the tax to the representative firms that are identified and monitored by the FSB as a part of that narrower subset within its Global Shadow Bank Monitoring Report.

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<sup>37</sup> We consulted work by the Federal Reserve, the Financial Stability Board (2014, 2015a), and the International Monetary Fund (2015). See also Adrian and Ashcraft (2012) and Pozsar et al. (2012).

These entities are:

1. Funding corporations
2. Real estate investment trusts
3. Trust companies
4. Money market mutual funds
5. Finance companies
6. Structured finance vehicles
7. Broker/dealers
8. Investment funds
9. Hedge funds

Our approach does not put insurance firms into the group of shadow banks facing our proposed shadow banking tax. There are strengths and weaknesses with this decision. Supporting it is the view that insurance firms do not engage in the maturity transformation or reliance on short-term funding that typically generates systemic risk. That is, the business model of insurance firms does not justify them paying the shadow banking tax. However, the FSOC has deemed some insurance firms as systemically important institutions. And we know that insurance firms have the capability to engage in risky behavior, either in their core operations or in the form of activities ancillary to the provision of core insurance activities (e.g., AIG’s financial products activity).<sup>38</sup> The FSB’s summary material typically does not point to insurance firms as shadow banks. But we view additional analysis on the systemic risk posed by insurance firms as useful and important to determining if these firms should be subject to a shadow banking tax. Moreover, under our proposal, the Treasury Secretary would have the ability to determine whether to certify that a given nonbank financial firm, such as an insurance firm, is or is not systemically important.

Third, we must also decide if we want to target the tax to specific firms within these general groups. We think it makes sense to focus on the largest firms because they seem to have the most potential to pose systemic risk in the future. We choose a \$50 billion asset threshold, which would include on-balance-sheet assets, off-balance-sheet assets, and assets under management. We choose this level because it is the cutoff in Dodd-Frank for determining which banks are systemically important. We fully recognize

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<sup>38</sup> Concerns about the systemic risk that insurance firms can pose can be found in Kojien and Yogo (2015, 2016).

that choosing this threshold is arbitrary and may not ultimately prove to be the right level. Moreover, choosing a \$50 billion threshold adds complexity to our proposal because this threshold is not the same as the one used for our capital regime for banks. We choose the lower threshold for shadow banks nonetheless because of the uncertainty in knowing which shadow banks pose systemic risk. The riskiness and threat to stability of shadow banks seem much less clear than they are for formal banks. As a result, we would prefer to err by including too many firms to face the shadow tax initially than too few firms. The agency setting the tax should work with elected officials to raise the asset threshold if it develops evidence that the threshold applies to firms it should not. In this same general sense, government agencies have adapted their application of rules over time to account for the fact that smaller firms facing those rules may not pose the same systemic risk as larger firms. It is also worth repeating that the tax applies only to firms that borrow. Firms of any size can escape the tax only by relying on equity funding.

Fourth, we assume that assets held by firms in both sectors are equally risky. This is a simplifying assumption to facilitate the calculation. It is difficult to determine the precise level of risk that assets in the two sectors pose. Thus, this seems like a reasonable assumption, but worthy of additional study and critique.

Fifth, we make this calculation assuming that shadow banks are not funded with any equity. In one sense, this is an extreme assumption. Many shadow banks are funded with very high levels of equity relative to commercial banks. Nonetheless, our Plan does not reduce its tax rate on borrowing in relation to any such equity levels. Why not? We want the tax to discourage shadow banks across the board from borrowing in the future to take on new activities that formal banks shed. As such, we set the tax high right away, avoiding the need to try to play catch-up once shadow banks have already leveraged up to formal bank levels. We also note an alternative approach below that would more directly take account of the equity of shadow banks in the setting of the tax.

**3.3.4 Key Result.** Using our method, we estimate that the shadow banking surcharge should be 1.2 percent on the principal value of debt issued by shadow banks if a capital requirement of 23.5 percent was set on large U.S. banks in Step 1. As noted, shadow banks that continue to pose systemic risk would face a higher tax rate of 2.2 percent, which is equivalent to the SRC of 38 percent on covered banks.

We do not present an explicit comparison of benefits and costs of the shadow banking tax. That said, the benefit and cost analysis we conducted for banks is embedded in our shadow banking

tax proposal. First, consider the cost of our proposal. The purpose of the shadow banking tax is to prevent intermediation activities from moving out of the regulated banking sector into the generally unregulated shadow banking sector after the higher equity requirement of Step 1 is imposed. As a result, the tax would raise the cost of funds for shadow banks, increasing the rates they would charge their borrowers, analogous to what would happen in the regulated sector. Our cost calculations do not distinguish the source of borrowing for nonfinancial corporations. So our calculations of the cost of equity already include the costs imposed by the shadow banking tax.

As for the benefits, we have insufficient data on the balance sheets of shadow banking firms. We have implicitly assumed that by limiting the growth of the shadow banking sector with the tax, we have prevented risk from moving from the regulated sector to the shadow sector. Thus, the benefits from the tax should be similar to the benefits from the higher equity requirement.

*3.3.5 Alternatives/Sensitivity.* We considered three alternatives to our current approach.

First, an alternative framing of a tax on leverage in the shadow sector starts by noting the current practice of subsidizing leverage through the favorable tax treatment of debt. From this view, the first step is to eliminate this tax advantage before setting up a new tax. Our proposal effectively has that result. We would still generate a positive tax rate for shadow banks under our methodology, even if we assume the removal of formal banks' and shadow banks' tax preference for issuing debt. Put another way, our proposal has the effect of removing the tax preference for issuing debt in the course of also equalizing funding costs between banks and shadow banks. Specifically, eliminating the tax deductibility of debt accounts for 0.4 percentage point, or one-third, of the original 1.2 percent shadow banking tax. The remaining two-thirds of the tax serves to internalize the externality imposed by excessive borrowing.

Second, the tax rate could vary with the debt share of liabilities. Less debt would imply a lower tax rate. As equity increases from our assumed value of zero, the tax rate required to equalize the cost of funding across sectors falls. Given our choice of returns, a shadow firm with roughly 18 percent equity has the same cost of funds<sup>39</sup> with a tax rate of 0 percent as one of our covered banks or a shadow bank with no equity and a 1.2 percent tax on debt. Another alternative is a tax schedule that is an increasing function of a shadow bank's leverage to induce firms to fund themselves with

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<sup>39</sup> The funding equivalence holds with 18 percent equity rather than 23.5 percent because shadow banks are not able to fund themselves with relatively low-cost insured deposits.

enough equity. The tax on debt would be very low, perhaps zero, for debt below 76.5 percent of liabilities. Above 76.5 percent, the tax on debt would be significantly above zero and perhaps even increasing in leverage. This would induce firms to satisfy the 23.5 percent equity requirement by their own choice. We chose not to pursue either of these approaches in the name of simplicity.

In a third and completely different approach, capital requirements could be set for shadow banking firms equal to the levels we propose for banks. In fact, we view this approach as attractive in concept as it is the most direct and does not require trying to relate a tax charge to a capital charge. But we do not view this potentially first-best option as available in practice. In particular, shadow banks exist across many industries, activities, and current regulatory regimes. It is not clear how practical it would be to set capital requirements equal given this institutional structure. Bank supervisors faced significant challenges in determining how to set capital levels for systemically important insurance firms. A tax would cut through this organizational and legal challenge. Our approach requires the government to try to equalize the cost of funding in both formal and shadow banking sectors. This is clearly difficult to do and comes with a high degree of uncertainty. Nonetheless, a tax seems more practical than the alternatives.



## SECTION 4

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# Technical Calculations for the Capital Requirement and Leverage Tax Recommendations

This section provides the technical details behind our calculations used to support and define our capital and leverage tax recommendations.

### Calculations Supporting Capital Requirement Recommendations

We make two calculations to support the capital recommendations that we describe in more detail in this section. First, we calculate the benefits of higher capital requirements. Second, we calculate the costs of higher capital requirements. We now provide a more technical discussion of our analysis than in Section 3.

#### *Calculating the benefits of higher capital requirements*

We estimate the benefits of the Minneapolis Plan using the IMF database of past banking crises and nonperforming loan (NPL) rates. To measure the number of crises avoided by particular capital ratio levels in this database, we must convert NPLs to losses and then to equivalent capital ratios. For a given capital ratio, the percentage of crises avoided can then be converted to an annualized bailout probability as well as a 100-year bailout probability.

As noted above, we follow DDLRT to calculate losses as a share of estimated risk-weighted assets. We utilize their measurements of peak NPLs for the crises in their database. NPL rates are converted to loss rates by multiplying by LGD. DDLRT adjust these loss rates further by using an estimate of prior loss provisioning and an uncertainty buffer. Loss provisioning is measured as a share of loans and is meant to capture how an average firm might prepare for expected losses. The uncertainty buffer is simply used to account for some of the uncertainty in this calculation. The rates are then converted to a capital ratio by multiplying by an estimate of the ratio of total assets to risk-weighted assets (RWA). This final step sets the ratio in terms of risk-based capital needs.

We operationalize the DDLRT NPL conversion using the following equation per the description above (except for LGD, whose derivation was already discussed). The formulas and numerical values below come from DDLRT.

$$\text{Adjusted Losses/RWA} = (\text{NPL} \times \text{LGD} - \text{provisions} + \text{buffer}) \times (\text{RWA conversion})$$

where

LGD	= Loss given default of 62.5%
provisions	= Prior provisioning equal to 1.5% of the loan base
buffer	= A 1% “safety buffer” to account for parameter uncertainty
RWA conversion	= A factor of 1.75

Inserting these values into the equation above, the final version of the DDLRT approach we use to convert NPLs into capital ratios is then:

$$\text{Implied Capital Ratio} = \text{Adjusted Losses/RWA} = (\text{NPL} \times 0.625 - 1.5 + 1.0) \times (1.75)$$

We can now determine the number of crises avoided in the IMF database given a particular capital target. We further transform the number avoided to an annual bailout probability by multiplying the percentage of crises avoided by the unconditional probability of a crisis in the database. The unconditional probability of a crisis for OECD countries is approximately 3 percent.<sup>40</sup> Finally, we transform the annual bailout probabilities into 100-year bailout probabilities:

$$\begin{aligned} \text{Annual Chance of a Bailout} &= (1 - \% \text{ of crises avoided}) \times \text{Probability of a crisis} \\ \text{Probability of Bailout} \\ \text{over the next 100 years} &= 1 - (1 - \text{Annual Chance of a Bailout})^{100} \end{aligned}$$

### *Calculating the costs of higher capital*

We measure the cost of higher capital requirements in terms of lost GDP due to tighter lending conditions. This calculation requires a number of steps. We trace the impact of higher capital requirements to lower bank return on equity (ROE) and then to higher loan rates. Higher loan rates slow economic growth by restricting borrowing. As noted above, this approach closely follows the BIS.

