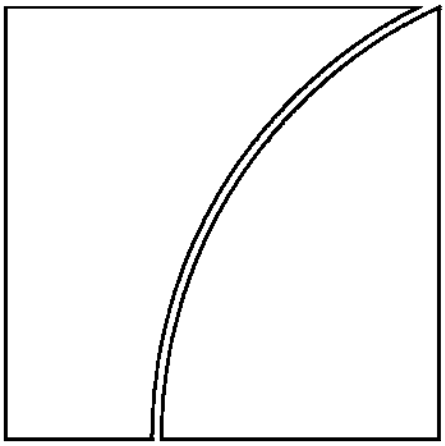
Basel Committee
on Banking Supervision



Global systemically important banks: assessment methodology and the additional loss absorbency requirement

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Contents

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I. Introduction

1. During the recent financial crisis that started in 2007, the failure or impairment of a number of large, global financial institutions sent shocks through the financial system which, in turn, harmed the real economy. Supervisors and other relevant authorities had limited options to prevent problems affecting individual firms from spreading and thereby undermining financial stability. As a consequence, public sector intervention to restore financial stability during the crisis was necessary and conducted on a massive scale. Both the financial and economic costs of these interventions and the associated increase in moral hazard mean that additional measures need to be put in place to reduce the likelihood and severity of problems that emanate from the failure of global systemically important financial institutions (G-SIFIs).

2. The Basel Committee on Banking Supervision (the Basel Committee)[1] has, in response to the crisis, adopted a series of reforms to improve the resilience of banks and banking systems. They include raising the required quality and quantity of capital in the banking system, improving risk coverage, introducing a leverage ratio to serve as a back-stop to the risk-based regime, introducing capital conservation and countercyclical buffers as well as a global standard for liquidity risk.[2] The capital adequacy measures are applied to all internationally active banks to ensure that each bank maintains an appropriate level of capital relative to its own exposures. A number of the policy measures will have a particular impact on global systemically important banks (G-SIBs), given their business models have generally placed greater emphasis on trading and capital markets related activities, which are most affected by the enhanced risk coverage of the capital framework. These policy measures are significant but are not sufficient to address the negative externalities posed by G-SIBs nor are they adequate to protect the system from the wider spillover risks of G-SIBs. The rationale for adopting additional policy measures for G-SIBs is based on the cross-border negative externalities created by systemically important banks which current regulatory policies do not fully address.

3. The negative externalities associated with institutions that are perceived as not being allowed to fail due to their size, interconnectedness, complexity, lack of substitutability or global scope are well recognised. In maximising their private benefits, individual financial institutions may rationally choose outcomes that, from a system-wide level, are sub-optimal because they do not take into account these externalities. Moreover, the moral hazard costs

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[1] The Basel Committee on Banking Supervision consists of senior representatives of bank supervisory authorities and central banks from Argentina, Australia, Belgium, Brazil, Canada, China, France, Germany, Hong Kong SAR, India, Indonesia, Italy, Japan, Korea, Luxembourg, Mexico, the Netherlands, Russia, Saudi Arabia, Singapore, South Africa, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States. It usually meets at the Bank for International Settlements (BIS) in Basel, Switzerland, where its permanent Secretariat is located.

[2] See Basel Committee, *Basel III: A global regulatory framework for more resilient banks and banking sy*stems (December 2010) at www.bis.org/publ/bcbs189.htm; *Basel III: International framework for liquidity risk measurement, standards and monitoring* at www.bis.org/publ/bcbs188.htm; *Enhancements to the Basel II framework* (July 2009) at www.bis.org/publ/bcbs157.htm; and *Revisions to the Basel II market risk framework* (July 2009) at www.bis.org/publ/bcbs158.htm.

associated with implicit guarantees derived from the perceived expectation of government support may amplify risk-taking, reduce market discipline and create competitive distortions, and further increase the probability of distress in the future. As a result, the costs associated with moral hazard add to any direct costs of support that may be borne by taxpayers.

4. In addition, given the cross-border repercussions a problem in any of the G-SIBs could potentially have on the financial institutions in many countries and potentially on the global economy at large, it is not uniquely a problem for national authorities, therefore requiring a global minimum agreement.

5. There is no single solution to the externalities posed by G-SIBs. Hence the official community is addressing the issues through a multipronged approach. The broad aim of the policies is to:

- reduce the probability of failure of G-SIBs by increasing their going-concern loss absorbency; and
- reduce the extent or impact of failure of G-SIBs, by improving global recovery and resolution frameworks.

6. The measures adopted by the Basel Committee in this document address the first objective of requiring additional going-concern loss absorbency for G-SIBs, thereby reducing the probability of failure. This is a critical and necessary measure. They complement the measures adopted by the Financial Stability Board (FSB) to establish robust national resolution and recovery regimes and to improve cross-border harmonisation and coordination. However, even with improved resolution capacity, the failure of the largest and most complex international banks will continue to pose disproportionate risks to the global economy.[3]

7. This document sets out the measures developed by the Basel Committee on the assessment methodology for global systemic importance, the magnitude of additional loss absorbency that G-SIBs should have, and the arrangements by which they will be phased in. This delivers on a request by the FSB as set out in its document *Reducing the moral hazard posed by systemically important financial institutions – FSB Recommendations and Time Lines,*[4] which was endorsed by G20 Leaders in November 2010.

8. The work of the Basel Committee forms part of a broader effort by the FSB to reduce the moral hazard of G-SIFIs. Additional measures by the FSB on recovery and resolution address the second broad objective, which is to reduce the impact of failure of a G-SIB. These policies will serve to reduce the impact of a G-SIB's failure and will also help level the playing field by reducing too-big-to-fail (TBTF) competitive advantages in funding

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[3] See Basel Committee, *Resolution policies and frameworks – progress so far* (July 2011) at http://www.bis.org/publ/bcbs200.htm for the progress being made in the establishment of robust national resolution and recovery regimes and in cross-border harmonisation and coordination.

[4] See *Reducing the moral hazard posed by systemically important financial institutions, FSB Recommendations and Time Lines*, (20 October 2010) available at www.financialstabilityboard.org/publications/r_101111a.pdf. The FSB Recommendations asked the Basel Committee to develop an assessment methodology comprising both quantitative and qualitative indicators to assess the systemic importance of G-SIFIs (paragraph 48). The FSB Recommendations also asked the Basel Committee to complete by mid-2011 a study of the magnitude of additional loss absorbency that G-SIFIs should have, along with an assessment of the extent of going-concern loss absorbency which could be provided by the various proposed instruments (paragraph 9). The Basel Committee is also currently considering proposals such as large exposure restrictions and liquidity measures which are referred to as *other prudential measures* in the FSB Recommendations and Time Lines (paragraph 49).

markets. These policies have been developed in close coordination with the Basel Committee, and are being published by the FSB concurrently with this document.[5]

9. As stated in the FSB's Recommendations, *as experience is gained, the FSB will review how to extend the framework to cover a wider group of SIFIs, including financial market infrastructures, insurance companies and other non-bank financial institutions that are not part of a banking group structure*.

10. The following section outlines the methodology for determining a bank's global systemic importance. Section III presents the additional loss absorbency that G-SIBs will be required to meet and section IV sets out the capital instruments that can be used to meet the additional loss absorbency. The interaction of the capital surcharge with other elements of the Basel III framework is outlined in Section V and Section VI discusses phase-in arrangements.

II. Assessment methodology for systemic importance of G-SIBs

11. The FSB Recommendations call on the Basel Committee to develop an assessment methodology comprising both quantitative and qualitative indicators to assess the systemic importance of G-SIFIs (paragraph 48). The FSB Recommendations also state that *the FSB and national authorities, in consultation with the BCBS, CGFS, CPSS, IOSCO and IAIS, drawing on relevant qualitative and quantitative indicators, will determine by mid-2011 those institutions to which the FSB G-SIFI recommendations will initially apply* (paragraph 43). The assessment methodology developed by the Basel Committee is set out in this section.

12. The Basel Committee has developed an assessment methodology for systemic importance of G-SIBs. The methodology is based on an indicator-based measurement approach. The selected indicators are chosen to reflect the different aspects of what generates negative externalities and makes a bank critical for the stability of the financial system.[6] The advantage of the multiple indicator-based measurement approach is that it encompasses many dimensions of systemic importance, is relatively simple, and is more robust than currently available model-based measurement approaches and methodologies that only rely on a small set of indicators or market variables.

