

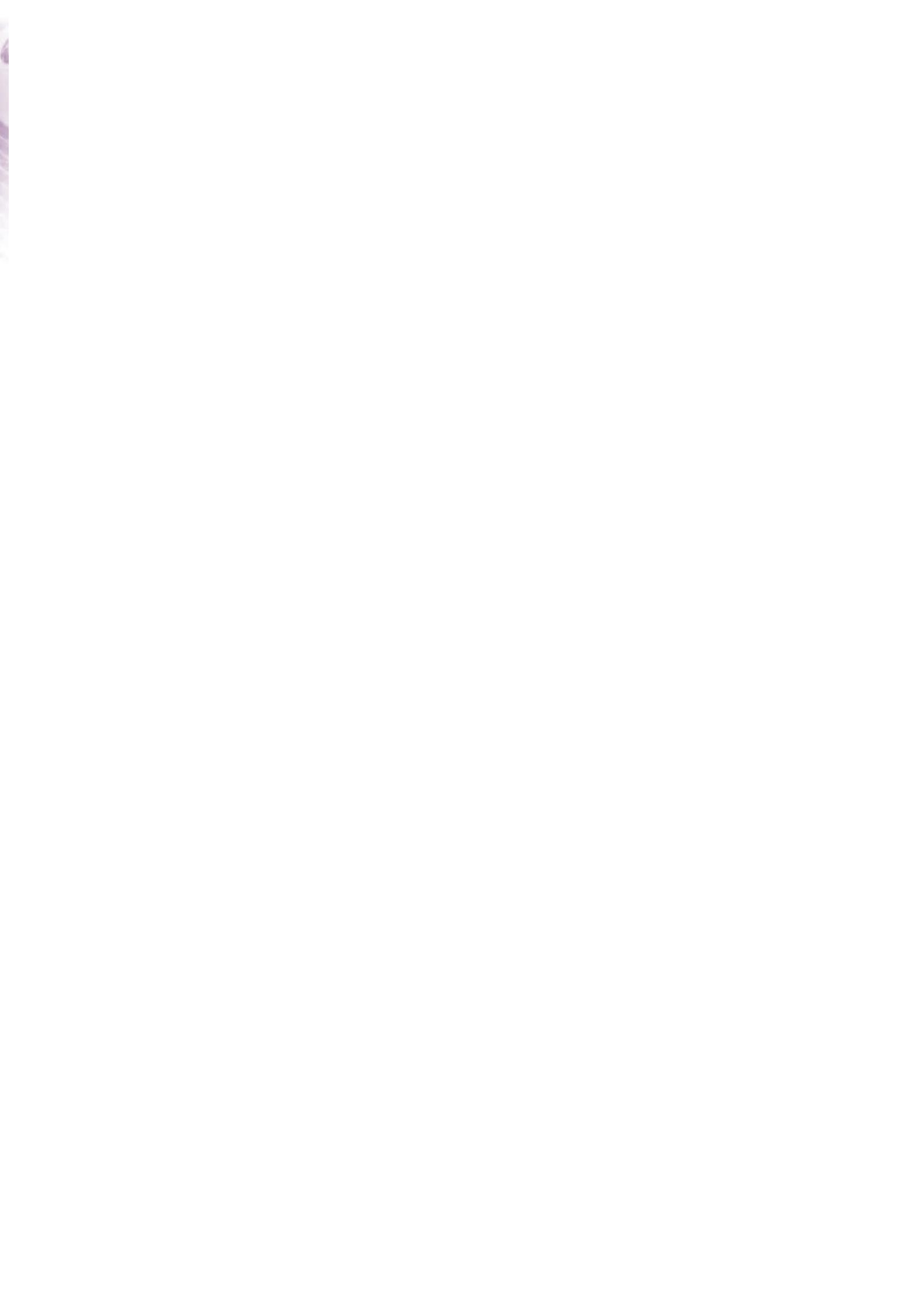


BANK OF ENGLAND

January 2016

The Financial Policy Committee's framework for the systemic risk buffer

A Consultation Paper





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Background information on the Financial Policy Committee

The Financial Policy Committee (FPC) was established under the Bank of England Act 1998, through amendments made in the Financial Services Act 2012. The legislation establishing the FPC came into force on 1 April 2013. The objectives of the Committee are to exercise its functions with a view to contributing to the achievement by the Bank of England of its Financial Stability Objective and, subject to that, supporting the economic policy of Her Majesty's Government, including its objectives for growth and employment. The responsibility of the Committee, with regard to the Financial Stability Objective, relates primarily to the identification of, monitoring of, and taking of action to remove or reduce systemic risks with a view to protecting and enhancing the resilience of the UK financial system. The FPC is accountable to Parliament.