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<sup>40</sup> The IMF database reports 28 OECD crises over the period from 1970 to 2011. These crises represent 24 countries. Thus, we measure the probability as 28 crises divided by 1008 country-years.

In response to higher required capital levels, we assume that banks issue more equity and raise income by increasing their lending rates. To gauge the magnitudes of these changes, we proceed as follows:

- We first calculate the amount of equity that domestic covered banks will have to issue under a 23.5 percent CET1 capital standard by obtaining their equity levels as of fourth quarter 2015 from regulatory reports (the Y-9C) and subtracting that level from the mandated minimum level we are analyzing.
- Next, we determine the cost of issuing additional equity by assuming that covered banks pass through half of the higher costs of equity by increasing interest rates. At the same time, they suffer a decline in their ROE in order to make up the rest. The additional cost is borne by the covered banks in the form of lower net income.

This step requires us to gather information on both the ROE and the cost of debt as firms will be replacing existing liabilities with higher-cost equity as well as losing net income.

### *ROE*

We obtain data on ROE from FactSet Data Systems. We calculate the median annual ROE for each covered bank in the 2010 to 2015 time period. We then calculate the asset-weighted average to use as an approximation of covered bank ROE.

### *Cost of Debt*

We obtain daily average credit spreads across all outstanding debt collected in the Moody's KMV database for each year from 2010 to 2015. We also obtain daily average five-year CMT rates from the St. Louis Fed (FRED) database in the 2010 to 2015 time period as the base for determining an estimated yield. For each year, we add the spread and rate averages together. As with ROE, we calculate the median annual rate for each covered bank. We then calculate an asset-weighted average to determine the estimated cost of debt for the industry.

*Incremental Spread Formula*

Using estimates of ROE and cost of debt, we next calculate the increase in loan spreads that will be passed through to borrowers. We assume that the firms will seek to maintain their ROE but will be able to pass through only half of the increased cost. As a result, the cost of equity is largely determined by ROE.

To maintain ROE, the firm must offset the additional equity cost with higher net income. For each percentage point increment of required equity, the firm must earn:  $(ROE \times \text{New Equity})$ . At the same time, as they switch from equity to debt, they no longer have to pay for as much borrowing, saving them:  $(r \times \text{New Equity})$ . We use the following formula to estimate the increment to loan spreads the banks will pass through as a share of loans:

$$\text{Incremental Loan Spread} = 0.50 \times (ROE - r) \times (\text{Target} - \text{Current}) \times (\text{RWA} / \text{Loans})$$

where<sup>41</sup>

ROE	= Estimated ROE for the Covered Banks (8.58%)
r	= Estimated after-tax yield on Covered Bank debt (1.78%)
Target	= Target CET1 Capital Ratio (23.5% or 4%)
Current	= Current CET1 Capital Ratio (13%)
RWA	= Covered bank risk-weighted assets (\$7.684 trillion)
Loans	= Loan base to which we apply the incremental spread income (\$4.578 trillion)

We multiply this number by 10,000 to obtain basis points.

- To compare the cost of the current regulations with the Minneapolis Plan, we make separate incremental loan spread calculations. The results from these calculations are reported in Table 4 above. We provide the details for two examples on the following page.

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<sup>41</sup> The \$7.684 trillion and \$4.578 trillion numbers are aggregated Y-9C values for the targeted banks as of year-end 2015. Returns are also measured as of year-end 2015.

1. For Step 1 of the Minneapolis Plan, we perform the following calculation to find that the incremental spread (that is, the increase in loan rates from those under current regulations) equals 60 basis points:

$$60 \text{ bps} = 10,000 \times 0.50 \times \{(8.58\% - 1.78\%) \times (23.5\% - 13\%) \times (\$7.684 \text{ trillion} / \$4.578 \text{ trillion})\}$$

2. For the Current Regulations, we adjust the (Target – Current) quantity. In this case, we consider the “Target” to be the 2007 regulatory requirement of 4 percent. Thus, we measure the incremental spread of reducing capital from 13 percent to 4 percent of risk-weighted assets. We keep all other values in the formula the same, as they are representative of the current cost of debt and equity in the industry as well as updated regulatory requirements.

$$-51 \text{ bps} = 10,000 \times 0.50 \times \{(8.58\% - 1.78\%) \times (4\% - 13\%) \times (\$7.684 \text{ trillion} / \$4.578 \text{ trillion})\}$$

These estimated spread changes are used in the next step.<sup>42</sup>

- Finally, we calculate how much the incremental loan rates change GDP by using the FRB/US model. In particular, we adjust the spread between the yields on corporate debt relative to 10-year Treasuries by the incremental loan spread calculated above.

We now discuss the GDP calculation in more detail. The costs of higher capital requirements were computed via simulation using the FRB/US model.<sup>43</sup> FRB/US is a large macroeconomic model developed for forecasting, simulating alternative scenarios, and evaluating policy options. We used the publicly available version of the model posted in June 2016. This package includes all of the model equations and coefficients as well as a database that includes historical data starting in the first quarter of 1968 and a projection that extends through the fourth quarter of 2100. The first few years of the projection are designed to be roughly consistent with the Summary of Economic Projections from the June 2016 Federal Open Market Committee meeting. Beyond that, the projection converges to an illustrative, but arbitrary steady-state path.<sup>44</sup>

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<sup>42</sup> To calculate the GDP effect, we feed a 51-basis-point reduction in spreads into the FRB/US model, which will cause an increase in the estimate of future GDP. The potential “improvement” in GDP is the number we present in Table 4.

<sup>43</sup> See the model at <https://www.federalreserve.gov/econresdata/firbus/us-models-about.htm>.

<sup>44</sup> FRB/US does not have an analytical steady state.

The FRB/US model does not have a banking sector. However, it does include a wide range of interest rates for both public and private securities. This allows different interest rates to be used to determine desired levels of investment for different types of durable goods (consumer durables, housing, and several categories of business investment). Given this structure, we assume that the increase in loan rates resulting from the higher capital standards applies to commercial lending. The relevant interest rate for these loans is the corporate bond rate. We implement the higher loan rates by increasing the spread between corporate bonds and 10-year Treasuries. Two other interest rates that affect private sector spending decisions are the mortgage and auto loan rates. For the simulations we ran, imposing the same increase in spreads on these rates results in transitory effects. In addition, the vast majority of mortgages are securitized by the government-sponsored enterprises, and there is a wide range of banks and credit unions not covered by our Plan that issue auto loans. Consequently, we decided to restrict our attention to increased corporate spreads.

The simulations start in the first quarter of 2050, after the projection has converged to its illustrative steady state path. We assume the standard FRB/US VAR-based expectations for forward-looking equations and that monetary policy follows an inertial version of the Taylor rule.<sup>45</sup> We impose the increased bond spreads by choosing add factors on the equation for the corporate bond premium using automated procedures that are included in the FRB/US package.

We run the simulations for 10 years and consider the percentage deviation of output from its baseline path. As mentioned earlier, the FRB/US does not have an analytical steady state, and when faced with a permanent shock like the one we are imposing, the model may or may not settle into a new steady state. We chose to stop our simulations after 10 years because output growth beyond that point is within a fraction of a basis point from baseline for a 1-percentage-point increase in capital ratios.

Because we consider the effects of a crisis and the costs of higher capital to be permanent, we can compare the two either annually or in present value. We assume a discount rate of 5 percent as in BCBS (2010). They report a median permanent decrease in GDP from a crisis of 7.5 percent. So the present value of the cost of a financial crisis is 158 percent of GDP.

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<sup>45</sup> In particular, the monetary policy reaction function is  $R_t = 0.85R_{t-1} + 0.15(1.09 + \pi_t + 0.5(\pi_t - 2) + x_t)$  where  $R_t$  is the federal funds rate,  $\pi_t$  is four-quarter core PCE inflation, and  $x_t$  is the output gap. Using a non-inertial version of the rule yields a negligibly larger output effect.

*Calculating the Leverage Tax.* The leverage tax calculation takes the following form:

Let  $r^E$ ,  $r^D$ , and  $r^I$  be the return on equity, debt, and insured deposits. The cost of funds for a regulated bank allowing for a (binding) capital ratio,  $\gamma$ , and insured deposit share,  $\delta$ , is:

$$\begin{aligned} [E(1+r^E) + D(1+r^D) + I(1+r^I)]/A &= [\gamma A(1+r^E) + (1-\gamma-\delta)A(1+r^D) + \delta A(1+r^I)]/A \\ &= \gamma r^E + (1-\gamma-\delta)r^D + \delta r^I + I \end{aligned}$$

The cost of funds for an unregulated financial institution, subject to the tax on debt,  $\tau$ , is:<sup>46</sup>

$$I + r^D + \tau.$$

Setting the two terms equal to each other allows us to solve for  $\tau$  in terms of the returns, the capital ratio, and the deposit share:

$$\tau = \gamma (r^E - r^D) - \delta (r^D - r^I).$$

## Implementation

We implement the methodology as follows:

Capital Ratio Target ( $\gamma$ )	= 23.5 or 38%
Return on Equity ( $r^E$ )	= 8.58%
Return on Debt (after-tax) ( $r^D$ )	= 1.78%
Return on Insured Deposits ( $r^I$ )	= 0 or 1%
Insured Deposit Share of Assets ( $\delta$ )	= 21%

- We have established a capital target ( $\gamma$ ) of 23.5 percent of risk-weighted assets.
- We assume that the return on equity and debt of nonbanks is the same as for banks. As reported above, the return on equity for these firms is 8.58 percent. Their debt has an after-tax yield of 1.78 percent.