13. No measurement approach will perfectly measure systemic importance across all global banks. These banks vary widely in their structures and activities, and therefore in the nature and degree of risks they pose to the international financial system. Hence, the quantitative indicator-based approach can be supplemented with qualitative information that is incorporated through a framework for supervisory judgement. The supervisory judgement process, however, is only meant to override the results of the indicator-based measurement approach in exceptional, egregious cases and is subject to international peer review to ensure consistency in its application.

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[5] See Financial Stability Board, *Key attributes of effective resolution regimes for financial institutions* (November 2011).

[6] Another option would be to develop a model-based approach which uses quantitative models to estimate individual banks' contributions to systemic risk. However, models for measuring systemic importance of banks are at a very early stage of development and there remain concerns about the robustness of the results. The models may not capture all of the ways that a bank is systemically important (both quantitative and qualitative).

A. Indicator-based measurement approach

14. The Basel Committee is of the view that global systemic importance should be measured in terms of the impact that a failure of a bank can have on the global financial system and wider economy rather than the risk that a failure can occur. This can be thought of as a global, system-wide, loss-given-default (LGD) concept rather than a probability of default (PD) concept.

15. The selected indicators reflect the size of banks, their interconnectedness, the lack of readily available substitutes or financial institution infrastructure for the services they provide, their global (cross-jurisdictional) activity and their complexity. The size, interconnectedness and substitutability/financial institution infrastructure categories are in line with the IMF/BIS/FSB report submitted to the G20 Finance Ministers and Central Bank Governors in October 2009.[7] Since the aim of this assessment methodology is to identify global SIBs that will be subject to internationally-harmonised requirements for additional loss absorbency, the Basel Committee is of the view that it is also appropriate to include a category that measures the degree of global (cross-jurisdictional) activity. In addition, a measure of complexity is added, since G-SIBs with greater complexity are likely to be more difficult to resolve and therefore cause significantly greater disruption to the wider financial system and economic activity.

16. The methodology gives an equal weight of 20% to each of the five categories of systemic importance, which are: size, cross-jurisdictional activity, interconnectedness, substitutability/financial institution infrastructure and complexity. With the exception of the size category, the Basel Committee has identified multiple indicators in each of the categories, with each indicator equally weighted within its category. That is, where there are two indicators in a category, each indicator is given a 10% overall weight, where there are three, the indicators are each weighted 6.67% (ie 20/3).

17. For each bank, the score for a particular indicator is calculated by dividing the individual bank amount by the aggregate amount summed across all banks in the sample for a given indicator.[8] The score is then weighted by the indicator weighting within each category. Then, all the weighted scores are added. For example, the size indicator for a bank that accounts for 10% of the sample aggregate size variable will contribute 0.10 to the total score for the bank (as each of the five categories is normalised to a score of one). Similarly, a bank that accounts for 10% of aggregate cross-jurisdictional claims would receive a score of 0.05. Summing the scores for the 12 indicators gives the total score for the bank. The maximum possible total score (ie if there were only one bank in the world) is 5.

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[7] See IMF/BIS/FSB report on *Guidance to assess the systemic importance of financial institutions, markets and instruments: initial considerations* (October 2009) (www.financialstabilityboard.org/publications/r_091107c.pdf)

[8] See paragraph 53 for how the sample of 73 banks was chosen.

Table 1

Indicator-based measurement approach

Category (and weighting)	Individual Indicator	Indicator Weighting
Cross-jurisdictional activity (20%)	Cross-jurisdictional claims	10%
	Cross-jurisdictional liabilities	10%
Size (20%)	Total exposures as defined for use in the Basel III leverage ratio	20%
Interconnectedness (20%)	Intra-financial system assets	6.67%
	Intra-financial system liabilities	6.67%
	Wholesale funding ratio	6.67%
Substitutability/financial institution infrastructure (20%)	Assets under custody	6.67%
	Payments cleared and settled through payment systems	6.67%
	Values of underwritten transactions in debt and equity markets	6.67%
Complexity (20%)	OTC derivatives notional value	6.67%
	Level 3 assets	6.67%
	Held for trading and available for sale value	6.67%

1. Cross-jurisdictional activity

18. Given the focus on G-SIBs the objective of this indicator is to capture the global footprint of banks. The two indicators in this category measure the importance of the bank's activities outside its home (headquarter) jurisdiction relative to overall activity of other banks in the sample. The idea is that the international impact from a bank's distress or failure should vary in line with its share of cross-jurisdictional assets and liabilities. The greater the global reach of a bank, the more difficult it is to coordinate its resolution and the more widespread the spillover effects from its failure.

Cross-jurisdictional claims

19. This indicator uses the same data that internationally active banks report to the central banks in their home jurisdiction for the compilation of the Bank for International Settlements (BIS) consolidated international banking statistics.[9] Banks report quarterly these figures for the consolidated position of their institution. Total foreign claims in the terminology of the BIS statistics is the sum of two components (both measured on an ultimate risk basis): (i) international claims, which are either cross-border claims (from an office in one country on a borrower in another country) or local claims in foreign currency (from the local office of the bank on borrowers in that location in a currency other than the one of the location); and (ii) local claims in local currency (similar to the other local claims but in the currency of that location). The aggregated data per reporting central bank are published in Column S of Table 9C of the Statistical Annex of the BIS Quarterly Review (International Banking Market).

[9] For a full description of the data, definitions and coverage see BIS *Guidelines to the international consolidated banking statistics* at http://www.bis.org/statistics/consbankstatsguide.pdf.

20. Claims include deposits and balances placed with other banks, loans and advances to banks and non-banks, and holdings of securities and participations. Since these data refer to consolidated activities they exclude all intra-office claims.

21. The score for each bank is calculated as the amount of its claims divided by the sum of claims of all institutions that are included in the sample.

Cross-jurisdictional liabilities

22. This indicator also uses the data that internationally active banks report to the BIS consolidated international banking statistics.[10] In this case the indicator combines some figures reported as part of the locational banking statistics (by nationality) with figures that are reported for the consolidated banking statistics. To match the coverage of cross-jurisdictional assets, cross-jurisdictional liabilities cover the liabilities of all offices of the same banking organisation (headquarters as well as branches and subsidiaries in different jurisdictions) to entities outside the home market. The sum includes all liabilities to non-residents of the home country and it nets out intra-office liabilities (to match the treatment in the cross-jurisdictional asset indicator).

23. Since the BIS consolidated banking statistics dataset does not include a concept similar to foreign claims for liabilities, individual banking groups are asked to aggregate figures that their offices report to different central banks for the locational BIS statistics and combine them with the information on intra-office (ie between offices that belong to the same banking group) liabilities.

24. More specifically, banks are asked to collect and aggregate the information that their offices in different jurisdictions report to the relevant central bank for:

(a) Total foreign liabilities as defined in the locational banking statistics dataset (see reference above) and reported in Column “Total positions - liabilities” in Table 8A of the Statistical Annex of the BIS Quarterly review (International Banking Market).

(b) Liabilities vis-à-vis related offices as reported in column “Total positions – of which vis-à-vis related offices” in Table 8A of the Statistical Annex of the BIS Quarterly review (International Banking Market).

25. In addition banks are asked to report the figure for “Local liabilities in local currency” that they report to the central bank in their home jurisdiction for inclusion in the BIS consolidated banking statistics (column M of table 9A of the Statistical Annex of the BIS Quarterly Review (International Banking Market)).

26. The score for each bank is calculated as: Total foreign liabilities (aggregated for all local offices) – Liabilities vis-à-vis related offices (aggregated for all local offices) + Local liabilities in local currency, and it is expressed as a fraction of the sum total of the amounts reported by all the banks in the sample.

[10] For a full description of the data, definitions and coverage see BIS *Guidelines to the international consolidated banking statistics* at http://www.bis.org/statistics/consbankstatsguide.pdf and *Guidelines to the international locational banking statistics* at http://www.bis.org/statistics/locbankstatsguide.pdf.

