

**FEDERAL RESERVE SYSTEM****12 CFR Parts 208 and 217****[Regulations H and Q; Docket No. R-1505]****RIN 7100 AE-26****Regulatory Capital Rules:  
Implementation of Risk-Based Capital  
Surcharges for Global Systemically  
Important Bank Holding Companies****AGENCY:** Board of Governors of the Federal Reserve System.**ACTION:** Final rule.

**SUMMARY:** The Board of Governors of the Federal Reserve System is adopting a final rule that establishes risk-based capital surcharges for the largest, most interconnected U.S.-based bank holding companies pursuant to section 165 of the Dodd-Frank Wall Street Reform and Consumer Protection Act. The final rule requires a U.S. top-tier bank holding company that is an advanced approaches institution to calculate a measure of its systemic importance. A bank holding company whose measure of systemic importance exceeds a defined threshold would be identified as a global systemically important bank holding company and would be subject to a risk-based capital surcharge (GSIB surcharge). The GSIB surcharge is phased in beginning on January 1, 2016, through year-end 2018, and becomes fully effective on January 1, 2019. The final rule also revises the terminology used to identify the bank holding companies subject to the enhanced supplementary leverage ratio standards to ensure consistency in the scope of application between the enhanced supplementary leverage ratio standards and the GSIB surcharge framework.

**DATES:** The final rule is effective December 1, 2015, except that amendatory instructions 2, 3, 6, 8, and 10 amending 12 CFR 208.41, 208.43, 217.1, 217.2, and 217.11 are effective January 1, 2018.

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**I. Introduction****A. The Dodd-Frank Act**

Section 165 of the Dodd-Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank Act) directs the Board to establish enhanced prudential standards for bank holding companies with \$50 billion or more in total consolidated assets and for nonbank financial companies that the Financial Stability Oversight Council (Council) has designated for supervision by the Board (nonbank financial companies supervised by the Board).<sup>1</sup> These standards must include risk-based capital requirements as well as other enumerated standards. They must be more stringent than the standards applicable to other bank holding companies and to nonbank financial companies that do not present similar risks to U.S. financial stability.<sup>2</sup> These standards must also increase in stringency based on several factors, including the size and risk characteristics of a company subject to the rule, and the Board must take into account the differences among bank

holding companies and nonbank financial companies.<sup>3</sup>

**B. Overview of the Proposed Rule**

In December 2014, the Board invited public comment on a notice of proposed rulemaking (proposal) to identify global systemically important bank holding companies (GSIBs) and impose a risk-based capital surcharge on those institutions (GSIB surcharge).<sup>4</sup> The proposal established a methodology to identify whether a U.S. top-tier bank holding company with total consolidated assets of \$50 billion or more is a GSIB. The proposed methodology was based on five broad categories that are correlated with systemic importance—size, interconnectedness, cross-jurisdictional activity, substitutability, and complexity. A bank holding company would determine a score in each category based on its firm-specific systemic indicators within each category relative to aggregate global indicator amounts across other large, global banking organizations. Each category would be given a 20 percent weighting in the calculation of a firm's aggregate systemic indicator score (together, the method 1 score). A bank holding company whose method 1 score exceeded a defined threshold would be identified as a GSIB.

A firm identified as a GSIB would then calculate its GSIB surcharge under two methods and would be subject to the higher of the two. The first method was the same methodology for identifying a bank holding company as a GSIB (method 1). The second method was based on the same systemic indicator scores used in method 1, except that the substitutability score was replaced by a measure of the firm's use of short-term wholesale funding (method 2).<sup>5</sup> Method 2 surcharges were calibrated to better address the risks posed by these firms to U.S. financial stability. The GSIB surcharge was added to a GSIB's capital conservation buffer for purposes of the regulatory capital rule.<sup>6</sup> It would have been phased in beginning on January 1, 2016, through

<sup>3</sup> See 12 U.S.C. 5365(a)(1)(B). Under section 165(a)(1)(B) of the Dodd-Frank Act, the enhanced prudential standards must increase in stringency based on the considerations listed in section 165(b)(3).

<sup>4</sup> 79 FR 75473 (December 18, 2014).

<sup>5</sup> The fact that method 2 likely produced a higher surcharge than method 1 derives from the difference in the calibration of these two methods. To allow comparability between scores produced under method 1 and method 2, method 2 raw scores were doubled.

<sup>6</sup> See 12 CFR 217.11.

<sup>1</sup> See 12 U.S.C. 5365.

<sup>2</sup> See 12 U.S.C. 5365(a)(1)(A).

year-end 2018, and become fully effective on January 1, 2019.

The Board received 21 public comments on the proposed rule from banking organizations, trade associations, public interest advocacy groups, and private individuals. Some commenters also met with Board staff to discuss the proposal.<sup>7</sup> While some commenters expressed support for higher capital standards for the largest and most complex U.S. banking organizations, several commenters criticized specific aspects of the proposal. For instance, several commenters expressed concern regarding the calibration of the GSIB surcharges. Other commenters argued that the proposed calculation methodology would limit the ability of a firm to reduce its GSIB surcharge by reducing its systemic risk profile. In addition, several commenters provided views on the proposed measure of short-term wholesale funding.

As discussed in this preamble, the final rule adopts the proposed rule, with several adjustments that respond to commenters' concerns. The final rule maintains the proposed approach for calculating the method 1 score that is derived from an annual aggregation of the 75 largest U.S. and foreign banking organizations (and any other banking organizations included in the sample total for that year), but improves the predictability of the method 2 score by fixing the aggregate measure of U.S. and foreign banking organizations. The final rule also adjusts elements of the short-term wholesale funding calculation in method 2 in light of commenters' concerns. In addition, the preamble further clarifies the calibration methodology, and the Board is releasing a white paper contemporaneously with the final rule that sets forth a detailed explanation of the calibration methodology.

### C. Integrated Set of Prudential Standards

The GSIB surcharge adopted in the final rule is one of several enhanced prudential standards that the Board has implemented under section 165 of the Dodd-Frank Act. Other enhanced standards include the resolution plan rule,<sup>8</sup> the capital plan rule,<sup>9</sup> the stress test rules,<sup>10</sup> and the enhanced prudential standard rules.<sup>11</sup> The integrated set of standards that the

Board has adopted under section 165 of the Dodd-Frank Act will result in a more stringent regulatory regime is designed to mitigate risks to U.S. financial stability, and include measures that increase the resiliency of these companies and reduce the impact on U.S. financial stability were these firms to fail.

The final rule works to mitigate the potential risk that the material financial distress or failure of a GSIB could pose to U.S. financial stability by increasing the stringency of capital standards for GSIBs, thereby increasing the resiliency of these firms. The final rule takes into consideration and reflects the nature, scope, size, scale, concentration, interconnectedness, and mix of the activities of each company, as directed by section 165 of the Dodd-Frank Act.<sup>12</sup> These factors are reflected in the method 1 and method 2 scores, which use quantitative metrics to measure the impact of these factors on a firm's systemic impact. GSIB surcharges are established using these scores, and GSIBs with higher scores are subject to higher GSIB surcharges.

In addition to the factors listed above, section 165 of the Dodd-Frank Act also requires the Board to consider the importance of the company as a source of credit for households; businesses; state governments; and low-income, minority, or underserved communities; and as a source of liquidity for the U.S. financial system. The GSIB surcharge increases the resiliency of the largest U.S. bank holding companies, enabling them to continue serving as financial intermediaries for the U.S. financial system and as sources of credit to households, businesses, state governments, and low-income, minority, or underserved communities during times of stress.

Section 165 of the Dodd-Frank Act also directs the Board to consider the extent to which the company is already subject to supervision.<sup>13</sup> The final rule applies enhanced capital standards at the consolidated bank holding company level, and does not directly apply any standards to functionally regulated subsidiaries. The Board consulted with the Council, which includes the primary regulators of the functionally regulated subsidiaries of bank holding companies, regarding the final rule.<sup>14</sup> While bank holding companies are already subject

to capital requirements, section 165 of the Dodd-Frank Act directs the Board to adopt enhanced risk-based capital standards that mitigate the systemic risk of these firms. For reasons discussed below, adopting a GSIB surcharge addresses the systemic risk of GSIBs by making these firms more resilient.

### D. Interaction with the Global Framework

The final rule is aligned with global efforts to address the financial stability risks posed by the largest, most interconnected financial institutions. In 2011, the Basel Committee on Banking Supervision (BCBS) adopted a framework to identify global systemically important banking organizations and assess their systemic importance (BCBS framework).<sup>15</sup> The BCBS applies its methodology and releases a list of global systemically important banking organizations on an annual basis.<sup>16</sup>

The BCBS plans to review its framework, including its indicator-based measurement approach and the threshold scores for identifying global systemically important banks, every three years in order to capture developments in the banking sector and any progress in methods and approaches for measuring systemic importance.<sup>17</sup> The result of the first three-year review is scheduled to be published by November 2017.<sup>18</sup>

## II. Description of the Final Rule

The following discussion provides a summary of the proposal, the comments received, and the Board's responses to those comments, including modifications made in the final rule. The discussion begins with the proposed methodology to identify bank holding companies that are GSIBs. It then describes the two methods used to calculate the GSIB surcharge, the justification for using short-term wholesale funding in method 2, and the justification for the GSIB calibration. Next, it provides detail on the role of the GSIB surcharge in the regulatory capital

<sup>7</sup> Summaries of these meetings are available on the Board's public Web site.

<sup>8</sup> 12 CFR part 243.

<sup>9</sup> 12 CFR 225.8.

<sup>10</sup> 12 CFR part 252.

<sup>11</sup> 12 CFR part 252.

<sup>12</sup> See 12 U.S.C. 5365(b)(3).

<sup>13</sup> The Board is directed to take into consideration the extent to which a company is subject to supervision by the Federal banking agencies, the Securities and Exchange Commission, the Commodity Futures Trading Commission, or the state insurance regulators.

<sup>14</sup> See 12 U.S.C. 5365(b)(4).

<sup>15</sup> See "Global systemically important banks: Assessment methodology and the additional loss absorbency requirement," available at <http://www.bis.org/publ/bcbs207.htm>. In July 2013, the BCBS published a revised BCBS document entitled, "Global systemically important banks: Updated assessment methodology and the higher loss absorbency requirement," which provides certain revisions and clarifications to the initial framework (Revised BCBS Document). The document is available at <http://www.bis.org/publ/bcbs255.htm>.

<sup>16</sup> See [http://www.bis.org/bcbs/gsib/gsibs\\_as\\_of\\_2014.htm](http://www.bis.org/bcbs/gsib/gsibs_as_of_2014.htm).

<sup>17</sup> See paragraph 39 of the Revised BCBS Document.

<sup>18</sup> See paragraph 62 of the Revised BCBS Document.

framework and its implementation and timing. Last, it describes the categories that are used to measure systemic importance.

A. Identification of a GSIB

1. Scope of Application

The proposal would have required a U.S.-based top-tier bank holding company with total consolidated assets of \$50 billion or more to compute annually its method 1 score to determine whether it is a GSIB.<sup>19</sup> The Board has decided to tailor the final rule and apply this annual calculation requirement only to U.S.-based top-tier bank holding companies that qualify as advanced approaches Board-regulated institutions (those with \$250 billion or more in consolidated total assets or \$10 billion or more in consolidated total on-balance-sheet foreign exposures).<sup>20</sup> This revised approach reflects the view that firms that do not meet the definition of an advanced approaches bank holding company are less likely to pose systemic risk to U.S. financial stability than firms that meet the advanced approaches threshold.

The proposal did not apply to nonbank financial companies supervised by the Board, but the Board

requested comment on whether it would be appropriate to apply a GSIB surcharge to such companies. Commenters argued that the proposed framework would not be appropriate for U.S.-based insurance companies because it did not take into account the inherent differences between the banking and insurance industries or accurately capture systemic risk in the insurance sector. Commenters contended that section 165 of the Dodd-Frank Act requires that capital standards for nonbank financial companies supervised by the Board be tailored to their specific business models and argued that Congress reiterated its intent that capital standards be tailored through the passage of the Insurance Capital Standards Clarification Act of 2014.<sup>21</sup> They also argued that applying the GSIB framework to insurers would be inconsistent with international efforts to develop insurance-specific prudential standards.

Consistent with the proposal, the final rule does not apply the GSIB framework to nonbank financial companies supervised by the Board. Following designation of a nonbank financial company for supervision by the Board,

the Board intends to assess thoroughly the business model, capital structure, and risk profile of the designated company to determine how enhanced prudential standards should apply and, if appropriate, would tailor application of the standards by order or regulation to that nonbank financial company or to a category of nonbank financial companies. In evaluating whether additional policy measures may be appropriate for such firms, the Board intends to consider comments received on the proposal.

2. Methodology To Identify a Bank Holding Company as a GSIB

a. General Methodology

To calculate its method 1 score under the proposal, a GSIB would have used five broad categories that are correlated with systemic importance—size, interconnectedness, cross-jurisdictional activity, substitutability, and complexity. Each of the categories received a 20 percent weighting in the calculation of a firm’s method 1 score. The proposal identified 12 systemic indicators that measure the firm’s profile within these five categories, as set forth in Table 1 below.

TABLE 1—PROPOSED SYSTEMIC INDICATORS

Category	Systemic indicator	Indicator weight (%)
Size .....	Total exposures .....	20
	Intra-financial system assets .....	6.67
Interconnectedness .....	Intra-financial system liabilities .....	6.67
	Securities outstanding .....	6.67
	Payments activity .....	6.67
Substitutability .....	Assets under custody .....	6.67
	Underwritten transactions in debt and equity markets .....	6.67
	Notional amount of over-the-counter (OTC) derivatives .....	6.67
Complexity .....	Trading and available-for-sale (AFS) securities .....	6.67
	Level 3 assets .....	6.67
	Cross-jurisdictional claims .....	10
Cross-jurisdictional activity .....	Cross-jurisdictional liabilities .....	10
	Total for 12 indicators across five categories: .....	100

A bank holding company would have calculated a score for each systemic indicator by dividing its systemic indicator value by an aggregate global measure for that indicator. The resulting value for each systemic indicator would then have been multiplied by the prescribed weighting indicated in Table 1 above, and by 10,000 to reflect the result in basis points. A bank holding

company would then sum the weighted values for the 12 systemic indicators to determine its method 1 score; however, the value of the substitutability indicator scores would be capped at 100.<sup>22</sup> A bank holding company would have been identified as a GSIB if its method 1 score exceeded 130.

According to the Board’s analysis across many potential metrics, there is

a clear separation in systemic risk profiles between the eight U.S. top-tier bank holding companies that would be identified as GSIBs under the proposed methodology and other bank holding companies. Using the method 1 scores as a measure of systemic importance, there is a large drop-off between the eighth-highest score (146) and the ninth-highest score (51).<sup>23</sup> Drawing the cut-off

<sup>19</sup> The rule would not apply to a bank holding company that is either a consolidated subsidiary of another bank holding company or a consolidated subsidiary of a foreign banking organization.

<sup>20</sup> 12 CFR 217.100.

<sup>21</sup> See Public Law, 128 Stat. 3017 (2014).

<sup>22</sup> Scores would be rounded to the nearest basis point according to standard rounding rules for the purposes of assigning levels. That is, fractional amounts between zero and one-half would be rounded down to zero, while fractional amounts at or above one-half would be rounded to one.

<sup>23</sup> These estimated scores may not reflect the actual scores of a given firm, and they will change over time as each firm’s systemic footprint grows or shrinks. Unless otherwise specified in this

line within this target range is reasonable because firms with scores at or below 51 were much closer in size and complexity to financial firms that had previously been resolved in an orderly fashion than they were to the largest financial firms, which had scores between three and nine times as high and are significantly larger and more complex. The final rule sets the cut-off for identifying GSIBs at 130 in order to align the cut-off with international standards and facilitate comparability across jurisdictions.

Several commenters expressed support for the systemic indicators used in the proposed method 1. For instance, one commenter suggested that the Board use the systemic indicator approach more broadly in determining the scope of application of prudential regulation (as opposed to simple asset- or activity-based thresholds). However, another commenter argued that the proposed method did not appear to be based on empirical analysis, and questioned the equal weight given to each category. Another commenter argued that the proposed weighting for “size” overstates the importance of the category because other indicators are strongly correlated with size.

The final rule adopts the proposed weights for method 1. The equal weighting of these factors reflects the fact that each of the factors contributes to the effect the failure of a firm will have on financial stability and the particular score a firm receives will depend on its unique circumstances relative to the group of firms as a whole. The Board intends to reassess the regime at regular intervals to ensure that equal weighting remains appropriate.

#### b. Relative Nature of the Aggregate Global Indicator Amount

The proposal measured a bank holding company’s systemic indicator score in proportion to the corresponding aggregate global indicator amount, defined as the annual dollar figure published by the Board that represents the sum of the systemic indicator scores of the 75 largest U.S. and foreign banking organizations (as measured by the BCBS) and any other banking organization that the BCBS includes in its sample total for that year. Because the proposed aggregate global indicator amounts were calculated on a yearly basis, a firm’s scores would have reflected yearly changes to the systemic

indicators of the aggregate amounts. Thus, it is described herein as the “relative approach.” The aggregate global indicator amounts were converted from euros to U.S. dollars using the single day conversion rate provided by the BCBS.<sup>24</sup> The conversion rate was based on the prevailing exchange rate between euros and U.S. dollars on December 31 of the applicable year.

Several commenters argued that the relative approach would limit the ability of a firm to reduce its GSIB surcharge by reducing its systemic risk profile because its systemic indicator scores would be measured relative to the systemic risk profile of other global banking organizations. If a banking organization reduced the value of a given indicator by the same percentage as other banking organizations included in the aggregate global indicator, the banking organization’s systemic indicator scores would not be affected. Commenters suggested that the aggregate global indicator amounts be replaced with an empirically-supported absolute dollar amount or other fixed approach to ensure that reductions in indicators result in reductions in the systemic indicator scores. Similarly, several commenters suggested that the exchange rate used for converting aggregate global indicator amounts to U.S. dollars could overstate the systemic importance of U.S. GSIBs when the U.S. dollar is strong, despite having a very limited relationship or relevance to systemic importance. To moderate this effect, commenters suggested replacing the level of the exchange rate measured at a single point in time with a five-year rolling average exchange rate. Commenters also suggested that this change be discussed at the BCBS.

Under the relative approach, any changes in a bank holding company’s systemic indicator scores would have been driven by the bank holding company’s systemic footprint relative to other global banking organizations and would have been less sensitive to background macroeconomic conditions, such as GDP growth. On the other hand, using a fixed approach would enable a GSIB to predict its potential future systemic indicator scores, better facilitating its ability to engage in capital planning. A fixed approach would also provide more certainty regarding the actions that the GSIB may be able to take to reduce its GSIB surcharge. Because the score would not be affected by the aggregate level of systemic indicators of other global

firms, a given firm would be able to take actions to reduce its GSIB surcharge even if other firms were taking similar actions.

The final rule retains the relative approach for method 1, but adopts a fixed approach for method 2, as described further below. As a result, a firm will be identified as a GSIB and will be subject to a floor on its GSIB surcharge using the relative approach. The relative measure is appropriate for these purposes because it is less sensitive to changes in broader economic conditions. The relative measure also promotes comparability across jurisdictions implementing the BCBS framework. The fixed measure is appropriate for method 2, as it is more sensitive to an individual firm’s systemic risk profile, independent of its global peers. A bank holding company would better predict its potential future systemic indicator scores under a fixed approach, which would permit the firm to identify actions it may be able to take to reduce its GSIB surcharge. As the method 2 surcharge is likely to be the applicable surcharge, it better enables a firm to manage its risk profile.

Scores calculated under the fixed approach could be influenced by factors unrelated to systemic risk such as general economic growth. Method 2 does not include an automatic mechanism to adjust for such potential effects in order to avoid unintended consequences.<sup>25</sup> Under the final rule, the scores depend on a range of different indicator variables, each of which measures a different aspect of systemic risk that exhibits its own specific behavior. It is unlikely that any simple and mechanical method for deflating the score can control for background movements in these indicators unrelated to systemic risk without affecting the resulting score’s ability to measure each of these different aspects of systemic risk. The Board will periodically reevaluate the framework to ensure that factors unrelated to systemic risk do not have an unintended effect on a bank holding company’s systemic indicator scores.

One commenter noted that it was unclear how the objective of measuring the risk that a U.S. banking organization poses to the stability of the U.S.

preamble, estimated scores for method 1 were produced using indicator data reported by firms on the FR Y-15 as of December 31, 2014, and global aggregate denominators reported by the Basel Committee on Banking Supervision as of December 31, 2013.

<sup>24</sup> See paragraph 18 of the Revised BCBS Document.

<sup>25</sup> For example, under a fixed approach scores could potentially increase over time as a result of general economic growth as the economy expands. One way to address this effect could be to deflate scores by the rate of economic growth. However, such an approach could have the unintended consequence that scores would increase procyclically in the event of an economic contraction, thereby potentially raising capital surcharges in a way that could further exacerbate the economic downturn.

financial system would be accomplished by calculating its percentage of the aggregate global indicator amounts.

The underlying assumption of this share-based approach is that the failure of a U.S. banking organization that makes up a significant proportion of the aggregate global indicator amounts under the systemic indicators would lead to a significant disruption of the U.S. financial system, as well as the global financial system.

#### *B. Source of Systemic Indicator Information*

Under the proposal, to determine whether it is a GSIB, a bank holding company identified the values for each systemic indicator that it reported on its most recent Banking Organization Systemic Risk Report (FR Y–15). The FR Y–15 is an annual report that gathers data on components of systemic risk from large bank holding companies to enable analysis of the systemic risk profiles of such firms.<sup>26</sup> The FR Y–15 was developed to facilitate the implementation of the GSIB surcharge and also is used to analyze the systemic risk implications of proposed mergers and acquisitions and to monitor, on an ongoing basis, the systemic risk profiles of bank holding companies subject to enhanced prudential standards under section 165 of the Dodd-Frank Act. All U.S. top-tier bank holding companies with total consolidated assets of \$50 billion or more are required to file the FR Y–15 on an annual basis. The final rule relies on data collected on the FR Y–15, consistent with the proposal.

As noted above, the proposal measured each of a bank holding company's systemic indicator scores in proportion to the aggregate global indicator amount, defined as the annual dollar figure published by the Board that represents the sum of the systemic indicator scores of the 75 largest global banking organizations, as measured by the BCBS, and any other banking organization that the BCBS includes in its sample total for that year, converted into U.S. dollars and published by the Board. The 75 largest global banking

organizations on which the aggregate global indicator amounts are based includes both U.S. and foreign banking organizations. As noted above, information from U.S. banking organizations is collected on the FR Y–15. Foreign jurisdictions collect information in connection with the GSIB surcharge framework developed by the BCBS that parallels the information collected on the FR Y–15. The aggregate global indicator amounts are denominated in euros and compiled and published by the BCBS on an annual basis along with foreign exchange rates.

Some commenters suggested that the proposed aggregate global indicator amounts (the denominator of the systemic indicator scores) be expanded to include a broader set of financial institutions than what was included in the proposal. For instance, commenters suggested that the proposal expand the global aggregate indicator amounts to include additional non-GSIB U.S. banking organizations, central counterparties, and nonbank financial companies supervised by the Board. The purpose of the GSIB surcharge is to address the systemic risks posed by the most systemic U.S. banking organizations, and the relative score reflects the types of systemic risk specifically posed by banking organizations. The Board continues to consider the systemic risk posed by nonbank financial companies, which may pose different risks to U.S. financial stability. Accordingly, the final rule incorporates the aggregate global indicator amounts as proposed. When developing prudential standards, the Board will continue to take into account the specific characteristics and potential risks posed by different types of financial institutions, including those of nonbank financial institutions.

Several commenters expressed concern with the proposed use of global data to compute the aggregate global indicator amounts. For instance, some commenters expressed the view that they were unable to evaluate the data collection process of foreign jurisdictions, and did not provide procedural and substantive safeguards. Commenters also expressed concern regarding the quality of the global data, suggesting that there may be inconsistencies between data reporting across jurisdictions and noting that foreign jurisdictions may not make their institutions' data public. Other commenters questioned the transparency and auditability of the measure and contended that it was unclear whether U.S. authorities would be able to audit the foreign data.

Commenters also asked how restatements of data, if necessary, would flow into the denominator used to calculate a firm's systemic risk score. Commenters recommended that the Board delay finalizing the proposal until the method for calculating the aggregate global indicator amounts was clear and accessible to the public, and requested that the Board publish analysis on how instructions from other jurisdictions compares to U.S. instructions and that the Board make adjustments to U.S. rules if necessary.