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<sup>46</sup> Bianchi (2011) imposes the tax on the principal and interest paid on the debt. All debt is short term in his model. We choose to impose the tax on the principal alone to avoid any bias in favor of shorter-maturity debt that typically carries a lower interest rate.

- To start, we assume the interest rate on insured deposits to be zero.<sup>47</sup>
- The firms subject to our capital charge have insured deposits equal to 21 percent ( $\delta$ ) of assets. Allowing for this reduction in the cost of funds for regulated banks implies a tax on shadow bank debt of 1.2 percent.<sup>48</sup>
- Banks incur costs to maintain deposit accounts, such as FDIC assessments, which can be as high as 45 basis points, and other costs associated with servicing depositors. So it should be safe to assume a value for  $r^d$  greater than zero. With those and other costs in mind, we consider  $r^d = 1$  percent. In this case, the equivalent tax on debt held by shadow banks would be about 1.4 percent. More generally, given the assumptions we have made about returns, a 1-percentage-point increase in the cost to regulated banks of insured deposits results in a 0.15-percentage-point increase in the tax on shadow bank debt.
- Applying the equivalent of the SRC to shadow banks (i.e., setting the tax to approximate a 38 percent capital requirement) adds roughly 100 basis points to the tax rate. So shadow firms would face a tax of 2.2 percent, assuming a zero cost of insured deposits, or about 2.3 percent, assuming a 1 percent cost of deposits.

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<sup>47</sup> In November 2016, deposit rates were very close to zero. Short-term interest rates have increased several times since then, but deposit rates remain sufficiently low as to not materially change our results. A 100-basis-point increase in the deposit rate results in a 21-basis-point increase in the tax rate.

<sup>48</sup> We assume, for this calculation, that shadow banks fund themselves entirely with debt; thus, the debt of the sector equals the assets of the sector. Relaxing that assumption, that is, allowing for shadow bank equity, would reduce the tax rate required to equalize funding costs.



## SECTION 5

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# The Banking and Financial System Post-Proposal Implementation

The banking and financial system should look substantially different after implementation of our proposal than it would have looked otherwise. In particular, we envision a future where the financial system is much more stable and financial firms are not TBTF. While any forecast of the future is inherently uncertain, we would expect the following to occur.

- The small number of the largest banks that exist today will control a much smaller share of total banking assets in the future. These banks will have to break themselves up to become no longer systemically important firms as judged by the Treasury Secretary. At the same time, smaller banks that will have a bigger gap in their capital relative to larger banks should pick up market share. This will lead to a more-stable and less-concentrated banking sector.
- The largest banks will pose a much lower systemic risk to the economy. Most of these banks will become relatively smaller as just noted. Moreover, the manner in which they have reorganized will make them less systemically risky. Banks will have to receive the designation as not systemically important to avoid the higher capital requirement of Step 2, which encourages them to break themselves up in a manner that reduces systemic risk. Banks that fail to receive the designation as not systemically important will have to fund themselves with a substantially higher amount of equity, making their failure remote. Again, the banking system will become more stable.
- Large but not systemically important banks will fund themselves with much higher levels of equity than they do today. This means that large banks have a lower chance of failure and that their failure poses lower risks of spillovers given that all other large firms will be exceptionally well capitalized and thus can better absorb losses.
- Community banks will become more vibrant facing a more appropriate and risk-focused supervisory and regulatory regime. This regime will not give up on preventing community bank failures, nor will it stop consolidation arising from pure market forces, but it will reduce unnecessary costs.

- Shadow banks will be less systemically risky than they would be otherwise. The Treasury Secretary will have to review all designated shadow banks with assets greater than \$50 billion to determine if they are systemically important. All of these shadow banks that are not systemically important will face a new shadow banking tax on borrowings that discourages them from taking on leverage. Thus, these firms will be less systemically risky than they would be otherwise.

## APPENDIX A

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# The Leverage Ratio in the Minneapolis Plan

A primary recommendation of the Minneapolis Plan is setting a minimum equity capital requirement for covered banks at 23.5 percent. This figure measures equity capital as a share of risk-weighted assets. We note that the equivalent leverage ratio is 15 percent of total assets.

In this appendix, we explain why we recommend a leverage ratio target and how we calculate it.

We recommend the use of a corresponding leverage ratio target to avoid cases where the risk weights assigned to a given asset type are too low. In those cases, the amount of equity a bank funds itself with relative to its underlying risk would also be too low, and the bank would pose a higher chance of failure, all else equal. We do not rely exclusively on a leverage ratio because that approach treats all assets as equally risky and thus potentially does not align capital with bank risk-taking.

We derived the 15 percent proposed leverage ratio that corresponds to our proposed risk-weighted asset capital ratio recommendation with a simple transformation. First, we calculated the average relationship between the total assets that covered banks report in their leverage ratio and the risk-weighted assets they report. Second, we used that estimate to convert our 23.5 percent risk-weighted asset capital ratio to the simple leverage ratio. We used measures of on-balance-sheet assets in this calculation.

Specifically, we calculated that total assets for covered banks were 1.6 times risk-weighted assets using year-end 2015 data. We divided 23.5 by 1.6 to come to the corresponding leverage ratio of 14.6, which we rounded to 15.

Banks also have what are called “off-balance-sheet” assets. For example, a bank may enter into a financial contract that could expose the bank to future loss just as traditional loans do. Under certain conditions, the bank may not have to account for this contract as an on-balance-sheet asset in the current period. There are leverage ratio measures that include these off-balance-sheet exposures as a part of total assets in the calculation.

If we had used measures of total assets that accounted for off-balance-sheet assets in our calculation, the leverage ratio equivalent to 23.5 percent would have been 13 percent, lower than 15 percent. Why? Because total asset measures that account for off-balance-sheet assets, usually referred to as “total exposures,” are larger than the total asset measures that do not.

We calculate a simple leverage ratio that does not account for off-balance-sheet exposures because:

- There is no one single “correct” leverage ratio. There are multiple legitimate measures. Throughout our analysis, we have used the simplest approach when we have multiple, reasonable options. We use the basic approach in this case as well.
- Many important uses of capital measures continue to use a simple leverage ratio, which is based on the on-balance-sheet asset approach. For example, we believe the “stress test” run by the Federal Reserve System is a particularly important supervisory exercise for the most systemically important banks. The stress test continues to use a simple leverage ratio measure, among others, to assess the post-stress capital position of banks.
- The broader measures of leverage based on total exposures also typically allow for certain non-equity forms of capital to count in the numerator of the ratio. We oppose such inclusion.
- The data to convert our risk-weighted target to a leverage target using the broad measure of assets were not available for inclusion in the November 2016 draft Plan.

## APPENDIX B

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### Ending TBTF Initiative Process

**B**uilding upon the Federal Reserve Bank of Minneapolis' expertise in the area of Too Big to Fail (TBTF), President Neel Kashkari used his first public speech in February 2016 at the Brookings Institution in Washington, D.C., to launch an initiative aimed at addressing excessive risk posed by TBTF financial institutions.<sup>49</sup> In his announcement, Kashkari committed to considering a broad range of policy solutions and putting forth a draft Minneapolis Plan by the end of 2016 for legislators, policymakers, and the public to consider.

The first phase of the initiative was rooted in hosting four policy symposiums based upon rigorous exploration and discourse, starting out with broad topics and then revisiting promising ideas with sharper analysis. From the outset, Kashkari pledged that the Ending TBTF initiative would be open and accessible to all. The dual goal of this transparent approach was to explore and analyze substantive solutions through the gathering of economists, policymakers, and other issue-area experts, while also educating the public about TBTF issues through open public forums. In this spirit of open and public discourse, all symposiums and public events within the Ending TBTF initiative were live-streamed and archived on the Minneapolis Fed website.<sup>50</sup> The public has also been encouraged to interact by engaging through social media using the hashtag #EndingTBTF or submitting their input and ideas online.<sup>51</sup>

Upon publication of the draft Minneapolis Plan in November 2016, the second phase of the initiative commenced with a two-month public comment period that welcomed feedback and constructive input. The feedback received during this period became the basis of the response document that details the comments received and the revisions made to the November 2016 draft Plan. In addition to revising the draft Plan, the Minneapolis Fed continued its effort to educate the public about the continuing risk of Too Big to Fail through speaking engagements and written pieces published as traditional newspaper op-eds and online postings.

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<sup>49</sup> Read the full speech at <https://www.minneapolisfed.org/news-and-events/presidents-speeches/lessons-from-the-crisis-ending-too-big-to-fail>.

<sup>50</sup> See the Minneapolis Fed Ending TBTF website at <https://www.minneapolisfed.org/publications/special-studies/endingtbtft>.

<sup>51</sup> Public input and ideas were collected at <https://www.minneapolisfed.org/publications/special-studies/endingtbtft/share-your-ideas>.

Appended below is a presentation of:

- Summaries of the four policy symposiums in the Ending TBTF initiative,
- A Request for Comments on the draft Minneapolis Plan, including a 60-day open comment period and a list of specific questions aimed at inviting feedback on particular elements of the draft Plan.
- Commentary about Too Big to Fail that President Kashkari published after release of the draft Plan, and Descriptions of public engagements organized to educate the public on the process and substance of the Ending TBTF initiative.

## FIRST ENDING TBTF POLICY SYMPOSIUM, APRIL 4, 2016

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### Minneapolis, Minn.