2. Size

27. A bank's distress or failure is more likely to damage the global economy or financial markets if its activities comprise a large share of global activity. The larger the bank the more difficult it is for its activities to be quickly replaced by other banks and therefore a greater chance that its distress or failure would cause disruption to the financial markets in which it operates. The distress or failure of a large bank is also more likely to damage confidence in the financial system as a whole. Size is therefore a key measure of systemic importance.

28. Size is measured using the same definition for total exposures (the exposure measure used for the leverage ratio) which is specified in paragraphs 157 to 164 of the Basel III rules text.[11] The score for each bank is calculated as its amount of total exposures divided by the sum total of exposures of all banks in the sample.

3. Interconnectedness

29. Financial distress at one institution can materially raise the likelihood of distress at other institutions given the network of contractual obligations in which these firms operate. A bank's systemic impact is likely to be positively related to its interconnectedness vis-à-vis other financial institutions.

Intra-financial system assets

30. This is calculated as the sum of:

- lending to financial institutions (including undrawn committed lines);
- holdings of securities issued by other financial institutions;
- net mark to market reverse repurchase agreements with other financial institutions;
- net mark to market securities lending to financial institutions; and
- net mark to market OTC derivatives with financial institutions.

Intra-financial system liabilities

31. This is calculated as the sum of:

- deposits by financial institutions (including undrawn committed lines);
- all marketable securities issued by the bank;
- net mark to market repurchase agreements with other financial institutions;
- net mark to market securities borrowing from financial institutions; and
- net mark to market OTC derivatives with financial institutions.

32. The scores for the two indicators in this category are calculated as the amounts of their intra-financial system assets (liabilities) divided by the sum total intra-financial system assets (liabilities) of all banks in the sample.

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[11] See Basel Committee, *Basel III: A global regulatory framework for more resilient banks and banking systems* (December 2010) at www.bis.org/publ/bcbs189.pdf.

Wholesale funding ratio

33. This indicator considers the degree to which a bank funds itself from other financial institutions via the wholesale funding market as a further indicator of its interconnectedness with other financial institutions. One of the main experiences of the recent crisis was that a market run on an institution whose illiquid assets were financed by short-term liquid liabilities (ie an institution with high wholesale funding ratio) spread quickly and widely to other institutions and markets. The wholesale funding ratio thus should have an important role in helping identify the systemic importance of a financial institution.

34. The wholesale funding ratio is calculated by dividing (total liabilities less retail funding) by total liabilities. Retail funding is defined as the sum of retail deposits (including certificates of deposit) and debt securities issued that are held by retail customers. The indicator for the bank is normalised by the average ratio across all banks in the sample.[12]

4. Substitutability/financial institution infrastructure

35. The systemic impact of a bank's distress or failure is expected to be negatively related to its degree of substitutability as both a market participant and client service-provider. For example, the greater the role of a bank in a particular business line, or as a service provider in underlying market infrastructure, eg payment systems, the larger the disruption will likely be following its failure in terms of both service gaps and reduced flow of market and infrastructure liquidity.

36. At the same time, the cost to the failed bank's customers in having to seek the same service at another institution is likely to be higher for a failed bank with relatively greater market share in providing the service.

Assets under custody

37. A failure of a large custodian bank, holding assets on behalf of customers including other financial firms, could disrupt the operation of financial markets with potentially significant negative consequences for the global economy. Other firms may also have large counterparty exposures to custodian banks.

38. This indicator is defined as the value of assets that a bank holds as a custodian[13] and divided by the sum total of the figures reported by the banks in the sample.[14]

Payments cleared and settled through payment systems

39. A bank which is involved in a large volume of payments activities is likely to act on behalf of a large number of other institutions and customers (including retail customers). If it were to fail, these other institutions and customers may be unable to process payments, immediately affecting their liquidity. Also, such a bank may be an important provider of liquidity to the system and other members may rely on that bank to recycle liquidity intraday. If that bank were to fail while being a net receiver of liquidity, this liquidity would be trapped

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[12] The choice of normalisation is arbitrary, but chosen because it delivers the score in units that are comparable to the other indicators.

[13] See paragraph 76 of *Basel III: International framework for liquidity risk measurement, standards and monitoring* at www.bis.org/publ/bcbs188.htm for a definition of custodial services.

[14] Some data was collected from the GlobalCustody.com league table. The intent of the Committee is to collect this data also from banks to the extent possible.

and inaccessible to other system members. These institutions would then have to provide more liquidity than usual to process their payments, which means added costs and likely delay.

40. This indicator is calculated as the value of a bank's payments sent through all of the main payments systems of which it is a member divided by the sum total of the figures reported by the banks in the sample.

Values of underwritten transactions in debt and equity markets

41. This indicator captures the importance of banks in the global capital markets, particularly the importance of global activity of investment banks. The failure of a bank with a large share of underwriting of debt and equity instruments in the global market may impede new securities issuance with negative consequences for the economy.

42. This indicator is calculated as the annual value of debt and equity instruments underwritten by the bank divided by the sum total of the figures reported by the banks in the sample.[15]

5. Complexity

43. The systemic impact of a bank's distress or failure is expected to be positively related to its overall complexity – that is, its business, structural and operational complexity. The more complex a bank is, the greater are the costs and time needed to resolve the bank.

OTC derivatives notional value

44. Nominal or notional amounts outstanding are the gross nominal or notional value of all deals concluded and not yet settled at the reporting date. Nominal or notional amounts outstanding provide a measure of market size and a reference from which contractual payments are determined in derivatives markets.

45. The focus here is on the amount of OTC derivatives that are not cleared through a central counterparty. The greater the number of non-centrally cleared OTC derivatives a bank enters into, the more complex a bank's activities. This is especially so in the context of resolution as highlighted in the failure of Lehman Brothers.

46. Banks are asked to report the figure for total notional amount for all types of risk categories and instruments (ie sum of foreign exchange, interest rate, equity, commodities, CDS and unallocated).

47. The indicator for each bank is calculated as the ratio of the notional amount outstanding for the bank and the sum total of the amounts reported by all banks in the sample.

Level 3 assets

48. These are assets whose fair value cannot be determined using observable measures, such as market prices or models. Level 3 assets are illiquid, and fair values can only be calculated using estimates or risk-adjusted value ranges. This classification system

[15] Data is collected from Bloomberg and Dealogic league tables for global debt and equity market underwriting activities. The intent of the Committee is to collect this data also from banks to the extent possible.

aims to bring clarity to the balance sheet assets of corporations. Banks with a high proportion of Level 3 assets on their balance sheets would face severe problems in market valuation in case of distress, thus affecting market confidence.

49. The indicator for each bank is calculated as the ratio of its reported value of Level 3 assets and the sum total of the amounts reported by the banks in the sample.

Held for trading and available for sale value

50. Holding of financial securities for trading and available for sale securities could also generate spillovers through mark to market loss and subsequent fire sale of these securities in case an institution experiences severe stress. This in turn can drive down the prices of these securities and force other financial institutions to write-down their holdings of the same securities.

51. The indicator for each bank is calculated as the ratio of the total value of the bank's holding of securities for trading and available for sale category and the sum total of the figures reported by the banks in the sample.

B. Bucketing approach

52. The Basel Committee will group G-SIBs into different categories of systemic importance based on the score produced by the indicator-based measurement approach. G-SIBs will be initially allocated into four buckets based on their scores of systemic importance, with varying levels of additional loss absorbency requirements applied to the different buckets as set out in section III.A.

53. In January 2011 the Basel Committee collected data for end-2009 which included the indicators of the indicator-based measurement approach from 73 banks.[16] This sample of 73 banks was chosen from the world's largest banks on the basis of size and supervisory judgement by Basel Committee member authorities. The Basel Committee then produced the trial score for all banks using the methodology described above.

54. Based on the results of applying the methodology, the Basel Committee is of the view that the number of G-SIBs will initially be 29, including two banks that have been added based on supervisory judgement applied by the home supervisor. A tentative cut-off point was set between the 27th and 28th banks, based on the clustering of scores produced by the methodology. It should be noted that this number would evolve over time as banks change their behaviour in response to the incentives of the G-SIB framework as well as other aspects of Basel III and country specific regulations.