Use of global data in calculating the GSIB surcharge is appropriate. The proposal explained how the aggregate global indicator amounts released by the BCBS are calculated, including a table listing each systemic indicator that is reported by the largest global banking organizations. Moreover, the proposal described the population of global banking organizations that report the data. The methodology relies on a global data source that has been in place for a number of years and which is collected based on processes and procedures that are publicly available. Each year, the BCBS publishes on its Web site the reporting form used by banking organizations included in the global sample for the purpose of the GSIB designation exercise, as well as detailed instructions to avoid differences in interpretations across jurisdictions.

Commenters also raised concerns regarding the quality of the global data. The BCBS has implemented data collection standards and auditing processes to ensure the quality, consistency, and transparency of the systemic indicator data reported by banking organizations across jurisdictions. The BCBS reporting instructions include standards for reporting the indicator totals and subcomponents, which require that firms have an internal process for checking and validating each item.<sup>27</sup> Member supervisory authorities are responsible for ensuring that their banking organizations are reporting accurate data. Under the BCBS framework, it is expected that national supervisory authorities will require banking organizations included in the global sample to publicly disclose the 12 indicators used in the assessment methodology in order to increase transparency. National authorities also have discretion under the framework to require that banking organizations

<sup>26</sup> See 77 FR 76487 (December 28, 2012). The Board subsequently revised the FR Y–15 in December 2013. See 78 FR 77128 (December 20, 2013). On July 9, 2015, the board invited comment on a proposal to revise the FR Y–15. See 80 FR 39433. Among other changes, the reporting proposal would have collected information on short-term wholesale funding based on the Board's proposed rule to establish GSIB surcharges. In connection with this final rule, the Board is amending the proposed short-term wholesale funding collection, and extending the comment period on the proposal to end 60 days after this final rule is published in the **Federal Register**.

<sup>27</sup> See the reporting instructions on the Bank for International Settlements' Web page "Global systemically important banks: Assessment methodology and the additional loss absorbency requirement," available at <http://www.bis.org/bcbs/gsib/>.

disclose the full breakdown of the indicators as set out in the template, and many have opted to do so.<sup>28</sup> Moreover, the reporting form includes automated checks, and the BCBS, in collaboration with Board and other national supervisory staff, conducts a review of the data to be included in the global systemic indicators to serve as a final check for data that has been misreported. This process also compares prior-year submissions to identify whether there is a material change in a reported figure. To the extent that a banking organization's submissions raise questions, the BCBS team goes back to the regulator of the banking organization, which consults with the company to verify the accuracy of the submission. To date, inspections have identified issues that have required firms to resubmit data and have led to updates in the aggregate global indicator amounts. The Federal Reserve will continue to participate in the global data collection process to help ensure the continuing quality of the global data used in the final rule.

### C. Computing the Applicable GSIB Surcharge

Under the proposal, a bank holding company with an aggregate systemic indicator score of 130 basis points or greater would be identified as a GSIB and, as such, would be subject to the higher of the two surcharges calculated under method 1 and method 2.

#### 1. Method 1 Surcharge

As noted above, under the proposal, a bank holding company would have calculated its method 1 score using the same methodology used to determine whether the bank holding company was a GSIB. A bank holding company's method 1 score receives a surcharge in accordance with Table 2, below.

TABLE 2—PROPOSED METHOD 1 SURCHARGE

Method 1 score (basis points)	Method 1 surcharge
Less than 130.	0.0 percent (no surcharge).
130–229 ..	1.0 percent.
230–329 ..	1.5 percent.
330–429 ..	2.0 percent.
430–529 ..	2.5 percent.
530–629 ..	3.5 percent.

<sup>28</sup> At least the following countries required their largest banking organizations to disclose the full breakdown of their end-2013 indicators: Austria, Belgium, France, Italy, the Netherlands, Norway, Spain, Sweden, the United Kingdom, and the United States.

TABLE 2—PROPOSED METHOD 1 SURCHARGE—Continued

Method 1 score (basis points)	Method 1 surcharge
630 or greater.	3.5 percent plus 1.0 percentage point for every 100 basis point increase in score.

As reflected in Table 2, a GSIB would have been subject to a minimum capital surcharge of 1.0 percent. The minimum surcharge of 1.0 percent for all GSIBs accounts for the inability to know precisely where the cut-off line between a GSIB and a non-GSIB will be at the time failure occurs, and the purpose of the surcharge of enhancing resilience of all GSIBs. The surcharge increased in increments of 0.5 percentage points for each 100 basis-point band, up to a method 1 surcharge of 2.5 percent. If a GSIB's method 1 score exceeded 529, the GSIB would have been subject to a surcharge equal to 3.5 percent, plus 1.0 percentage point for every 100 basis point increase in score. Using current data, the method 1 score of the largest U.S. GSIB is estimated to be within the 2.5 percent band. By increasing the surcharge by 1.0 percentage point (instead of 0.5 percentage points), the proposed rule was designed to provide a disincentive to existing GSIBs to increase their systemic footprint.

As discussed above, the Board received comments on the proposed method 1 categories, the weighting of the categories, the relative approach, and the calibration method. For the reasons discussed in other sections, the final rule adopts method 1 surcharges without change.

#### 2. Method 2 Surcharge

Under the proposed method 2, a GSIB would have calculated a score for the size, interconnectedness, complexity, and cross-jurisdictional activity systemic indicators in the same manner as it would have computed its aggregate systemic indicator score under method 1. Rather than using the method 1 substitutability category, under the proposed method 2, the GSIB would have used a quantitative measure of its use of short-term wholesale funding (short-term wholesale funding score). To determine its method 2 surcharge, a GSIB would have identified the method 2 surcharge that corresponds to its method 2 score, as identified in Table 3 below.

TABLE 3—METHOD 2 SURCHARGE

Method 2 score (basis points)	Method 2 surcharge
Less than 130.	0.0 percent (no surcharge).
130–229 ..	1.0 percent.
230–329 ..	1.5 percent.
330–429 ..	2.0 percent.
430–529 ..	2.5 percent.
530–629 ..	3.0 percent.
630–729 ..	3.5 percent.
730–829 ..	4.0 percent.
830–929 ..	4.5 percent.
930–1029	5.0 percent.
1030–1129.	5.5 percent.
1130 or greater.	5.5 percent plus 0.5 percentage point for every 100 basis point increase in score.

As reflected in Table 3, a GSIB would have been subject to a minimum capital surcharge of 1.0 percent under method 2.<sup>29</sup> Like the method 1 surcharge, the method 2 surcharge uses band ranges of 100 basis points, with the lowest band ranging from 130 basis points to 229 basis points. The method 2 surcharge increases in increments of 0.5 percentage points per band, including bands at and above 1130 basis points. As with the method 1 surcharge, the method 2 surcharge includes an indefinite number of bands in order to give the Board the ability to assess an appropriate surcharge should a GSIB become significantly more systemically important.

As discussed above in section II.A.2.b of this preamble, the final rule adopts a fixed approach for converting a bank holding company's systemic indicator value into its method 2 score, instead of measuring the systemic indicator value as relative to an annual aggregate global indicators. The fixed approach used in method 2 employs constants, described immediately below, that are based on the average of the aggregate global indicator amounts for each indicator for year-end 2012 to 2013.<sup>30</sup> The aggregate global indicator amounts are converted from euros to U.S. dollars using an exchange rate equal to the average daily foreign exchange spot rates from the period 2011–2013, rounded to five

<sup>29</sup> As noted above, the minimum surcharge of 1.0 percent for all GSIBs accounts for the inability to know precisely where the cut-off line between a GSIB and a non-GSIB will be at the time when a failure occurs, and the purpose of the surcharge of enhancing resilience of all GSIBs.

<sup>30</sup> Note that there is no comparable data for trading and AFS securities due to a definitional change, so only the end-2013 value is used in the calculation.

decimal places.<sup>31</sup> In developing the fixed coefficients, the Board analyzed data covering several years and found that averaging a global measure of a given systemic indicator amount over at least two years reduced the impact of short-term fluctuations of the aggregate global indicator amount, while improving the predictability of the score calculation.<sup>32</sup> To convert the global measure of a given systemic indicator amount to U.S. dollars, the final rule

uses a three-year average exchange rate. A three-year average reduces potential volatility in the score that would be introduced by the volatility in daily spot-rates while reflecting more sustained changes in exchange rates.

The final rule assigns a constant, or coefficient, to each systemic indicator that includes the average aggregate global indicator amount, the indicator weight, the conversion to basis points, and doubling of firm scores. This

reduces the steps that a GSIB must take to determine its method 2 score, as compared to the proposal. Presented in another manner, the method 2 indicator coefficients in the final rule are calculated as follows:<sup>33</sup>

$$\text{Indicator weight} / (\text{average aggregate global indicator}_{(\text{in EUR})} * \text{FX conversion rate}_{(\text{EUR to USD})} * 10,000 (\text{conversion to basis points}) * 2$$

These coefficients are set forth in Table 4, below:

TABLE 4—COEFFICIENTS FOR METHOD 2 SYSTEMIC INDICATORS<sup>34</sup>

Category	Systemic indicator	Coefficient value (%)
Size	Total exposures	4.423
Interconnectedness	Intra-financial system assets	12.007
	Intra-financial system liabilities	12.490
Complexity	Securities outstanding	9.056
	Notional amount of over-the-counter (OTC) derivatives	0.155
	Trading and available-for-sale (AFS) securities	30.169
	Level 3 assets	161.177
Cross-jurisdictional activity	Cross-jurisdictional claims	9.277
	Cross-jurisdictional liabilities	9.926

Use of a fixed approach improves the predictability of the scores and facilitates capital planning by GSIBs. It will also permit firms to calculate their method 2 scores as soon as they calculate their systemic indicator values, and not depend on publication of aggregate global figures as was the case under the proposal.

While the final rule's method 2 score has the advantages set forth above, the Board acknowledges that over time, a bank holding company's method 2 score may be affected by economic growth that does not represent an increase in systemic risk. To ensure changes in economic growth do not unduly affect firms' systemic risk scores, the Board will periodically review the coefficients and make adjustments as appropriate.

### 3. Short-Term Wholesale Funding

The proposed method 2 incorporated a measure of short-term wholesale funding in place of substitutability in order to address the risks presented by those funding sources. During periods of stress, reliance on short-term wholesale funding can leave firms vulnerable to runs that undermine financial stability. When short-term creditors lose

confidence in a firm or believe other short-term creditors may lose confidence in that firm, those creditors have a strong incentive to withdraw funding quickly before withdrawals by other creditors drain the firm of its liquid assets. To meet its obligations, the borrowing firm may be required to rapidly sell less liquid assets, which it may be able to do only at fire sale prices that deplete the seller's capital and drive down asset prices across the market. Asset fire sales may also occur in a post-default scenario, as a defaulted firm's creditors seize and rapidly liquidate assets the defaulted firm has posted as collateral. These fire sales can result in externalities that spread financial distress among firms as a result of counterparty relationships or because of perceived similarities among firms, forcing other firms to rapidly liquidate assets in a manner that places the financial system under significant stress.

Several commenters expressed support for the inclusion of a short-term wholesale funding measure, claiming that short-term wholesale funding is more correlated to probability of failure than substitutability and that the

proposal provides appropriate incentives to firms to reduce use of short-term wholesale funding. Other commenters objected to the inclusion of short-term wholesale funding in the GSIB surcharge, pointing to other regulatory initiatives that address liquidity concerns, such as the liquidity coverage ratio (LCR). Several commenters argued that the liquidity framework should be implemented before short-term wholesale funding is included as part of the GSIB surcharge. Another commenter expressed the view that capital is an ineffective tool to stem contagious runs because no reasonable amount of capital would be able to absorb mounting losses resulting from run-driven asset fire sales.

The final rule includes a short-term wholesale funding component because use of short-term wholesale funding is a key determinant of the impact of a firm's failure on U.S. financial stability. Increasing capital is an effective tool to reduce the risk of liquidity runs because capital helps maintain confidence in the firm among its creditors and counterparties. In addition, if runs do occur, additional capital buffers will increase the probability that the firm

<sup>31</sup> To determine the rounded foreign exchange conversion rate of 1.3350, the Board averaged the daily euro to U.S. dollar spot rates from 2011–2013 as published by the European Central Bank available at <https://www.ecb.europa.eu/stats/exchange/eurofxref/html/index.en.html>.

<sup>32</sup> The final rule chose a two year average, as there have not been dramatic fluctuations in the aggregate global indicator amounts over the last several years

of available data (other than due to a definitional change for trading and AFS securities).

<sup>33</sup> For example, the coefficient value for the size category is calculated as follows: 20 percent (indicator weight)/(67,736 billion EUR (average of 2012–2013 aggregate global indicator) \* 1.3350 EUR/USD) \* 10,000 (conversion to bps) \* 2, which is equivalent to the coefficient value of 4.423 percent in Table 4.

<sup>34</sup> The final rule presents the coefficients using five decimal places based on a review of the estimated scores of the largest five bank holding companies. Increasing the number of decimal places would have an immaterial difference on the systemic indicator scores of bank holding companies.



will be able to absorb losses without failing.

Furthermore, other liquidity measures, such as the LCR, do not fully address the systemic risks of short-term wholesale funding. The LCR generally permits the outflows from such liabilities to be offset using either high quality liquid assets or the inflows from short-term claims with a matching maturity. In cases where a firm uses short-term wholesale funding to fund a short-term loan, a run by the firm's short-term creditors could force the firm to quickly reduce the amount of credit it extends to its clients or counterparties. Those counterparties could then be forced to rapidly liquidate assets, including relatively illiquid assets, which might give rise to a fire sale.<sup>35</sup> Because the GSIB surcharge focuses only on a bank holding company's use of short-term wholesale funding and does not take into account the inflows, it complements the liquidity requirements imposed by the LCR.

One commenter argued that the proposal did not explain why the short-term wholesale funding indicator should replace the substitutability category rather than any of the other categories. As noted in the proposal, substitutability is relevant in determining whether a bank holding company is a GSIB, as the failure of a bank holding company that performs a critical function can pose significant risks to U.S. financial stability. However, use of short-term wholesale funding is a key determinant of the systemic losses resulting from a firm's failure.<sup>36</sup> As the GSIB surcharge is calibrated to equate the systemic loss of a GSIB's failure to the failure of a large non-GSIB, it is appropriate to replace the measures of substitutability with a measure of short-term wholesale funding.

One commenter contended that the Board should conduct a more structured data collection in relation to short-term wholesale funding to ensure dynamic monitoring and regulation of short-term wholesale funding activities by GSIBs and appropriate tailoring of regulatory regimes based on trends in these markets. Consistent with the commenter's suggestion, the Board invited comment on a proposal to collect information regarding a bank holding company's short-term wholesale funding sources on July 9,

2015.<sup>37</sup> In connection with this final rule, the Board is amending the proposed FR Y-15 collection in order to align the definition of short-term wholesale funding with the definition contained in the final rule. Comments on these amendments will be due 60 days after publication of the final rule in the **Federal Register**.

#### 4. Calibration of GSIB Surcharge and Estimated Impact

As described in the proposal, the calibration of the GSIB surcharge was based on the Board's analysis of the additional capital necessary to equalize the expected impact on the stability of the financial system of the failure of a GSIB with the expected systemic impact of the failure of a large bank holding company that is not a GSIB (expected impact approach). Increased capital at a GSIB increases the firm's resiliency, thereby reducing its probability of failure and resulting in reduced expected systemic impact.

Some commenters expressed support for the proposed expected impact approach, suggesting that the approach would reduce the GSIBs' risk of failure and provide incentives for firms to restructure and reduce their systemic footprint. However, several commenters were critical of the expected impact approach as outlined in the proposal. Several commenters argued that the proposal did not include underlying empirical analysis to support the surcharge levels and argued that it was not possible to judge whether the proposal achieves its underlying aims. Further, commenters argued that the underlying analysis should be made public and the public given an opportunity to comment on that analysis.

Section 165 of the Dodd-Frank Act directs the Board to impose enhanced prudential standards that prevent or mitigate risks to the financial stability of the United States that could arise from the material financial distress or failure of large, interconnected financial institutions. Because the failure of a GSIB may pose significant risk to U.S. financial stability, regulations under section 165 of the Dodd-Frank Act should be designed to lower the probability of default of such firms. One method of lowering the probability of default of a financial firm is to impose additional capital requirements on that firm. Imposing the GSIB surcharge on only the largest, most interconnected financial firms—the GSIBs—is consistent with the direction in section 165 of the Dodd-Frank Act that

prudential standards be tailored and take into consideration capital structure, riskiness, complexity, financial activities, size, and other risk-related factors.

In connection with this final rule, the Board has benefitted from the information, suggestions, and analysis provided by commenters. To help explain how the Board has analyzed this and other information available to it, the Board is publishing with this rule a white paper that supplements the calibration outlined in the final rule and the rationale for the surcharge levels that apply under the rule.<sup>38</sup> The white paper expands on the expected impact approach described in the proposed rule, describes the assumptions necessary to that approach, and helps explain the assumptions underlying and the analytical framework supporting the final rule. The Board has incorporated that analysis in its consideration and is publishing the white paper to make it more accessible to the public.

As discussed more fully in the white paper, under the expected impact approach, the GSIB surcharge is calibrated to reduce the expected impact of a GSIB's failure to equal that of a large banking organization that is not a GSIB, which the white paper refers to as the "reference BHC" (*r*). In terms of systemic loss given default (LGD), probability of default (PD), and expected systemic loss from default (EL), this approach is expressed symbolically as follows:

$$EL_{GSIB} = EL_r,$$

where:

$$EL = LGD * PD$$

Since  $LGD_{GSIB}$  is (by the definition of GSIB) greater than  $LGD_r$ , satisfying the equation requires  $PD_{GSIB}$  to be reduced below  $PD_r$ . For example, if a given GSIB's loss given default is twice as great as that associated with the reference BHC, then that GSIB's probability of default must be reduced to half of the reference BHC's probability of default. This rule achieves that goal by subjecting the GSIB to a capital surcharge, since a larger capital buffer allows a firm to absorb a larger amount of losses without failing.

Several components are necessary to operationalize the expected impact framework: A metric for quantifying a BHC's systemic loss given default (that is, its systemic footprint); a reference BHC with an LGD score that can be compared to the scores of the GSIBs; and a function for evaluating the

<sup>35</sup> The risk described here is similar to the risk associated with matched books of securities financing transactions, which is discussed in <http://www.federalreserve.gov/newsevents/speech/tarullo20131122a.htm>.

<sup>36</sup> *Id.*

<sup>37</sup> See 80 FR 39433.

<sup>38</sup> See *Calibration of the GSIB Surcharge*. The Board relied on the white paper and its explanations and analysis in this rulemaking and incorporates it by reference.



amount of additional capital that is necessary to cut a BHC's probability of default by a desired fraction.

The white paper quantifies firms' systemic loss given default using the final rule's method 1 and method 2. It also discusses several plausible choices of reference BHC and the scores associated with those choices under each of the two methods. The expected impact framework requires that the reference BHC be a non-GSIB, but it leaves room for discretion as to the reference BHC's identity and LGD score. The white paper explores several options for choosing a reference BHC and the surcharges that stem from these options. The reference BHC choices considered are (1) a representative bank holding company with \$50 billion in total assets (a threshold used by section 165 of the Dodd-Frank Act to determine which bank holding companies should be subjected to enhanced prudential standards in order to promote financial stability); (2) a representative BHC with \$250 billion in total assets (a threshold used by the Board to identify advanced approaches bank holding companies); (3) the actual U.S. non-GSIB with the highest score under each method (that is, the most systemically important U.S. bank holding company that is not a GSIB); and (4) a hypothetical bank holding company with a score somewhere in between the score of the most systemic U.S. non-GSIB and the score of the least systemic GSIB.

Within option 4, the white paper identifies a hypothetical bank holding company with a score between the score of the least systemic GSIB and the score of the most systemic U.S. non-GSIB for both method 1 and method 2. For each method, the Board considered where the range between the lowest scoring GSIB and a highest scoring non-GSIB would lie, and considered several options for a cut-off line within the target range. For method 1, that gap lies between the bank holding company with the eighth-highest score (146), and the bank holding company with the ninth-highest score (51).<sup>39</sup> As discussed in the white

paper, drawing the cut-off line within this target range is reasonable because firms with scores at or below 51 were much closer in size and complexity to financial firms that have previously been resolved in an orderly fashion than they were to the largest financial firms, which had scores between three and nine times as high and are significantly larger and more complex.

The Board has chosen a cut-off line of 130 for method 1, which is at the upper end of the target range. This choice is appropriate because it aligns with international standards and facilitates comparability among jurisdictions.

For method 2, the white paper identifies the gap between Bank of New York Mellon and the next-highest-scoring firm as the most rational place to draw the line between GSIBs and non-GSIBs: BNYM's score is roughly 251 percent of the score of the next highest-scoring firm. (There is also a large gap between Morgan Stanley's score and Wells Fargo's, but the former is only about 154 percent of the latter.) Furthermore, using this approach generates the same list of eight U.S. GSIBs as is produced by method 1.

The Board has chosen the lower end of the target range for purposes of method 2. In determining the appropriate threshold method 2, the Board considered that the statutory mandate to protect U.S. financial stability argues for a method of calculating surcharges that addresses the importance of mitigating the effects on financial stability of the failure of U.S. GSIBs, which are among the most systemically important financial institutions in the world. The lower cut-off line is appropriate in light of the fact that method 2 uses a measure of short-term wholesale funding in place of substitutability. Specifically, short-term wholesale funding has particularly strong contagion effects that could more easily lead to major systemic events, both through the freezing of credit markets and through asset fire sales. Further, although the failure of a large, non-GSIB poses a smaller risk to financial stability than does the failure of one of the eight GSIBs, it is nonetheless possible that the failure of a very large banking organization that is not a GSIB could have a negative effect on financial stability, particularly during a period of industry-wide stress such as occurred during the 2007–2008 financial crisis. This provides further support for setting the cut-off line for method 2 at the lower end of the target range.

To implement the expected impact approach, the white paper provides a framework that relates capital ratio

increases to reductions in probability of default. The white paper uses approximately three decades' worth of data on the return on risk-weighted assets (RORWA) of the fifty largest U.S. bank holding companies to determine the probability distribution of losses (that is, negative RORWAs) of various magnitudes by large U.S. bank holding companies. The probability that a bank holding company will default within a given time period is the probability that it will take losses within that time period that exceed the difference between its capital ratio at the beginning of the time period and a "failure point" beyond which the firm is unable to recover and ultimately defaults. Thus, the historical data on RORWA probabilities can be used to create a function that relates a firm's capital ratio to the probability that it will suffer a loss that causes it to default.

By combining these three components, a capital surcharge can be assigned to GSIBs based on their LGD scores. This can be done by finding the ratio between a reference bank holding company's score (under each method) and a GSIB's score and then finding the capital surcharge that the GSIB must meet to equate that ratio with the ratio of the GSIB's probability of default to the reference BHC's probability of default. This analysis produces a range of capital surcharges for a given method 1 or method 2 score, which vary depending on the choice of reference BHC.

Based on this analysis, the Board determined to apply surcharges to discrete "bands" of scores. The surcharges correspond to the Board's analysis of the various options for reference BHCs, including a reference BHC score of 130 for purposes of method 1 and a reference BHC score at or around 100 for purposes of method 2.

Under both method 1 and method 2, GSIBs with a score between 130 and 229 will be subject to a surcharge of 1.0 percentage points. The minimum surcharge of 1.0 percent for all GSIBs accounts for the inability to know precisely where the cut-off line between a GSIB and a non-GSIB will be at the time when a failure occurs, and the purpose of the surcharge of enhancing the resilience of all GSIBs.

Above the first band, the method 1 and method 2 scores rise in increments of one half of a percentage point.<sup>40</sup> This

<sup>39</sup> These estimated scores may not reflect the actual scores of a given firm, and they will change over time as each firm's systemic footprint grows or shrinks. Estimated scores for method 1 were produced using indicator data reported by firms on the FR Y-15 as of December 31, 2014, and global aggregate denominators reported by the Basel Committee on Banking Supervision as of December 31, 2013. Estimated scores for method 2 were produced using the same indicator data and the average of the global aggregate denominators reported by the BCBS as of the ends of 2012 and 2013. For the eight U.S. BHCs with the highest scores, the short-term wholesale funding component of method 2 was estimated using liquidity data collected through the supervisory process and averaged across 2014.