The first symposium focused on two specific transformational proposals for ending TBTF—higher capital requirements and limits on bank size—and featured a keynote address by a former Federal Reserve governor, who discussed the appropriate role of weighing both costs and benefits in financial regulation.<sup>52</sup>

#### Panel 1: Substantially increasing capital requirements

In the first panel, Anat Admati<sup>53</sup> proposed that banks substantially increase their equity to as much as 30 percent, a level comparable to nonbanks. More equity means banks can absorb greater losses on their assets before they become insolvent. Here are her main points:

- The failure of systemically important banks generates significant harm to society that banks do not consider when they decide to grow or take on risks. Higher capital requirements would reduce risk of harm.
- Large banks are very risky institutions—they are opaque and complex, making orderly resolution difficult. Passing a stress test is no guarantee of even medium-term solvency. Society is better off trying to prevent their failure than trying to make their failure “safe.”
- Even under Dodd-Frank Act regulation, capital ratios continue to be tiny, on the order of 4 percent. Moreover, these capital figures are misleading because they rely a great deal on complex accounting done by the banks. Leading up to the failure of Lehman Brothers in 2008, banks that later failed had about the same, if not slightly higher, capital ratios than banks that did not fail.
- Moreover, regulatory capital requirements have been shown in many cases to be poorly designed. For example, sovereign debt held by European banks was considered risk-free (and required no capital be held against it), but turned out to be quite risky.

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<sup>52</sup> See the first symposium’s agenda and materials at <https://www.minneapolisfed.org/publications/special-studies/endingtbtfsymposiums/april-4-ending-too-big-to-fail-symposium-summary>.

<sup>53</sup> George G.C. Parker Professor of Finance and Economics at the Graduate School of Business, Stanford University.

- Banks argue that they cannot operate with higher capital requirements, because it would be too costly and would reduce their ability to provide loans. But compared with nonbank firms, banks have much less capital and are much more likely to make regular payouts to shareholders. Both have risky, long-term, illiquid assets and can use retained earnings (or new shares) to grow. But nonbanks typically have at least 30 percent equity funding (and often more) as a share of assets and often go long periods of time without making payouts to shareholders. Banks, however, rarely have as much as 6 percent of assets funded by equity and typically make payouts to shareholders unless they fail a stress test.
- Current plans to make banks more able to absorb losses would allow banks to issue debt that converts to equity and count that debt as a buffer to absorb losses. That debt approach is largely untested, but experience with it so far suggests that it will not work. Issuing more equity would be more straightforward and effective.

The views of the panel<sup>54</sup> ranged from support for higher capital requirements to opposition:

- Supporters highlighted analysis suggesting that the benefits of increasing capital (to up to two times the current requirements) exceed the costs. They also pointed out the simplicity of higher capital requirements compared with the current system, and argued that the current approach is too complex and will not work in practice.
- Other panelists noted that it was difficult to determine how much capital banks should hold. They argued that measurement of the implied government support that firms might get is needed to set capital requirements, tax rates or premiums to encourage banks to curtail risks.
- Still other panelists argued that current approaches will work. They noted that current capital stress tests are precisely about ensuring that banks do not fail in a bad state of the world. Banks have a lot more capital now than in 2008, and the stress tests have gotten harder since the first one in 2009. They also argued that the costs of capital were real and that higher capital would lead to lower economic activity.

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<sup>54</sup> Deborah Lucas, Distinguished Professor of Finance at the Massachusetts Institute of Technology Sloan School of Management; Adam S. Posen, President of the Peterson Institute for International Economics; Til Schuermann, Partner, Finance & Risk and Public Policy Practices at Oliver Wyman, and former Senior Vice President of the Federal Reserve Bank of New York; Philip Swagel, Professor of International Economics at the University of Maryland's School of Public Policy and Senior Fellow at the Milken Institute.



## Panel 2: Altering the organizational structure of financial institutions

In the second panel, Simon Johnson<sup>55</sup> proposed that the size of banks, as measured by “total exposure” reported to the Federal Reserve System, be capped at 2 percent of GDP, or about \$350 billion. For institutions with exposures above this threshold, he proposed imposing stringent capital requirements. He defended his 2 percent threshold by noting that:

- Lehman Brothers had assets in excess of \$600 billion when it failed in September 2008, and Bear Stearns had assets of nearly \$400 billion when it was saved. In contrast, smaller firms, such as CIT Group (about \$120 billion in total exposures) were allowed to fail without causing damage to the broader financial system. If all banks were small enough, they could fail without the need for bailouts or large costs for society.
- The size cap would impact the following 10 banks, listed here with total exposure in 2014: JP Morgan Chase (\$3.7 trillion); Bank of America (\$2.8 trillion); Citigroup (\$2.8 trillion); Wells Fargo (\$2.2 trillion); Goldman Sachs (\$1.5 trillion); Morgan Stanley (\$1.3 trillion); US Bancorp (\$539 billion); PNC (\$460 billion); Bank of New York Mellon (\$418 billion); and HSBC North America (\$417 billion). The framework for resolution of large, complex financial firms is clearer now than in 2008, but there are still substantial residual risks associated with resolving these firms, especially regarding their global footprints.
- Measured in terms of shareholder equity divided by total exposure, bank capital is still quite low even after the post-crisis regulatory changes. Firms could still fail in the event of a large adverse shock.
- Some risk-taking by large banks has been limited by the Volcker rule and other provisions of the Dodd-Frank Act, but the performance of these provisions under stress remains untested.
- These regulations could be implemented under existing legislation.
- Stringent capital requirements for banks above the threshold would lead boards of directors and management to reorganize and break up their firms.

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<sup>55</sup> Ronald A. Kurtz (1954) Professor of Entrepreneurship, Sloan School of Management, Massachusetts Institute of Technology.

- Large banks are a relatively recent phenomenon, and there is no evidence that their rapid growth over the past two decades has enhanced growth of the U.S. economy. However, the size and willingness of large financial institutions to take on bigger risks did contribute to the severity of the crisis in 2008.

Among the issues raised by the panelists<sup>56</sup> and the audience were:

- Large nonfinancial firms, especially multinationals, have banking needs that may be best served by large banks.
- After controlling for risk-taking, analysis suggests significant scale economies in banking, especially for the largest banks. A 2 percent size limit would forfeit these economies.
- A size cap would mean millions of Americans would need to change their banks. Retail customers seem to prefer big banks.
- Breaking up banks into smaller pieces would be difficult and could have unintended consequences, including loss of access for less-profitable customers.
- Banks are prohibited from having a single large equity stakeholder who would have the incentive to provide adequate monitoring. Eliminating this distortion is important, but a size cap would not address it.
- Past financial crises, such as the Great Depression, were not related to the size of banks.
- Part of the reason some banks got so big is that they acquired troubled smaller banks, including during the last financial crisis.

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<sup>56</sup> Joseph P. Hughes, Professor of Economics at Rutgers University; Aaron Klein, Fellow and Policy Director, Economic Studies, Brookings Institution; Ross Levine, the Willis H. Booth Chair in Banking and Finance at the University of California, Berkeley's Haas School of Business; Eugene Ludwig, Founder and CEO of Promontory Financial Group.

## Keynote Lunch: The need to consider both costs and benefits while assessing bank regulations and in addressing sources of financial fragility

Former Federal Reserve Governor Randall Kroszner<sup>57</sup> delivered the keynote address over lunch. He discussed the importance of conducting careful examinations that consider both costs and benefits of various bank regulations, while warning against allowing “analysis paralysis” to prevent regulators from acting. Key points:

- Good policy regulation involves several steps: diagnosing the problem via theoretical and empirical analysis; considering both costs and benefits before choosing an action from a set of reasonable alternatives; acting; reviewing the effects after a period of time, say five years, while continuing to refine the options.
- As part of the review process, questions to ask include: Did we achieve our goals? Have there been any unintended consequences? Again, data are needed to answer these questions. The Office of Financial Research is working to collect new data with this in mind.
- Financial institutions exhibit three fragilities: leverage, liquidity and interconnectedness.
- Elected officials must provide guidance regarding how safe a financial system we want. There is a trade-off between safety and growth.
- We do not want to rely too much on any one particular form of regulation.
- Use historical and international comparisons to inform comparisons of costs and benefits.
- Kroszner also agreed that debt that converts to equity may not work in practice when a crisis develops.

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<sup>57</sup> Norman R. Bobins Professor of Economics, Booth School of Business, University of Chicago.

## SECOND ENDING TBTF POLICY SYMPOSIUM, MAY 16, 2016

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### Minneapolis, Minn.

The second symposium focused on two additional transformational proposals for ending TBTF—taxing bank debt and the new framework for resolving troubled institutions. The symposium also featured a keynote on the pros and cons of reinstating the Glass-Steagall Act.<sup>58</sup>

#### Panel 1: Taxing leverage in the financial system

In the first panel, John H. Cochrane<sup>59</sup> proposed that banks finance themselves with equity and that taxing debt would be an effective tool to achieve that goal.<sup>60</sup> Here are his main points:

- Rather than bank assets, it is bank liabilities, particularly short-term debt, that are fragile and the source of potential runs. By converting bank liabilities to mostly equity, worries about runs—and the need for current levels of very costly regulation on bank assets and operations—would go away. This system would also eliminate the need for costly government bailouts.
- Unlike in the 1930s, floating-value accounts can be used for transactions: You can use your smartphone to buy a bottle of water from a machine by selling shares in an S&P 500 index fund. As a result, liquidity no longer requires fixed-value accounts (like checking accounts). Shares in 100-percent-equity-financed banks can serve as close substitutes for deposits.
- Current policies both subsidize debt (e.g., by making interest payments tax deductible) and regulate against its use (e.g., by limiting how much debt banks can have). These policies work at cross purposes. To further discourage banks from issuing the debt that is the underlying cause of instability, the government should at least stop subsidizing debt if not actually taxing it, with higher rates for short-term debt than long-term debt. The government would then have less need to use regulations.