55. In deciding the threshold for the buckets, the Basel Committee considered several dimensions. One is that the buckets should be equal sized in terms of the scores. This will ensure the assessments of systemic importance are comparable across time and help to give banks incentives to reduce their systemic importance. In addition, thresholds for the buckets should broadly correspond to the gaps identified by a cluster analysis of the scores produced by the methodology. Another is the significance of cliff effects in the scoring. Based

[16] The 73 banks include those from Australia, Belgium, Brazil, Canada, China, France, Germany, India, Italy, Japan, Korea, the Netherlands, Spain, Sweden, Switzerland, the United Kingdom and the United States. The 73 banks account for broadly 65% of global banks assets. Going forward, the Basel Committee will develop a methodology to produce the sample of banks and will disclose the methodology.

on the trial scores of the banks, the Basel Committee is of the view that four equal sized buckets between the cut-off score and the maximum score should be set (see Annex 1). An empty bucket will be added on top of the highest populated bucket to provide incentives for banks to avoid becoming more systemically important. If the empty bucket becomes populated in the future, a new empty bucket will be added with a higher additional loss absorbency level applied.

C. Supervisory judgement

1. Criteria for judgement

56. As stated earlier, supervisory judgement can support the results derived from the indicator-based measurement approach of the assessment methodology. The Basel Committee has developed four principles for supervisory judgement:

- The bar for judgemental adjustment to the scores should be high: in particular, judgement should only be used to override the indicator-based measurement approach in exceptional cases. Those cases are expected to be rare;
- The process should focus on factors pertaining to a bank's global systemic impact, ie the *impact* given the bank's distress/failure and not the *probability* of distress/failure (ie the riskiness) of the bank;
- Views on the quality of the policy/resolution framework within a jurisdiction should not play a role in this G-SIB identification process;[17] and
- The judgemental overlay should comprise well-documented and verifiable quantitative as well as qualitative information.

2. Ancillary indicators

57. The Basel Committee has identified a number of ancillary indicators relating to specific aspects of the systemic importance of an institution that may not be captured by the indicator-based measurement approach alone. These indicators can be used to support the judgement overlay.

[17] However, this is not meant to preclude any other actions that the Basel Committee, FSB or national supervisors may wish to take for G-SIFIs to address the quality of the policy/resolution framework. For example, national supervisors could impose higher capital surcharges beyond the additional loss absorbency requirements for G-SIBs that do not have an effective and credible recovery and resolution plan.

Table 2

List of standardised ancillary indicators

Category	Individual Indicator
Cross-jurisdictional activity	Non-domestic revenue as a proportion of total revenue
	Cross-jurisdictional claims and liabilities as a proportion of total assets and liabilities
Size	Gross or net revenue
	Equity market capitalisation
Substitutability/financial institution infrastructure	Degree of market participation: 1. Gross mark to market value of repo, reverse repo and securities lending transactions 2. Gross mark to market OTC derivatives transactions
Complexity	Number of jurisdictions

Non-domestic revenue as a proportion of total revenue

58. A bank's share of total net revenue earned outside of its home jurisdiction could provide supervisors with a measure of its global reach.

Cross-jurisdictional claims and liabilities as a proportion of total assets and liabilities

59. A bank's share of total assets and liabilities booked outside of its home jurisdiction could provide supervisors with a measure of its global reach.[18]

Gross or net revenue

60. Gross or net revenue of a bank could serve as a complement to the data on total exposure, by providing an alternative view of its size/influence within the global banking system.

Equity market capitalisation

61. A bank's market capitalisation could give an indication of the impact on equity markets given its failure. It could also serve as a rough estimate of its contribution to economic activity. It could more generally serve as a possible proxy measure of total firm value, which captures tangible and intangible value as well as off-balance sheet activities.

Degree of market participation:

- Gross mark to market value of repo, reverse repo and securities lending transactions
- Gross mark to market OTC derivatives transactions

[18] Note that this indicator differs slightly from the cross-jurisdictional activity indicators captured in the indicator-based measurement approach, as the latter calculates these data as a proportion of the sample total for cross-jurisdictional claims and liabilities, as opposed to a bank's own total assets and liabilities.

62. These indicators are meant to capture a bank's importance to the functioning of key asset and funding markets, relative to other global banks in the sample. The greater a bank's estimated importance to these markets, the larger the anticipated disruption in the event of the bank's default.

Number of jurisdictions

63. Leaving aside any judgement on the quality of national resolution frameworks, all else equal, the greater the number of jurisdictions in which a bank maintains its subsidiary and branch operations, the more resource-intensive and time-consuming it may be to resolve the bank in the event of its failure.

3. Qualitative judgement

64. Supervisory judgement can also be based on qualitative information. This is intended to capture information that cannot be easily quantified in the form of an indicator, for example, a major restructuring of a bank's operation. Qualitative judgements should also be thoroughly explained and supported by verifiable arguments.

4. Process for incorporating the supervisory judgement

65. The supervisory judgemental overlay can be incorporated using the following sequential steps to the score produced by the indicator-based measurement approach.

(i) Collection of the data[19] and supervisory commentary for all banks in the sample of banks;

(ii) Mechanical application of the indicator-based measurement approach and corresponding bucketing;

(iii) Relevant authorities[20] propose adjustments to the score of individual banks on the basis of an agreed process;

(iv) The Basel Committee develops recommendations for the FSB; and

(v) FSB and national authorities, in consultation with the BCBS make final decisions.[21]

66. The supervisory judgement input to the results of the indicator-based measurement approach should be conducted in an effective and transparent way as well as ensuring that the final outcome is consistent with the views of the Basel Committee as a group. Challenges to the results of the indicator-based measurement approach should only be made if they involve a material impact in the treatment of the specific bank (for example something that will result in a different additional loss absorbency requirement). To limit the risk that resources are spent ineffectively, when the authority is not the home supervisor of the bank it would be required to take into account the views of the bank's home and major host

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[19] The data collection can start in the second quarter and be finalised in third quarter each year subject to consultation with national supervisors.

[20] Relevant authorities mainly refer to home and host supervisors.

[21] Once the G-SIB framework is expanded beyond banks, other standard setting bodies will also be consulted.

supervisors. These could be, for instance, the members of the institution's college of supervisors.

67. In addition to the materiality and consultation requirements, proposals to challenge the indicator-based measurement approach will be subject to the following modalities. Proposals originating from the home supervisor that result in a lower additional loss absorbency requirement would be scrutinised and would require a stronger justification than those that result in a higher additional loss absorbency requirement. The reverse bias would be applied to proposals originating from other authorities: those recommending a higher additional loss absorbency requirement would be subject to higher standards of proof and documentation. The rationale for this asymmetric treatment follows the general principle that the Basel Committee is setting minimum standards.

D. Periodic review and refinement

68. The assessment methodology provides a framework for periodically reviewing the G-SIB status of a given institution. That is, banks have incentives to change their risk profile and business models in ways that reduce their systemic spillover effects. The Basel Committee does not intend to develop a fixed list of G-SIBs which cannot be changed. By developing criteria as discussed above, banks can migrate in and out of G-SIB status over time and also between categories of systemic importance. For example, as emerging market countries continue to become more prominent in the global economy, the number of banks from these countries to be identified as G-SIBs might increase. There should be transparency to both the designated institutions and the markets about the criteria used to identify G-SIBs, and therefore the steps that can be taken to reduce the impact on the system. This will allow market discipline to play an important role in reinforcing the goals of global financial stability.

69. The indicator-based measurement approach supported by supervisory judgement set out above provides a framework for periodically reviewing the G-SIB status of a given bank. After the G-SIB policy is implemented, the cut-off score, the threshold scores for buckets and the denominators used to normalise the indicators will be fixed for three years. The bank scores will be updated annually based on new data applied to the numerator in calculating the score. The score calibration will be based on the full sample of banks (currently 73 banks). This implies that all sample banks will be monitored on an ongoing basis.

70. The methodology, including the indicator-based measurement approach itself and the cut-off/threshold scores, will be reviewed every three years in order to capture developments in the banking sector and any progress in methods and approaches for measuring systemic importance. Overall drift in scores that is unrelated to changes in actual systemic importance will also be adjusted appropriately. In future reviews, particular attention will be paid to branches. As regards the structural changes in regional arrangements – in particular, the European Union – they will be reviewed as actual changes are made. In addition, the full sample of banks will be reviewed every three years along with the merits of collecting data for non-BCBS banks. If two banks merge and the resulting bank becomes a candidate for a different treatment within the G-SIB framework, this will be captured through the annual supervisory judgement process. The Basel Committee will flesh out the principles of the periodic review, including objectives and possible tools.