<sup>40</sup> Method 1 scores above 530 are associated with surcharge bands that rise in increments of 1.0 percentage points. The heightened increment associated with the fifth band under method 1 was designed to provide a strong disincentive for further increases in systemic footprint.

sizing was chosen to ensure that modest changes in a firm's systemic indicators will generally not cause a change in its surcharge, while at the same time maintaining a reasonable level of sensitivity to changes in a firm's systemic footprint. Because small changes in a firm's score will generally not cause a change to the firm's surcharge, using surcharge bands will facilitate capital planning by firms subject to the rule.

In both methods, the bands are equally sized at 100 basis points per band. In developing the band structure, the Board also considered sizing the bands using the logarithmic function implied by the model used to relate a firm's score to its surcharge. A logarithmic function would result in smaller bands at lower scores and larger bands at higher scores. Larger surcharge bands for the most systemically important firms would allow these firms to expand their systemic footprint materially within the band without augmenting their capital buffers. As discussed further in the white paper, the Board determined that fixed-width bands were more appropriate than logarithmically sized bands for several reasons.

For example, while the historical RORWA dataset used to derive the function relating a firm's LGD score to its surcharge contains many observations for relatively small losses, it contains far fewer observations of large losses of the magnitude necessary to cause the failure of a firm that has a very large systemic footprint because losses of that magnitude are much less common than smaller losses. The data set is also limited because the frequency of extremely large losses would likely have been higher in the absence of extraordinary government actions taken to protect financial stability, especially during the 2007–2008 financial crisis. This may mean that firms need to hold more capital to absorb losses in the tail of the distribution than the historical data would suggest. Finally, the data set are subject to survivorship bias, in that a given bank holding company is only included in the sample up until the point where it fails (or is acquired). If a firm fails in a given quarter, then its experience in that quarter is not included in the data set, and any losses realized during that quarter (including losses realized only upon failure) are therefore excluded from the dataset, leading to an underestimate of the probability of such large losses. Given this uncertainty, and in light of the Board's mandate under section 165 of the Dodd-Frank Act to impose prudential standards to mitigate risks to

financial stability, the Board has determined that a higher threshold of certainty should be imposed on the sufficiency of capital requirements for the most systemically important financial institutions.

The white paper also discusses two alternatives to the expected impact framework for calibrating GSIB capital surcharges. The first alternative is an economy-wide cost-benefit analysis, which would weigh the costs of higher capital requirements for GSIBs (such as a potential temporary decline in credit intermediation) against the benefits (most notably, a reduction in the frequency and severity of financial crises). Although analytical work by the BCBS suggests that capital ratios higher than those that will apply under the final rule would produce net benefits to the economy, the white paper does not use this framework as the primary calibration framework because its results are highly sensitive to a number of factors, including assumptions regarding the probability of and harm caused by economic crises, the extent to which higher capital requirements might reduce credit intermediation by firms subject to those requirements, the rate at which other firms would expand their output of credit intermediation, and the harm associated with a given diminution in credit intermediation.

The second alternative is to calibrate the surcharge by determining the surcharge necessary to offset any funding advantage that GSIBs may derive from market participants' perception that the government may resort to extraordinary measures to rescue them if they come close to failure. Although any such funding advantage creates harmful economic distortions, the primary harm associated with GSIBs is the risk that their failure would pose to financial stability. Moreover, the size of any such funding advantage for an individual GSIB is very difficult to estimate. Accordingly, the white paper focuses on the expected impact framework rather than the funding-advantage-offset framework.

Several commenters questioned why proposed method 2 produced higher surcharges, and why the inputs to the method 2 score are doubled. As discussed more fully in the white paper, the expected impact analysis suggests this doubling of scores originally included in the proposal is not relevant to the calculation of surcharges. Rather, as noted above, the higher method 2 surcharges result from the selection of a reference BHC at the lower end of the gap between a GSIB and a large non-

GSIB.<sup>41</sup> This better aligns the surcharge with the risks presented by U.S. GSIBs to U.S. financial stability and the risks presented by short-term wholesale funding. Method 2 raw scores were doubled to permit comparability between scores produced under method 1 and method 2.

Several commenters expressed concern that the proposed calibration based on the expected impact approach did not take into account existing and forthcoming regulatory reforms, such as the LCR, net stable funding ratio (NSFR), and enhanced supplementary leverage ratio. The Board recognizes that most of the historical RORWA data used to calibrate the surcharge predate those reforms. If those reforms lower the probabilities of default of GSIBs for a given level of capital to a greater extent than they do for non-GSIBs (such as the reference BHC), then the historical data may overestimate the required surcharge levels. At the same time, however, the historical data may underestimate probabilities of default for GSIBs due to the fact that during certain time periods included within the sample (particularly the 2007–2008 financial crisis), the U.S. government took certain extraordinary actions to protect financial stability, and, without these interventions, large banking firms likely would have incurred substantially greater losses. Because a key purpose of post-crisis regulation is to ensure that such extraordinary government actions are not necessary in the future, an ideal data set would show the losses that would have occurred in the absence of government intervention and would thus include a higher incidence of significant losses. Accordingly, there are reasons to believe that the historical data overestimate the probability of large losses and there are reasons to believe that those data underestimate the probability of large losses. Given this balance of uncertainties, it is appropriate to treat the historical data as reasonably representative of future loss probabilities for large bank holding companies.

Commenters also contended that the proposal did not clarify the characteristics of the large but not systemically important bank holding company that served as the reference point for the calibration. This topic is addressed in detail by the white paper; as discussed above, the white paper sets

<sup>41</sup> This is because the surcharges that result from the framework applied by the white paper depend only on the *ratios* between the GSIBs' scores and the score of the reference BHC; changes to the absolute values of these scores do not affect the resulting surcharges so long as those ratios remain the same.

forth and evaluates four potential choices of reference BHC. Further, at least one commenter noted that the BCBS study referenced in the proposal was not specifically targeted at large U.S. banking organizations. As discussed above and in the white paper, the BCBS long-term economic impact study is not directly relevant to the primary framework used to calibrate the GSIB surcharge (that is, the expected impact framework). However, although the BCBS study did not limit its analysis to capital requirements for U.S. GSIBs, the study nonetheless provides helpful context to inform the calibration of the GSIB surcharge.

Some commenters expressed concern regarding the calibration's basis in the expected impact approach, arguing that, if failure is assumed, then pre-failure capital is likely to have no effect or only a limited effect on systemic impact. As discussed above, the expected impact framework does not "assume" failure; rather, it considers the harms that failure would cause and then considers the level of capital necessary to reduce the probability of failure to a level that is consistent with the purposes of the Dodd-Frank Act. Additional capital is a highly effective means of reducing a banking organization's probability of failure.

##### 5. Costs and Benefits of the Proposal

The Board sought comment on the potential costs of the proposed GSIB surcharge, and the potential impacts of the proposed framework on economic growth, credit availability, and credit costs in the United States. Some commenters suggested that the surcharges were supported by existing cost benefit analyses and would deliver substantial net economic benefits. However, several other commenters raised concern that the higher standards on U.S. GSIBs would inhibit lending, market-making, and the provision of liquidity by the financial sector, or would impose costs on other market participants. Commenters contended that these concerns were particularly relevant in light of the introduction of higher regulatory requirements in the United States across several areas.

While the GSIB surcharge may cause firms to hold additional capital, any costs on individual institutions and markets from the GSIB capital surcharge must be viewed in light of the benefits of the rule to U.S. financial stability more broadly. Notwithstanding the extraordinary support provided by U.S. and foreign governments, it is worth noting that the 2007–2008 crisis imposed significant costs on the financial markets and the real economy.

Additional capital at the largest, most interconnected institutions, is intended to reduce the likelihood that the failure or material financial distress of these institutions will again pose a threat to U.S. financial stability. In particular, additional capital increases the resiliency of institutions, reducing the likelihood of failure and thereby protecting the firm's creditors and counterparties, as well as the U.S. government and taxpayers. Additional capital also decreases the risk that distress at any particular firm will be transmitted throughout the financial system through mechanisms such as fire sales of assets, thereby causing or exacerbating a financial crisis. Further, it enables a firm during a period of wider financial crisis to continue operations and, if need be, step into the place of distressed firms, limiting the impact of wider financial system stress on financial intermediation and reducing the adverse impact on the real economy.

In addition, the costs of the final rule on individual institutions are mitigated in light of the phased implementation of the final rule. First, the GSIB surcharge is phased-in over several years, from January 1, 2016, to December 31, 2018, which allows firms time to accumulate additional capital if necessary or to take actions to reduce their surcharges in the interim.

In light of the timeframe for implementation of the final rule, it is not anticipated that the final rule would have significant adverse impacts on any specific financial markets. The Board intends to monitor the impacts of the enhanced prudential standards on financial institutions and markets more broadly, and to continue to evaluate whether these standards strike the appropriate balance between the costs imposed on institutions and financial markets and the benefits to U.S. financial stability.

Some commenters argued that GSIB surcharges would add to the complexity and opacity of the regulatory capital and stress-testing requirements, and that these measures impose substantial compliance costs on banking organizations. Suggestions on how to address this issue included an approach where firms could choose to hold substantially more capital in return for regulatory relief in other areas. Several commenters expressed concerns about the continued reliance by regulators on the existing risk-based capital regime, with some arguing that greater emphasis should be placed on the leverage ratio.

Several commenters argued that the proposed rule could result in competitive disadvantages to the

detriment of the U.S. financial system and economy, particularly in light of other prudential measures. Other commenters suggested that the Board conduct a study of the effect of the proposed surcharges on the U.S. financial system and wider economy. Commenters also raised concerns that the proposed rule would cause financial activities to move to unregulated financial institutions.

The goal of the GSIB surcharge is to increase the resiliency of the largest U.S. banking organizations, which is likely to result in lower costs of funding for these institutions and a safer, more stable U.S. financial system. As discussed above, these measures are necessary to address the risks to U.S. financial stability posed by the U.S. GSIBs, notwithstanding the fact that some foreign regulators may impose lower surcharges on banking organizations in their jurisdictions. Notably, certain jurisdictions have imposed capital surcharges on their largest bank holding companies in excess of GSIB surcharges under the BCBS framework.<sup>42</sup>

The Board continues to monitor the effects of its regulation on the competitiveness of U.S. GSIBs as compared to foreign banking organizations and unregulated entities. The Board is actively coordinating with the Financial Stability Oversight Council in these efforts and will take action as necessary.

Some commenters expressed concern that a GSIB surcharge would foster rather than correct the impression that certain firms are too-big-to-fail (if a perception that firms were too-big-to-fail was still in place). To the extent that GSIBs continue to enjoy a "too-big-to-fail" funding subsidy, the surcharge will help offset this subsidy and cancel out the undesirable effects.

One commenter argued that the proposal did not include any analysis that would fulfill the Federal Reserve's obligations under the Riegle Community Development and Regulatory

<sup>42</sup> For example, the Swedish authorities require their GSIBs to hold an additional 5.0 percent of risk-weighted assets in common equity tier 1 capital as of January 1, 2015 (see [http://www.fi.se/upload/90\\_English/20\\_Publications/20\\_Miscellaneous/2014/kapital\\_eng.pdf](http://www.fi.se/upload/90_English/20_Publications/20_Miscellaneous/2014/kapital_eng.pdf)). In the Netherlands, the De Nederlandsche Bank imposed an additional buffer of 3.0 percent of risk-weighted assets in common equity tier 1 capital for Dutch GSIBs (see <http://www.dnb.nl/en/news/news-and-archive/dnbulletin-2014/dnb306988.jsp>). The Swiss framework for systemically important financial institutions requires such firms to hold at least an additional 3.0 percent of risk-weighted assets in common equity tier 1 capital in addition to the Basel standard requirement of 7.0 percent (4.5 percent minimum plus 2.5 percent capital conservation buffer) (see Addressing "Too Big to Fail," The Swiss SIFI Policy, June 23, 2011 available at <https://www.finma.ch/en>).

Improvement Act (Riegle Act), which requires the Federal banking agencies to consider benefits any administrative burdens that regulations place on depository institutions. The Riegle Act requires a federal banking agency to consider administrative burdens and benefits in determining the effective date and administrative compliance requirements for new regulations that impose additional reporting, disclosure, or other requirements on a depository institution.<sup>43</sup> Neither the proposal nor the final rule imposes additional reporting, disclosure, or other requirements on a depository institution. Rather, only certain large U.S. bank holding companies are subject to the rule.

#### *D. Augmentation of the Capital Conservation Buffer*

Under the proposed rule, the GSIB surcharge augmented the regulatory capital rule's capital conservation buffer.<sup>44</sup> Under the regulatory capital rule, a banking organization must maintain a minimum common equity tier 1 capital requirement of 4.5 percent, a minimum tier 1 capital requirement of 6.0 percent, and a minimum total capital requirement of 8.0 percent. In addition to those minimums, in order to avoid limits on capital distributions and certain discretionary bonus payments, a banking organization must hold a capital conservation buffer composed of common equity tier 1 capital equal to more than 2.5 percent of risk-weighted assets following a phase-in period. The capital conservation buffer is divided into quartiles, each associated with increasingly stringent limitations on capital distributions and certain discretionary bonus payments as the capital conservation buffer approaches zero.<sup>45</sup>

Commenters generally supported the proposal for implementing the GSIB surcharge by augmenting the capital conservation buffer. The Board is finalizing this aspect of the proposal without change. Under the final rule, following a phase-in period, the GSIB surcharge expands each quartile of a GSIB's capital conservation buffer by the equivalent of one fourth of the GSIB surcharge.<sup>46</sup> The minimum common equity tier 1 capital requirement for banking organizations is 4.5 percent, which, when added to the capital

conservation buffer of 2.5 percent, results in a banking organization needing to maintain a common equity tier 1 capital ratio of more than 7.0 percent to avoid limitations on distributions and certain discretionary bonus payments. Under the final rule, this 7.0 percent level would be further increased by the applicable GSIB surcharge. The mechanics of the capital conservation buffer calculations, after incorporating the GSIB surcharge, are illustrated in the following example.<sup>47</sup> A bank holding company has a method 1 score of 350, and thus would be identified as a GSIB. This method 1 score corresponds to a 2.0 percent surcharge. The GSIB has a method 2 score of 604 which corresponds to a surcharge of 3.0 percent. As the method 2 surcharge is larger than the method 1 surcharge, the GSIB would be subject to a GSIB surcharge of 3.0 percent. As a result, in order to avoid payout ratio limitations under the final rule, the GSIB must maintain a common equity tier 1 capital ratio in excess of 10 percent (determined as the sum of the minimum common equity tier 1 capital ratio of 4.5 percent plus an augmented capital conservation buffer of 5.5 percent). In determining the effect on capital distributions and certain discretionary bonus payments, each of the four quartiles of the GSIB's capital conservation buffer would be expanded by one fourth of its GSIB surcharge, or by 0.75 percentage points.

The proposal noted that the Board was analyzing whether the capital plan and stress test rules should also incorporate the GSIB surcharge.<sup>48</sup> One commenter supported inclusion of the GSIB surcharge in the Comprehensive Capital Analysis and Review (CCAR). However, other commenters argued that the GSIB surcharge should not be included in CCAR as a post-stress minimum capital ratio. These commenters asserted that buffers should be available during times of stress, and treating the GSIB surcharge as a minimum ratio would not be consistent with such a goal. Similarly, commenters argued that incorporating the GSIB buffer into CCAR is inconsistent with

the primary objective of CCAR to ensure post-stress going-concern viability. Further, commenters argued that CCAR was already more stringent on firms with significant trading operations due to the add-on global market scenario and counterparty default scenario.

The Board is currently considering a broad range of issues related to the capital plan and stress testing rules, including how the rules interact with other elements of the regulatory capital rules, such as the GSIB surcharge, and whether any modifications may be appropriate.<sup>49</sup>

#### *E. Implementation and Timing*

The proposed rule included provisions regarding both initial and ongoing applicability of the GSIB surcharge requirements. As noted above, the final rule revises the applicability threshold so that it includes only advanced approaches Board-regulated institutions.

##### *1. Ongoing Applicability*

Subject to the initial applicability provisions described in section II.E.2 of this preamble, a bank holding company that becomes an advanced approaches Board-regulated institution must begin calculating its aggregate systemic indicator score under method 1 by December 31 of the calendar year after the year in which it became an advanced approaches Board-regulated institution. Initially, the bank holding company will calculate its method 1 score using data as of the same year in which it became an advanced approaches Board-regulated institution, including information reported on the FR Y-15 and aggregate global indicator amounts provided by the Board. For example, if an institution becomes an advanced approaches bank holding company based on data as of December 31, 2019, it would use information it reported on the FR Y-15 as of December 31, 2019, and aggregate global indicator amounts published by the Board in the fourth quarter of 2020 to calculate its method 1 score by December 31, 2020.

If the advanced approaches Board-regulated institution's aggregate systemic indicator score under method 1 meets or exceeds 130 basis points, the bank holding company would be identified as a GSIB, and would be required to calculate its GSIB surcharge (using both method 1 and method 2) at that time. Like the calculation of the method 1 score, the GSIB will calculate its method 2 score using information it reports on the FR Y-15 as of the previous year-end. However, in place of

<sup>47</sup> For the purposes of this example, all regulatory capital requirements are assumed to be fully phased in.

<sup>48</sup> The capital plan rule (implemented by CCAR) evaluates a bank holding company's capital adequacy, capital adequacy process, and planned capital distributions, such as dividend payments and common stock repurchases. The stress test rules establish a forward-looking quantitative evaluation of the impact of stressful economic and financial market conditions on the capital position of banking organization, using hypothetical set of adverse economic conditions as designed by the Board.

<sup>43</sup> 12 U.S.C. 4802.

<sup>44</sup> 12 CFR 217.11(a).

<sup>45</sup> See *id.*

<sup>46</sup> Separate from the possible expansion of the capital conservation buffer set forth in this final rule, the capital conservation buffer could also be expanded by any applicable countercyclical capital buffer amount. See 12 CFR 217.11(b).

<sup>49</sup> See 12 CFR 225.8 and 12 CFR part 252.

the aggregate global indicator amounts used in the calculation of the method 1 score, the GSIB's method 2 score will use the fixed coefficients set forth in the final rule.<sup>50</sup>

The GSIB will have an additional year after calculating its method 1 and method 2 scores to implement its GSIB surcharge. In the example above, the GSIB surcharge would be calculated by December 31, 2020, but would not take effect until January 1, 2022.

After the initial GSIB surcharge is in effect, if a GSIB's systemic risk profile changes from one year to the next such

that it becomes subject to a higher GSIB surcharge, the higher GSIB surcharge will not take effect for a full year (that is, two years from the systemic indicator measurement date). If a GSIB's systemic risk profile changes such that the GSIB would be subject to a lower GSIB surcharge, the GSIB would be subject to the lower surcharge beginning in the next calendar year.

## 2. Initial Applicability

For the eight bank holding companies that are expected to qualify as GSIBs, the GSIB surcharge will be phased in

from January 1, 2016, to January 1, 2019.<sup>51</sup> This phase-in period was chosen to align with the phase-in of the capital conservation buffer and any applicable countercyclical capital buffer, as well as the phase-in period of the BCBS framework. Table 6 shows the regulatory capital levels that a GSIB must satisfy to avoid limitations on capital distributions and certain discretionary bonus payments during the applicable transition period, from January 1, 2016, to January 1, 2019.

TABLE 6—REGULATORY CAPITAL LEVELS FOR GSIBS<sup>52</sup>

	Jan. 1, 2016	Jan. 1, 2017	Jan. 1, 2018	Jan. 1, 2019
Capital conservation buffer .....	0.625% .....	1.25% .....	1.875% .....	2.5%.
GSIB surcharge .....	25% of applicable GSIB surcharge.	50% of applicable GSIB surcharge.	75% of applicable GSIB surcharge.	100% of applicable GSIB surcharge.
Minimum common equity tier 1 capital ratio + capital conservation buffer + applicable GSIB surcharge.	5.125% + 25% of applicable GSIB surcharge.	5.75% + 50% of applicable GSIB surcharge.	6.375% + 75% of applicable GSIB surcharge.	7.0% + 100% of applicable GSIB surcharge.
Minimum tier 1 capital ratio + capital conservation buffer + applicable GSIB surcharge.	6.625% + 25% of applicable GSIB surcharge.	7.25% + 50% of applicable GSIB surcharge.	7.875% + 75% of applicable GSIB surcharge.	8.5% + 100% of applicable GSIB surcharge.
Minimum total capital ratio + capital conservation buffer + applicable GSIB surcharge.	8.625% + 25% of applicable GSIB surcharge.	9.25% + 50% of applicable GSIB surcharge.	9.875% + 75% of applicable GSIB surcharge.	10.5% + 100% of applicable GSIB surcharge.

The GSIB surcharge in effect on January 1, 2016, must be calculated by December 31, 2015. All components (other than short-term wholesale funding) will be based on the systemic indicator scores reported by a GSIB on the FR Y-15 as of December 31, 2014, and the aggregate global indicator amounts published by the Board in the fourth quarter of 2014. The short-term wholesale funding score will be based on the average of its weighted short-term wholesale funding amounts calculated for July 31, 2015, August 24, 2015, and September 30, 2015. These

days were chosen to reduce burden on GSIBs, as GSIBs can use data that they are otherwise reporting to the Federal Reserve. GSIBs will also use this method to compute their short-term wholesale funding score for purposes of the GSIB surcharge calculated in 2016. For the surcharge calculated in 2017, and for all surcharges thereafter, GSIBs will compute their short-term wholesale funding score using average daily short-term wholesale funding amounts. As discussed in section IV of this preamble, the Board has proposed to collect these data on the FR Y-15.

Bank holding companies that are not expected to qualify as GSIBs do not currently report short-term wholesale funding data to the Federal Reserve on the same basis that the bank holding companies expected to qualify as GSIBs report. Accordingly, to the extent that such a firm becomes a GSIB on or before December 31, 2016, the GSIB surcharge calculated on or before December 31, 2016, will equal the method 1 surcharge of the bank holding company.

Table 7 sets forth the reporting and compliance dates for the GSIB surcharge described above.

TABLE 7—GSIB SURCHARGE REPORTING AND COMPLIANCE DATES DURING PHASE-IN PERIOD

Date	Occurrence
November 2015 .....	BCBS publishes aggregate global indicator amounts using 2014 data, and the Board publishes the aggregate global indicator amounts for use by U.S. bank holding companies shortly thereafter.
December 31, 2015 .....	Bank holding companies identified as GSIBs must calculate their GSIB surcharges using year-end 2014 systemic indicator scores and short-term wholesale funding data as of July 31, August 24, and September 30, 2015. Advanced approaches bank holding companies must calculate their method 1 score using year-end 2014 systemic indicator scores.
January 1, 2016 .....	Bank holding companies identified as GSIBs are subject to the GSIB surcharge (as phased in) calculated by December 31, 2015.
March 2016 .....	FR Y-15 filing deadline reflecting bank holding company systemic indicator values and scores as of December 31, 2015.

<sup>50</sup> As discussed in section IV of this preamble, the Board invited comment on a proposed new schedule to the FR Y-15 to collect information necessary to calculate a firm's short-term wholesale funding score on July 9, 2015. In connection with this final rule, the Board is amending the proposed

schedule to align the calculation of short-term wholesale funding with the final rule's definition.

<sup>51</sup> These bank holding companies correspond to those with more than \$700 billion in total assets as reported on the FR Y-9C as of December 31, 2014,

or more than \$10 trillion in assets under custody as reported on the FR Y-15 as of December 31, 2014.

<sup>52</sup> Table 6 assumes that the countercyclical capital buffer is zero.