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<sup>58</sup> See the second symposium’s agenda and materials at <https://www.minneapolisfed.org/publications/special-studies/endingtbt/symposiums/may-16-ending-too-big-to-fail-symposium-ii>.

<sup>59</sup> Senior Fellow at the Hoover Institution, Stanford University.

<sup>60</sup> See Cochrane’s proposal at <https://www.minneapolisfed.org/~media/files/publications/studies/endingtbt/may-16-symposium-presentations/cochrane-bank-structure.pdf?la=en>.

- This plan creates substantial benefits in eliminating banking crises and has little costs. Credit supply and economic activity would not be adversely affected by the institutional change to 100 percent equity financing and the tax on debt. The new bank equity held by households would be functionally equivalent to current deposits. Households that want a risk free security could hold U.S. government debt.

Among the issues raised by the panelists<sup>61</sup> and the audience were:

- The panelists agreed that leverage in the financial system, most prominently in the form of short-term debt financing of banks, was a primary driver of government bailouts.
- There was general agreement that the tax code’s subsidy to debt financing—caused by a firm’s ability to deduct interest payments when calculating taxes—encouraged financial firms to take on leverage. They noted that debt financing is favored in the tax code relative to equity financing, as firms cannot deduct payments to equity holders (e.g., dividends).
- Taxing leverage offers an advantage over other approaches because it can cover many types of financial firms that take on leverage and does not rely on government to require firms to change in very specific ways that may be excessively costly and difficult to implement effectively.
- Some panelists noted a challenge in instituting a tax on leverage both because calculating how much “leverage” a firm takes on could be difficult and because a single tax rate might end up taxing some firms too much while taxing other firms not enough. They also noted that the public may be better off banning certain practices in the private sector or regulating them rather than taxing them.
- Some panelists recommended taking a more public finance/industrial organization-based approach to financial regulation by matching the form of regulation to the nature of the externality. Sometimes the optimal level of an externality is zero (e.g., lead in gasoline). Sometimes it is better to regulate quantities, as in fisheries. Sometimes it doesn’t matter who produces the externality, as

<sup>61</sup> Michael Hasenstab, Executive Vice President & Chief Investment Officer at Templeton Global Macro; Michael Keen, Deputy Director of the Fiscal Affairs Department, International Monetary Fund; Donald Marron, Institute Fellow and Director of Economic Policy Initiatives at the Urban Institute; Thomas Philippon, Professor of Finance at the NYU Stern School of Business.

with carbon, so the tax/fee should be universal. Sometimes the adverse effects are heterogeneous, so tax rates should be firm-specific.

- A panelist noted that countries outside the United States had already taken steps to eliminate the favorable treatment of bank debt financing relative to bank equity financing following the crisis. Initial research suggests that this reform reduces leverage in a material way. Panelists also noted that structuring the charge on leverage as a fee could allow the government more flexibility in adjusting the charge as it learned from experience.
- A panelist noted that material changes in the current funding of large banks could lead to the reduction in valuable services provided by these firms, particularly if implemented over a short time frame. In particular, larger banks provide a range of services to larger customers that smaller firms cannot; these banks also are key to keeping activity going in financial markets. From this view point, fewer larger banks could potentially impede economic growth.
- A panelist noted that regulating assets is difficult, in part because there are at least two ways to measure them (generally accepted accounting principles and international financial reporting standards).
- A member of the audience pointed out that a primary goal of reform should be a system that prevents the premature and inefficient liquidation of valuable assets.

Several participants noted the positive historical relationship between financial development and economic growth and questioned what effects high capital requirements would have on growth.

## **Panel 2: Exploring alternatives to the Dodd-Frank Act’s resolution framework**

In the second panel, John Bovenzi<sup>62</sup> provided an assessment of the efforts to reform the resolution process for troubled banks and its role in ending TBTF.<sup>63</sup> While he was optimistic about the progress made so far, he pointed out that there is still work to do. He emphasized the following:

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<sup>62</sup> Co-chair of the Bipartisan Policy Center’s Failure Resolution Task Force.

<sup>63</sup> See Bovenzi’s proposal at <https://www.minneapolisfed.org/~media/files/publications/studies/endingtbtf/may-16-symposium-presentations/john-bovenzi.pdf?la=en>.

- There needs to be an improved commitment to ending TBTF. For 25 years after the failure of Continental Illinois, not much had been done, but since the crisis lots of intellectual firepower has been devoted to it.
- Better legislative resolution regimes are helping. Titles I and II of Dodd-Frank have instigated significant advanced planning for possible resolution of large banks. Complexity is being catalogued and in some cases reduced. “Not credible” findings for the living wills of five of the eight systemically important financial institutions show the seriousness of the process.
- Better plans to implement resolution regimes are taking shape. The single point of entry (SPOE) resolution will keep operations running during a potential resolution process. At the same time, the greater reliance on long-term debt in recent proposals (rather than short-term debt) will make it easier to recapitalize a bank and avoid a taxpayer bailout.
- Automatic stays in the event of resolution will cut down on fire sales of assets.
- Finally, banks have significantly more capital and liquidity. Individual banks are less likely to fail, and contagion effects have also been reduced. Stress testing shows that the largest banks would have more capital at the end of a stress event than the entire banking system had in 2006. He noted three important challenges going forward:
  - The FDIC, the Federal Reserve and the banking industry have to continue to make progress to complete restructuring of the industry before memories of the crisis fade. Current plans have yet to be implemented.
  - The FDIC and the Federal Reserve need to be clearer and more transparent about how the new resolution regime will operate; in particular, that losses will be imposed on creditors and how the lender-of-last-resort role will be implemented.
  - Major structural and organizational changes are needed for large banks and the financial system.

Among the issues raised by the panelists<sup>64</sup> and the audience were:

- Most panelists agreed that resolution reform was generally moving in the right direction.
- Panelists agreed that major structural and organizational change for large banks is a key and observable measure of the success of the current resolution approach. They generally agreed that forcing structural and organizational change through tools like resolution planning and higher capital requirements is superior to mandates that banks fall below a certain size threshold.
- Panelists agreed that the pace of reform must pick up.
- One panelist disagreed and did not find the current reform efforts credible. This panelist argued that government would be too concerned that imposing losses on creditors would exacerbate problems in the financial system to actually follow through on plans to do so. He was skeptical about the usefulness of resolution planning. He argued that government should focus on making it less likely that big banks get in trouble in the first place. He also argued that the U.S. economy needs large banks.
- Other panelists noted that even though they favored the general direction of the current resolution reform effort, they had concerns about its implementation along many important dimensions, including the treatment of assets in other countries, the ability of the government to act in a timely way (a comment made by almost all the panelists) and the potential that creditors will run institutions when SPOE is actually implemented.

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<sup>64</sup> Ben S. Bernanke, Distinguished Fellow in Residence, Economic Studies, Brookings Institution and former Chairman of the Board of Governors of the Federal Reserve System and the Federal Open Market Committee from February 2006 to January 2014; J. Christopher Flowers, Managing Director and CEO of J.C. Flowers & Co.; Richard J. Herring, Jacob Safra Professor of International Banking and Professor of Finance, Wharton School, University of Pennsylvania; David A. Skeel, S. Samuel Arsht Professor of Corporate Law, University of Pennsylvania Law School.



### Keynote Lunch: Why I changed my mind on Glass-Steagall

Luigi Zingales<sup>65</sup> delivered the keynote address over lunch. He discussed how his opinion of Glass-Steagall switched from opposition to support. Key points:

- At the time of its repeal, there was no strong argument to retain Glass-Steagall, and without a good reason to intervene, policy should not interfere with markets.
- While the separation of investment and commercial banking embodied in Glass-Steagall was not the best way to avoid excessive risk-taking in the financial sector, it was a good way.
- Tools such as the Volcker rule that seek to provide similar separation to Glass-Steagall are unlikely to be effective.
- Glass-Steagall was simple, and simple tools have fewer loopholes to take advantage of.
- The equity and options markets developed under Glass-Steagall are more competitive and transparent than the derivatives and over-the-counter markets that have developed since repeal.
- Glass-Steagall may have provided resiliency to the financial system: The 1987 stock market crash did not affect the banking sector, and the 1991 savings and loan crisis did not disrupt the equity market.
- The political power of banks grew after repeal. The 2005 consumer bankruptcy reform was supported by a more unified banking sector which pushed to make it more difficult to dismiss credit card debt. This may have exacerbated the financial crisis because households may have defaulted on their mortgages in order to continue servicing their credit card debts.
- The more concentrated the banking sector is, the more political power it wields. This may make it harder for new entrants (such as Fintech startups) to erode that concentration.

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<sup>65</sup> Robert C. McCormack Distinguished Service Professor of Entrepreneurship and Finance and Charles M. Harper Faculty Fellow, University of Chicago Booth School of Business.

## THIRD ENDING TBTF POLICY SYMPOSIUM, JUNE 20, 2016

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Co-hosted with the Peterson Institute for International Economics (PIIE), Washington, D.C.

The Ending TBTF initiative continued by gathering experts and policymakers at its third in a series of policy symposiums and the first with a co-host, PIIE in Washington, D.C.<sup>66</sup> The third symposium took a deeper dive into the benefits and costs of higher bank capital requirements. This gathering also had a session assessing the current status of the Ending TBTF initiative, including a keynote from Minneapolis Fed President Neel Kashkari.

### Panel 1: Frameworks to assess the benefits and costs of higher capital <sup>67</sup>

The panelists raised a number of arguments with regard to assessing the benefits and costs of higher capital requirements. Their range of views also suggested several lessons for any exercise in trying to review the benefits and costs of higher capital. Key points from that session along both of those lines included but were not limited to the following:

- There are multiple ways of assessing the benefits and costs of higher capital requirements. Some methods rely largely on directly computing benefits and costs from past crisis data. Other methods analyze data through a conceptual and analytical framework (e.g., calculations based on the Modigliani-Miller theorem).
- Many methods to assess costs and benefits of higher capital estimate the benefits in terms of financial crises prevented. They make that calculation based on data from past financial crises. Many methods view the costs of higher capital as the additional costs that this requirement would impose on banks that face the new capital regime. Higher capital could be modeled as leading to higher lending costs for borrowers, for example. Some methods of benefit and cost comparison translate these higher costs for banks into general reductions in economic activity.