71. The Basel Committee acknowledges that the data used to construct the indicator-based measurement approach currently may not be sufficiently reliable or complete. It is therefore committed to fully address any outstanding data quality issues before the implementation date. Given that banks will evolve over time and data quality will improve

during the phase-in period of the G-SIB policy, the Basel Committee will address any outstanding data issues and re-run the indicator-based measurement approach using updated data well in advance of the implementation. This includes issues such as providing further guidance on the definition of the indicators, how to standardise further the reporting across the sample banks and how to address data that are currently difficult to collect or not publicly available. Thus, the scores and the corresponding buckets for G-SIBs will be based on the best and most current available data prior to implementation.

72. The Basel Committee expects national jurisdictions to prepare a framework in which banks will be able to provide high quality data for the indicators. The Basel Committee is also establishing a data hub with appropriate controls and governance mechanisms to collect, analyse and store data at the BIS in a safe and secure manner. In order to ensure the transparency of the methodology, the Basel Committee expects banks to disclose relevant data when the G-SIB policy is implemented and it will provide reporting guidance. The Basel Committee will disclose the values of the cut-off score, the threshold scores for buckets and the denominators used to normalise the indicator values so banks, regulators and market participants can understand how actions that banks take could affect their systemic importance score and thereby the applicable magnitude of additional loss absorbency.

III. The magnitude of additional loss absorbency and its impact

A. The magnitude of additional loss absorbency

73. Based on policy judgement informed by the various empirical analysis set out in Annex 2, the Basel Committee is of the view that the magnitude of additional loss absorbency for the highest populated bucket should be 2.5% of risk-weighted assets at all times, with an initially empty top bucket of 3.5% of risk-weighted assets. The magnitude of additional loss absorbency for the lowest bucket should be 1.0% of risk-weighted assets. The magnitude of additional loss absorbency is to be met with Common Equity Tier 1 as defined by the Basel III framework. Based on the bucketing approach set out in section II.B, the magnitude of additional loss absorbency for each bucket will be as follows.

Table 3

Bucketing approach

Bucket	Score range*	Minimum additional loss absorbency (common equity as a percentage of risk-weighted assets)
5 (empty)	D -	3.5%
4	C - D	2.5%
3	B - C	2.0%
2	A - B	1.5%
1	Cut-off point - A	1.0%

* Scores equal to one of the boundaries are assigned to the higher bucket.

74. The Basel Committee emphasises that the additional loss absorbency requirement set out above is the minimum level. If national jurisdictions wish to impose a higher requirement to their banks, they are free to do so.

B. Impact of requiring additional loss absorbency for G-SIBs

75. The Basel Committee and the FSB have requested that the Macroeconomic Assessment Group (MAG), which assessed the macroeconomic impact of the Basel III reforms,[22] undertake an assessment of the impact of the G-SIFI recommendations. The final report was published in October 2011.[23]

76. The MAG focused on the role of G-SIBs in providing credit to the non-financial private sector, and their broader role in the financial system as proxied by their share of financial system assets. The methodology used by the MAG draws on the generated paths for the GDP impact of higher capital ratios on *all* internationally active banks that were the basis of the MAG's December 2010 assessment. The 2010 MAG report described the impact on growth per percentage point of additional bank capital in a representative national financial system. When implementation was over an eight year horizon, the report concluded that annual growth would slow by approximately 2 basis points per year on average. If implementation took place over four years, the equivalent number is 4 basis points on average. These correspond to peak GDP impacts of 0.17% and 0.19% of GDP, respectively. In both cases, the estimates show recovery to the baseline over a two to three year period following the end of the transition.

77. In order to provide an estimate of the scale of the likely impact of requiring a subset of institutions to hold additional capital, the MAG collected information on the importance of the G-SIBs in lending and total assets for each national financial system. For the fifteen major economies represented on the MAG, the share of lending to the non-financial private sector by the top 30 G-SIBs (ranked using the current application of the Basel Committee's methodology) ranges from about 4% to about 75%. The share of total banking-system assets is in the 9% to 77% range. The unweighted mean of these G-SIB shares is 31% in the case of non-financial private lending and 38% for assets, while the GDP-weighted means are 40% for non-financial private lending and 52% for assets.

78. Combining this information about G-SIB shares with that from the 2010 MAG study yields a provisional estimate of the impact of additional loss absorbency on G-SIBs. Using the range of G-SIB lending shares given above, a one percentage point increase in capital applied to G-SIBs would dampen growth by an additional 0.7 basis points per year for an eight year implementation period. For a four year implementation period, the impact is 1.1 basis point per year on average over the transition.[24] In both cases, growth is forecast to accelerate above its trend level for several quarters after the point of peak impact is reached, as it recovers towards its baseline. Meanwhile, drawing on the findings of the Basel Committee's long-term assessment of the economic costs and benefits associated with increasing regulatory capital requirements (known as the LEI report),[25] the MAG estimates

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[22] See Macroeconomic Assessment Group, Final Report, *Assessing the macroeconomic impact of the transition to stronger capital and liquidity requirements*, Bank for International Settlements (December 2010) at http://www.bis.org/publ/othp12.htm.

[23] See Macroeconomic Assessment Group, *Assessment of the macroeconomic impact of higher loss absorbency for globally systemically important banks*, Bank for International Settlements (October 2011) at http://www.bis.org/publ/bcbs202.htm.

[24] As with the estimates of the overall impact of increased bank capital in the original MAG report, there are a number of reasons that these estimates could be too large or too small. For example, should other banks increase their lending to partly compensate for lower G-SIB lending, then this approach will tend to overestimate the impact. Alternatively, if G-SIBs are market leaders and set the terms of lending for the whole economy, with other banks simply following their lead, then the method might underestimate the impact.

[25] See Basel Committee, *An assessment of the long-term economic impact of stronger capital and liquidity requirements* (August 2010) at http://www.bis.org/publ/bcbs173.htm.

that the G-SIB framework should provide an annual benefit of about 40 to 50 basis points of GDP, reflecting the reduced probability of a systemic financial crisis. However the MAG also discusses in a qualitative way other factors that could have an impact on the results. More experience with the G-SIB framework will be needed in order to gain a better understanding of the nature and magnitude of such factors.

IV. Instruments to meet the additional loss absorbency requirement

79. The aim of the additional loss absorbency requirement, as set out in the report endorsed by the G20 at its Seoul Summit in November 2010, is to ensure that G-SIFIs have a higher share of their balance sheets funded by instruments which increase the resilience of the institution as a going concern. Taking into account this going-concern objective, this section sets out the views of the Basel Committee on the various classes of instrument that were considered in the context of meeting the additional loss absorbency requirement.

A. Common Equity Tier 1

80. A key element of the Basel III definition of capital is the greater focus on Common Equity Tier 1. It is the highest quality component of a bank's capital as it is capable of fully absorbing losses whilst the bank remains a going concern. Although Common Equity Tier 1 is also the most costly form of capital for banks to raise, this feature should itself help to level the playing field in the banking sector by reducing the funding advantages of G-SIBs that arise from expectations of public sector support. Therefore, the Basel Committee considers the use of Common Equity Tier 1 to be the simplest and most effective way for G-SIBs to meet their additional loss absorbency requirement.

B. Bail-in debt and capital instruments that absorb losses at the point of non-viability (low-trigger contingent capital)

81. Given the going-concern objective of the additional loss absorbency requirement, the Basel Committee is of the view that it is not appropriate for G-SIBs to be able to meet this requirement with instruments that only absorb losses at the point of non-viability (ie the point at which the bank is unable to support itself in the private market).

C. Going-concern contingent capital (high-trigger contingent capital)

82. Going-concern contingent capital is used here to refer to instruments that are designed to convert into common equity whilst the bank remains a going concern (ie in advance of the point of non-viability). Given their going-concern design, such instruments merit more detailed consideration in the context of the additional loss absorbency requirement.

83. An analysis of the pros and cons of high-trigger contingent capital is made difficult by the fact that it is a largely untested instrument that could potentially come in many different forms. The pros and cons set out in this section relate to contingent capital that meets the set of minimum requirements in Annex 3.