TABLE 7—GSIB SURCHARGE REPORTING AND COMPLIANCE DATES DURING PHASE-IN PERIOD—Continued

Date	Occurrence
November 2016 .....	BCBS publishes aggregate systemic indicator amounts using 2015 data, and the Board publishes the aggregate global indicator amounts for use by U.S. bank holding companies shortly thereafter.
December 31, 2016 .....	Bank holding companies identified as GSIBs must calculate their GSIB surcharge using year-end 2015 systemic indicator scores and short-term wholesale funding data as of July 31, August 24, and September 30, 2015. Advanced approaches bank holding companies must calculate their method 1 score using year-end 2015 systemic indicator scores.
January 1, 2017 .....	If the GSIB surcharge calculated by December 31, 2016, decreases, the GSIB is subject to that lower GSIB surcharge (as phased in) (if the GSIB surcharge increases, the increased GSIB surcharge comes into effect beginning on January 1, 2018 (as phased in)).
March 2017 .....	FR Y–15 filing deadline reflecting bank holding company systemic indicator values and scores as of December 31, 2016.
November 2017 .....	BCBS publishes aggregate systemic indicator amounts using 2016 data, and the Board publishes the aggregate global indicator amounts for use by U.S. bank holding companies shortly thereafter.
December 31, 2017 .....	Bank holding companies identified as GSIBs must calculate their GSIB surcharge using year-end 2016 systemic indicator scores and 2016 short-term wholesale funding data. Advanced approaches bank holding companies must calculate their method 1 score using year-end 2016 systemic indicator scores.
January 1, 2018 .....	If the GSIB surcharge calculated by December 31, 2017, decreases, the GSIB is subject to that lower GSIB surcharge (if the GSIB surcharge increases, the increased GSIB surcharge comes into effect beginning on January 1, 2019).

### III. Indicators of Global Systemic Risk

As described above, the proposed rule determined the systemic scores and GSIB surcharges of bank holding companies using six components under two methodologies, method 1 and method 2, which are indicative of the global systemic importance of bank holding companies. There is general global consensus that each category included in the BCBS framework is a contributor to the risk a banking organization poses to financial stability.<sup>53</sup> Short-term wholesale funding is also indicative of systemic importance, and this component is included in method 2.

#### A. Size

The proposal used size as a category of systemic importance. A banking organization's distress or failure is more likely to negatively impact the financial markets and the economy more broadly if the banking organization's activities

comprise a relatively large share of total financial activities. Moreover, the size of exposures and volume of transactions and assets managed by a banking organization are indicative of the extent to which clients, counterparties, and the broader financial system could suffer disruption if the firm were to fail or become distressed. In addition, the larger a banking organization is, the more difficult it generally is for other firms to replace its services and, therefore, the greater the chance that the banking organization's distress or failure would cause disruption. Under the proposal, size was measured by total exposures, which was equal to the bank holding company's measure of total leverage exposure calculated pursuant to the regulatory capital rule.<sup>54</sup>

One commenter contended that, under the proposal, the size indicator would effectively be weighted by more than 20 percent under both method 1 and method 2, because other indicators are strongly correlated with size, and therefore suggested that the size indicator be weighted less than 20 percent or that caps be used to limit its impact. As discussed above, there is general global consensus that each category included in the framework is a critical contributor to the losses imposed on the system given a firm's default, and the equal weighting was proposed because each of the five factors contributes to the effect the failure of a firm will have on financial stability, and the particular score a firm will receive on a given factor will depend on its unique characteristics

relative to the group of firms.<sup>55</sup>

Accordingly, the final rule assigns an equal weighting to each category, and the Board intends to reassess the regime at regular intervals to ensure that equal weighting remains appropriate.

Under the final rule, a bank holding company's size is measured by total exposures, which would mean the bank holding company's measure of total leverage exposure calculated pursuant to the regulatory capital rule.<sup>56</sup> The Board has separately proposed changes to the FR Y–15 to align its definition of "total exposure" with the definition in the regulatory capital rule.<sup>57</sup>

#### B. Interconnectedness

The proposal used interconnectedness as a category of systemic importance. Financial institutions may be interconnected in many ways, as banking organizations commonly engage in transactions with other financial institutions that give rise to a wide range of contractual obligations. Financial distress at a banking organization may materially raise the likelihood of distress at other firms given the network of contractual obligations throughout the financial system. Accordingly, a banking organization's systemic impact is likely to be directly related to its interconnectedness vis-à-vis other financial institutions and the financial sector as a whole. The Board did not receive any comments on this aspect of the proposed rule and is adopting it in the final rule without change.

<sup>53</sup> Discussion of this view is contained in the report to the G20 by the BIS, FSB, and IMF (2009). Further, earlier, the ECB (2006) studied indicators such as size and interconnectedness in their efforts to identify systemically important banking organizations. Similar work was undertaken by the BCBS when it developed the current indicators used in identifying GSIBs. As noted in the proposal, many of these factors are also consistent with the factors that the Board considers in reviewing financial stability implications of proposed mergers and acquisitions by banking organizations. See, e.g., section 165 of the Dodd-Frank Act, Revised BCBS Document, and Guidance to Assess the Systemic Importance of Financial Institutions, Markets and Instruments: Initial Considerations, Financial Stability Board, International Monetary Fund and Bank for International Settlements, Report to G20 Finance Ministers and Governors, October 2009; Identifying Large and Complex Banking Groups for Financial System Stability Assessment, ECB, in: Financial Stability Review, December 2006, pp. 131–139.

<sup>54</sup> See 12 CFR 217.10(c)(4).

<sup>55</sup> See, e.g., section 165 of the Dodd-Frank Act and the Revised BCBS Document.

<sup>56</sup> See 12 CFR 217.10(c)(4).

<sup>57</sup> See 80 FR 39433.

Under the final rule, interconnectedness is measured by intra-financial system assets, intra-financial system liabilities, and securities outstanding as of December 31 of a given year. These indicators represent the major components of intra-financial system transactions and contractual relationships, and are broadly defined to capture the relevant dimensions of these activities by a bank holding company. For the purpose of the intra-financial system assets and intra-financial system liabilities indicators, financial institutions are defined in the FR Y-15 instructions as depository institutions, bank holding companies, securities dealers, insurance companies, mutual funds, hedge funds, pension funds, investment banks, and central counterparties. Central banks and multilateral development banks are excluded, but state-owned commercial banks are included.

### C. Substitutability

The proposal used substitutability as a category of systemic importance. The potential adverse systemic impact of the material financial distress or failure of a banking organization will depend in part on the degree to which other banking organizations are able to serve as substitutes in the event that the banking organization is unable to perform its role. Under the proposed rule, three indicators were used to measure substitutability: Assets under custody as of December 31 of a given year, the total value of payments sent over the calendar year, and the total value of transactions in debt and equity markets underwritten during the calendar year. Relative to the other categories in the method 1 surcharge, the substitutability category had a greater-than-intended impact on the assessment of systemic importance for certain banking organizations that are dominant in the provision of asset custody, payment systems, and underwriting services. The Board therefore proposed to cap the maximum score for the substitutability category at 500 basis points (or 100 basis points, after the 20 percent weighting factor is applied) so that the substitutability category would not have a greater than intended impact on a bank holding company's global systemic score.<sup>58</sup> This cap was also consistent with the approach taken in the BCBS framework. The following discusses how each of the three substitutability indicators will be measured and reported on the FR Y-15. The Board did not receive any

comments on this aspect of the proposed rule and is adopting it in the final rule without change.

1. *Assets under custody.* The collapse of a GSIB that holds assets on behalf of customers, particularly other financial firms, could severely disrupt financial markets and have serious consequences for the domestic and global economies. The final rule measures assets under custody as the aggregate value of assets that a bank holding company holds as a custodian. For purposes of the final rule, a custodian is defined as a banking organization that manages or administers the custody or safekeeping of stocks, debt securities, or other assets for institutional and private investors.

2. *Payments activity.* The collapse of a GSIB that processes a large volume of payments is likely to affect a large number of customers, including financial, non-financial, and retail customers. In the event of collapse, these customers may be unable to process payments and could experience liquidity issues as a result. Additionally, if a banking organization became unable to distribute funds held, those funds could become inaccessible to the recipients, which could prevent those recipients from meeting obligations to their creditors.

The final rule uses a bank holding company's share of payments made through large-value payment systems and through agent banks as an indicator of the company's degree of systemic importance within the context of substitutability. Specifically, payments activity is the value of all cash payments sent via large-value payment systems, along with the value of all cash payments sent through an agent (e.g., using a correspondent or nostro account), over the calendar year in the currencies specified on the FR Y-15.

3. *Underwritten transactions in debt and equity markets.* The failure of a GSIB with a large share of the global market's debt and equity underwriting could impede new securities issuances and potentially increase the cost of debt and capital. In order to assess a bank holding company's significance in underwriting as compared to its peers, the final rule measures underwriting activity as the aggregate value of equity and debt underwriting transactions of a banking organization, conducted over the calendar year, as specified on the FR Y-15.

### D. Complexity

The final rule uses complexity as a category of systemic importance. The global systemic impact of a banking organization's failure or distress should be positively correlated to that

organization's business, operational, and structural complexity.<sup>59</sup> Generally, the more complex a banking organization is, the greater the expense and time necessary to resolve it. Costly resolutions can have negative cascading effects in the markets, including disorderly unwinding of positions, fire-sales of assets, disruption of services to customers, and increased uncertainty in the markets.

The Board sought comment on whether the three complexity indicators (notional amount of OTC derivatives transactions, Level 3 assets, and trading and AFS securities) appropriately reflect a bank holding company's complexity, and what alternative or additional indicators might better reflect complexity and global systemic importance. One commenter argued that it was appropriate to weight derivatives exposures heavily in the complexity metric and that the metric should also take into account Level 2 assets as well as Level 3 assets as firms may be incentivized to reclassify existing Level 3 assets as Level 2 in order to achieve a lower score. Commenters also argued that resolvability should be taken into account more directly as part of the complexity category when calibrating the GSIB surcharges, for instance, by making the GSIB surcharge inversely proportional to the difficulty of resolution as judged by resolution plans. It was further suggested that measurements of organizational and operational complexity should be taken into account in the complexity indicator.

Resolvability and organizational complexity are important contributors to the potential systemic effects of a GSIB default and the complexity indicators included in the methodology seek to reflect this in a quantifiable way. These factors are reflected in several other of the standardized, objective measures included in the rule, including in Level 3 assets and cross-jurisdictional activity. The final rule does not include more subjective, qualitative measures of a bank holding company's organizational complexity and resolvability, because those would rely on firm-specific, subjective judgments. The Board will monitor the evolution of indicator scores over time and consider changes to the framework as appropriate.

Additionally, commenters requested that the Board give even greater weight to a GSIB's overall complexity indicator in calculating the surcharge because a GSIB's level of complexity might

<sup>58</sup> See paragraph 19 of the Revised BCBS Document.

<sup>59</sup> See paragraph 25 of the Revised BCBS Document.



increase the firm's probability of failure. While complexity is an important component for assessing systemic importance, the rule is intended to capture multiple dimensions of a firm's systemic footprint, including size, interconnectedness, substitutability, cross-jurisdictional activity and reliance on short-term wholesale funding, all of which are also important contributors to the systemic impact caused by the failure of a firm.

As reflected in the FR Y-15, the final rule includes three indicators of complexity: notional amount of OTC derivatives, Level 3 assets, and trading and AFS securities as of December 31 of a given year. The indicators are measured as follows:

1. *Notional amount of OTC derivatives.* A bank holding company's OTC derivatives activity will be the aggregate notional amount of the bank holding company's OTC derivative transactions that are cleared through a central counterparty or settled bilaterally.

2. *Level 3 assets.* Level 3 assets will be equal to the value of the assets that the bank holding company measures at fair value for purposes of its FR Y-9C quarterly report (Schedule HC-Q, column E). These are generally illiquid assets with fair values that cannot be determined by observable data, such as market price signals or models. Instead, the value of the Level 3 assets is calculated based on internal estimates or risk-adjusted value ranges by the banking organization. Firms with high levels of Level 3 assets would be difficult to value in times of stress, thereby negatively affecting market confidence in such firms and creating the potential for a disorderly resolution process.

3. *Trading and AFS securities.* A banking organization's trading and AFS securities can cause a market disturbance through mark-to-market losses and fire sales of assets in times of distress. Specifically, a banking organization's write-down or sales of securities could drive down the prices of these securities, which could cause a spill-over effect that forces other holders of the same securities to experience mark-to-market losses. Accordingly, the final rule considers a bank holding company's trading and AFS securities as an indicator of complexity.

#### E. Cross-jurisdictional Activity

The proposal used cross-jurisdictional activity as a category of systemic importance. Banking organizations with a large global presence are more difficult and costly to resolve than purely domestic institutions. Specifically, the

greater the number of jurisdictions in which a firm operates, the more difficult it would be to coordinate its resolution and the more widespread the spillover effects were it to fail.

The Board did not receive any comments on this part of the proposed rule and is adopting it in the final rule without change. Under the final rule, the two indicators included in this category—cross-jurisdictional claims and cross-jurisdictional liabilities—measure a bank holding company's global reach by considering its activity outside its home jurisdiction as compared to the cross-jurisdictional activity of its peers. In particular, claims include deposits and balances placed with other banking organizations, loans and advances to banking organizations and non-banks, and holdings of securities. Liabilities include the liabilities of all offices of the same banking organization (headquarters as well as branches and subsidiaries in different jurisdictions) to entities outside of its home market.

#### F. Use of Short-term Wholesale Funding

To determine its method 2 surcharge under the proposal, a GSIB would have been required to compute its short-term wholesale funding score. To compute its short-term wholesale funding score, the GSIB would have first determined, on a consolidated basis, the amount of its short-term wholesale funding sources with a remaining maturity of less than one year for each business day of the preceding calendar year. Then, the GSIB would have applied weights to the short-term wholesale funding sources based on the remaining maturity of a short-term wholesale funding source and the asset class of any collateral backing the source. Next, the GSIB would have divided its weighted short-term wholesale funding amount by its average risk-weighted assets. Finally, to arrive at its short-term wholesale funding score, a GSIB would have multiplied the ratio of its weighted short-term wholesale funding amount over its average risk-weighted assets by a fixed conversion factor (175). The following discussion describes the proposed components of short-term wholesale funding and proposed weights, the division of the measure by average risk-weighted assets, and the application of the proposed conversion factor.

Several commenters requested additional information on the empirical analysis that supported the proposed weights of different types of short-term wholesale funding. For example, some commenters argued that the weights were not sufficiently risk-sensitive and

would not reflect actual economic risk, while other commenters expressed concern that the proposed weights could inappropriately incentivize firms to rely more on certain forms of short-term wholesale funding.

The weighting system for short-term wholesale funding liabilities was designed to strike a balance between simplicity and risk-sensitivity. Short-term wholesale funding liabilities with shorter residual maturities were assigned higher weights, because such liabilities pose greater risk of runs and attendant fire sales. The liability categories used in the weighting system and the relative weights assigned to different liabilities generally aligned with the LCR, and reflected the comments that the Board received in connection with that rulemaking. In framing the proposal and the final rule, the Board also took into account studies of fire sale risks in key short-term wholesale funding markets.<sup>60</sup>

Commenters asserted that the rule should take into account the amount of long-term funding that a firm has relative to the amount of short-term funding, suggesting that a firm's wholesale funding component should be reduced if the firm relies to a greater extent on more stable forms of funding. However, while relative amounts of long- and short-term funding may be relevant in considering the probability of a firm's failure, the surcharge is designed so that a firm's capital requirement increases based on systemic losses assuming a default. Systemic losses in the event of default can be expected to generally increase in proportion to the total amount of short-term funding a firm has used, rather than in proportion to the ratio of a firm's short-term wholesale funding to its total funding. Accordingly, the final rule maintains the focus on a firm's amount of short-term wholesale funding rather than on the firm's funding mix.

#### 1. Components and Weighting of Short-term Wholesale Funding

The proposal identified five categories of short-term wholesale funding sources: secured funding transactions, unsecured wholesale funding, covered asset exchanges, short positions, brokered deposits. The funding sources were defined using terminology from the LCR rule and aligned with items that are reported on the Board's Complex Institution Liquidity Monitoring Report on Form FR 2052a. Identified funding

<sup>60</sup> See, e.g., Begalle, Martin, McAndrews, and McLaughlin, *The Risk of Fire Sales in the Tri-Party Repo Market*, [http://www.newyorkfed.org/research/staff\\_reports/sr616.pdf](http://www.newyorkfed.org/research/staff_reports/sr616.pdf) (May 2013).

sources would have qualified as short-term wholesale funding only if the remaining maturity was less than 1 year.

#### a. Secured Funding Transaction

The proposal aligned the definition of “secured funding transaction” with the definition of that term in the LCR rule. As such, it included repurchase transactions, securities lending transactions, secured funding from a Federal Reserve Bank or a foreign central bank, Federal Home Loan Bank advances, secured deposits, loans of collateral to effect customer short positions, and other secured wholesale funding arrangements. These funding sources were treated as short-term wholesale funding, provided that they have a remaining maturity of less than one year, because counterparties are more likely to abruptly remove or cease to roll-over secured funding transactions as compared to longer-term funding. This behavior gives rise to cash outflows during periods of stress. Secured funding transactions secured by Level 1 liquid assets received a weight between 25 percent and 0 percent, secured funding transactions secured by Level 2a liquid assets received a weight between 50 percent and 0 percent, secured funding transactions secured by Level 2b liquid assets received a weight between 75 percent to 10 percent, and secured funding transactions secured by other assets received a weight between 100 percent and 25 percent, depending on the remaining maturity.

Some commenters suggested that advances from the Federal Home Loan Banks be excluded from the short-term wholesale funding factor, as they proved a stable source of funding through the crisis. Commenters also noted that Federal Home Loan Bank advances received preferable treatment in the LCR. The final rule treats Federal Home Loan Bank borrowings in the same manner as borrowings from other counterparties in light of the purpose of the GSIB surcharge, which is to reduce systemic risk. Firm borrowings from the Federal Home Loan Banks tend to increase during times of stress relative to Federal Home Loan Bank borrowings in normal times.

Some commenters argued that the proposal should have differentiated between centrally cleared and non-centrally cleared securities financing transactions, and that centrally cleared transactions should be either excluded from the short-term wholesale funding metric or assigned a lower weight. Commenters noted that the BCBS’s large exposures framework exempts certain exposures to qualifying central counterparties, and that the Financial

Stability Board’s minimum margins framework for securities financing transactions does not apply to centrally cleared transactions.

Like the proposal, the final rule does not differentiate between centrally cleared and non-centrally cleared securities financing transactions. While there may be some financial stability benefits associated with central clearing of certain types of securities financing transactions, central clearing does not completely eliminate the risks posed by securities financing transactions, and therefore it would not be appropriate at this time to exclude centrally cleared securities financing transactions from the short-term wholesale funding metric. Nor is it possible at this time to measure the financial stability benefits of central clearing with enough precision to warrant specific reductions in the weights assigned.

#### b. Unsecured Wholesale Funding

The proposal aligned the definition of “unsecured wholesale funding” with the definition of that term in the LCR rule. Such funding included the following: Wholesale deposits; federal funds purchased; unsecured advances from a public sector entity, sovereign entity, or U.S. government sponsored enterprise; unsecured notes; bonds, or other unsecured debt securities issued by a GSIB (unless sold exclusively to retail customers or counterparties); brokered deposits from non-retail customers; and any other transaction where an on-balance sheet unsecured credit obligation has been contracted. Under the proposal, unsecured wholesale funding where the customer or counterparty is not a financial sector entity (or a consolidated subsidiary of a financial sector entity) received a weight between 50 percent and 0 percent, and unsecured wholesale funding where the customer or counterparty is a financial sector entity or a consolidated subsidiary thereof received a weight between 100 percent and 25 percent.

As evidenced in the financial crisis, funding from wholesale counterparties presents greater run risk to banking organizations during periods of stress as compared to the same type of funding provided by retail counterparties, because wholesale counterparties facing financial distress are likely to withdraw large amounts of wholesale funding in order to meet financial obligations. The proposal included in short-term wholesale funding unsecured wholesale funding that is partially or fully covered by deposit insurance, as such funding poses run risks even when deposit insurance is present. It did not permit the GSIB to reflect offsetting amounts

from the release of assets held in segregated accounts in connection with wholesale deposits.

Several commenters suggested that the short-term wholesale funding calculation take into account the amount of high quality liquid assets that firms are required to hold against different funding sources under the LCR. For example, commenters cited that unsecured deposits from financial clients may only be used to fund Level 1 high quality liquid assets because they are assigned a 100 percent outflow under the LCR.

In response to comments, the final rule reduces the weight assigned to unsecured short-term wholesale funding. The maximum weight for wholesale deposits from non-financial clients is reduced from 50 percent to 25 percent, while the maximum weight for other types of unsecured short-term wholesale funding will be reduced from 100 percent to 75 percent. This reduction is intended to recognize the fact that firms often use wholesale deposits and other unsecured types of short-term wholesale funding to fund relatively liquid assets, and are generally required by the LCR to do so.

The final rule does not reduce the weight to 0, as the LCR does not fully address the systemic risks of unsecured short-term wholesale funding. The LCR generally permits the outflows from such liabilities to be offset using either high quality liquid assets or the inflows from short-term claims with a matching maturity. In cases where a firm uses short-term wholesale funding to fund a short-term loan, a run by the firm’s short-term creditors could force the firm to quickly reduce the amount of credit it extends to its clients or counterparties. Those counterparties could then be forced to rapidly liquidate assets, including relatively illiquid assets, which might give rise to fire sale effects.<sup>61</sup> Given these possibilities, it would not be appropriate for the calibration to assume that short-term funding liabilities that are assigned relatively high outflows under the LCR can only be used to fund high quality liquid assets.

Several commenters contended that the proposal inappropriately classified “excess custody deposits” as short-term wholesale funding. These commenters asserted that such deposits are a stable source of funding in periods of market stress, and are generally placed with central banks or invested in high quality

<sup>61</sup> The risk described here is similar to the risk associated with matched books of securities financing transactions, which is discussed in <http://www.federalreserve.gov/newsevents/speech/tarullo20131122a.htm>.

liquid assets. Commenters also noted that excess custody deposits arise from operational servicing relationships and that it would be difficult in practice for custody banks to turn away client deposits of this type. Commenters argued that excess custody deposits should be excluded from the short-term wholesale funding amount when these are offset by riskless assets, subject to specific caps.

Deposits described by commenters as “excess custody deposits” do not qualify as operational deposits because they are not needed for utilizing the operational service provided by the bank holding company and, thus, are not as stable. In response to the more limited argument that a firm should be allowed to offset its excess custody deposit amount when it invests such deposits in riskless assets, it would be inconsistent to allow such an offset in the context of only one particular type of short-term wholesale funding liability. Further, implementing this approach would require the Board to determine which assets should count as “riskless.” On the one hand, a very narrow approach—for example, one in which only central bank reserves are considered riskless—could have distortive effects. On the other hand, a broader approach in which a wider variety of assets were deemed riskless would undermine the macroprudential goals of the short-term wholesale funding component of the surcharge. Nevertheless, excess custody deposits receive a lower weight under the final rule than they would have under the proposal because of the reductions made in the final rule to the weights assigned to unsecured short-term wholesale funding.

#### c. Short Positions

The proposed rule treated short positions as short-term wholesale funding. Short positions were defined as a transaction where a bank holding company has borrowed a security from a counterparty to sell to a second counterparty, and must return the security to the initial counterparty in the future. A short position involving a certain security was assigned the same weight as a secured short-term wholesale funding liability backed by the same asset. In addition, the proposal treated loans of collateral to a bank holding company’s customer to effect short positions as secured funding transactions, and weighted these accordingly.<sup>62</sup>

Several commenters argued that liabilities associated with both firm and customer short transactions should be excluded from the short-term wholesale funding measure, or at a minimum, that the weight assigned to short positions should be reduced (*e.g.*, to 25 percent). With respect to firm short positions, commenters argued that, because only the firm has the ability to close out the position, firm short positions do not give rise to the same type of run risk as other short-term wholesale funding obligations. With respect to client short positions, commenters argued that margin requirements create incentives for clients to close long and short positions simultaneously, and that the simultaneous unwinding of such positions would mitigate funding risk. Commenters also argued that the Board should distinguish between short positions based on whether they are covered using firm or client assets (internally covered short positions) or assets borrowed from external sources (externally covered short positions). Commenters argued that shorts covered by external borrowings do not provide funding to the banking organization executing the short, and should therefore not be treated as short-term funding transactions.

In response to the comments received, the final rule excludes firm short positions involving Level 1 and Level 2A securities from the short-term wholesale funding definition, and assigns a weight of 25 percent to firm short positions involving Level 2B securities or securities that do not qualify as high quality liquid assets. This weighting is appropriate because the risk of runs from firm short positions is mitigated by the firm’s ability to control the closeout of the short position. On the other hand, if a firm short position moves against a firm, or if a securities lender demands that the firm return the security that the firm borrowed to facilitate the short position, there would be some liquidity risk. Hence, the final rule assigns a positive weight to firm short positions involving Level 2B securities and securities that do not qualify as high quality liquid assets.