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<sup>66</sup> For more information, visit the PIIE website at <https://piie.com/events/symposium-ending-too-big-fail>. A recorded archive of the event can be found at the site: [https://archive.org/details/SymposiumOnEndingTooBigToFail\\_648](https://archive.org/details/SymposiumOnEndingTooBigToFail_648).

<sup>67</sup> The panelists were William R. Cline, PIIE senior fellow; Giovanni Dell’Ariccia, deputy director of the International Monetary Fund’s Research Department; and Douglas Elliott, a partner in finance and risk and public policy practices at Oliver Wyman.

- Any assessment of benefits and costs of higher capital regimes is inherently uncertain. That result reflects, in part, the reliance on data from past crises to conduct the calculations. There have been a number of financial crises, but the information from those events remains limited in the context of the needs of standard statistical and economic analysis. Uncertainty also exists because no one fully understands if and how banks would try to pass on the potentially higher costs of capital.
- Assumptions used in the frameworks to assess benefits and costs are very important. Analysts should make those assumptions as clear as possible both to allow observers to know what those assumptions are and to determine how sensitive results are to the assumptions.
- Two of the panelists put forward estimates of capital requirements that they believe pass a benefit and cost test. One panelist argued that capital ratios should be between 12 percent and 14 percent. Another found that a capital ratio of between 15 percent and 23 percent would be sufficient to avoid most government bailouts of banks in advanced economies (both estimates concern so-called risk-weighted asset capital standards).
- Both panelists noted that their estimates were higher than the standard requirements coming out of international agreements on minimum capital requirements. A third panelist emphasized the costs of these higher requirements more generally.

## **Panel 2: Status of efforts to end TBTF**

Minneapolis Fed President Neel Kashkari opened with his remarks on the status of ending TBTF. Bertrand Badre, formerly group chief financial officer at Société Générale and Crédit Agricole, provided a private sector perspective. PIIIE President Adam S. Posen assessed the global TBTF regime and international regulatory efforts. The presenters offered mostly common themes with the occasional contrasting views.

- There was broad skepticism about some of the key pillars of the current reform effort to address TBTF. In general, the presenters thought the system was too complex to work during a period of market stress.
- There was specific concern that the current reform effort required governments to impose losses on bond holders of large banks. Some of the presenters argued that this policy, if implemented,

could actually lead to more uncertainty and market stress. Thus, they did not believe it would actually occur and prevent public bailouts.

- There was also concern that market forces themselves would not be sufficient to end TBTF. Market pressures may lead firms to take on too much risk, for example. As such, government has to step in to try to fix the problem.
- Some presenters focused on the complexity of large banks as a key source of the problem. The firms are too complex to manage and too complex to prevent fallout to the economy when they get in trouble.
- Some presenters noted that there is never enough capital to prevent a crisis, while others suggested that higher capital is a critical way to limit TBTF.
- Presenters suggested that the cost of higher capital, if it takes the form of lower profits for banks, could be overstated. They noted that precrisis levels of profit may have been unsustainable. As such, a fall from those levels may better reflect the true returns of banks.
- Presenters agreed that more needed to be done to address TBTF, or at least agreed that the current system was not going to be successful in that task.
- The presenters received several questions on the merits of reinstating the Glass-Steagall Act. Many of the presenters were skeptical that such a step would effectively end TBTF. They argued that the evidence from the crisis does not suggest that Glass-Steagall would have prevented the most important and negative outcomes of the most recent crisis. Many of the firms at the epicenter of the crisis, for example, did not have the combination of investment and commercial banking that Glass-Steagall prevents.

## FOURTH ENDING TBTF POLICY SYMPOSIUM, SEPTEMBER 26, 2016

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### Minneapolis, Minn.

The fourth and final symposium hosted by the Federal Reserve Bank of Minneapolis was held on September 26, 2016. Progressing toward the goal of releasing a policy plan to end too big to fail (TBTF) by the end of the year, the symposium explored additional challenges and solutions to the persistent problem of TBTF.

Two panel discussions were held, the first focusing on whether debt issued by banks—such as “bail in” bonds required under a current Board of Governors proposal—can effectively recapitalize banks in the resolution process. The second panel discussed the growth of the shadow banking industry in response to the asymmetrical regulatory framework of banks and nonbanks.

This fourth symposium also featured a keynote speech by Roger W. Ferguson, Jr., who shared views on financial regulation based on both his current role as president and CEO of TIAA and his prior role as governor and vice chair of the Board of Governors of the Federal Reserve System.

### Panel 1: Converting debt to equity as a means to address TBTF

The panelists,<sup>68</sup> coming from a wide range of backgrounds and perspectives, made key points, which include but are not limited to the following:

- Bank equity is the best tool to absorb losses because shareholders absorb losses from insolvency.
- Panelists noted the challenge of converting debt to absorb losses from bank failure. In general, panelists noted that supervisors have not done a good job of forcing banks to get new capital before they suffer deep losses, at which point it is difficult to recapitalize the bank without public funds.

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<sup>68</sup> Panelists included Emiliós Avgouleas, Professor (Chair) of International Banking Law and Finance at the University of Edinburgh and a member of the stakeholder group of the European Banking Authority; Mark Flannery, Director and Chief Economist at the U.S. Securities and Exchange Commission and BankAmerica Eminent Scholar in Finance at the University of Florida; Stuart Plessner, Senior Director in S&P Global’s North American Financial Institutions Ratings Team; and Larry Wall, Research Center Executive Director of the Center for Financial Innovation and Stability at the Federal Reserve Bank of Atlanta.

- This general problem is present in the so-called total loss-absorbing capacity proposal, which counts on government taking unpopular action at an ill-defined point. Thus, some panelists thought that TLAC has been vastly oversold as a solution to TBTF.
- An alternative view presented is that the provision of a resolution regime, combined with some debt to convert to equity, does make it less likely that firm creditors get bailouts and thus does address TBTF.
- The political pressure against acting will be very large if the perception is such that action can lead to more instability.
- The panel discussion also suggested that requiring government to shut down banks when equity is still positive would be a move to forcing more timely action.

### **Roger W. Ferguson, Jr., Keynote: Financial regulation from the viewpoint of the regulated**

Roger W. Ferguson, Jr.,<sup>69</sup> began his remarks by commending the work of the TBTF symposium series for its exploration of resiliency in the broader financial system. He went on to note that these discussions usually look at regulations from the view of the regulator; but from his post-2008 experience after leaving the Federal Reserve System, Ferguson shared his current perspective of leading TIAA, a regulated insurance institution.

- Ferguson analyzes regulations through a prism of an organization predominantly engaged in insurance. From this viewpoint, he emphasizes the importance of exercising restraint in imposing bank-centric frameworks upon nonbanks. Rather, regulators should recognize that insurance-centric firms have a different business model, structure, and role than banks.
- The primary policy goal is to ensure that there is a resilient financial system to stress. Financial resilience should be achieved by having an ecosystem that is not monolithic, but has many different components that serve to maintain the “diversity of the financial eco-system.”

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<sup>69</sup> President and Chief Executive Officer of TIAA and former Vice Chairman of the Board of Governors of the Federal Reserve System.

- o Of course, the system needs to be safe and sound. Additionally, it needs to minimize the creation and propagation of spillovers.
- To achieve the overarching goal of financial resilience, the TBTF problem must be addressed through a nuanced approach that recognizes the differences in various institutions and does not treat them with a one-size-fits-all approach.
  - o Ferguson emphasized this as his primary point, noting that an approach that treats all firms in a monolithic fashion could end up making the system less stable.
- Banks and nonbanks, like insurers, engage in fundamentally different businesses, with different business models, balance sheets, and customer value propositions. These distinctions drive the rationale for having different regulatory frameworks applied to each.
  - o At its core, banking activity remains lending and maturity transformation—connecting savers to borrowers. In contrast, insurers allow customers to reduce their exposure to risk.

### **Panel Two: The potential for risk to shift to the shadow banking sector in response to banking regulation and the appropriate regulation of shadow banks**

The panelists<sup>70</sup> discussed how modern firms are responding to asymmetry in regulatory frameworks. The current regulatory framework is effective in an environment where banks and nonbanks (shadow banks) engage in a separate set of activities. Now, with the lines of activity blurring and shadow banks engaging in a higher volume of activity that was once the domain of the traditional banking sector, the differentiation between bank and shadow bank activity is less defined. This panel discussed this development and potential government responses. Key points include, but are not limited to, the following:

- Whereas traditional banking is characterized by highly regulated institutions that receive extensive public support (e.g., deposit insurance and lender of last resort), shadow banking is characterized by chains of transactions involving multiple intermediaries that are lightly regulated.

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<sup>70</sup> Panelists were Viral V. Acharya, C. V. Starr Professor of Economics at New York University Stern School of Business; Samuel Hanson, Associate Professor of Business Administration at Harvard Business School; and Morgan Ricks, Associate Professor of Law at Vanderbilt Law School.

- Heightened regulation leads activity to migrate from regulated banks toward shadow banking or other more lightly regulated nonbank intermediaries. This potential for migration reduces the ability of regulation to correct underlying market failures and safeguard financial stability.
- Instead of the current practice where regulation is imposed upon certain types of institutions, several panelists suggested that financial regulation be activity-based.
- On the liability side, the issuance of debt by shadow firms, particularly short-term debt, presents concern by making these firms vulnerable.
- On the asset side, the concern focuses on assets that would take losses in a fire sale, which are also the assets that are the hardest to price and value.
- The flow of activity and potential risk from the banking to the nonbanking sector is a real threat. Intense regulation of banks makes it more costly to engage in these activities in the banking context. So the activities move to the shadow sector, which does not impose the same level of intense regulation. This leads to the types of liabilities and assets of concern being more present and important in a growing shadow sector.
  - o For example, some panelists mentioned reports of loans moving from banks to the nonbanking sector, funded by debt.
- Panelists discussed options for government response to this threat of activity migration from the banking to nonbanking sector.
  - o One panelist called for a prohibition on the issuance of short-term debt by any financial firm that is not a bank.
  - o Another idea included crafting new regulations to address the migration phenomenon.