84. High-trigger going-concern contingent capital has a number of similarities to common equity:

(a) *Loss absorbency* – Both instruments are intended to provide additional loss absorbency on a going-concern basis before the point of non-viability.

(b) *Pre-positioned* – The issuance of either instrument in good times allows the bank to absorb losses during a downturn, conditional on the conversion mechanism working as expected. This allows the bank to avoid entering capital markets during a downturn and mitigates the debt overhang problem and signalling issues.

(c) *Pre-funded* – Both instruments increase liquidity upon issuance as the bank sells the securities to private investors. Contingent capital does not increase the bank's liquidity position at the trigger point because upon conversion there is simply the exchange of capital instruments (the host instrument) for a different one (common equity).

85. Pros of going-concern contingent capital relative to common equity:

(a) *Agency problems* – The debt nature of contingent capital may provide the benefits of debt discipline under most conditions and help to avoid the agency problems associated with equity finance.

(b) *Shareholder discipline* – The threat of the conversion of contingent capital when the bank's common equity ratio falls below the trigger and the associated dilution of existing common shareholders could potentially provide an incentive for shareholders and bank management to avoid taking excessive risks. This could occur through a number of channels including the bank maintaining a cushion of common equity above the trigger level, a pre-emptive issuance of new equity to avoid conversion, or more prudent management of "tail-risks". Critically, this advantage over common equity depends on the conversion rate being such that a sufficiently *high* number of new shares are created upon conversion to make the common shareholders suffer a loss from dilution.

(c) *Contingent capital holder discipline* – Contingent capital holders may have an extra incentive to monitor the risks taken by the issuing bank due to the potential loss of principal associated with the conversion. This advantage over common equity also depends on the conversion rate. However, in this case the conversion rate would need to be such that a sufficiently *low* number of shares are created upon conversion to make the contingent capital holders suffer a loss from conversion. The conversion rate therefore determines whether the benefits of increased market discipline could be expected to be provided through the shareholders or the contingent capital holders.

(d) *Market information* – Contingent capital may provide information to supervisors about the market's perception of the health of the firm if the conversion rate is such that contingent capital holders suffer a loss from conversion (ie receive a low number of shares). There may be incremental information here if the instruments are free from any too-big-to-fail (TBTF) perception bias in other market prices. This could allow supervisors to allocate better their scarce resources and respond earlier to make particular institutions more resilient. However, such information may already exist in other market prices like subordinated debt.

(e) *Cost effectiveness* – Contingent capital may achieve an equivalent prudential outcome to common equity but at a lower cost to the bank. This lower cost could enable banks to issue a higher quantity of capital as contingent capital than as common equity and thus generate more loss absorbing capacity. Furthermore, if banks are able to earn higher returns, all else equal, there is an ability to retain

those earnings and generate capital internally. This, of course, depends on other bank and supervisory behaviours relating to capital distribution policies and balance sheet growth. A lower cost requirement could also reduce the incentive for banks to arbitrage regulation either by increasing risk transfer to the shadow banking system or by taking risks that are not visible to regulators.

86. Cons of going-concern contingent capital relative to common equity:

(a) *Trigger failure* – The benefits of contingent capital are only obtained if the instruments trigger as intended (ie prior to the point of non-viability). Given that these are new instruments, there is uncertainty around their operation and whether they would be triggered as designed.

(b) *Cost effectiveness* – While the potential lower cost of contingent capital may offer some advantages, if the lower cost is not explained by tax-deductibility or a broader investor base, it may be evidence that contingent capital is less loss absorbing than common equity.[26] That is, the very features that make it debt-like in most states of the world and provide tax-deductibility, eg a maturity date and mandatory coupon payments prior to conversion, may undermine the ability of an instrument to absorb losses as a going concern. For example, contingent capital with a maturity date creates rollover risk, which means that it can only be relied on to absorb losses in the period prior to maturity. Related to this, if the criteria for contingent capital are not sufficiently robust, it may encourage financial engineering as banks seek to issue the most cost effective instruments by adding features that reduce their true loss-absorbing capacity. Furthermore, if the lower cost is entirely due to tax-deductibility, it is questionable whether this is appropriate from a broader economic and public policy perspective.

(c) *Complexity* – Contingent capital with regulatory triggers are new instruments and there is considerable uncertainty about how price dynamics will evolve or how investors will behave, particularly in the run-up to a stress event. There could be a wide range of potential contingent capital instruments that meet the criteria set out in Annex 3 with various combinations of characteristics that could have different implications for supervisory objectives and market outcomes. Depending on national supervisors' own policies, therefore, contingent capital could increase the complexity of the capital framework and may make it harder for market participants, supervisors and bank management to understand the capital structure of G-SIBs.

(d) *Death spiral* – Relative to common equity, contingent capital could introduce downward pressure on equity prices as a firm approaches the conversion point, reflecting the potential for dilution. This dynamic depends on the conversion rate, eg an instrument with a conversion price that is set contemporaneously with the conversion event may provide incentives for speculators to push down the price of the equity and maximise dilution. However, these concerns could potentially be mitigated by specific design features, eg if the conversion price is pre-determined, there is less uncertainty about ultimate creation and allocation of shares, so less incentive to manipulate prices.

(e) *Adverse signalling* – Banks are likely to want to avoid triggering conversion of contingent capital. Such an outcome could increase the risk that there will be an

[26] Contingent capital instruments may not be tax-deductible in some jurisdictions, and thus may create a competitive disadvantage for banks in those jurisdictions.

adverse investor reaction if the trigger is hit, which in turn may create financing problems and undermine the markets' confidence in the bank and other similar banks in times of stress, thus embedding a type of new "event risk" in the market. The potential for this event risk at a trigger level of 7% Common Equity Tier 1 could also undermine the ability of banks to draw down on their capital conservation buffers during periods of stress.

(f) *Negative shareholder incentives* – The prospect of punitive dilution may have some potentially negative effects on shareholder incentives and management behaviour. For example, as the bank approaches the trigger point there may be pressure on management to sharply scale back risk-weighted assets via lending reductions or assets sales, with potential negative effects on financial markets and the real economy. Alternatively, shareholders might be tempted to 'gamble for resurrection' in the knowledge that losses incurred after the trigger point would be shared with investors in converted contingent instruments, who will not share in the gains from risk-taking if the trigger point is avoided.

D. Conclusion on the use of going-concern contingent capital

87. Based on the balance of pros and cons described above, the Basel Committee concluded that G-SIBs be required to meet their additional loss absorbency requirement with Common Equity Tier 1 only.

88. The Group of Governors and Heads of Supervision and the Basel Committee will continue to review contingent capital, and support the use of contingent capital to meet higher national loss absorbency requirements than the global requirement, as high-trigger contingent capital could help absorb losses on a going concern basis.

V. Interaction with other elements of the Basel III framework

A. Group treatment

89. The assessment of the systemic importance of G-SIBs is made using data that relate to the consolidated group. To be consistent with this approach, the Basel Committee will apply the additional loss absorbency requirement to the consolidated group. However, as with the minimum requirement and the capital conservation and countercyclical buffers, application at the consolidated level does not rule out the option for the host jurisdictions of subsidiaries of the group also to apply the requirement at the individual legal entity or consolidated level within their jurisdiction.

B. Interaction with the capital buffers and consequences of breaching the additional loss absorbency requirement

90. National supervisors will implement the additional loss absorbency requirement through an extension of the capital conservation buffer, maintaining the division of the buffer into four bands of equal size (as described in paragraph 147 of the Basel III rules text).

91. If a G-SIB breaches the additional loss absorbency requirement, it will be required to agree a capital remediation plan to return to compliance over a timeframe to be established by the supervisor. Until it has completed that plan and returned to compliance, it will be

subject to the limitations on dividend payout defined by the conservation buffer bands, and to other arrangements as required by the supervisor.

92. If a G-SIB progresses to a bucket requiring a higher loss absorbency requirement, it will be required to meet the additional requirement within a timeframe of 12 months. After this grace period, if the bank does not meet the additional loss absorbency requirement, the capital retention mechanism for the expanded capital conservation buffer will be applied.