The Independent Commission on Banking (ICB) recommendations on ring-fencing were implemented through the Financial Services (Banking Reform) Act 2013. The ICB also proposed higher loss-absorbing capacity for ring-fenced banks in the United Kingdom. The Capital Requirements (Capital Buffers and Macro-prudential Measures) Regulations 2014 (as amended) implement Articles 133 and 134 of Directive 2013/36/EU (CRD) and the ICB's recommendations on higher loss-absorbing capacity. The Regulations require that the FPC develop a framework for a systemic risk buffer that will apply to ring-fenced banks and large building societies.

The Financial Policy Committee:

Mark Carney, Governor

Jon Cunliffe, Deputy Governor responsible for financial stability

Andrew Bailey, Deputy Governor responsible for prudential regulation

Ben Broadbent, Deputy Governor responsible for monetary policy

Tracey McDermott, Acting Chief Executive of the Financial Conduct Authority

Alex Brazier, Executive Director responsible for financial stability

Clara Furse

Donald Kohn

Richard Sharp

Martin Taylor

Charles Roxburgh attends as the Treasury member in a non-voting capacity.

This document was finalised on 28 January 2016 and, unless otherwise stated, uses data available as at 30 June 2015.

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Contents

Executive summary	5
Box 1 Summary of FPC proposals	6
<hr/>	
1 Introduction	7
Box 2 UK capital framework for 2019	8
Box 3 UK implementation of international resolution regimes	9
<hr/>	
2 Implementing the systemic risk buffer in the United Kingdom	10
<hr/>	
3 Methodology for assessing and scoring systemic importance	11
<hr/>	
4 Threshold for systemic importance	13
<hr/>	
5 Calibration of SRB rates	14
<hr/>	
6 Leverage ratio	18
<hr/>	
7 Cost-benefit analysis	19
Box 4 Substitutability of lending in retail markets	21
<hr/>	
Annex 1: Examples of existing and proposed D-SIB frameworks	22
<hr/>	
Annex 2: Basel Committee's D-SIB Principles	23
<hr/>	
Annex 3: Relationship between total assets and deleveraging	24
<hr/>	
Annex 4: Applying the expected impact framework	25
<hr/>	
References	27

The Financial Policy Committee's framework for the systemic risk buffer

A Consultation Paper prepared under the guidance of the Financial Policy Committee (FPC).

Executive summary

The economy depends on critical financial services provided by financial institutions, in particular large banks and building societies. The crisis was an example of how the economy can be damaged when such firms become distressed and restrict lending to the economy. It is therefore important that such institutions carry higher levels of capital so that they can absorb stresses and continue to maintain critical financial services to the real economy, particularly the provision of credit. This principle has been recognised in the Basel framework for global systemically important banks (G-SIBs), which has been implemented through European legislation and subsequent changes to UK legislation.

The Basel and European frameworks also recognise that banks can be systemically important in a *domestic* context and may likewise warrant higher capital to absorb stress. The systemic risk buffer (SRB) looks to increase the capacity of UK systemic banks to absorb stress, thereby increasing their resilience relative to the system as a whole. This reflects the additional damage these firms would cause to the economy in the event their buffers of equity were exhausted.

The Independent Commission on Banking (ICB) recommendations — implemented through the Banking Reform Act — proposed structural separation of systemically important banking groups in the United Kingdom, through the ring-fencing of vital banking services from risks elsewhere in the financial system. In line with the ICB recommendations, ring-fenced banks and large building societies will be required to have higher levels of capital.

Accordingly, the UK legislation implementing the SRB requires the FPC to establish a framework for an SRB that applies to ring-fenced banks and large building societies that hold more than £25 billion of household and small/medium enterprise deposits. As indicated in the FPC leverage ratio policy statement, these firms would also be subject to an additional leverage ratio buffer rate, calculated at 35% of the SRB rate.