## REQUEST FOR COMMENTS ON THE MINNEAPOLIS PLAN TO END TOO BIG TO FAIL, NOVEMBER 16, 2016

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### Minneapolis, Minn.

The Federal Reserve Bank of Minneapolis has engaged throughout 2016 in a public process to determine the best ways to end the problem of too big to fail banks. We solicited feedback throughout the year, held town halls with the public and held four policy symposiums, which brought together experts with a wide range of perspectives on the problem and on potential solutions. The symposiums were streamed live on the web to allow the public to learn alongside the Minneapolis Fed. Video recordings and all presented materials are available on our website at [minneapolisfed.org](http://minneapolisfed.org). Input from the public and experts around the world have shaped our effort.

Today, November 16, we released our proposal to end TBTF: the Minneapolis Plan. And as a continuation of our effort to both inform and learn from the public and experts, we continue to seek input. Specifically, the Federal Reserve Bank of Minneapolis seeks comments on its proposal to end TBTF.

Commenters should provide feedback by January 17, 2017, sixty days after the issuance of the proposal. Comments should be submitted via [www.minneapolisfed.org/MPLSplancomments](http://www.minneapolisfed.org/MPLSplancomments). Specific comments will not be made public, but the Minneapolis Fed will publish an aggregated summary of the comments when a revised version of the proposal is released.

The Federal Reserve Bank of Minneapolis welcomes feedback on all aspects of the Minneapolis Plan. Commenters can also provide feedback on the following specific questions:

#### **(1) Benefit and Cost Analysis of Higher Minimum Equity Requirement**

The Minneapolis Plan would increase the minimum equity requirement for banks with assets over \$250 billion, reflecting an underlying analysis of the benefits and costs of higher capital.

(Q1) Are there improvements that the Federal Reserve Bank of Minneapolis could make to its calculation of the benefits of this aspect of the proposal?

(Q2) Are there improvements that the Federal Reserve Bank of Minneapolis could make to its calculation of the costs of this aspect of the proposal?

(Q3) Are there improvements that the Federal Reserve Bank of Minneapolis could make to its proposed minimum equity requirement for large banks?

## **(2) Benefit and Cost Analysis of a “Systemic Risk Capital Charge”**

The proposal would create a Systemic Risk Capital Charge for all firms that the Treasury Secretary fails to certify as no longer systemically important.

(Q4) Are there improvements that the Federal Reserve Bank of Minneapolis could make to its calculation of the benefits of this aspect of the proposal?

(Q5) Are there improvements that the Federal Reserve Bank of Minneapolis could make to its calculation of the costs of this aspect of the proposal?

(Q6) Are there improvements that the Federal Reserve Bank of Minneapolis could make to its proposal calling on the Treasury Secretary to certify that firms are no longer systemically important?

(Q7) Are there alternative frameworks the Federal Reserve Bank of Minneapolis could use in reducing systemic risk of large financial firms?

## **(3) Setting a Shadow Banking Tax**

The proposal would levy a tax on shadow banks.

(Q8) Are there improvements that the Federal Reserve Bank of Minneapolis could make to setting a tax on shadow banks within the framework set forth in the proposal?

(Q9) Are there alternative frameworks the Federal Reserve Bank of Minneapolis could use in setting a tax on shadow banks? What are they? How would a fee be calculated using these alternative frameworks? Why are they superior to the framework used in the proposal?

#### **(4) Right Sizing Community Bank Supervision and Regulation**

The proposal would create a separate and more appropriate supervisory and regulatory regime for community banks.

(Q10) Are there specific features of such a regime that the current proposal should include but does not?

(Q11) Are there specific features of such a regime that the current proposal includes that it should not?

## WALL STREET JOURNAL OP-ED, FEBRUARY 14, 2017

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### **Make Big Banks Put 20% Down—Just Like Home Buyers Do**

Financial CEOs say capital requirements are already too high, but the facts suggest otherwise.

*By Neel Kashkari*

There's a straightforward way to help prevent the next financial crisis, fix the too-big-to-fail problem, and still relax regulations on community lenders: increase capital requirements for the largest banks. In November, the Federal Reserve Bank of Minneapolis, which I lead, announced a draft proposal to do precisely that. Our Plan would increase capital requirements on the biggest banks—those with assets over \$250 billion—to at least 23.5%. It would reduce the risk of a taxpayer bailout to less than 10% over the next century.

Alarming, there has been recent public discussion of moving in the opposite direction. Several large-bank CEOs have suggested that their capital requirements are already too high and are holding back lending. As this newspaper reported, Bank of America CEO Brian Moynihan recently asked, “Do we have [to hold] an extra \$20 billion in capital? Which doesn't sound like a lot, but that's \$200 billion in loans we could make.”

It is true that some regulations implemented after the 2008 financial crisis are imposing undue burdens, especially on small banks, without actually making the financial system safer. But the assertion that capital requirements are holding back lending is demonstrably false.

How can I prove it? Simple: Borrowing costs for homeowners and businesses are near record lows. If loans were scarce, borrowers would be competing for them, driving up costs. That isn't happening. Nor do other indicators suggest a lack of loans. Bank credit has grown 23% over the past three years, about twice as much as nominal gross domestic product. Only 4% of small businesses surveyed by the National Federation of Independent Business report not having their credit needs met.

If capital standards are relaxed, banks will almost certainly use the newly freed money to buy back their stock and increase dividends. The goal for large banks won't be to increase lending, but to boost their stock prices. Let's not forget: That's the job of a bank CEO. It isn't to protect taxpayers.

So if capital requirements aren't the problem, why does it feel so hard to get a loan today? I can speak from firsthand experience. Last year my wife and I decided to buy a house. We applied for a loan with a bank where I have been a customer for many years. I assumed that my long record with the bank and our good credit would make it easy. With the required 20% down payment, we were prequalified for a mortgage with a rate of 3.375% fixed for the first 10 years. That was an attractive rate, suggesting capital was not holding back lending.

The prequalification was easy. Then the frustration began. The mortgage banker asked for myriad documents: bank statements, 401(k) statements, brokerage statements, tax returns, W-2s, insurance records and so on. That all seemed reasonable, but as the weeks rolled on, the requests for more documentation kept coming. After a month or so, I couldn't believe what I was being asked for. Despite having all the records of my on-time monthly rental payments in my checking account, the bank demanded a copy of my lease and to speak with my landlord.

The banker called me to apologize, admitting that the requests were ridiculous but saying that there was no reasoning with the underwriting department. As we waited, we began to wonder if we wanted to buy the house at all. Wouldn't continuing to rent be so much easier?

In the end, the bank funded the loan. I felt bad for the underwriters, who seemed unable to exercise judgment or use common sense. The impression I got was that people at the bank were simply paralyzed by fear—that they might make a mistake that regulators would be breathing down their necks.

I have spoken to many borrowers at other banks, and they tell me similar stories. It has become needlessly difficult for qualified borrowers to get loans. But again, the problem isn't the capital requirements—it's everything else.

Capital is the best defense against bailouts. Although capital standards are higher than before the last crisis, they are not nearly high enough. The odds of a bailout in the next century are still nearly 70%. Large banks need to be able to withstand around a 20% loss on their assets to protect against taxpayer bailouts in a downturn like the Great Recession, according to a 2015 analysis by the Federal Reserve. Unfortunately, regulators have taken it easy on the large banks, which today have only about half of the equity they need.

There is a simple and fair solution to the too-big-to-fail problem. Banks ask us to put 20% down when buying our homes to protect them in case we run into trouble. Similarly, taxpayers should make large banks put 20% down in the form of equity to prevent bailouts in case the financial system runs into trouble. Higher capital for large banks and streamlined regulation for small banks would minimize frustration for borrowers. If 20% down is reasonable to ask of us, it is reasonable to ask of the banks.

*Mr. Kashkari is president of the Federal Reserve Bank of Minneapolis and a participant in the Federal Open Market Committee.*

## MEDIUM POST, APRIL 4, 2017

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### Jamie Dimon's Shareholder (Advocacy) Letter

*By Neel Kashkari*

On April 4, JPMorgan Chase Chairman and CEO Jamie Dimon published his annual shareholder letter, much of which focused on public policy and financial regulation. At 46 pages, Mr. Dimon's letter includes a lot of interesting commentary. In this essay, I am going to respond to two of his main points because I strongly disagree with them. First, Mr. Dimon asserts that “essentially, Too Big to Fail has been solved—taxpayers will not pay if a bank fails.” Second, Mr. Dimon asserts that “it is clear that the banks have too much capital.” Both of these assertions are demonstrably false.

#### Too big to fail has not been solved

To make his argument that TBTF has been solved, Mr. Dimon repeatedly points to various regulatory schemes that all have the same unrealistic feature: In a crisis, bondholders will take losses rather than taxpayers. He refers to “bail-inable debt,” “total loss absorbing capacity,” “receivership where unsecured debt ... would convert to equity,” “Chapter 14 bankruptcy” and “resolution.” All of these essentially mean the same thing: A bank runs into trouble; then either regulators or the courts trigger a conversion of debt to equity. Bondholders take losses. The firm is recapitalized and taxpayers are spared. Systemic risk is neutralized and bailouts are avoided. It sounds like an ideal solution. The problem is that it almost never actually works in real life.

We learned from past financial crises, including the 2008 financial crisis, that nothing beats equity for absorbing losses. Equity holders have long taken losses in the United States and thus expect that outcome. Moreover, equity holders cannot run during a crisis. In contrast, debt holders of the most systemically important banks in the United States and around the world have repeatedly experienced bailouts and likely will expect such an outcome during the next financial crisis. Indeed, the most recent crisis showed that even some debt holders who had been explicitly told that they would take losses during a crisis got bailed out.