The treatment of client short positions in the final rule is unchanged from the proposal. While margin requirements may create incentives for clients to

symmetrically unwind long and short positions, the closeout of client short positions is ultimately controlled by a firm’s clients and is, therefore, more unpredictable from the firm’s perspective. This treatment aligns with the LCR, under which client short positions in a given security are assigned the same outflow rate as other secured funding transactions collateralized by that security. With respect to the argument that externally covered short positions should be excluded because they do not provide funding to the firm, external securities borrowing is an asset on the firm’s balance sheet that the firm or client short position serves to fund.

#### d. Covered Asset Exchanges

The proposed definition of short-term wholesale funding also included the fair market value of all assets that a GSIB must return in connection with transactions where it has provided a non-cash asset of a given liquidity category to a counterparty in exchange for non-cash assets of a higher liquidity category, and the GSIB and the counterparty agreed to return the assets to each other at a future date. The unwinding of such transactions could negatively impact a GSIB’s funding profile in a period of stress to the extent that the unwinding of the transaction requires the GSIB to obtain funding for a less liquid asset or security if the counterparty is unwilling to roll over the transaction. Under the proposal, covered asset exchanges involving the future exchange of a Level 1 asset for a Level 2a asset were assigned a maximum weight of 50 percent, while other covered asset exchanges would receive a maximum weight of 75 percent.

Some commenters argued that this approach would result in the assignment of excessive weights for certain covered asset exchanges, and instead proposed that the weight for a covered asset exchange should be based on the incremental liquidity need resulting from the exchange.

The final rule maintains the proposed treatment of covered asset exchanges. The alternative approach described by commenters would be similar to the LCR in providing differential treatment for all combinations of asset types. However, the short-term wholesale funding weighting approach of the final rule takes a more simplified approach than the LCR by combining those asset exchanges that have similar characteristics in a broader set of categories.

percent, secured funding transactions secured by Level 2a liquid assets received a weight between 50 percent and 0 percent, secured funding transactions secured by Level 2b liquid assets received a weight between 75 percent to 10 percent, and secured funding transactions secured by other assets received a weight between 100 percent and 25 percent, depending on the remaining maturity.

<sup>62</sup> As noted above, under the proposal, secured funding transactions secured by Level 1 liquid assets received a weight between 25 percent and 0

#### e. Brokered Deposits and Brokered Sweep Deposits

The proposal characterized retail brokered deposits and brokered sweep deposits as short-term wholesale funding because these forms of funding have demonstrated volatility in times of stress, notwithstanding the presence of deposit insurance.<sup>63</sup> These types of deposits can be easily moved from one institution to another during times of stress, as customers and counterparties seek higher interest rates or seek to use those funds for other purposes and on account of the incentives that third-party brokers have to provide the highest possible returns for their clients. However, the proposed definition of short-term funding would exclude deposits from retail customers and counterparties that are not brokered deposits or brokered sweep deposits, as these deposits are less likely to pose liquidity risks in times of stress.

Under the proposal, brokered deposits and brokered sweep deposits from retail customers or counterparties were assigned a maximum weight of 50 percent, while other brokered deposits and brokered sweep deposits received a maximum weight of 100 percent.

Commenters contended that the weighting system imposed capital charges that were too high on all brokered deposits and argued that the weighting system should make more fine-grained distinctions between different types of brokered deposits and brokered sweep deposits. Commenters also argued that the weighting system should distinguish between insured and non-insured brokered deposits, brokered retail and non-retail deposits, reciprocal and non-reciprocal brokered deposits and brokered affiliate and non-affiliate based deposit sweep arrangements, and should treat certain affiliate based deposit sweep arrangements similarly to traditional retail deposits.

The final rule treats brokered deposits as short-term wholesale funding because they are generally considered less stable than standard retail deposits. In order to preserve the relative simplicity of the short-term wholesale funding metric, the final rule does not distinguish between different types of brokered deposits and brokered sweep deposits. In connection with reducing the weight on unsecured wholesale deposits from non-financial and financial clients, however, the final rule adjusts the treatment of brokered deposits and brokered sweep deposits. Under the final rule, brokered deposits and

brokered sweep deposits provided by a retail customer are assigned a maximum weight of 25 percent. Other brokered deposits and brokered sweep deposits are assigned a maximum weight of 75. These changes ensure that brokered deposits and brokered sweep deposits receive the same weight as other similar forms of unsecured short-term wholesale funding.

#### 2. Dividing by Risk-Weighted Assets

Under the proposal, after calculating its weighted short-term wholesale funding amount, the GSIB would have divided its weighted short-term wholesale funding amount by its average risk-weighted assets, measured as the four-quarter average of the firm's total risk-weighted assets associated with the lower of its risk-based capital ratios as reported on its FR Y-9C for each quarter of the previous year.

One commenter argued that the risk-weighted assets denominator as part of the short-term wholesale funding calculation should be reconsidered to better incentivize prudent use of short-term wholesale funding. This commenter noted that, given that method 2 under the proposal uses a bank's risk-weighted assets as the ratio denominator for short-term wholesale funding, if a GSIB simultaneously reduces short-term wholesale funding and risk-weighted assets, its surcharge would remain static as a percentage of its risk-weighted assets. Similarly, the commenter noted that, if a GSIB reduces risk-weighted assets and does not reduce short-term wholesale funding, its GSIB surcharge could increase as a percentage of risk-weighted assets.

As discussed in the preamble to the proposal, consideration of a GSIB's short-term wholesale funding amount as a percentage of its risk-weighted assets is an appropriate means of scaling in a firm-specific manner a firm's use of short-term wholesale funding. This approach reflects the view that the systemic risks associated with a firm's use of short-term wholesale funding are comparable regardless of the business model of the firm. The use of short-term wholesale funding poses similar systemic risks regardless of whether short-term wholesale funding is used by a firm that is predominantly engaged in trading operations as opposed to a firm that combines large trading operations with large commercial banking activities, and regardless of whether a firm uses short-term wholesale funding to fund securities inventory as opposed to securities financing transaction matched book activity. Dividing short-term wholesale funding by risk-weighted assets helps ensure that two

firms that use the same amount of short-term wholesale funding would be required to hold the same dollar amount of additional capital regardless of such differences in business model.

While a firm that simultaneously reduces its short-term wholesale funding and risk-weighted assets may not see changes in its surcharge requirement, the same surcharge requirements as a percentage of risk-weighted assets would require the firm to hold a lower dollar amount of additional capital because the firm's risk weighted assets would also be lower. Similarly, while a firm that reduces its risk-weighted assets but uses the same amount of short-term wholesale funding could see an increase in its surcharge requirement, the dollar amount of capital the firm would have to hold would be reduced because of its lower risk-weighted assets. Thus, these outcomes are consistent with the view that the dollar amount of capital that a firm should be required to hold because of the short-term wholesale funding component of the surcharge should be independent of that firm's risk-weighted assets characteristics.

#### 3. Application of Fixed Conversion Factor

Under the proposal, to arrive at its short-term wholesale funding score, a GSIB would have multiplied the ratio of its weighted short-term wholesale funding amount over its average risk-weighted assets by a fixed conversion factor (175). The conversion factor accounted for the fact that, in contrast to the other systemic indicators that comprise a GSIB's method 2 score, the short-term wholesale funding score does not have an associated aggregate global indicator. The conversion factor was intended to weight the short-term wholesale funding amount such that the short-term wholesale funding score receives an equal weight as the other systemic indicators within method 2 (*i.e.*, 20 percent), and is based upon estimates of short-term wholesale funding levels at the eight bank holding companies currently identified as GSIBs. To calculate its method 2 score, a GSIB would add the short-term wholesale funding score to its other systemic indicator scores, and multiply by two.

The final rule adopts the fixed conversion factor, and combines the conversion factor with the proposed doubling. Accordingly, the score would equal 350. This fixed conversion factor was developed using 2013 data on short-term wholesale funding sources from the FR 2052a for the eight firms currently identified as GSIBs under the

<sup>63</sup> Brokered deposits from non-retail clients are treated as unsecured wholesale funding, discussed in section III.F.1.b of this preamble.

proposed methodology, the average of 2013 quarterly reported risk-weighted assets, and the year-end 2013 aggregate global indicator amounts for the size, interconnectedness, complexity, and cross-jurisdictional activity systemic indicators. Using these data, the total weighted basis points for the size, interconnectedness, complexity, and cross-jurisdictional activity systemic indicator scores for the firms currently identified as GSIBs were calculated. Given that this figure is intended to comprise 80 percent of the method 2 score, the weighted basis points accounting for the remaining 20 percent of the method 2 score were determined. The fixed conversion factor was determined by dividing the aggregate estimated short-term wholesale funding amount by average risk weighted assets for the firms currently identified as GSIBs and calculating the weighted basis points that would be necessary to make the short-term wholesale measure equal to 20 percent of the firm's method 2 score.

A fixed conversion factor is intended to facilitate one of the goals of the incorporation of short-term wholesale funding into the GSIB surcharge framework, which is to provide incentives for GSIBs to decrease their use of this less stable form of funding. To the extent that a GSIB reduces its use of short-term wholesale funding, its short-term wholesale funding score will decline, even if GSIBs in the aggregate reduce their use of short-term wholesale funding.

#### IV. Amendments to the FR Y–15

On July 9, 2015, the Board published for comment a proposal to modify the FR Y–15, which, among other things, is the Board's form for collecting data needed to compute the GSIB surcharge. The modification to this form would introduce a new schedule, Schedule G, to capture a banking organization's use of short-term wholesale funding (FR Y–15 proposal).<sup>64</sup> The proposed definition of "short-term wholesale funding" and weights in the FR Y–15 proposal were based on the Board's December 18, 2014 GSIB proposal.<sup>65</sup> The final rule proposes to incorporate updates into Schedule G of the FR Y–15 to align it with the

definition in the final rule. The proposed revisions to Schedule G include (1) moving three line items to different tiers, (2) adding an item to capture firm short positions, (3) adding two automatically-calculated items, (4) adding one item derived from the FR Y–9C, (5) deleting two items, and (6) collecting customer short positions as part of the secured funding totals. The Federal Reserve estimates that these minimal differences will not affect the burden estimates provided in the separate July proposal. Thus, the burden estimates below reflect the numbers included in the separate FR Y–15 proposal. The comment period for the proposed changes to the FR Y–15 proposal would also be extended to 60 days after the publication of the final rule in the **Federal Register**, to allow commenters the opportunity to comment on the full proposal, including changes to the short-term wholesale funding measure adopted in this final rule.

Concurrently with this final notice, the Federal Reserve is publishing the instructions and reporting form corresponding to the proposed changes to the FR Y–15 published in the **Federal Register** on July 9, 2015. The instructions and reporting form also reflect the proposed changes to the short-term wholesale funding measure described above.

#### V. Modifications to Related Rules

The Board, along with the FDIC and the OCC, issued a final rule imposing enhanced supplementary leverage ratio standards on certain bank holding companies and their subsidiary insured depository institutions.<sup>66</sup> The enhanced supplementary leverage ratio standards applied to U.S. top-tier bank holding companies with more than \$700 billion in total consolidated assets or more than \$10 trillion in assets under custody (covered BHCs), as well as insured depository institution subsidiaries of the covered BHCs. The enhanced standards imposed a 2 percent leverage ratio buffer similar to the capital conservation buffer above the minimum supplementary leverage ratio requirement of 3 percent on the covered BHCs, and also required insured depository institution subsidiaries of covered BHCs to maintain a supplementary leverage ratio of at least 6 percent to be well capitalized under the prompt corrective action framework. The Board proposed to revise the terminology and applicability of the enhanced supplementary leverage ratio so that the enhanced supplementary

leverage ratio would apply to entities identified as GSIBs under the proposal.

The Board did not receive any comments on this aspect of the proposal, therefore, the final rule revises the terminology used to identify the firms subject to the enhanced supplementary leverage ratio standards to reflect the proposed GSIB surcharge framework. Specifically, the Board has replaced the use of "covered BHC" with firms identified as GSIBs using the methodology of this rule within the prompt corrective action provisions of Regulation H (12 CFR part 208), as well as within the Board's regulatory capital rule. The eight U.S. top-tier bank holding companies that were "covered BHCs" under the enhanced supplementary leverage ratio rule's definition are the same eight U.S. top-tier bank holding companies that are identified as GSIBs under the final rule. These changes simplify the Board's regulations by removing overlapping definitions, and do not result in a material change in the provisions applicable to these bank holding companies.

#### VI. Regulatory Analysis

##### A. Paperwork Reduction Act (PRA)

In accordance with section 3512 of the Paperwork Reduction Act of 1995 (44 U.S.C. 3501–3521) (PRA), the Board may not conduct or sponsor, and a respondent is not required to respond to, an information collection unless it displays a currently valid Office of Management and Budget (OMB) control number. The OMB control number is 7100–0352 and 7100–NEW. The Board reviewed the final rule under the authority delegated to the Board by OMB.

The final rule contains requirements subject to the PRA. The recordkeeping requirements are found in sections 217.402 and 217.403. In connection with this final rule, the Board will issue a separate notice amending the proposed revisions to the FR Y–15 published on July 9, 2015, to reflect the final rule's definition of short-term wholesale funding.

**Report title:** Recordkeeping Requirements Associated with Regulation Q (Capital Adequacy of Bank Holding Companies, Savings and Loan Holding Companies, and State Member Banks).

**Agency form number:** Reg Q.

**OMB control number:** 7100–NEW.

**Frequency:** Annual.

**Reporters:** Bank holding companies, savings and loan holding companies, and state member banks.

**Estimated annual reporting hours:** 11 hours.

<sup>64</sup> See 80 FR 39433. The proposed changes would also (1) change the reporting frequency of the FR Y–15 from annual to quarterly, (2) expand the reporting panel to include certain savings and loan holding companies, (3) revise the calculation methodology for the systemic indicators to align with the Board's regulatory capital rules and international accounting standards, (4) allow respondents to construct their own exchange rates for converting payments data; and (5) incorporate instructional clarifications.

<sup>65</sup> See 79 FR 75477 (December 18, 2014).

<sup>66</sup> 78 FR 24528 (May 1, 2014).

*Estimated average hours per response:* 0.5 hours for each method.

*Number of respondents:* 13 for Identification of a global systemically important BHC and 8 for GSIB surcharge.

**Abstract:** A bank holding company is a global systemically important BHC if its method 1 score equals or exceeds 130 basis points. A BHC must calculate its method 1 and method 2 scores on an annual basis by December 31 of each year.

Section 217.402 (Identification of a global systemically important BHC) requires an advanced approaches BHC to annually calculate its method 1 score, which is the sum of its systemic indicator scores for the twelve systemic indicators set forth in Table 1 of the final rule. The systemic indicator score in basis points for a given systemic indicator is equal to the ratio of the amount of that systemic indicator, as reported on the bank holding company's most recent FR Y-15; to the aggregate global indicator amount for that systemic indicator published by the Board in the fourth quarter of that year; multiplied by 10,000; and multiplied by the indicator weight corresponding to the systemic indicator as set forth in Table 1 of the final rule.

Section 217.403 (GSIB surcharge) requires a BHC to annually calculate its GSIB surcharge, which is the greater of its method 1 and method 2 scores. The method 2 score is equal to the sum of the global systemically important BHC's systemic indicator scores for the nine systemic indicators set forth in Table 1 of the final rule and the global systemically important BHC's short-term wholesale funding score. The systemic indicator score is equal to the amount of the systemic indicator, as reported on the global systemically important BHC's most recent FR Y-15, multiplied by the coefficient corresponding to the systemic indicator set forth in Table 1 of the final rule.

#### B. Regulatory Flexibility Act Analysis

The Board is providing a regulatory flexibility analysis with respect to the final rule. The Regulatory Flexibility Act, 5 U.S.C. 601 *et seq.* (RFA), generally requires that to provide a regulatory flexibility analysis in connection with a final rulemaking. As discussed above, the final rule is designed to identify U.S. bank holding companies that are GSIBs and to apply capital surcharges to the GSIBs that are calibrated to their systemic risk profiles. Under regulations issued by the Small Business Administration, a small entity includes a bank holding company with assets of \$550 million or less (small

bank holding company).<sup>67</sup> As of December 31, 2014, there were approximately 3,833 small bank holding companies.

The final rule applies to any top-tier U.S. bank holding company domiciled in the United States that is subject to the advanced approaches rule pursuant to the regulatory capital rule that is not a subsidiary of a foreign banking organization. Bank holding companies that are subject to the final rule therefore substantially exceed the \$550 million asset threshold at which a banking entity would qualify as a small bank holding company.

Because the final rule would only apply to advanced approaches BHCs, which generally have at least \$250 billion in assets or \$10 billion in on-balance-sheet foreign assets, the rule would not apply to any small bank holding company for purposes of the RFA. Therefore, there are no significant alternatives to the final rule that would have less economic impact on small bank holding companies. As discussed above, the projected reporting, recordkeeping, and other compliance requirements of the rule are expected to be small. The Board does not believe that the rule duplicates, overlaps, or conflicts with any other Federal rules. In light of the foregoing, the Board does not believe that the final rule would have a significant economic impact on a substantial number of small entities.

The Board sought comment on whether the proposed rule would impose undue burdens on, or have unintended consequences for, small organizations, and received no comments on this aspect of the proposal. In light of the foregoing, the Board does not believe that the final rule will have a significant impact on small entities.

#### C. Plain Language

Section 722 of the Gramm-Leach-Bliley Act requires the Board to use plain language in all proposed and final rules published after January 1, 2000. The Board has sought to present the final rule in a simple straightforward manner. The Board did not receive any comment on its use of plain language.

#### List of Subjects

##### 12 CFR Part 208

Accounting, Agriculture, Banks, banking, Confidential business information, Consumer protection,

Crime, Currency, Global systemically important bank, Insurance, Investments, Mortgages, Reporting and recordkeeping requirements, Securities.

##### 12 CFR Part 217

Administrative practice and procedure, Banks, banking, Holding companies, Reporting and recordkeeping requirements, Securities.

#### Authority and Issuance

For the reasons set forth in the preamble, chapter II of title of the Code of Federal Regulations is amended as follows:

### PART 208—MEMBERSHIP OF STATE BANKING INSTITUTIONS IN THE FEDERAL RESERVE SYSTEM (REGULATION H)

■ 1. The authority citation for part 208 continues to read as follows:

**Authority:** 12 U.S.C. 24, 36, 92a, 93a, 248(a), 248(c), 321–338a, 371d, 461, 481–486, 601, 611, 1814, 1816, 1818, 1820(d)(9), 1833(j), 1828(o), 1831, 1831o, 1831p–1, 1831r–1, 1831w, 1831x, 1835a, 1882, 2901–2907, 3105, 3310, 3331–3351, 3905–3909, and 5371; 15 U.S.C. 78b, 781(b), 781(i), 780–4(c)(5), 78q, 78q–1, and 78w, 1681s, 1681w, 6801, and 6805; 31 U.S.C. 5318; 42 U.S.C. 4012a, 4104a, 4104b, 4106 and 4128.

#### Subpart D—Prompt Corrective Action

##### § 208.41 [Amended]

■ 2. Effective January 1, 2018, in § 208.41:

- a. Paragraph (c) as added on May 1, 2014 (79 FR 24540), is withdrawn.
- b. The redesignation of paragraphs (c) through (j) as paragraphs (d) through (k) on May 1, 2014 (79 FR 24540), is withdrawn.
- c. Paragraphs (g) through (p) are redesignated as paragraphs (h) through (q).
- d. New paragraph (g) is added to read as follows:

##### § 208.41 Definitions for purposes of this subpart.

\* \* \* \* \*

(g) *Global systemically important BHC* has the same meaning as in § 217.2 of Regulation Q (12 CFR 217.2).

\* \* \* \* \*

##### § 208.43 [Amended]

■ 3. Effective January 1, 2018, in § 208.43 paragraphs (a)(2)(iv)(C) and (c)(1)(iv) are amended by removing the words “covered BHC” and adding in their place the words “global systemically important BHC”.

<sup>67</sup> See 13 CFR 121.201. Effective July 14, 2014, the Small Business Administration revised the size standards for banking organizations to \$550 million in assets from \$500 million in assets. 79 FR 33647 (June 12, 2014).

**PART 217—CAPITAL ADEQUACY OF BANK HOLDING COMPANIES, SAVINGS AND LOAN HOLDING COMPANIES, AND STATE MEMBER BANKS (REGULATION Q)**

■ 4. The authority citation for part 217 continues to read as follows:

**Authority:** 12 U.S.C. 248(a), 321–338a, 481–486, 1462a, 1467a, 1818, 1828, 1831n, 1831o, 1831p–l, 1831w, 1835, 1844(b), 1851, 3904, 3906–3909, 4808, 5365, 5368, 5371.

■ 5. Effective December 1, 2015, revise § 217.1, paragraph (f)(3), to read as follows:

**§ 217.1 Purpose, applicability, reservations of authority, and timing.**

\* \* \* \* \*

(f) \* \* \*

(3) Beginning on January 1, 2016, and subject to the transition provisions in subpart G of this part, a Board-regulated institution is subject to limitations on distributions and discretionary bonus payments with respect to its capital conservation buffer, any applicable countercyclical capital buffer amount, and any applicable GSIB surcharge, in accordance with subpart B of this part.

\* \* \* \* \*

**§ 217.1 [Amended]**

■ 6. Effective January 1, 2018, in § 217.1, paragraph (f)(4) as revised on May 1, 2014 (79 FR 24540) is amended by removing the words “covered BHC” and adding the words “global systemically important BHC” in their place.

■ 7. Effective December 1, 2015, add definitions of “Global systemically important BHC” and “GSIB surcharge” in alphabetical order, to read as follows:

**§ 217.2 Definitions.**

\* \* \* \* \*

*Global systemically important BHC* means a bank holding company that is identified as a global systemically important BHC pursuant to § 217.402.

*GSIB surcharge* means the capital surcharge applicable to a global systemically important BHC calculated pursuant to § 217.403.

\* \* \* \* \*

**§ 217.2 [Amended]**

■ 8. Effective January 1, 2018, in § 217.2, the definition of “covered BHC” published on May 1, 2014 (79 FR 24540), is withdrawn.

■ 9. Effective December 1, 2015, in § 217.11:

- a. The section heading is revised.
- b. Paragraph (a)(4)(ii) is revised.
- c. Table 1 to § 217.11 is revised.
- d. Paragraph (c) is added.

The revisions and addition read as follows:

**§ 217.11 Capital conservation buffer, countercyclical capital buffer amount, and GSIB surcharge.**

\* \* \* \* \*

(a) \* \* \*

(4) \* \* \*

(ii) A Board-regulated institution with a capital conservation buffer that is greater than 2.5 percent plus 100 percent of its applicable countercyclical capital buffer in accordance with paragraph (b) of this section, and 100 percent of its applicable GSIB surcharge, in accordance with paragraph (c) of this section, is not subject to a maximum payout amount under this section.

\* \* \* \* \*

TABLE 1 TO § 217.11—CALCULATION OF MAXIMUM PAYOUT AMOUNT

Capital conservation buffer	Maximum payout ratio (as a percentage of eligible retained income)
Greater than 2.5 percent plus 100 percent of the Board-regulated institution's applicable countercyclical capital buffer amount and 100 percent of the Board-regulated institution's applicable GSIB surcharge.	No payout ratio limitation applies.
Less than or equal to 2.5 percent plus 100 percent of the Board-regulated institution's applicable countercyclical capital buffer amount and 100 percent of the Board-regulated institution's applicable GSIB surcharge, and greater than 1.875 percent plus 75 percent of the Board-regulated institution's applicable countercyclical capital buffer amount and 75 percent of the Board-regulated institution's applicable GSIB surcharge.	60 percent.
Less than or equal to 1.875 percent plus 75 percent of the Board-regulated institution's applicable countercyclical capital buffer amount and 75 percent of the Board-regulated institution's applicable GSIB surcharge, and greater than 1.25 percent plus 50 percent of the Board-regulated institution's applicable countercyclical capital buffer amount and 50 percent of the Board-regulated institution's applicable GSIB surcharge.	40 percent.
Less than or equal to 1.25 percent plus 50 percent of the Board-regulated institution's applicable countercyclical capital buffer amount and 50 percent of the Board-regulated institution's applicable GSIB surcharge, and greater than 0.625 percent plus 25 percent of the Board-regulated institution's applicable countercyclical capital buffer amount and 25 percent of the Board-regulated institution's applicable GSIB surcharge.	20 percent.
Less than or equal to 0.625 percent plus 25 percent of the Board-regulated institution's applicable countercyclical capital buffer amount and 25 percent of the Board-regulated institution's applicable GSIB surcharge.	0 percent.