C. Interaction with Pillar 2

93. The additional loss absorbency requirement for G-SIBs incorporates elements of both Pillar 1 and Pillar 2. The indicator-based measurement approach, the pre-specified requirements for banks within each bucket and the fixed consequences of not meeting the requirement, can be considered close to Pillar 1. However, the use of supervisory judgement to finalise the allocation of individual banks to buckets can be considered close to Pillar 2. Irrespective of whether the additional loss absorbency requirement is considered to be a Pillar 1 or a Pillar 2 approach, it is essentially a requirement that sits on top of the capital buffers and minimum capital requirement, with a pre-determined set of consequences for banks that do not meet this requirement.

94. In some jurisdictions, it is possible that Pillar 2 may need to adapt to accommodate the existence of the additional loss absorbency requirements for G-SIBs. Specifically, it would make sense for authorities to ensure that a bank's Pillar 2 requirements do not require capital to be held twice for issues that relate to the externalities associated with distress or failure of G-SIBs if they are captured by the additional loss absorbency requirement. However, Pillar 2 will normally capture other risks that are not directly related to these externalities of G-SIBs (eg interest rate and concentration risks) and so capital meeting the additional loss absorbency requirement should not be permitted to be simultaneously used to meet Pillar 2 requirement that relate to these other risks.

VI. Phase-in arrangements

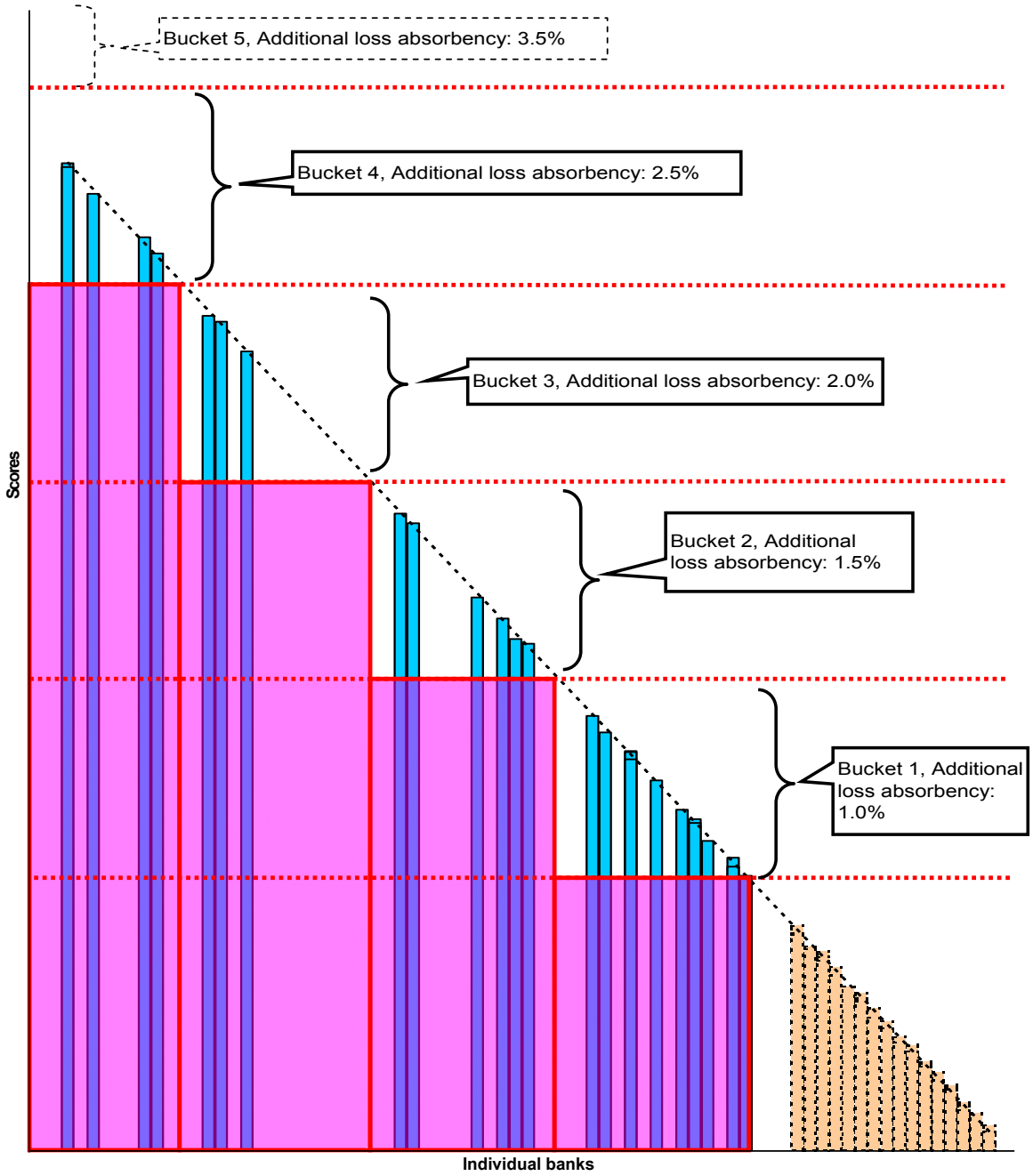
95. The Basel Committee is introducing transitional arrangements to implement the new standards that help ensure that the banking sector can meet the higher capital standards through reasonable earnings retention and capital raising, while still supporting lending to the economy.

96. The additional loss absorbency requirement will be phased-in in parallel with the capital conservation and countercyclical buffers, ie between 1 January 2016 and year end 2018, becoming fully effective on 1 January 2019. Before implementation on 1 January 2016, national jurisdictions will implement official regulations/legislations by 1 January 2014. The cut-off score, the threshold scores for buckets and the denominators used to normalise the indicators will be fixed and disclosed by November 2014 based on end-2013 data.[27] The first three year review will be conducted by November 2017.

[27] The additional loss absorbency requirement in January 2016 will also be based on end-2013 data.

Annex 1

Distribution of the trial scores of G-SIBs and their allocation to buckets[28]



[28] Since some banks have the same scores, the number of bars in blue does not add up to 27 and does not include the banks added through supervisory judgement.

Annex 2

Empirical analysis to assess the maximum magnitude of additional loss absorbency

The empirical analyses undertaken or reviewed by the Basel Committee in support of the assessment of the magnitude of additional loss absorbency includes: (i) an expected impact approach calibrated using return on risk weighted assets (RORWA) data and a Merton Model (using equity price data); (ii) comparing the long-run economic costs and benefits of higher capital requirements; and (iii) assessing funding subsidies for G-SIBs implied from market data. The quantitative models produced an additional loss absorbency generally in the range of around 1% to 8% of risk-weighted assets, in terms of Common Equity Tier 1 equivalent, with a central tendency of around 2% to 4%.

It is important to note that there is no single correct approach that is reliable enough to inform the assessment of the magnitude of additional loss absorbency, and that the empirical analyses should be seen as providing input to inform policy judgements. All the approaches suffer from data gaps and the results are sensitive to assumptions made. Therefore, the method adopted by the Basel Committee is to generate information using a range of modelling approaches, and to examine the sensitivity of the results to various assumptions. This approach is similar to that taken by the Basel Committee for the calibration of Basel III capital requirements.

The rationale underlying the expected impact approach is that the expected impact of failure of SIBs and non-SIBs should be the same. Given that the failure of a SIB will have a greater economic impact than a non-SIB, the probability of failure of a SIB will need to be lower than a non-SIB.

The estimates of the magnitude of additional loss absorbency based on the expected impact approach, assessment of the long-term economic impact and too-big-to-fall (TBTF) subsidies are based on imperfect models and involve numerous assumptions and judgements. The resulting estimates should therefore be supplemented with appropriate judgement.

The Basel Committee took into consideration, for example, the fact that the Basel II framework was calibrated at a 99.9% solvency standard. It could well be argued that, although the minimum standard may be appropriate for banks in general, the Basel Committee should target a higher solvency standard for SIBs. A magnitude of additional loss absorbency above the minimum can be seen as equivalent to choosing a higher solvency standard for G-SIBs.