Following the FPC's articulation of the overall bank capital framework in the Supplement to the December 2015 *Financial Stability Report*, this consultation document sets out the FPC's proposals for elements of the SRB framework. In particular, it sets out: the criteria for assessing systemic importance; a proxy for measuring and scoring those criteria; a threshold at which firms are considered to be systemically important for this purpose; and the calibration of the SRB for those firms exceeding the threshold.

As set out in Chapter 5, the FPC intends for larger firms within the population of ring-fenced banks and large building societies to be subject to higher systemic buffers, reflecting the greater economic costs of their distress or failure.

The FPC considers that the main channel by which these firms falling into distress could cause damage to the financial system and the real economy is through contraction of their household and corporate lending. Because ring-fencing limits their activities, household and corporate lending is likely to comprise the bulk of their total assets.

The FPC therefore proposes to measure systemic importance by reference to total assets as a proxy. A framework based on total assets captures the most important determinants of systemic importance while remaining relatively straightforward to implement. It will also not affect firms' choices about which types of assets to hold inside and outside the ring-fence. Box 1 on page 6 summarises the FPC's proposals in relation to the SRB framework.

Chapter 7 explains that the SRB (including through its impact on the additional leverage ratio buffer) is expected to add around 0.5% of risk-weighted assets to equity requirements of the system in aggregate. This forms part of the FPC's view — as set out in the December 2015 *Financial Stability Report* — that non time-varying Tier 1 components of the overall capital framework should sum to around 11% of risk-weighted assets for the system as a whole.

The FPC seeks views on all of these aspects by 22 April 2016, with a view to finalise the framework by 31 May 2016. The

buffer, like ring-fencing itself, will be introduced and applied by the Prudential Regulation Authority (PRA) in 2019.

Comments should be received by 22 April 2016 by email to: systemicriskbuffer@bankofengland.co.uk

Box 1 Summary of FPC proposals

- Systemic importance is measured and scored using the total assets of ring-fenced bank sub-groups and building societies in scope of the SRB, with higher SRB rates applicable as total assets increase through defined buckets (see **Table A**).
- Those with total assets of less than £175 billion are subject to a 0% SRB. The FPC expects the largest SRB institutions, on current plans, to have a 2.5% SRB initially. Thresholds for the amounts of total assets corresponding to different SRB rates could be adjusted in the future (for example in line with nominal GDP or inflation) as part of the FPC's mandated two-yearly reviews of the framework.

- The FPC leverage ratio framework is applied to UK G-SIBs and other major UK banks and building societies at the level of the ring-fenced bank sub-group (where applicable) as well as at a consolidated level.

Table A SRB rates corresponding to firms' total assets

Risk-weighted SRB rate	Total assets (£ billions)	
	Lower threshold	Upper threshold
0%	–	<175
1%	175	<320
1.5%	320	<465
2%	465	<610
2.5%	610	<755
3%	≥755	

1 Introduction

Financial firms need to be able to absorb losses. The failure or near-failure ('distress') of an institution, or institutions, can have consequences well beyond the institution itself. The global financial crisis demonstrated how insufficiently capitalised institutions resulted in severe restrictions to credit supply, which in turn deepened the recession and hampered recovery. The impact of distress or failure is heightened for systemically important institutions, whose size and importance creates the potential for a sharp contraction in lending to cause significant damage to the economy.

In this document the FPC is consulting on its proposed framework for the systemic risk buffer (SRB) that will be applied by the PRA to ring-fenced banks and large building societies that hold more than £25 billion of household and small/medium enterprise deposits. The FPC seeks views on all aspects of its proposed framework.

The aim of the SRB is to raise the capacity of ring-fenced banks and large building societies to withstand stress, thereby increasing their resilience. This reflects the additional damage these firms could cause to the economy if they were close to failure. The FPC intends that the size of a firm's buffer should reflect the relative costs to the economy if the firm fell into distress.

This consultation closes on 22 April 2016 with a view to finalise the framework by 31 May 2016. The PRA will apply the framework from 1 January 2019. In setting out its proposals, the FPC has considered its equality duty, and has set out its assessment of the costs and benefits of the proposals.