\* \* \* \* \*

(c) *GSIB surcharge.* A global systemically important BHC must use its GSIB surcharge calculated in accordance with subpart H of this part for purposes of determining its maximum payout ratio under Table 1 to § 217.11.

**§ 217.11 [Amended]**

■ 10. Effective January 1, 2018, in § 217.11:

■ a. Paragraphs (a)(2)(v) and (a)(2)(vi), paragraph (c), and Table 2 added on May 1, 2014 (79 FR 24540) are amended by removing the words “covered BHC” or “covered BHC's” wherever they appear and adding in their place the words “global systemically important

BHC” or “global systemically important BHC's” respectively.

■ b. Paragraph (c) added on May 1, 2014 (79 FR 24540) is redesignated as paragraph (d).

■ 11. Effective December 1, 2015, revise § 217.300(a)(2) to read as follows:

**§ 217.300 Transitions.**

(a) \* \* \*



(2) Notwithstanding § 217.11,  
beginning January 1, 2016 through

December 31, 2018 a Board-regulated  
institution's maximum payout ratio

shall be determined as set forth in Table  
1 to § 217.300.

TABLE 1 TO § 217.300

Transition period	Capital conservation buffer	Maximum payout ratio (as a percentage of eligible retained income)
Calendar year 2016 .....	Greater than 0.625 percent plus 25 percent of any applicable countercyclical capital buffer amount and 25 percent of any applicable GSIB surcharge.	No payout ratio limitation applies under this section.
	Less than or equal to 0.625 percent plus 25 percent of any applicable countercyclical capital buffer amount and 25 percent of any applicable GSIB surcharge, <i>and</i> greater than 0.469 percent plus 17.25 percent of any applicable countercyclical capital buffer amount and 17.25 percent of any applicable GSIB surcharge.	60 percent.
	Less than or equal to 0.469 percent plus 17.25 percent of any applicable countercyclical capital buffer amount and 17.25 percent of any applicable GSIB surcharge, <i>and</i> greater than 0.313 percent plus 12.5 percent of any applicable countercyclical capital buffer amount and 12.5 percent of any applicable GSIB surcharge.	40 percent.
	Less than or equal to 0.313 percent plus 12.5 percent of any applicable countercyclical capital buffer amount and 12.5 percent of any applicable GSIB surcharge, <i>and</i> greater than 0.156 percent plus 6.25 percent of any applicable countercyclical capital buffer amount and 6.25 percent of any applicable GSIB surcharge.	20 percent.
	Less than or equal to 0.156 percent plus 6.25 percent of any applicable countercyclical capital buffer amount and 6.25 percent of any applicable GSIB surcharge.	0 percent.
	Greater than 1.25 percent plus 50 percent of any applicable countercyclical capital buffer amount and 50 percent of any applicable GSIB surcharge.	No payout ratio limitation applies under this section.
Calendar year 2017 .....	Less than or equal to 1.25 percent plus 50 percent of any applicable countercyclical capital buffer amount and 50 percent of any applicable GSIB surcharge, <i>and</i> greater than 0.938 percent plus 37.5 percent of any applicable countercyclical capital buffer amount and 37.5 percent of any applicable GSIB surcharge.	60 percent.
	Less than or equal to 0.938 percent plus 37.5 percent of any applicable countercyclical capital buffer amount and 37.5 percent of any applicable GSIB surcharge, <i>and</i> greater than 0.625 percent plus 25 percent of any applicable countercyclical capital buffer amount and 25 percent of any applicable GSIB surcharge.	40 percent.
	Less than or equal to 0.625 percent plus 25 percent of any applicable countercyclical capital buffer amount and 25 percent of any applicable GSIB surcharge, <i>and</i> greater than 0.313 percent plus 12.5 percent of any applicable countercyclical capital buffer amount and 12.5 percent of any applicable GSIB surcharge.	20 percent.
	Less than or equal to 0.313 percent plus 12.5 percent of any applicable countercyclical capital buffer amount and 12.5 percent of any applicable GSIB surcharge.	0 percent.
	Greater than 1.875 percent plus 75 percent of any applicable countercyclical capital buffer amount and 75 percent of any applicable GSIB surcharge.	No payout ratio limitation applies under this section.
	Less than or equal to 1.875 percent plus 75 percent of any applicable countercyclical capital buffer amount and 75 percent of any applicable GSIB surcharge, <i>and</i> greater than 1.406 percent plus 56.25 percent of any applicable countercyclical capital buffer amount and 56.25 percent of any applicable GSIB surcharge.	60 percent.
Calendar year 2018 .....	Less than or equal to 1.406 percent plus 56.25 percent of any applicable countercyclical capital buffer amount and 56.25 percent of any applicable GSIB surcharge, <i>and</i> greater than 0.938 percent plus 37.5 percent of any applicable countercyclical capital buffer amount and 37.5 percent of any applicable GSIB surcharge.	40 percent.
	Less than or equal to 0.938 percent plus 37.5 percent of any applicable countercyclical capital buffer amount and 37.5 percent of any applicable GSIB surcharge, <i>and</i> greater than 0.469 percent plus 18.75 percent of any applicable countercyclical capital buffer amount and 18.75 percent of any applicable GSIB surcharge.	20 percent.
	Less than or equal to 0.469 percent plus 18.75 percent of any applicable countercyclical capital buffer amount and 18.75 percent of any applicable GSIB surcharge.	0 percent.
	Greater than 1.875 percent plus 75 percent of any applicable countercyclical capital buffer amount and 75 percent of any applicable GSIB surcharge.	No payout ratio limitation applies under this section.
	Less than or equal to 1.875 percent plus 75 percent of any applicable countercyclical capital buffer amount and 75 percent of any applicable GSIB surcharge, <i>and</i> greater than 1.406 percent plus 56.25 percent of any applicable countercyclical capital buffer amount and 56.25 percent of any applicable GSIB surcharge.	60 percent.
	Less than or equal to 1.406 percent plus 56.25 percent of any applicable countercyclical capital buffer amount and 56.25 percent of any applicable GSIB surcharge, <i>and</i> greater than 0.938 percent plus 37.5 percent of any applicable countercyclical capital buffer amount and 37.5 percent of any applicable GSIB surcharge.	40 percent.

\* \* \* \* \*

■ 12. Effective December 1, 2015, add subpart H to part 217 to read as follows:

**Subpart H—Risk-based Capital Surcharge for Global Systemically Important Bank Holding Companies**

Sec.

217.400 Purpose and applicability.

217.401 Definitions.

217.402 Identification as a global systemically important BHC.

217.403 GSIB surcharge.

217.404 Method 1 score.

217.405 Method 2 score.

217.406 Short-term wholesale funding score.

**Authority:** 12 U.S.C. 5365.

**Subpart H—Risk-based Capital Surcharge for Global Systemically Important Bank Holding Companies**

**§ 217.400 Purpose and applicability.**

(a) *Purpose.* This subpart implements provisions of section 165 of the Dodd-Frank Act (12 U.S.C. 5365), by establishing a risk-based capital surcharge for global systemically important bank holding companies.

(b) *Applicability*—(1) *General.* This subpart applies to a bank holding company that is an advanced approaches Board-regulated institution and that is not a consolidated subsidiary of a bank holding company or a consolidated subsidiary of a foreign banking organization.

(2) *Effective date of calculation and surcharge requirements.* Subject to the transition provisions in paragraph (b)(3) of this section:

(i) A bank holding company that becomes an advanced approaches Board-regulated institution must determine whether it qualifies as a global systemically important BHC pursuant to § 217.402 by December 31 of the year immediately following the year in which the bank holding company becomes an advanced approaches Board-regulated institution; and

(ii) A bank holding company that becomes a global systemically important BHC pursuant to § 217.402 must calculate its GSIB surcharge pursuant to § 217.403 by December 31 of the year in which the bank holding company is identified as a global systemically important BHC and must use that GSIB surcharge for purposes of determining its maximum payout ratio under Table 1 to § 217.11 beginning on January 1 of the year that is immediately following the full calendar year after it is identified as a global systemically important BHC.

(3) Transition provisions for the calculation and surcharge requirements—(i) GSIB surcharge

requirements for bank holding companies with more than \$700 billion in total assets or \$10 trillion in assets under custody. A bank holding company that is an advanced approaches Board-regulated institution with more than \$700 billion in total assets as reported on the FR Y–9C as of December 31, 2014, or more than \$10 trillion in assets under custody as reported on the FR Y–15 as of December 31, 2014, must calculate its GSIB surcharge by December 31, 2015, and use that GSIB surcharge to determine its maximum payout ratio under Table 1 to § 217.11 beginning on January 1, 2016; provided that for the GSIB surcharges required to be calculated by December 31, 2015 and by December 31, 2016, the bank holding company must calculate its short-term wholesale funding score using the average of its weighted short-term wholesale funding amounts (defined in § 217.406(b)), calculated for July 31, 2015, August 24, 2015, and September 30, 2015.

(ii) *Calculation and GSIB surcharge requirements for other advanced approaches Board-regulated institutions.* A bank holding company that was an advanced approaches Board-regulated institution as of December 31, 2014, and is not described in paragraph (b)(3)(i) of this section must:

(A) Determine whether it qualifies as a global systemically important BHC pursuant to § 217.402 by December 31, 2015; and

(B) To the extent it qualifies as a global systemically important BHC by December 31, 2015, calculate its GSIB surcharge by December 31, 2016. The GSIB surcharge calculated by December 31, 2016, shall equal the method 1 surcharge (defined in § 217.403) of the bank holding company.

(c) *Reservation of authority.* (1) The Board may apply this subpart to any Board-regulated institution, in whole or in part, by order of the Board based on the institution's capital structure, size, level of complexity, risk profile, scope of operations, or financial condition.

(2) The Board may adjust the amount of the GSIB surcharge applicable to a global systemically important BHC, or extend or accelerate any compliance date of this subpart, if the Board determines that the adjustment, extension, or acceleration is appropriate in light of the capital structure, size, complexity, risk profile, and scope of operations of the global systemically important BHC. In increasing the size of the GSIB surcharge for a global systemically important BHC, the Board shall follow the notice and response

procedures in 12 CFR part 263, subpart E.

**§ 217.401 Definitions.**

As used in this subpart:

(a) *Aggregate global indicator amount* means, for each systemic indicator, the aggregate measure of that indicator, which is equal to the most recent annual dollar figure published by the Board that represents the sum of systemic indicator values of:

(1) The 75 largest global banking organizations, as measured by the Basel Committee on Banking Supervision; and

(2) Any other banking organization that the Basel Committee on Banking Supervision includes in its sample total for that year.

(b) *Assets under custody* means assets held as a custodian on behalf of customers, as reported by the bank holding company on the FR Y–15.

(c) *Average risk-weighted assets* means the four-quarter average of the measure of total risk-weighted assets associated with the lower of the bank holding company's common equity tier 1 risk-based capital ratios, as reported on the bank holding company's FR Y–9C for each quarter of the previous calendar year.

(d) *Brokered deposit* has the meaning set forth in 12 CFR 249.3.

(e) *Consolidated subsidiary* has the meaning set forth in 12 CFR 249.3.

(f) *Covered asset exchange* means a transaction in which a bank holding company has provided assets of a given liquidity category to a counterparty in exchange for assets of a higher liquidity category, and the bank holding company and the counterparty agreed to return such assets to each other at a future date. Categories of assets, in descending order of liquidity, are level 1 liquid assets, level 2A liquid assets, level 2B liquid assets, and assets that are not HQLA. Covered asset exchanges do not include secured funding transactions.

(g) *Financial sector entity* has the meaning set forth in 12 CFR 249.3.

(h) *GAAP* means generally accepted accounting principles as used in the United States.

(i) *High-quality liquid asset (HQLA)* has the meaning set forth in 12 CFR 249.3.

(j) *Cross-jurisdictional claims* means foreign claims on an ultimate risk basis, as reported by the bank holding company on the FR Y–15.

(k) *Cross-jurisdictional liabilities* means total cross-jurisdictional liabilities, as reported by the bank holding company on the FR Y–15.

(l) *Intra-financial system assets* means total intra-financial system assets, as reported by the bank holding company on the FR Y–15.

(m) *Intra-financial system liabilities* means total intra-financial system liabilities, as reported by the bank holding company on the FR Y-15.

(n) *Level 1 liquid asset* is an asset that qualifies as a level 1 liquid asset pursuant to 12 CFR 249.20(a).

(o) *Level 2A liquid asset* is an asset that qualifies as a level 2A liquid asset pursuant to 12 CFR 249.20(b).

(p) *Level 2B liquid asset* is an asset that qualifies as a level 2B liquid asset pursuant to 12 CFR 249.20(c).

(q) *Level 3 assets* means assets valued using Level 3 measurement inputs, as reported by the bank holding company on the FR Y-15.

(r) *Notional amount of over-the-counter (OTC) derivatives* means the total notional amount of OTC derivatives, as reported by the bank holding company on the FR Y-15.

(s) *Operational deposit* has the meaning set forth in 12 CFR 249.3.

(t) *Payments activity* means payments activity, as reported by the bank holding company on the FR Y-15.

(u) *Retail customer or counterparty* has the meaning set forth in 12 CFR 249.3.

(v) *Secured funding transaction* has the meaning set forth in 12 CFR 249.3.

(w) *Securities outstanding* means total securities outstanding, as reported by the bank holding company on the FR Y-15.

(x) *Short position* means a transaction in which a bank holding company has borrowed or otherwise obtained a security from a counterparty and sold that security, and the bank holding company must return the security to the initial counterparty in the future.

(y) *Systemic indicator* includes the following indicators included on the FR Y-15:

- (1) Total exposures;
- (2) Intra-financial system assets;
- (3) Intra-financial system liabilities;
- (4) Securities outstanding;
- (5) Payments activity;
- (6) Assets under custody;
- (7) Underwritten transactions in debt and equity markets;
- (8) Notional amount of over-the-counter (OTC) derivatives;
- (9) Trading and available-for-sale (AFS) securities;
- (10) Level 3 assets;
- (11) Cross-jurisdictional claims; or
- (12) Cross-jurisdictional liabilities.

(z) *Total exposures* means total exposures as reported by the bank holding company on the FR Y-15.

(aa) *Trading and AFS securities* means total adjusted trading and available-for-sale securities as reported by the bank holding company on the FR Y-15.

(bb) *Underwritten transactions in debt and equity markets* means total underwriting activity as reported by the bank holding company on the FR Y-15.

(cc) *Unsecured wholesale funding* has the meaning set forth in 12 CFR 249.3.

(dd) *Wholesale customer or counterparty* has the meaning set forth in 12 CFR 249.3.

#### **§ 217.402 Identification as a global systemically important BHC.**

A bank holding company is a global systemically important BHC if its method 1 score, as calculated under § 217.404, equals or exceeds 130 basis points. Subject to § 217.400(b)(2), a bank holding company must calculate its method 1 score on an annual basis by December 31 of each year.

#### **§ 217.403 GSIB surcharge.**

(a) *General.* Subject to § 217.400(b)(2), a company identified as a global systemically important BHC pursuant to § 217.402 must calculate its GSIB surcharge on an annual basis by December 31 of each year. For any given year, subject to paragraph (d) of this section, the GSIB surcharge is equal to the greater of:

(1) The method 1 surcharge calculated in accordance with paragraph (b) of this section; and

(2) The method 2 surcharge calculated in accordance with paragraph (c) of this section.

(b) *Method 1 surcharge—(1) General.* The method 1 surcharge of a global systemically important BHC is the amount set forth in Table 1 of this section that corresponds to the global systemically important BHC's method 1 score, calculated pursuant to § 217.404.

**TABLE 1 TO § 217.403—METHOD 1 SURCHARGE**

Method 1 score	Method 1 surcharge
Below 130 .....	0.0 percent.
130—229 .....	1.0 percent.
230—329 .....	1.5 percent.
330—429 .....	2.0 percent.
430—529 .....	2.5 percent.
530—629 .....	3.5 percent.

(2) *Higher method 1 surcharges.* To the extent that the method 1 score of a global systemically important BHC equals or exceeds 630 basis points, the method 1 surcharge equals the sum of:

- (i) 4.5 percent; and
- (ii) An additional 1.0 percent for each 100 basis points that the global systemically important BHC's score exceeds 630 basis points.

(c) *Method 2 surcharge—(1) General.* The method 2 surcharge of a global systemically important BHC is the

amount set forth in Table 2 of this section that corresponds to the global systemically important BHC's method 2 score, calculated pursuant to § 217.405.

**TABLE 2 TO § 217.403: METHOD 2 SURCHARGE**

Method 2 score	Method 2 surcharge
Below 130 .....	0.0 percent.
130—229 .....	1.0 percent.
230—329 .....	1.5 percent.
330—429 .....	2.0 percent.
430—529 .....	2.5 percent.
530—629 .....	3.0 percent.
630—729 .....	3.5 percent.
730—829 .....	4.0 percent.
830—929 .....	4.5 percent.
930—1029 .....	5.0 percent.
1030—1129 .....	5.5 percent.

(2) *Higher method 2 surcharges.* To the extent that the method 2 score of a global systemically important BHC equals or exceeds 1130 basis points, the method 2 surcharge equals the sum of:

- (i) 6.5 percent; and
- (ii) An additional 0.5 percent for each 100 basis points that the global systemically important BHC's score exceeds 1130 basis points.

(d) *Effective date of an adjusted GSIB surcharge—(1) Increase in GSIB surcharge.* An increase in the GSIB surcharge of a global systemically important BHC will take effect (*i.e.*, be incorporated into the maximum payout ratio under Table 1 to § 217.11) on January 1 of the year that is one full calendar year after the increased GSIB surcharge was calculated.

(2) *Decrease in GSIB surcharge.* A decrease in the GSIB surcharge of a global systemically important BHC will take effect (*i.e.*, be incorporated into the maximum payout ratio under Table 1 to § 217.11) on January 1 of the year immediately following the calendar year in which the decreased GSIB surcharge was calculated.

#### **§ 217.404 Method 1 score.**

(a) *General.* A bank holding company's method 1 score is the sum of its systemic indicator scores for the twelve systemic indicators set forth Table 1 of this section, as determined under paragraph (b) of this section.

(b) *Systemic indicator score.* (1) Except as provided in paragraph (b)(2) of this section, the systemic indicator score in basis points for a given systemic indicator is equal to:

- (i) The ratio of:
  - (A) The amount of that systemic indicator, as reported on the bank holding company's most recent FR Y-15; to
  - (B) The aggregate global indicator amount for that systemic indicator

published by the Board in the fourth quarter of that year;  
 (ii) Multiplied by 10,000; and  
 (iii) Multiplied by the indicator weight corresponding to the systemic

indicator as set forth in Table 1 of this section.  
 (2) *Maximum substitutability score.* The sum of the systemic indicator scores for the indicators in the

substitutability category (assets under custody, payments systems activity, and underwriting activity) will not exceed 100 basis points.

TABLE 1 TO § 217.404—SYSTEMIC INDICATOR WEIGHTS

Category	Systemic indicator	Indicator weight
Size .....	Total exposures .....	20 percent.
Interconnectedness .....	Intra-financial system assets .....	6.67 percent.
	Intra-financial system liabilities .....	6.67 percent.
	Securities outstanding .....	6.67 percent.
Substitutability .....	Payments activity .....	6.67 percent.
	Assets under custody .....	6.67 percent.
	Underwritten transactions in debt and equity markets .....	6.67 percent.
Complexity .....	Notional amount of over-the-counter (OTC) derivatives .....	6.67 percent.
	Trading and available-for-sale (AFS) securities .....	6.67 percent.
	Level 3 assets .....	6.67 percent.
Cross-jurisdictional activity .....	Cross-jurisdictional claims .....	10 percent.
	Cross-jurisdictional liabilities .....	10 percent.

**§ 217.405 Method 2 score.**

(a) *General.* A global systemically important BHC's method 2 score is equal to:

(1) The sum of:

(i) The global systemically important BHC's systemic indicator scores for the nine systemic indicators set forth Table

1 of this section, as determined under paragraph (b) of this section; and

(ii) The global systemically important BHC's short-term wholesale funding score, calculated pursuant to § 217.406.

(b) *Systemic indicator score.* A global systemically important BHC's score for a systemic indicator is equal to:

(1) The amount of the systemic indicator, as reported on the global systemically important BHC's most recent FR Y-15;

(2) Multiplied by the coefficient corresponding to the systemic indicator set forth in Table 1 of this section.

TABLE 1 TO § 217.405—COEFFICIENTS FOR SYSTEMIC INDICATORS

Category	Systemic indicator	Coefficient value (%)
Size .....	Total exposures .....	4.423
Interconnectedness .....	Intra-financial system assets .....	12.007
	Intra-financial system liabilities .....	12.490
	Securities outstanding .....	9.056
Complexity .....	Notional amount of over-the-counter (OTC) derivatives .....	0.155
	Trading and available-for-sale (AFS) securities .....	30.169
	Level 3 assets .....	161.177
Cross-jurisdictional activity .....	Cross-jurisdictional claims .....	9.277
	Cross-jurisdictional liabilities .....	9.926

**§ 217.406 Short-term wholesale funding score.**

(a) *General.* Except as provided in § 217.400(b)(3)(ii), a global systemically important BHC's short-term wholesale funding score is equal to:

(1) The average of the global systemically important BHC's weighted short-term wholesale funding amount (defined in paragraph (b) of this section);

(2) Divided by the global systemically important BHC's average risk-weighted assets; and

(3) Multiplied by a fixed factor of 350.

(b) *Weighted short-term wholesale funding amount.* (1) To calculate its weighted short-term wholesale funding amount, a global systemically important BHC must calculate the amount of its short-term wholesale funding on a

consolidated basis for each business day of the previous calendar year and weight the components of short-term wholesale funding in accordance with Table 1 of this section.

(2) Short-term wholesale funding includes the following components, each as defined in paragraph (c) of this section:

(i) All funds that the bank holding company must pay under each secured funding transaction, other than an operational deposit, with a remaining maturity of 1 year or less;

(ii) All funds that the bank holding company must pay under all unsecured wholesale funding, other than an operational deposit, with a remaining maturity of 1 year or less;

(iii) The fair value of an asset as determined under GAAP that a bank

holding company must return under a covered asset exchange with a remaining maturity of 1 year or less;

(iv) The fair value of an asset as determined under GAAP that the bank holding company must return under a short position to the extent that the borrowed asset does not qualify as a Level 1 liquid asset or a Level 2A liquid asset; and

(v) All brokered deposits held at the bank holding company provided by a retail customer or counterparty.

(3) For purposes of calculating the short-term wholesale funding amount and the components thereof, a bank holding company must assume that each asset or transaction described in paragraph (b)(2) of this section matures in accordance with the criteria set forth in 12 CFR 249.31.

TABLE 1 TO § 217.406—SHORT-TERM WHOLESALE FUNDING COMPONENTS AND WEIGHTS

Component of short-term wholesale funding	Remaining maturity of 30 days of less or no maturity	Remaining maturity of 31 to 90 days	Remaining maturity of 91 to 180 days	Remaining maturity of 181 to 365 days
<i>Category 1</i> .....	25 percent .....	10 percent .....	0 percent .....	0 percent.
(1) Secured funding transaction secured by a level 1 liquid asset;				
(2) Unsecured wholesale funding where the customer or counterparty is not a financial sector entity or a consolidated subsidiary thereof;				
(3) Brokered deposits provided by a retail customer or counterparty; and				
(4) Short positions where the borrowed asset does not qualify as either a level 1 liquid asset or level 2A liquid asset.				
<i>Category 2</i> .....	50 percent .....	25 percent .....	10 percent .....	0 percent.
(1) Secured funding transaction secured by a level 2A liquid asset; and				
(2) Covered asset exchanges involving the future exchange of a Level 1 liquid asset for a Level 2A liquid asset.				
<i>Category 3</i> .....	75 percent .....	50 percent .....	25 percent .....	10 percent.
(1) Secured funding transaction secured by a level 2B liquid asset;				
(2) Covered asset exchanges (other than those described in Category 2); and				
(3) Unsecured wholesale funding (other than unsecured wholesale funding described in Category 1).				
<i>Category 4</i> .....	100 percent .....	75 percent .....	50 percent .....	25 percent.
Any other component of short-term wholesale funding.				