1. Expected impact approach

The rationale underlying the expected impact approach is that the expected impact of failure of SIBs and non-SIBs should be the same. Given that the failure of a SIB will have a greater economic impact than a non-SIB, the probability of failure of a SIB will need to be lower than a non-SIB in order for the expected impact to be equal across the two groups. In particular if policy makers judge that the impact on the system of the failure of a SIB is x times greater than the failure of non-SIB, capital of the SIB will need to be increased so that the SIB is x times safer than the non-SIB (ie its probability of default is 1/x of that of the non-SIB). A plausible definition for a non-SIB could be a bank whose failure does not pose negative externalities on the system that the supervisor cannot accept. Then reducing the expected

impact of SIBs so that it is equal to that of non-SIBs is consistent with the objective of reducing negative externalities in SIBs. This approach however assumes policy makers are risk neutral. If policy makers are risk averse, the expected impact approach would underestimate the additional loss absorbency required. On the other hand, the approach does not incorporate any economic costs associated with higher capital requirements for SIBs.

In order to assess the magnitude of additional loss absorbency using the expected impact approach, it is necessary to determine the relative systemic importance of SIBs and a non-SIB reference bank, the probability of default of this reference bank, the capital ratio at which point banks are assumed to fail, and the relationship between regulatory capital ratios and probabilities of default. The Basel Committee has used various modelling techniques and judgement to determine the required inputs, and has also examined the sensitivity of the magnitude of additional loss absorbency estimates to various assumptions.

The central estimates for the maximum additional loss absorbency produced by the expected impact approach assume that banks fail when their risk-based capital ratio falls to 4.5%, the reference non-SIB holds capital of 7% (minimum plus conservation buffer), and that the failure of the highest scoring SIB will have an impact on society that is 3 to 5 times greater than the reference non-SIB. The Basel Committee has used two methodologies to determine the relationship between regulatory capital ratios and the probability of a bank's default. One approach uses the historical distribution of the return on risk-weighted assets (RORWA), which is one of the methodologies also used by the Basel Committee to calibrate the Basel III minimum and conservation buffer.[29] The second approach uses a Merton Model, which is based on equity return data, and has been widely used in the development of Basel II and internally by banks and commercial providers of credit risk models.

Using the expected impact approach, the maximum additional loss absorbency ranges from just under 2% to just over 2.5% if the RORWA distribution is used and from around 5% to around 8% if the Merton model is used. The results are sensitive to the assumptions used in the analysis, and are sensitive to the estimate of relative systemic importance of the most systemic bank and the reference non-systemic impact. Increasing the relative systemic impact of SIBs from a factor of 3 to 5 leads to an increase in the additional loss absorbency of 0.8 percentage points. One possible way to consider the relative systemic impact can be to assume (i) that the bank just below the cut-off point is the reference bank, and (ii) the measure of systemic importance (the "score" measured according to the assessment methodology set out in section II) is a proxy (at least in relative terms) of systemic impact. The magnitude estimates are also systematically higher when using the Merton model to determine the relationship between regulatory capital ratios and the probability of default, than they are using the distribution of RORWA.

Qualitative assessments can also be applied to the empirical results to help inform policy judgements. For example, to the extent policy makers are prepared to tolerate the negative externalities posed by banks that are not in the top 29 global banks, then a magnitude of additional loss absorbency at the lower end of the expected impact approaches is more appropriate. If not, then a higher magnitude of additional loss absorbency is appropriate. Similarly, if policy makers place more weight on historical accounting loss experience, then more weight should be placed on the expected impact approach using the RORWA analysis than the Merton model, which is based on equity return data and does not take into account liquidity when estimating the probability of default.

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[29] See Basel Committee, *Calibrating regulatory minimum capital requirements and capital buffers: a top-down approach* (October 2010) at http://www.bis.org/publ/bcbs180.htm.

2. Long-term economic impact

The Basel Committee's long-term assessment of the economic costs and benefits associated with increasing regulatory capital requirements (known as the LEI report) can also be used to infer a calibration range. Although the LEI report did not distinguish between G-SIBs and non-G-SIBs, and was not designed to determine with precision an optimal capital ratio, the analysis of costs and benefits can be used as a guide to the assessment of the magnitude of additional loss absorbency. Using Basel II capital requirements, depending on the assumptions made with respect to the costs of crises, which it could be argued are larger when G-SIBs in particular fail, net benefits are maximised when the level of Common Equity Tier 1 falls in the range of 9% (no permanent effects) to 13% (moderate permanent effects), where the latter is the central case in the LEI analysis. Translating the central case figure to a Basel III equivalent using a 1.23 factor leads to a magnitude of additional loss absorbency of around 3.5% [(13/1.23)-7)].[30] The 1.23 factor is a rough approximation based on the average increase in risk-weighted assets associated with the enhancements to risk coverage in Basel III relative to Basel II.

With respect to supervisory judgement, if policy makers believe that banking crises that involve the distress of G-SIBs are likely to be more costly than other crises, then greater weight should be given to the assessment estimates where crises have permanent effects on output which would mean a magnitude higher than the 3.5% indicated above. Moreover, to the extent that non-G-SIBs are able to offset the impact of higher capital requirements applied to G-SIBs, the long-run economic costs will be lower and net economic benefits will be higher.

3. Too-big-to-fail funding subsidies

A third approach that can be used to estimate the magnitude of additional loss absorbency for G-SIBs is to estimate the additional capital a bank that is viewed by the market as too-big-to-fail would need to hold to offset any reduction in its funding costs that it enjoys by virtue of it being seen as too-big-to-fail. The magnitude of additional loss absorbency for a too-big-to-fail bank would be the increase in the amount of equity in a bank's capital structure (and a reduction in the amount of debt of the same amount) such that its funding costs would equate to what they would have been if the subsidy was absent.

The magnitude of additional loss absorbency implied from such a funding cost analysis produces a wide range of results. The magnitude of additional loss absorbency that would eliminate a subsidy is very sensitive to the assumptions about the estimate of the funding subsidy; the cost of equity relative to debt; and the proportion of liabilities that are ratings sensitive. Combined with the sensitivity of the additional loss absorbency estimates to assumptions and caveats, suggests that this approach could only be used as a cross-check at best on other judgements about the value of additional loss absorbency.

[30] Assuming no permanent effects, this could decrease to around 1% in case G-SIBs satisfy both capital and liquidity (NSFR and LCR) requirements.

Annex 3

Proposed minimum requirements for going-concern contingent capital

An analysis of the pros and cons of contingent capital is made difficult by the fact that it is a largely untested instrument that could come in many different forms. For example, in addition to the level of the trigger for conversion, the trigger itself could be based on any combination of regulatory ratios, market based ratios, accounting ratios, bank discretion, supervisory discretion, and more. Other characteristics of the instrument could also vary, such as the features of the instrument prior to conversion, the mechanism through which common equity is created and the number of shares issued on conversion.

The Basel Committee considered the various potential features of contingent capital and developed a proposed set of minimum criteria that contingent capital should meet if it is to merit consideration to meet the additional loss absorbency requirement for G-SIBs. This proposal was designed to help anchor the Basel Committee's consideration of the pros and cons of contingent capital. It does not exclude the possibility that national jurisdictions could impose additional requirements, for example inclusion of a market-based trigger alongside the minimum trigger. The criteria are summarised in the box below.

Straw man criteria for contingent capital used to consider pros and cons

1. Fully convert to Common Equity Tier 1 through a permanent write-off or conversion to common shares when the Common Equity Tier 1 of the banking group subject to the additional loss absorbency requirement falls below at least 7% of risk-weighted assets;
2. Include in its contractual terms and conditions a cap on the number of new shares that can be issued when the trigger is breached and the issuing bank or banking group must maintain, at all times, all prior authorisation necessary to immediately issue the relevant number of shares specified in its contractual terms and conditions should the trigger be breached; and
3. Meet or exceed all of the Tier 2 entry criteria (including the point of non-viability trigger[31]).

Group treatment

4. Irrespective of the group entity that issues the contingent capital instrument, the mechanism of permanent write-off or conversion to common shares must create common equity in a form that will be fully recognised as Common Equity Tier 1 of the banking group subject to the additional loss absorbency requirement.

Capital treatment for issuer and investor

5. Contingent capital used to meet the additional loss absorbency requirement will not be eligible to meet any of the other regulatory capital requirements to which the bank is subject. Banks that invest in contingent capital are required to deduct such investments from their Common Equity Tier 1 in accordance with the treatment of common stock investments under Basel III.

[31] See GHOS press release of 13 January 2011 at http://www.bis.org/press/p110113.htm.