Under the SRB Regulations,⁽¹⁾ the FPC is required to produce a framework for the SRB at rates between 0% and 3% of risk-weighted assets (RWAs) and to review that framework at least every two years. The legislation implements the recommendation made by the ICB in 2011 that ring-fenced banks and large building societies should hold additional capital due to their relative importance to the UK economy.

As set out in the Bank of England's December 2015 *Financial Stability Report* and the supplementary 'Framework of capital requirements for UK banks', the SRB forms part of the FPC's work on the Medium Term Capital Framework which considered the necessary levels of capital across the system.⁽²⁾

Overall, based on analysis of the economic costs and benefits of going concern bank equity, the FPC judged the appropriate non time-varying Tier 1 equity requirement for the banking system, in aggregate, should be 11% of RWAs. This assessment refers to the structural equity requirements

applied to the aggregate system that do not vary through time. It also assumes that existing shortcomings in the definitions of RWAs are corrected. A number of potential calibrations for the SRB were considered as part of this overall 11%.

Box 2 on page 8 sets out how the SRB fits into the UK capital framework.

Firms in scope

Under the SRB Regulations, the firms in scope of the SRB framework are ring-fenced banks and building societies with deposits and shares (excluding deferred shares) over £25 billion — jointly 'SRB institutions'. The £25 billion cut-off for building societies reflects the threshold that applies for banking groups to be subject to ring-fencing. Should this threshold change, it is likely that this change would be reflected in the SRB Regulations, therefore affecting the scope of firms subject to the SRB framework.

Given that the ring-fencing regime applies from 1 January 2019, and therefore ring-fenced banks are not currently in existence, the analysis that has informed the proposed framework and calibration is based on existing data and firms' current ring-fencing plans.

As firms' ring-fence structures evolve (including the type and scale of activities that are kept within and outside of the ring-fence), and better data on the ring-fenced banks becomes available, the FPC — in line with its legal responsibilities — will review the framework, taking these developments into consideration.

International context

The SRB is part of the UK framework for identifying and setting higher capital buffers for domestic systemically important banks (and building societies) (D-SIBs), which are groups that upon distress or failure could have an important impact on their domestic financial system and economy compared to non-systemic institutions.

The Basel Committee on Banking Supervision's (BCBS) framework for dealing with D-SIBs⁽³⁾ complements the Financial Stability Board's initiative on ending 'too big to fail' by focusing on the impact that the distress or failure of banks (including international banks) will have on the domestic economy. As summarised in Annex 1, a number of other countries — both within the European Union and outside it — have already announced, and in some cases implemented, their D-SIB frameworks.

(1) The Capital Requirements (Capital Buffers and Macro-prudential Measures)(Amendment) Regulations 2015 (2015/19), available at: www.legislation.gov.uk/uksi/2015/19/regulation/2/made.

(2) See Bank of England (2015a and 2015b).

(3) See BCBS (2012).

Box 2

UK capital framework for 2019

This box sets out the elements of the planned risk-weighted framework of equity and other loss-absorbing capacity requirements that will apply to PRA-regulated banks, building societies and designated investment firms, as set out in the Supplement to the December 2015 *Financial Stability Report*. The framework implements EU legislation and can be split into three elements:

i) Minimum Tier 1 capital requirements

These consist of a minimum Tier 1 capital requirement for all banks that must be met at all times. This is 6% of RWAs, and is commonly referred to as 'minimum Pillar 1 Tier 1 capital requirements'. Three quarters of this (4.5%) must be met with the higher quality Tier 1 capital — common equity Tier 1 (CET1). The remainder (1.5%) can be met with other Tier 1 capital, such as contingent capital instruments.

ii) Regulatory CET1 buffers to absorb stress

Minimum Tier 1 capital requirements are augmented by CET1 buffers that can be used to absorb losses while a bank remains a going concern. These buffers serve a macroprudential purpose. By absorbing the impact of stress they reduce the need for banks to withdraw services, such as credit provision to the real economy.