Governments are reluctant to impose losses on creditors of a TBTF bank during a crisis because of the risk of contagion: Creditors at other TBTF banks may fear they will face similar losses and will then try to pull whatever funding they can, or at least refuse to reinvest when debt

comes due. This is why, regardless of their promises during good times, governments do not want to impose losses on bondholders during a crisis. History has repeatedly shown this to be true and, while we can hope for the best, there is no credible reason to believe this won't be true in the next crisis. Only true equity should be considered loss-absorbing in a crisis. The largest banks do not have enough equity today to protect taxpayers. Too big to fail is alive and well. Taxpayers are on the hook.

### **Large banks have too little capital, not too much**

To make his argument that banks have too much capital, Mr. Dimon points to losses estimated by the Federal Reserve's stress test and compares them to banks' combined equity and long-term debt. Again, Mr. Dimon unrealistically assumes that debt will absorb losses in a crisis. As explained above, that is extremely unlikely. In addition, stress tests are just hypothetical scenarios. By definition, regulators (and bankers) won't see the next crisis coming, and it will almost certainly look different from past crises, or scenarios modeled in a stress test.

Mr. Dimon argues that the current capital standards are restraining lending and impairing economic growth, yet he also points out that JPMorgan bought back \$26 billion in stock over the past five years. If JPMorgan really had demand for additional loans from creditworthy borrowers, why did it turn those customers away and instead choose to buy back its stock?

The truth is that borrowing costs for homeowners and businesses are near record lows. If loans were scarce, borrowers would be competing for them, driving up costs. That isn't happening. Nor do other indicators suggest a lack of loans. Bank credit has grown 23 percent over the past three years, about twice as much as nominal gross domestic product. Only 4 percent of small businesses surveyed by the National Federation of Independent Business report not having their credit needs met.

Capital is the best defense against bailouts. Although capital standards are higher than before the last crisis, they are not nearly high enough. The odds of a bailout in the next century are still nearly 70 percent. Large banks need to be able to withstand around a 20 percent loss on their assets to protect against taxpayer bailouts in a downturn like the Great Recession, according to a 2015 analysis by the Federal Reserve. Unfortunately, regulators have taken it easy on the large banks, which today have only about half of the equity they need.



Doubling the equity capital requirements for the largest banks would substantially address the TBTF problem and protect taxpayers. It also passes a cost-benefit test for society.

### **Areas of agreement**

Mr. Dimon calls for reducing regulatory complexity, and I agree with this principle. In fact, a higher equity requirement produces the most protection for taxpayers in the simplest, most effective way. Once we have addressed TBTF by forcing large banks to fund themselves with far more common equity, I believe we can streamline other regulations, especially on small banks that have been severely burdened with regulation, but do not pose a systemic risk to society.

## WALL STREET JOURNAL OP-ED, JULY 9, 2017

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### **New Bailouts Prove ‘Too Big to Fail’ Is Alive and Well**

Regulators keep insisting bondholders will take losses, but then they’re reluctant to impose them.

*By Neel Kashkari*

Three strikeouts in four at bats would be barely acceptable in baseball. For a policy designed to prevent taxpayer bailouts, it’s an undeniable defeat. In the past few weeks, four European bank failures have demonstrated that a signature feature of the postcrisis regulatory regime simply cannot protect the public. There’s no need for more evidence: “bail-in debt” doesn’t prevent bailouts. It’s time to admit this and move to a simpler solution that will work: more common equity.

Bail-in debt was envisioned as an elegant solution to the “too big to fail” problem. When a bank ran into trouble, regulators could trigger a conversion of debt to equity. Bondholders would take the losses. The firm would be recapitalized. Taxpayers would be spared.

The idea, adopted both in the U.S. and Europe following the 2008 financial crisis, has its share of supporters, including JPMorgan Chase CEO James Dimon. “Essentially, too big to fail has been solved,” Mr. Dimon insisted in a shareholder letter earlier this year. “Taxpayers will not pay if a bank fails.” Wall Street also prefers this debt funding rather than equity because it is better for bank share prices. In theory, taxpayers and stockholders both win.

The problem is that it rarely works this way in real life. On June 1, the Italian government and European Union agreed to bail out Banca Monte dei Paschi di Siena with a €6.6 billion infusion, while protecting some bondholders who should have taken losses. Then on June 24, Italy decided to use public funds to protect bondholders of two more banks, Banca Popolare di Vicenza and Veneto Banca, with up to €17 billion of capital and guarantees. The one recent case in which taxpayers were spared was in Spain, when Banco Popular failed on June 6.

The largest of these four banks was less than one-tenth the size of \$2.5 trillion JPMorgan. Think about that: If bail-in debt couldn’t protect taxpayers from a midsize bank failure when the global economy is stable, what are the odds it will work if a Wall Street giant runs into trouble when the economy looks shaky? Or how about when several giants are in trouble at the same time, as in 2008?

Don't hold your breath.

Why are governments so reluctant to force losses on bondholders? Sometimes they fear financial contagion. The argument holds water in the case of too-big-to-fail banks: If creditors at one large institution face losses, creditors at others may fear the same and try to pull their funding. Once the dominoes start falling, they are very hard to stop. This is why the Federal Reserve and the Treasury Department, with the support of Congress through the Troubled Asset Relief Program, intervened so dramatically to arrest the 2008 crisis.

When systemic risk isn't an issue, governments may worry that bondholders are politically important constituents. In the recent Italian examples, the banks weren't considered too big to fail, but the bondholders were retail investors. Regulators claimed that this was a unique circumstance, but there always seem to be unique circumstances when bailouts are concerned. What will happen if an important pension fund faces losses?

This is one more reminder that only equity can be counted on to protect taxpayers—and it needs to be raised in advance of economic distress. Although capital standards for America's largest banks are higher now than before the last crisis, they are not nearly high enough. The odds of a bailout in the next century are still nearly 70%.

Large banks need to be able to withstand losses of around 20%, according to a 2015 analysis by the Federal Reserve. But they have only about half that amount in equity because regulators have generously assumed bondholders would take losses. Italy demonstrates that this is wishful thinking. Too big to fail is alive and well, and taxpayers are on the hook.

There is bipartisan support for fixing the problem, but it will require forcing large banks to raise much more equity. They won't do it on their own, because their stock prices benefit when the public takes the risk. Indeed, banks are now moving in the wrong direction by increasing their dividends and stock buybacks. As a country, we must decide what's more important: protecting taxpayers or bank investors.

*Mr. Kashkari is president of the Federal Reserve Bank of Minneapolis and a member of the Federal Open Market Committee.*

## PUBLIC TOWN HALL, APRIL 4, 2016

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### Minneapolis, Minn.

Immediately following the first policy symposium, a public Town Hall meeting on ending TBTF was hosted at the Minneapolis Fed.<sup>71</sup> Attendance was open and free to the public.

## PUBLIC UPDATE TO MINNESOTA CHAMBER OF COMMERCE, APRIL 18, 2016

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### Minneapolis, Minn.

Kashkari shared a public update on the Ending TBTF initiative by summarizing key points that he took away from the April 4 symposium.<sup>72</sup> He also identified some important questions for further consideration:

- Should we view proposals to address TBTF in isolation, or could we combine them?
- How do the costs and benefits of proposed solutions line up relative to the status quo?
- How much confidence do we have that the solutions will perform as expected in a crisis environment?
- Will markets think the proposal credibly puts creditors at risk of loss?
- Will the solutions merely push risk into unregulated areas of the financial markets?
- Will the solutions promote fairness between the regulatory burdens imposed upon large, medium and small banks?
- How likely are the solutions to remain effective over decades?

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<sup>71</sup> View video of the Town Hall hosted at the Minneapolis Fed at <https://www.youtube.com/watch?v=oXGUHRW64zQ>.

<sup>72</sup> See the update to the Minnesota Chamber of Commerce at <https://www.minneapolisfed.org/news-and-events/presidents-speeches/update-on-minneapolis-fed-ending-too-big-to-fail-initiative>.

## **PUBLIC EVENING DISCUSSION, MAY 16, 2016**

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### **Minneapolis, Minn.**

Following the second policy symposium held at the Minneapolis Fed, an evening discussion was hosted by the Heller-Hurwicz Economics Institute at the University of Minnesota and moderated by CNBC’s chief Washington correspondent, John Harwood.<sup>73</sup> This event was also open and free to the public.

## **PANELIST ON ENDING “TOO BIG TO FAIL” BANKS DISCUSSION AT THE AMERICAN ECONOMIC ASSOCIATION CONFERENCE, JANUARY 7, 2017**

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### **Chicago, Ill.**

President Neel Kashkari participated in a panel discussion<sup>74</sup> where he presented the primary elements of the draft Minneapolis Plan and received feedback from Randall S. Kroszner of the University of Chicago and Markus K. Brunnermeier of Princeton University. Wayne Passmore of the Federal Reserve System Board of Governors served as panel chair.

## **PRESENTATION OF THE DRAFT MINNEAPOLIS PLAN TO THE NATIONAL ASSOCIATION OF BUSINESS ECONOMICS, MARCH 6, 2017**

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### **Washington, D.C.**

In an effort to share the draft Minneapolis Plan with a variety of interested audiences and to invite feedback on the Plan, President Neel Kashkari presented a set of summary slides<sup>75</sup> to the National Association of Business Economics.

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<sup>73</sup> View video of the evening discussion hosted by the Heller-Hurwicz Economics Institute at the University of Minnesota at <http://cla.umn.edu/heller-hurwicz/news-events/news/ending-too-big-fail>.

<sup>74</sup> <https://www.aeaweb.org/conference/2017/preliminary/1689?page=6&per-page=50>

<sup>75</sup> <https://www.minneapolisfed.org/news-and-events/presidents-speeches/ending-too-big-to-fail-the-minneapolis-plan-at-the-nabe-economic-policy-conference>

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