**Note:** The following Appendix will not appear in the Code of Federal Regulations.

## Appendix

### Calibrating the GSIB Surcharge

#### Abstract

This white paper discusses how to calibrate a capital surcharge that tracks the systemic footprint of a global systemically important bank holding company (GSIB). There is no widely accepted calibration methodology for determining such a surcharge. The white paper focuses on the “expected impact” framework, which is based on each GSIB’s expected impact on the financial system, understood as the harm it would cause to the financial system were it to fail multiplied by the probability that it will fail. Because a GSIB’s failure would cause more harm than the failure of a non-GSIB, a GSIB should hold enough capital to lower its probability of failure so that its expected impact is approximately equal to that of a non-GSIB.

Applying the expected impact framework requires several elements. First, it requires a method for measuring the relative harm that a given banking firm’s failure would cause to the financial system—that is, its systemic footprint. This white paper uses the two methods as set forth in the GSIB surcharge rule to quantify a firm’s systemic impact. Those methods look to attributes of a firm that are drivers of its systemic importance, such as size, interconnectedness, and cross-border activity. Both methodologies use the most recent data available, and firms’ scores will change over time as their systemic footprints change. Second, the expected impact framework requires a means of estimating the probability that a firm with a

given level of capital will fail. This white paper estimates that relationship using historical data on the probability that a large U.S. banking firm will experience losses of various sizes. Third, the expected impact framework requires the choice of a “reference” bank holding company: A large, non-GSIB banking firm whose failure would not pose an outsized risk to the financial system. This white paper discusses several plausible choices of reference BHC.

With these elements, it is possible to estimate a capital surcharge that would reduce a GSIB’s expected impact to that of a non-GSIB reference BHC. For each choice of reference BHC, the white paper provides the ranges of reasonable surcharges for each U.S. GSIB.

#### Introduction

The Dodd-Frank Wall Street Reform and Consumer Protection Act<sup>68</sup> mandates that the Board of Governors of the Federal Reserve System adopt, among other prudential measures, enhanced capital standards to mitigate the risk posed to financial stability by systemically important financial institutions (SIFIs). The Board has already implemented a number of measures designed to strengthen firms’ capital positions in a manner consistent with the Dodd-Frank Act’s requirement that such measures increase in stringency based on the systemic importance of the firm.

As part of this process, the Board has proposed a set of capital surcharges to be applied to the eight U.S. bank holding companies (BHCs) of the greatest systemic importance, which have been denominated global systemically important bank holding

companies (GSIBs). Setting such an enhanced capital standard entails (1) measuring the risk that a given GSIB’s failure poses to financial stability (that is, the GSIB’s systemic footprint) and (2) estimating how much additional capital is needed to mitigate the systemic risk posed by a firm with a given systemic footprint.

This white paper explains the calibration of the capital surcharges, based on the measures of each GSIB’s systemic footprint derived from the two methods described in the GSIB surcharge final rule and discussed in detail in the preamble to the rule. Because there is no single widely accepted framework for calibrating a GSIB surcharge, the Board considered several potential approaches. This paper focuses on the “expected impact” framework, which is the most appropriate approach for helping to scale the level of a capital surcharge. This paper explains the expected impact framework in detail. It provides surcharge calibrations resulting from that framework under a range of plausible assumptions, incorporating the uncertainty that is inherent in the study of rare events such as systemic banking failures. This paper also discusses, at a high level, two alternative calibration frameworks, and it explains why neither seemed as useful as a framework for the calibration of the GSIB surcharge.

#### Background

The failures and near-failures of SIFIs were key drivers of the 2007–08 financial crisis and the resulting recession. They were also key drivers of the public-sector response to the crisis, in which the United States government sought to prevent SIFI failures through extraordinary measures such as the Troubled Asset Relief Program. The experience of the crisis made clear that the

<sup>68</sup> Public Law 111–203, 124 Stat. 1376 (July 21, 2010).

failure of a SIFI during a period of stress can do great damage to financial stability, that SIFIs themselves lack sufficient incentives to take precautions against their own failures, that reliance on extraordinary government interventions going forward would invite moral hazard and lead to competitive distortions, and that the pre-crisis regulatory focus on microprudential risks to individual financial firms needed to be broadened to include threats to the overall stability of the financial system.

In keeping with these lessons, post-crisis regulatory reform has placed great weight on “macroprudential” regulation, which seeks to address threats to financial stability. Section 165 of the Dodd-Frank Act pursues this goal by empowering the Board to establish enhanced regulatory standards for “large, interconnected financial institutions” that “are more stringent than the standards . . . applicable to [financial institutions] that do not present similar risks to the financial stability of the United States” and “increase in stringency” in proportion to the systemic importance of the financial institution in question.<sup>69</sup> Section 165(b)(1)(A)(i) of the act points to risk-based capital requirements as a required type of enhanced regulatory standard for SIFIs.

#### Rationales for a GSIB Surcharge

The Dodd-Frank Act’s mandate that the Board adopt enhanced capital standards to mitigate the risk posed to financial stability by certain large financial institutions provides the principal statutory impetus for enhanced capital requirements for SIFIs. Because the failure of a SIFI could undermine financial stability and thus cause far greater negative externalities than could the failure of a financial institution that is not systemically important, a probability of default that would be acceptable for a non-systemic firm may be unacceptably high for a SIFI. Reducing the probability that a SIFI will default reduces the risk to financial stability. The most straightforward means of lowering a financial firm’s probability of default is to require it to hold a higher level of capital relative to its risk-weighted assets than non-SIFIs are required to hold, thereby enabling it to absorb greater losses without becoming insolvent.

There are also two secondary rationales for enhanced capital standards for SIFIs. First, higher capital requirements create incentives for SIFIs to shrink their systemic footprint, which further reduces the risks these firms pose to financial stability. Second, higher capital requirements may offset any funding advantage that SIFIs have on account of being perceived as “too big to fail,” which reduces the distortion in market competition caused by the perception and the potential that counterparties may inappropriately shift more risk to SIFIs, thereby increasing the risk those firms pose to the financial system. Increased capital makes GSIBs more resilient in times of economic stress, and, by increasing the capital cushion available to the firm, may afford the firm and supervisors more time to address weaknesses at the firm that could reverberate through the financial system were the firm to fail.

#### The Expected Impact Framework

By definition, a GSIB’s failure would cause greater harm to financial stability than the failure of a banking organization that is not a GSIB.<sup>70</sup> Thus, if all banking organizations are subject to the same risk-based capital requirements and have similar probabilities of default, GSIBs will impose far greater systemic risks than non-GSIBs will. The expected impact framework addresses this discrepancy by subjecting GSIBs to capital surcharges that are large enough that the expected systemic loss from the failure of a given GSIB better approximates the expected systemic loss from the failure of a BHC that is large but is not a GSIB. (We will call this BHC the “reference BHC.”)

The expected loss from a given firm’s failure can be computed as the systemic losses that would occur if that firm failed, discounted by the probability of its failure. Using the acronyms LGD (systemic loss given default), PD (probability of default), and EL (expected loss), this idea can be expressed as follows:

$$EL = LGD * PD$$

The goal of a GSIB surcharge is to equalize the expected loss from a GSIB’s failure to the expected loss from the failure of a non-GSIB reference BHC:

$$EL_{GSIB} = EL_r$$

By definition, a GSIB’s LGD is higher than that of a non-GSIB. So to equalize EL between GSIBs and non-GSIBs, we must require each GSIB to lower its PD, which we can do by requiring it to hold more capital.

This implies that a GSIB must increase its capital level to the extent necessary to reach a PD that is as many times lower than the PD of the reference BHC as its LGD is higher than the LGD of the reference BHC. (For example, suppose that a particular GSIB’s failure would cause twice as much loss as the failure of the reference BHC. In that case, to equalize EL between the two firms, we must require the GSIB to hold enough additional capital that its PD is half that of the reference BHC.) That determination requires the following components, which we will consider in turn:

1. A method for creating “LGD scores” that quantify the GSIBs’ LGDs
2. An LGD score for the reference BHC
3. A function relating a firm’s capital ratio to its PD

#### Quantifying GSIB LGDs

The final rule employs two methods to measure GSIB LGD:

- Method 1 is based on the internationally accepted GSIB surcharge framework, which produces a score derived from a firm’s

<sup>70</sup> Cf. Dodd-Frank Act section 165(a)(1), which instructs the Board to apply more stringent prudential standards to certain large financial firms “[i]n order to prevent or mitigate risks to the financial stability of the United States that could arise from the material financial distress or failure . . . of large, interconnected financial institutions.” As illustrated by the financial crisis that led Congress to enact the Dodd-Frank Act, financial instability can lead to a wide range of social harms, including the declines in employment and GDP growth that are associated with an economic recession.

attributes in five categories: Size, interconnectedness, complexity, cross-jurisdictional activity, and substitutability.

- Method 2 replaces method 1’s substitutability category with a measure of a firm’s reliance on short-term wholesale funding.

The preambles to the GSIB surcharge notice of proposed rulemaking and final rule explain why these categories serve as proxies for the systemic importance of a banking organization (and thus the systemic harm that its failure would cause). They also explain how the categories are weighted to produce scores under method 1 and method 2. Table 1 conveys the Board’s estimates of the current scores for the eight U.S. BHCs with the highest scores. These scores are estimated from the most recent available data on firm-specific indicators of systemic importance. The actual scores that will apply when the final rule takes effect may be different and will depend on the future evolution of the firm-specific indicator values.

TABLE 1—TOP EIGHT SCORES UNDER EACH METHOD

Firm	Method 1 score	Method 2 score
JPMorgan Chase .....	473	857
Citigroup .....	409	714
Bank of America .....	311	559
Goldman Sachs .....	248	585
Morgan Stanley .....	224	545
Wells Fargo .....	197	352
Bank of New York Mellon .....	149	213
State Street .....	146	275

**Note:** These estimates are based on data sources described below. They may not reflect the actual scores of a given firm. Method 1 estimates were produced using indicator data reported by firms on the FR Y-15 as of December 31, 2014, and global aggregate denominators reported by the Basel Committee on Banking Supervision (BCBS) as of December 31, 2013. Method 2 estimates were produced using the same indicator data and the average of the global aggregate denominators reported by the BCBS as of the ends of 2012 and 2013. For the eight U.S. BHCs with the highest scores, the short-term wholesale funding component of method 2 was estimated using liquidity data collected through the supervisory process and averaged across 2014. Unless otherwise specified, these data sources were used to estimate all method 1 and method 2 scores included in this paper.

This paper assumes that the relationships between the scores produced by these methods and the firms’ systemic LGDs are linear. In other words, it assumes that if firm A’s score is twice as high as firm B’s score, then the systemic harms that would flow from firm A’s failure would be twice as great as those that would flow from firm B’s failure.

In fact, there is reason to believe that firm A’s failure would do more than twice as much damage as firm B’s. (In other words, there is reason to believe that the function relating the scores to systemic LGD increases at an increasing rate and is therefore non-linear.) The reason is that at least some of the

<sup>69</sup> Section 165(a)(1).

components of the two methods appear to increase the systemic harms that would result from a default at an increasing rate, while none appears to increase the resulting systemic harm at a decreasing rate. For example, because the negative price impact associated with the fire-sale liquidation of certain asset portfolios increases with the size of the portfolio, systemic LGD appears to grow at an increasing rate with the size, complexity, and short-term wholesale funding metrics used in the methods. Thus, this paper's assumption of a linear relationship simplifies the analysis while likely resulting in surcharges lower than those that would result if the relationship between scores and systemic LGD were assumed to be non-linear.

#### The Reference BHC's Systemic LGD Score

The reference BHC is a real or hypothetical BHC whose LGD will be used in our calculations. The expected impact framework requires that the reference BHC be a non-GSIB, but it leaves room for discretion as to the reference BHC's identity and LGD score.

#### Potential Approaches

The reference BHC score can be viewed as simply the LGD score which, given the PD associated with the generally applicable capital requirements, produces the highest EL that is consistent with the purposes and mandate of the Dodd-Frank Act. The effect of setting the reference BHC score to that LGD score would be to hold all GSIBs to that EL level. The purpose of the Dodd-Frank Act is "to prevent or mitigate risks to the financial stability of the United States that could arise from the material financial distress or failure, or ongoing activities, of large, interconnected financial institutions."<sup>71</sup> The following options appear to be conceptually plausible ways of identifying the reference BHC for purposes of establishing a capital requirement for GSIBs that lowers the expected loss from the failure of a GSIB to the level associated with the failure of a non-GSIB.

Option 1: A BHC with \$50 billion in assets. Section 165(a)(1) of the Dodd-Frank Act calls for the Board to "establish prudential standards for . . . bank holding companies with total consolidated assets equal to or greater than \$50,000,000,000 that (A) are more stringent than the standards . . . applicable to . . . bank holding companies that do not present similar risks to the financial stability of the United States; and (B) increase in stringency." Section 165 is the principal statutory basis for the GSIB surcharge, and its \$50 billion figure provides

a line below which it may be argued that Congress did not believe that BHCs present sufficient "risks to the financial stability of the United States" to warrant mandatory enhanced prudential standards. It would therefore be reasonable to require GSIBs to hold enough capital to reduce their expected systemic loss to an amount equal to that of a \$50 billion BHC that complies with the generally applicable capital rules. Although \$50 billion BHCs could have a range of LGD scores based upon their other attributes, reasonable score estimates for a BHC of that size are 3 under method 1 and 37 under method 2.<sup>72</sup>

Option 2: A BHC with \$250 billion in assets. The Board's implementation of the advanced approaches capital framework imposes enhanced requirements on banking organizations with at least \$250 billion in consolidated assets. This level distinguishes the largest and most internationally active U.S. banking organizations, which are subject to other enhanced capital standards, including the countercyclical capital buffer and the supplementary leverage ratio.<sup>73</sup> The \$250 billion threshold therefore provides another viable line for distinguishing between the large, complex, internationally active banking organizations that pose a substantial threat to financial stability and those that do not pose such a substantial threat. Although \$250 billion BHCs could have a range of LGD scores based upon their other attributes, reasonable score estimates for a BHC of that size are 23 under method 1 and 60 under method 2.<sup>74</sup>

<sup>72</sup> These estimates were produced by plotting the estimated scores of six U.S. BHCs with total assets between \$50 billion and \$100 billion against their total assets, running a linear regression, and finding the score implied by the regression for a \$50 billion firm. These firms' scores were estimated using data from the sources described in the general note to table 1, except that figures for the short-term wholesale funding component of method 2 were estimated using FR Y-9C data from the first quarter of 2015 and Federal Reserve quantitative impact study (QIS) data as of the fourth quarter of 2014. Scores for firms with total assets below \$50 billion were not estimated (and therefore were not included in the regression analysis) because the Federal Reserve does not collect as much data from those firms.

<sup>73</sup> Advanced approaches banking organizations also include firms with on-balance sheet foreign exposures of \$10 billion or more.

<sup>74</sup> These estimates were produced by applying the approach described in footnote 5 to 10 U.S. BHCs with total assets between \$100 billion and \$400 billion. Bank of New York Mellon and State Street, which have total assets within that range, were excluded from the sample because they are GSIBs and the expected impact framework assumes that the reference BHC is a non-GSIB.

Option 3: The U.S. non-GSIB with the highest LGD score. Another plausible reference BHC is the actual U.S. non-GSIB BHC that comes closest to being a GSIB—in other words, the U.S. non-GSIB with the highest LGD score. Under method 1, the highest score for a U.S. non-GSIB is 51 (the second-highest is 39). Under method 2, the highest score for a U.S. non-GSIB is estimated to be 85 (the second- and third-highest scores are both estimated to be 75).<sup>75</sup>

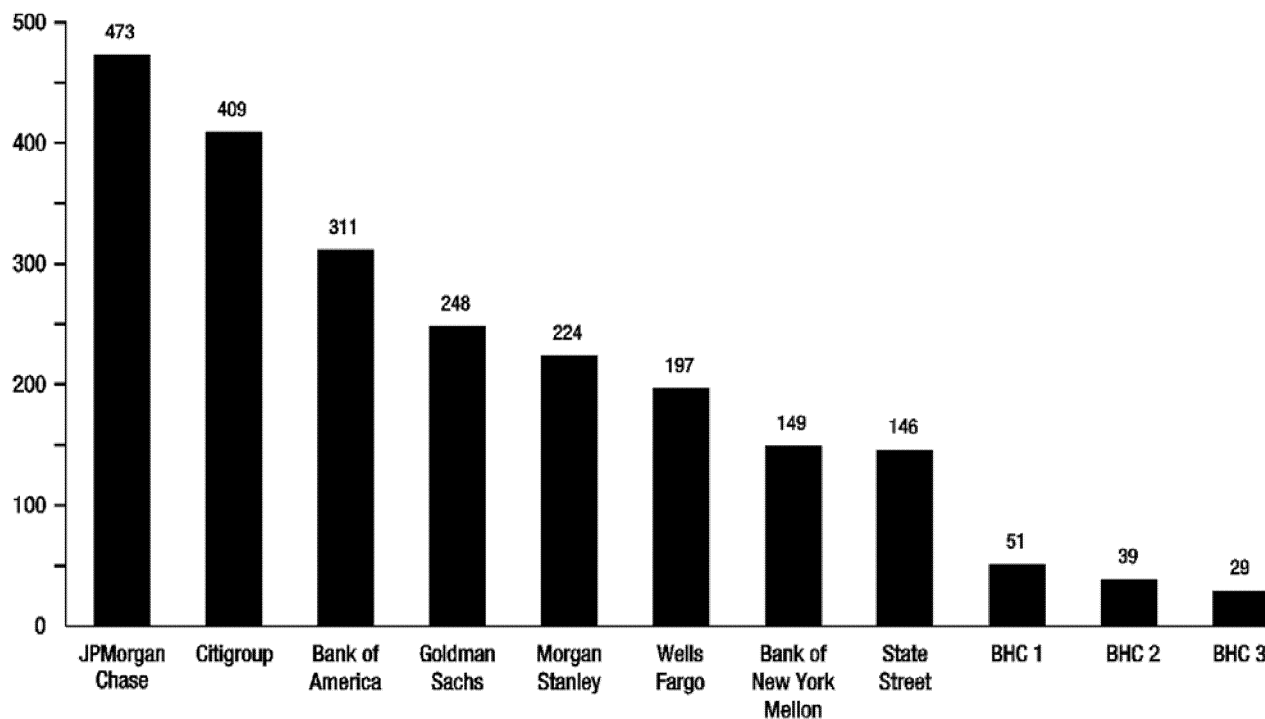
Option 4: A hypothetical BHC at the cut-off line between GSIBs and non-GSIBs. Given that BHCs are divided into GSIBs and non-GSIBs based on their systemic footprint and that LGD scores provide our metric for quantifying firms' systemic footprints, there must be some LGD score under each method that marks the "cut-off line" between GSIBs and non-GSIBs. The reference BHC's score should be no higher than this cut-off line, since the goal of the expected impact framework is to lower each GSIB's EL so that it equals the EL of a non-GSIB. Under this option, the reference BHC's score should also be no lower than the cut-off line, since if it were lower, then a non-GSIB firm could exist that had a higher LGD and therefore (because it would not be subject to a GSIB surcharge) a higher EL than GSIBs are permitted to have. Under this reasoning, the reference BHC should have an LGD score that is exactly on the cut-off line between GSIBs and non-GSIBs. That is, it should be just on the cusp of being a GSIB.

What LGD score marks the cut-off line between GSIB and non-GSIB? With respect to method 1, figure 1 shows that there is a large drop-off between the eighth-highest score (146) and the ninth-highest score (51). Drawing the cut-off line within this target range is reasonable because firms with scores at or below 51 are much closer in size and complexity to financial firms that have been resolved in an orderly fashion than they are to the largest financial firms, which have scores between three and nine times as high and are significantly larger and more complex. We will choose a cut-off line at 130, which is at the high end of the target range. This choice is appropriate because it aligns with international standards and facilitates comparability among jurisdictions. It also establishes minimum capital surcharges that are consistent internationally.

<sup>75</sup> These estimates were produced using data from the sources described in the general note to table 1, except that figures for the short-term wholesale funding component of method 2 were estimated using FR Y-9C data from the first quarter of 2015 and Federal Reserve quantitative impact study (QIS) data as of the fourth quarter of 2014.

<sup>71</sup> Section 165(a)(1).



**Figure 1. Estimated method 1 scores**

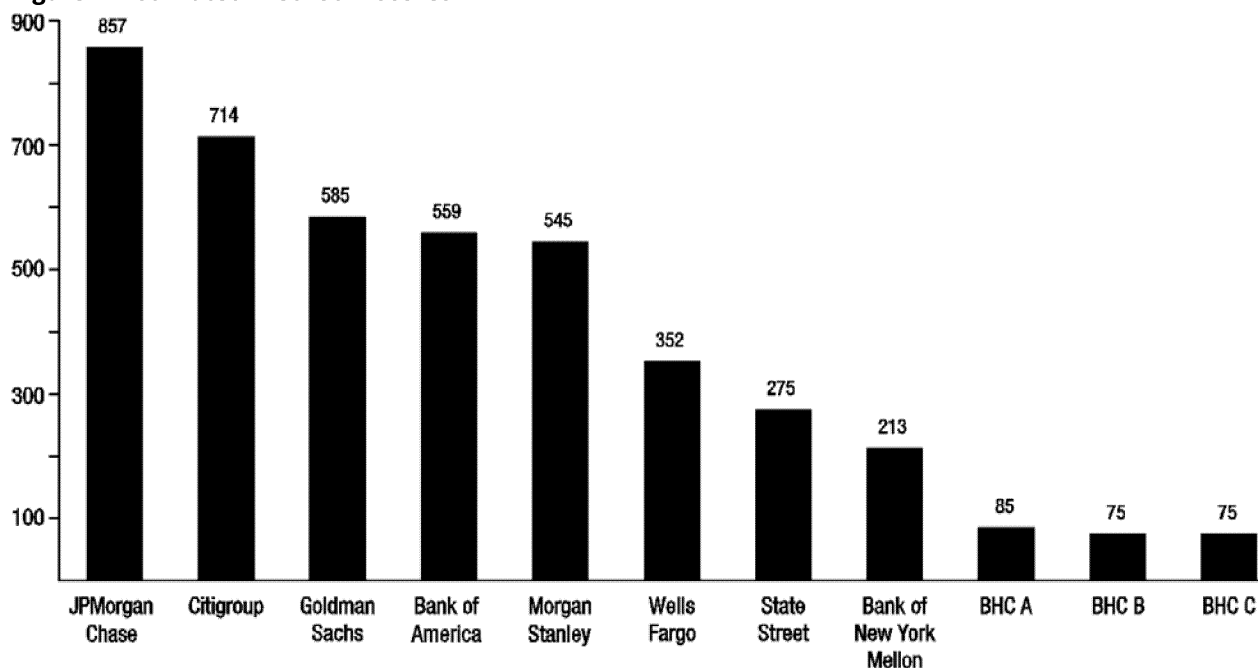
A similar approach can be used under method 2. Figure 2 depicts the estimated method 2 scores of the eleven U.S. BHCs with the highest estimated scores. A large drop-off in the distribution of scores with a significant difference in character of firms occurs between firms with scores above 200 and firms with scores below 100.

The range between Bank of New York Mellon and the next-highest-scoring firm is the most rational place to draw the line between GSIBs and non-GSIBs: Bank of New York Mellon's score is roughly 251 percent of the score of the next highest-scoring firm,

which is labeled BHC A. (There is also a large gap between Morgan Stanley's score and Wells Fargo's, but the former is only about 154 percent of the latter.) This approach also generates the same list of eight U.S. GSIBs as is produced by method 1. In selecting a specific line within this range, we considered the statutory mandate to protect U.S. financial stability, which argues for a method of calculating surcharges that addresses the importance of mitigating the failure of U.S. GSIBs, which are among the most systemic in the world. This would suggest a cut-off line at the lower end of the target range. The

lower threshold is appropriate in light of the fact that method 2 uses a measure of short-term wholesale funding in place of substitutability. Specifically, short-term wholesale funding is believed to have particularly strong contagion effects that could more easily lead to major systemic events, both through the freezing of credit markets and through asset fire sales. These systemic impacts support the choice of a threshold at the lower end of the range for method 2.

Figure 2. Estimated method 2 scores



Although the failure of a firm with the systemic footprint of BHC A poses a smaller risk to financial stability than does the failure of one of the eight GSIBs, it is nonetheless possible that the failure of a very large banking organization like BHC A, BHC B, or BHC C could have a negative effect on financial stability, particularly during a period of industry-wide stress such as occurred during the 2007–08 financial crisis. This provides additional support for our decision to draw the line between GSIBs and non-GSIBs at 100 points, at the lower end of the range between Bank of New York Mellon and BHC A.