The overall CET1 capital buffer is made up of specific components that vary across banks and through time. Each captures a specific risk so there is no overlap between them. While buffers are depleted, banks face restrictions on their ability to distribute profits to their shareholders and employees. The elements of the overall equity buffer are:

- The **capital conservation buffer**, which applies to all banks, and is 2.5% of RWAs. This establishes a basic level of capacity across the system to absorb losses.
- This is supplemented by a system-wide **countercyclical capital buffer** — to ensure that the banking system is able to withstand stress throughout the cycle without restricting essential services, such as the supply of credit, to the real economy.
- The buffer will be further increased for banks judged to be **systemically important** for either the global or domestic economy. In the United Kingdom, this consists of the buffer for G-SIBs — applied at the group level — and the SRB — to apply to SRB institutions (ie ring-fenced banks and large building societies). Where both buffers apply at the same consolidation level, the higher of the two requirements may apply. The purpose of the buffers for systemically important

institutions is to allocate capital within the system to systemic banks in line with the greater costs of their distress or failure to the economy.

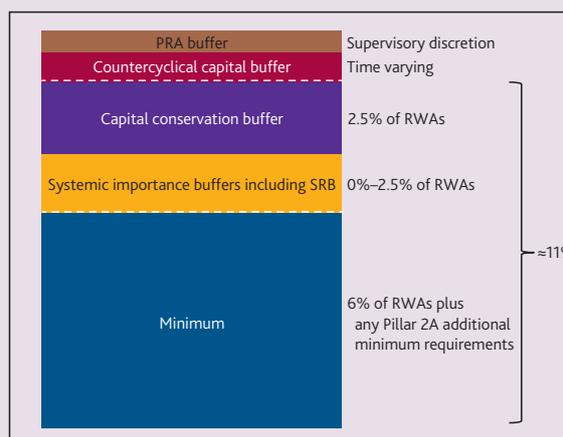
iii) Additional Tier 1 capital requirements that may apply to individual banks

In addition to these structural, system-wide requirements, the PRA may also apply additional requirements and buffers to individual banks. The supervisory elements of the framework will consist of two components.

- First, additional minimum requirements that vary by bank (referred to as '**Pillar 2A**') and deal with shortcomings in the measures of RWAs.
- Second, some individual banks may be subject to an additional CET1 buffer — a **PRA buffer**. The PRA buffer is an amount of capital that firms should hold, in addition to their minimum capital requirements (Pillar 1 + Pillar 2A), to cover risks and elements of risks not covered elsewhere, and losses that may arise under a stress but avoiding duplication with other regulatory CET1 buffers.

The FPC also recognises that some firms may choose to hold additional going-concern equity voluntarily. In part, this may reflect a reluctance to use their regulatory buffers. The FPC emphasises that it views regulatory capital buffers as there to be used under stress — they are not additional minimum requirements.

Chart A 2019 Tier 1 capital requirements^(a)



(a) This chart outlines minimum capital requirements, structural and time-varying system-wide capital buffers, and additional firm-specific requirements.

Box 3

UK implementation of international resolution regimes

Internationally, the Financial Stability Board has developed guidance and standards for resolution authorities on the various elements that are necessary for effective resolution of banks. In particular, in November 2015 the Financial Stability Board published its final standard for total loss-absorbing capacity (TLAC). This will ensure that G-SIBs have sufficient loss-absorbing and recapitalisation capacity for effective resolution.

The Bank plans to implement TLAC for UK G-SIBs through setting 'minimum requirements for own funds and eligible liabilities' (MREL). The Bank must set MREL for each UK bank

in accordance with the EU Bank Recovery and Resolution Directive and the European Banking Authority's regulatory technical standards. The Bank published a consultation paper on its proposed approach to setting MREL on 11 December 2015.⁽¹⁾ Firms will have until 2019 or 2020 to make the necessary changes to meet MRELS.

The PRA is separately consulting on a policy which would require firms to avoid using the same resources to meet MRELS and the SRB (and other buffers).⁽²⁾ This is to ensure that the buffers remain usable in going concern without depleting resources potentially needed for recapitalisation in resolution.

(1) See Bank of England (2015d).

(2) See PRA (2015c).

As part of its legal responsibilities under European and domestic legislation, the PRA is required to identify 'Other systemically important institutions'. Under the proposed PRA framework, this would consist of a wider set of firms than those in scope of the SRB, and these firms will be subject to more intensive supervision by the PRA, including recovery and resolution planning. However, at this point it is proposed that only ring-fenced banks and large building societies be subject to additional going-concern capital buffers.