Note that we have set our method 2 reference BHC score near the bottom of the target range and our method 1 reference BHC score near the top of the target range. Due to the choice of reference BHC in method 2, method 2 is likely to result in higher surcharges than method 1. Calculating surcharges under method 1 in part recognizes the international standards applied globally to GSIBs. Using a globally consistent approach for establishing a baseline surcharge has benefits for the stability of the entire financial system, which is globally interconnected. At the same time, using an approach that results in higher surcharges for most GSIBs is consistent with the statutory mandate to protect financial stability in the United States and with the risks presented by short-term wholesale funding.

#### Capital and Probability of Default

To implement the expected impact approach, we also need a function that relates capital ratio increases to reductions in probability of default. First, we use historical data drawn from FR Y–9C regulatory reports from the second quarter of 1987 through the fourth quarter of 2014 to plot the probability distribution of returns on risk-weighted assets (RORWA) for the 50 largest BHCs (determined as of each quarter), on a four-

quarter rolling basis.<sup>76</sup> RORWA is defined as after-tax net income divided by risk-weighted assets. Return on risk-weighted assets provides a better measure of risk than return on total assets would, because the risk weightings have been calibrated to ensure that two portfolios with the same risk-weighted assets value contain roughly the same amount of risk, whereas two portfolios with total assets of the same value can contain very different amounts of risk depending on the asset classes in question.

We select this date range and set of firms to provide a large sample size while focusing on data from the relatively recent past and from very large firms, which are more germane to our purposes. Data from the past three decades may be an imperfect predictor of future trends, as there are factors that suggest that default probabilities in the future may be either lower or higher than would be predicted on the basis of the historical data.

On the one hand, these data do not reflect many of the regulatory reforms implemented in the wake of the 2007–08 financial crisis that are likely to reduce the probability of very large losses and therefore the probability of default associated with a given capital level. For example, the Basel 2.5 and Basel III capital reforms are intended to increase the risk-sensitivity of the risk weightings used to measure risk-weighted assets, which suggests that the risk of losses associated with each dollar of risk-weighted assets

under Basel III will be lower than the historical, pre-Basel III trend. Similarly, post-crisis liquidity initiatives (the liquidity coverage ratio and the net stable funding ratio) should reduce the default probabilities of large banking firms and the associated risk of fire sales. Together, these reforms may lessen a GSIB's probability of default and potentially imply a lower GSIB surcharge.

On the other hand, however, extraordinary government interventions during the time period of the dataset (particularly in response to the 2007–08 financial crisis) undoubtedly prevented or reduced large losses that many of the largest BHCs would otherwise have suffered. Because one core purpose of post-crisis reform is to avoid the need for such extraordinary interventions in the future, the GSIB surcharge should be calibrated using data that include the severe losses that would have materialized in the absence of such intervention; because the interventions in fact occurred, using historical RORWA data may lead us to underestimate the probability of default associated with a given capital level. In short, there are reasons to believe that the historical data underestimate the future trend, and there are reasons to believe that those data overestimate the future trend. Although the extent of the over- and underestimations cannot be rigorously quantified, a reasonable assumption is that they roughly cancel each other out.<sup>77</sup>

<sup>76</sup> Because Basel I risk-weighted assets data are only available from 1996 onward, risk-weighted assets data for earlier years are estimated by back-fitting the post-1996 ratio between risk-weighted assets and total assets onto pre-1996 total assets data. See Andrew Kuritzkes and Til Schuermann (2008), “What We Know, Don’t Know, and Can’t Know about Bank Risk: A View from the Trenches,” University of Pennsylvania, Financial Institutions Center paper #06–05, <http://fic.wharton.upenn.edu/fic/papers/06/0605.pdf>.

<sup>77</sup> The concept of risk aversion provides additional support for this assumption. While the failure of a GSIB in any given year is unlikely, the costs from such a failure to financial stability could be severe. By contrast, any costs from higher capital surcharges will be distributed more evenly among different states of the world. Presumably society is risk-averse and, in a close case, would prefer the latter set of costs to the former. While this paper does not attempt to incorporate risk aversion into its quantitative analysis, that concept does provide additional support for the decision not to discount

Figure 3 displays the estimated quantiles of ROWRA from 0.1 to 5.0. The sample quantiles are represented by black dots. The dashed lines above and below the estimated quantiles represent a 99 percent confidence interval for each estimated quantile. As shown in the figure, the uncertainty around more extreme quantiles is substantially larger

than that around less extreme quantiles. This is because actual events relating to more extreme quantiles occur much less frequently and are, as a result, subject to considerably more uncertainty. The solid line that passes through the black dots is an estimated regression function that relates the estimated value of the quantile to the natural logarithm

of the associated probability. The specification of the regression function is provided in the figure which reports both the estimated coefficients of the regression function and the standard errors, in parentheses, associated with the estimated coefficients.

**Figure 3. Returns on risk-weighted assets (RORWA)**  
(Bottom five percentiles, 50 largest BHCs in each quarter, 2Q87 through 4Q14)

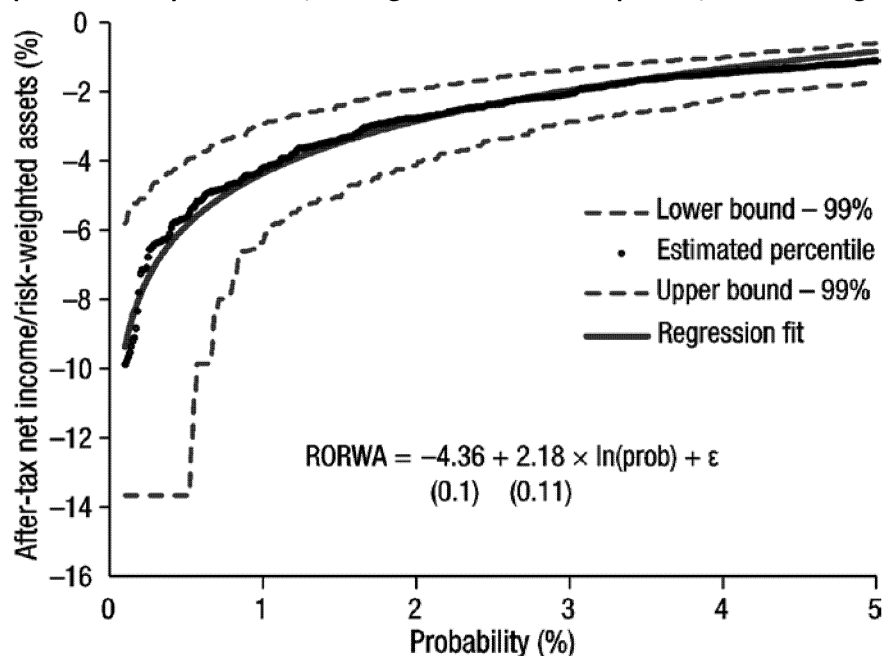


Figure 3 shows that RORWA is negative (that is, the firm experiences a loss) more than 5 percent of the time, with most losses amounting to less than 4 percent of risk-weighted assets. The formula for the

logarithmic regression on this RORWA probability distribution (with RORWA represented by  $y$  and the percentile associated with that RORWA by  $x$ ) is:

$$y = 2.18 * \ln(x) - 4.36$$

The inverse of this function, which we will label  $p(\text{RORWA})$ , gives the probability that a particular realization of RORWA,  $\tilde{R}$  will be less than or equal to a specified level over a given year. That function is:

$$p(\tilde{R} \leq \text{RORWA}) = p(\text{RORWA}) = e^{\frac{\text{RORWA} + 4.36}{2.18}}$$

Next, assume that a BHC becomes non-viable and consequently defaults if and only if its capital ratio  $k$  (measured in terms of common equity tier 1 capital, or CET1) falls to some failure point  $f$ . (Note that  $k$  is a variable and  $f$  is a constant.) We assume that RORWA and  $k$  are independent, which is appropriate because the return on an asset

should not depend to a significant extent on the identity of the entity holding the asset or on that entity's capital ratio. We can now estimate the probability that a BHC with capital level  $k$  will suffer sufficiently severe losses (that is, a negative RORWA of sufficiently great magnitude) to bring its capital ratio down to the failure point  $f$ . We

are looking for the probability that  $k$  will fall to  $f$ , that is, the probability that  $k + \text{RORWA} = f$ . Solving for RORWA, we get  $\text{RORWA} = f - k$ , which we can then plug into the function above to find the probability of default as a function of the capital ratio  $k$ .<sup>78</sup>

$$p(k) = e^{\frac{(f-k) + 4.36}{2.18}} = e^{\frac{(f+4.36) - k}{2.18}}$$

the historical probability of large losses in light of post-crisis regulatory reforms.

<sup>78</sup> This paper treats dollars of risk-weighted assets as equivalent regardless of whether they are

measured under the risk weightings of Basel I or of Basel III. This treatment makes sense because the two systems produce roughly comparable results and there does not appear to be any objectively

correct conversion factor for converting between them.

### Application

We can now create a function that takes as its input a GSIB's LGD score and produces a capital surcharge for that GSIB. In the course of doing so, we will find that the resulting surcharges are invariant to both the failure point  $f$  and the generally applicable capital level that the GSIB surcharge is held

on top of, which means that we do not need to make any assumption about the value of these two quantities. Recall that the goal of the expected impact framework is to make the following equation true:

$$EL_{GSIB} = EL\gamma$$

Let  $k_r$  be the generally applicable capital level held by the reference BHC, and let  $k_{GSIB}$

be the GSIB surcharge that a given GSIB is required to hold on top of  $k_r$ . Thus, the reference BHC's probability of default will be  $p(k_r)$  and each GSIB's probability of default will be  $p(k_r + k_{GSIB})$ , with the value of  $k_{GSIB}$  varying from firm to firm. Because  $EL = LGD * PD$ , the equation above can be expressed as:  $LGD_{GSIB} * p(k_r + k_{GSIB}) = LGD_r * p(k_r)$

$$\frac{p(k_r + k_{GSIB})}{p(k_r)} = \frac{LGD_r}{LGD_{GSIB}}$$

Plugging in our function  $p(k)$ , we obtain:

$$\frac{e^{\frac{(f+4.36)-(k_r+k_{GSIB})}{2.18}}}{e^{\frac{(f+4.36)-k_r}{2.18}}} = \frac{LGD_r}{LGD_{GSIB}}$$

The left side of this equation can be simplified as follows:

$$\frac{e^{\frac{(f+4.36)-(k_r+k_{GSIB})}{2.18}}}{e^{\frac{(f+4.36)-k_r}{2.18}}} = e^{\frac{f+4.36-k_r-k_{GSIB}-f-4.36+k_r}{2.18}} = e^{-\frac{k_{GSIB}}{2.18}}$$

As promised, the failure point  $f$  and the baseline capital level  $k_r$  prove to be irrelevant. This is a consequence of the assumption that the quantiles of the RORWA distribution are linearly related to the logarithm of the quantile. Thus, we have:

$$e^{-\frac{k_{GSIB}}{2.18}} = \frac{LGD_r}{LGD_{GSIB}}$$

We can now solve for  $k_{GSIB}$ :

$$k_{GSIB} = -2.18 * \ln\left(\frac{LGD_r}{LGD_{GSIB}}\right)$$

The appropriate surcharge for a given GSIB depends only on that GSIB's LGD score and the chosen reference BHC's LGD score. Indeed, the surcharge does not even depend on the particular values of those two scores, but only on the ratio between them. Thus, doubling, halving, or otherwise multiplying both scores by the same constant will not affect the resulting surcharges. And since each of our reference BHC options was determined in relation to the LGD scores of actual firms, any multiplication applied to the calculation of the firms' LGD scores will also carry over to the resulting reference BHC scores.

Note that the specific GSIB surcharge depends on the slope coefficient that determines how the quantiles of the RORWA distribution change as the probability changes. The empirical analysis presented in figure 3 suggests a value for the slope

coefficient of roughly 2.18; however, there is uncertainty regarding the true population value of this coefficient. There are two important sources of uncertainty. First, the estimated value of 2.18 is a statistical estimate that is subject to sampling uncertainty. This sampling uncertainty is characterized in terms of the standard error of the coefficient estimate, which is 0.11 (as reflected in parentheses beneath the point estimate in figure 3). Under standard assumptions, the estimated value of the slope coefficient is approximately normally distributed with a mean of 2.18 and a standard deviation of 0.11. A 99 percent confidence interval for the slope coefficient ranges from approximately 1.9 to 2.4.

Second, there is additional uncertainty around the slope coefficient that arises from uncertainty as to whether the data sample used to construct the estimated slope

coefficient is indicative of the RORWA distribution that will obtain in the future. As discussed above, there are reasons to believe that the future RORWA distribution will differ to some extent from the historical distribution. Accordingly, the 99 percent confidence interval for the slope coefficient that is presented above is a lower bound to the true degree of uncertainty that should be attached to the slope coefficient.

We can now use the GSIB surcharge formula and 99 percent confidence interval presented above to compute the ranges of capital surcharges that would obtain for each of the reference BHC options discussed above. Table 2 presents method 1 surcharge ranges and table 3 presents method 2 surcharge ranges. The low estimate in each cell was computed using the surcharge formula above with the value of the slope coefficient at the low end of the 99 percent

confidence interval (1.9); the high end was computed using the value of the slope

coefficient at the high end of that interval (2.4).

TABLE 2—METHOD 1 SURCHARGE RANGES FOR EACH REFERENCE BHC (%)

Firm	Method 1 score	\$50 Billion reference BHC	\$250 Billion reference BHC	Non-GSIB with highest LGD	Reference BHC LGD = 130
JPMorgan Chase .....	473	9.6, 12.4	5.7, 7.4	4.2, 5.5	2.5, 3.2
Citigroup .....	409	9.3, 12.1	5.5, 7.1	4.0, 5.1	2.2, 2.8
Bank of America .....	311	8.8, 11.4	4.9, 6.4	3.4, 4.4	1.7, 2.1
Goldman Sachs .....	248	8.4, 10.9	4.5, 5.8	3.0, 3.9	1.2, 1.6
Morgan Stanley .....	224	8.2, 10.6	4.3, 5.6	2.8, 3.6	1.0, 1.3
Wells Fargo .....	197	8.0, 10.3	4.1, 5.3	2.6, 3.3	0.8, 1.0
Bank of New York Mellon .....	149	7.4, 9.6	3.6, 4.6	2.0, 2.6	0.3, 0.3
State Street .....	146	7.4, 9.6	3.5, 4.5	2.0, 2.6	0.2, 0.3
Reference score .....		3	23	51	130

TABLE 3—METHOD 2 SURCHARGE RANGES FOR EACH REFERENCE BHC (%)

Firm	Method 2 score	\$50 Billion reference BHC	\$250 Billion reference BHC	Non-GSIB with highest LGD	Reference BHC LGD = 100
JPMorgan Chase .....	857	6.0, 7.7	5.1, 6.5	4.4, 5.7	4.1, 5.3
Citigroup .....	714	5.6, 7.3	4.7, 6.1	4.0, 5.2	3.7, 4.8
Goldman Sachs .....	585	5.2, 6.8	4.3, 5.6	3.7, 4.7	3.4, 4.3
Bank of America .....	559	5.2, 6.7	4.2, 5.5	3.6, 4.6	3.3, 4.2
Morgan Stanley .....	545	5.1, 6.6	4.2, 5.4	3.5, 4.6	3.2, 4.2
Wells Fargo .....	352	4.3, 5.5	3.4, 4.4	2.7, 3.5	2.4, 3.1
State Street .....	275	3.8, 4.9	2.9, 3.7	2.2, 2.9	1.9, 2.5
Bank of New York Mellon .....	213	3.3, 4.3	2.4, 3.1	1.7, 2.3	1.4, 1.9
Reference score .....		37	60	85	100

### Surcharge Bands

The analysis above suggests a range of capital surcharges for a given LGD score. To obtain a simple and easy-to-implement surcharge rule, we will assign surcharges to discrete “bands” of scores so that the surcharge for a given score falls in the lower end of the range suggested by the results shown in tables 2 and 3. The bands will be chosen so that the surcharges for each band rise in increments of one half of a percentage point. This sizing will ensure that modest changes in a firm’s systemic indicators will generally not cause a change in its surcharge, while at the same time maintaining a reasonable level of sensitivity to changes in a firm’s systemic footprint. Because small changes in a firm’s score will generally not cause a change to the firm’s surcharge, using surcharge bands will facilitate capital planning by firms subject to the rule.

We will omit the surcharge band associated with a 0.5 percent surcharge. This tailoring for the least-systemic band of scores above the reference BHC score is rational in light of the fixed costs of imposing a firm-specific capital surcharge; these costs are likely not worth incurring where only a small surcharge would be imposed. (The internationally accepted GSIB surcharge framework similarly lacks a 0.5 percent surcharge band.) Moreover, a minimum surcharge of 1.0 percent for all GSIBs accounts for the inability to know precisely where the cut-off line between a GSIB and a non-GSIB will be at the time when a failure occurs, and the surcharge’s purpose of enhancing the resilience of all GSIBs.

We will use 100-point fixed-width bands, with a 1.0 percent surcharge band at 130–229 points, a 1.5 percent surcharge band at 230–

329 points, and so on. These surcharge bands fall in the lower end of the range suggested by the results shown in tables 1 and 2.

The analysis above suggests that the surcharge should depend on the logarithm of the LGD score. The logarithmic function could justify bands that are smaller for lower LGD scores and larger for higher LGD scores. For the following reasons, however, fixed-width bands are more appropriate than expanding-width bands.

First, fixed-width surcharge bands facilitate capital planning for less-systemic firms, which would otherwise be subject to a larger number of narrower bands. Such small bands could result in frequent and in some cases unforeseen changes in those firms’ surcharges, which could unnecessarily complicate capital planning and is contrary to the objective of ensuring that relatively small changes in a firm’s score generally will not alter the firm’s surcharge.

Second, fixed-width surcharge bands are appropriate in light of several concerns about the RORWA dataset and the relationship between systemic indicators and systemic footprint that are particularly relevant to the most systemically important financial institutions. Larger surcharge bands for the most systemically important firms would allow these firms to expand their systemic footprint materially within the band without augmenting their capital buffers. That state of affairs would be particularly troubling in light of limitations on the data used in the statistical analysis above.

In particular, while the historical RORWA dataset used to derive the function relating a firm’s LGD score to its surcharge contains many observations for relatively small losses, it contains far fewer observations of large

losses of the magnitude necessary to cause the failure of a firm that has a very large systemic footprint and is therefore already subject to a surcharge of (for example) 4.0 percent. This paucity of observations means that our estimation of the probability of such losses is substantially more uncertain than is the case with smaller losses. This is reflected in the magnitude of the standard error range associated with our regression analysis, which is large and rapidly expanding for high LGD scores. Given this uncertainty, as well as the Board’s Dodd-Frank Act mandate to impose prudential standards that mitigate risks to financial stability, we should impose a higher threshold of certainty on the sufficiency of capital requirements for the most systemically important financial institutions.

Two further shortcomings of the RORWA dataset make the case for rejecting ever-expanding bands even stronger. First, the frequency of extremely large losses would likely have been higher in the absence of extraordinary government actions taken to protect financial stability, especially during the 2007–08 financial crisis. As discussed above, the GSIB surcharge should be set on the assumption that extraordinary interventions will not recur in the future (in order to ensure that they will not be necessary in the future), which means that firms need to hold more capital to absorb losses in the tail of the distribution than the historical data would suggest. Second, the historical data are subject to survivorship bias, in that a given BHC is only included in the sample until it fails (or is acquired). If a firm fails in a given quarter, then its experience in that quarter is not included in the dataset, and any losses realized during

that quarter (including losses realized only upon failure) are therefore left out of the dataset, leading to an underestimate of the probability of such large losses.

Additionally, as discussed above, our assumption of a linear relationship between a firm's LGD score and the risk that its failure would pose to financial stability likely understates the surcharge that would be appropriate for the most systemically important firms. As noted above, there is reason to believe that the damage to the economy increases more rapidly as a firm grows in size, complexity, reliance on short-term wholesale funding, and perhaps other GSIB metrics.

Finally, fixed-width bands are preferable to expanding-width bands because they are simpler and therefore more transparent to regulated entities and to the public.

#### Alternatives to the Expected Impact Framework

Federal Reserve staff considered various alternatives to the expected impact framework for calibrating a GSIB surcharge. All available methodologies are highly sensitive to a range of assumptions.

##### *Economy-Wide Cost-Benefit Analysis*

One alternative to the expected impact framework is to assess all social costs and benefits of capital surcharges for GSIBs and then set each firm's requirement at the point where marginal social costs equal marginal social benefits. The principal social benefit of a GSIB surcharge is a reduction in the likelihood and severity of financial crises and crisis-induced recessions. Assuming that capital is a relatively expensive source of funding, the potential costs of higher GSIB capital requirements come from reduced credit intermediation by GSIBs (though this would be offset to some extent by increased intermediation by smaller banking organizations and other entities), a potential loss of any GSIB scale efficiencies, and a potential shift of credit intermediation to the less-regulated shadow banking sector. The GSIB surcharges that would result from this

analysis would be sensitive to assumptions about each of these factors.

One study produced by the Basel Committee on Banking Supervision (with contributions from Federal Reserve staff) finds that net social benefits would be maximized if generally applicable common equity requirements were set to 13 percent of risk-weighted assets, which could imply that a GSIB surcharge of up to 6 percent would be socially beneficial.<sup>79</sup> The surcharges produced by the expected impact framework are generally consistent with that range.

That said, cost-benefit analysis was not chosen as the primary calibration framework for the GSIB surcharge for two reasons. First, it is not directly related to the mandate provided by the Dodd-Frank Act, which instructs the Board to mitigate risks to the financial stability of the United States. Second, using cost-benefit analysis to directly calibrate firm-specific surcharges would require more precision in estimating the factors discussed above in the context of surcharges for individual firms than is now attainable.

##### *Offsetting the Too-Big-To-Fail Subsidy*

It is generally agreed that GSIBs enjoyed a "too-big-to-fail" funding advantage prior to the crisis and ensuing regulation, and some studies find that such a funding advantage persists. Any such advantage derives from the belief of some creditors that the government might act to prevent a GSIB from defaulting on its debts. This belief leads creditors to assign a lower credit risk to GSIBs than would be appropriate in the absence of this government "subsidy," with the result that GSIBs can borrow at lower rates. This creates an incentive for GSIBs to

take on even more leverage and make themselves even more systemic (in order to increase the value of the subsidy), and it gives GSIBs an unfair advantage over less systemic competitors.

In theory, a GSIB surcharge could be calibrated to offset the too-big-to-fail subsidy and thereby cancel out these undesirable effects. The surcharge could do so in two ways. First, as with an insurance policy, the value of a potential government intervention is proportional to the probability that the intervention will actually occur. A larger buffer of capital lowers a GSIB's probability of default and thereby makes potential government intervention less likely. Put differently, a too-big-to-fail subsidy leads creditors to lower the credit risk premium they charge to GSIBs; by lowering credit risk, increased capital levels would lower the value of any discount in the credit risk premium. Second, banking organizations view capital as a relatively costly source of funding. If it is, then a firm with elevated capital requirements also has a concomitantly higher cost of funding than a firm with just the generally applicable capital requirements. And this increased cost of funding could, if calibrated correctly, offset any cost-of-funding advantage derived from the too-big-to-fail subsidy.

A surcharge calibration intended to offset any too-big-to-fail subsidy would be highly sensitive to assumptions about the size of the subsidy and about the respective costs of equity and debt as funding sources at various capital levels. These quantities cannot currently be estimated with sufficient precision to arrive at capital surcharges for individual firms. Thus, the expected impact approach is preferable as a primary framework for setting GSIB surcharges.

By order of the Board of Governors of the Federal Reserve System, July 27, 2015.

**Robert deV. Frierson,**  
Secretary of the Board.

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<sup>79</sup> See Basel Committee on Banking Supervision (2010), *An Assessment of the Long-Term Economic Impact of Stronger Capital and Liquidity Requirements* (Basel, Switzerland: Bank for International Settlements, August), p. 29, [www.bis.org/publ/bcbs173.pdf](http://www.bis.org/publ/bcbs173.pdf). The study finds that a capital ratio of 13 percent maximizes net benefits on the assumption that a financial crisis can be expected to have moderate permanent effects on the economy.