The SRB forms part of a set of policy initiatives that contribute to improving the stability of the UK financial system. These are summarised below.

Resolution

The United Kingdom has put in place a resolution regime in response to the financial crisis, with the Bank as resolution authority, so that the authorities can intervene to manage the failure of a bank.

Unlike the SRB — which looks to ensure that banks are able to continue lending as they experience stress — the objective of the resolution regime is to allow firms to fail in an orderly fashion, that is, ensuring the continuity of banks' critical functions while protecting financial stability and public funds. The Bank is working to ensure that there are feasible and credible resolution strategies for individual firms. Box 3 above sets out the UK implementation of international standards and European requirements for resolution.

The FPC recently judged, in the Supplement to the December 2015 *Financial Stability Report*, that effective arrangements for resolving banks that fail will materially reduce both the probability and costs of financial crises. These arrangements were assessed to reduce the appropriate equity requirement for the banking system as a whole by about 5%

of RWAs. As set out in Chapter 5, the FPC took these considerations into account in its proposed SRB calibration.

Structural reform

In response to the financial crisis, a number of jurisdictions have introduced (or are in the process of introducing) measures to change the structure of banking groups in order to improve their resilience and resolvability.

The UK structural reform measures are based on the recommendations of the ICB and have been implemented through the Financial Services and Markets Act 2000, as amended by the Financial Services (Banking Reform) Act 2013. The reforms look to ensure the continuity of provision in the United Kingdom of core services, by ring-fencing certain activities in one part of the group.⁽¹⁾

The changes are intended to ensure that ring-fenced banks are protected from shocks that originate in the rest of their banking group or the broader financial system in order to minimise disruption to the continuity of the provision of core services. They are also intended to ensure that ring-fenced banks, and groups containing these, can be resolved in an orderly manner with minimal disruption to the provision of core services.

The SRB forms part of the ring-fencing regime because it is designed to prevent and mitigate the distress of ring-fenced banks and large building societies, and the disruption of the provision of core services, primarily lending to households and companies.

(1) See PRA (2015a).

2 Implementing the systemic risk buffer in the United Kingdom

This chapter sets out the legal requirements in relation to the SRB and the FPC's and PRA's legal responsibilities in regards to its implementation.

The SRB is a discretionary buffer in the Capital Requirements Directive (2013/36/EU) ('CRD') that can be used to prevent and mitigate long-term non-cyclical macroprudential or systemic risks not covered by Regulation (EU) 575/2013 (Capital Requirements Regulation — 'CRR'). The SRB can be used where there is a risk of disruption in the financial system with the potential to have serious negative consequences for the financial system and the real economy of a specific Member State.

The government has implemented the SRB in the United Kingdom through the SRB Regulations.⁽¹⁾

The FPC's and the PRA's responsibilities

Under the SRB Regulations, the FPC must:

- specify a set of criteria for assessing the extent to which the failure or distress of an SRB institution might pose a long-term non-cyclical, systemic or macroprudential risk not covered by the CRR;
- create a methodology for measuring the criteria and giving SRB institutions a single score in relation to the criteria; and
- for each score specify a corresponding buffer rate for the systemic risk buffer.

For the purposes of the above, an SRB institution is in distress if, and only if, it experiences a significant deterioration in its financial situation. And a long term non-cyclical systemic or macroprudential risk is a risk of disruption to the financial system with the potential to have serious negative consequences for the financial system and the real economy in the United Kingdom.

In accordance with the CRD, the SRB must be made up of CET1 capital. The capital used to meet the SRB cannot be used for any other capital requirements or buffers apart from the buffer for G-SIBs.⁽²⁾ The only SRB rates which the FPC may specify under the SRB Regulations are 0%, 1%, 1.5%, 2%, 2.5% and 3%.

The FPC's framework is expected to be finalised and published on the Bank's website by 31 May 2016. The methodology must be reviewed at least once every second year.

Under the SRB Regulations, the PRA must then apply this methodology, as of 1 January 2019, and decide upon the basis of application (individual, sub-consolidated or consolidated). In October 2015, the PRA consulted on its approach to setting the SRB rate for a ring-fenced bank on a sub-consolidated basis where a ring-fenced sub-group is in place; and making a decision on a case-by-case basis where the PRA has determined that a ring-fenced bank should not be required to meet prudential requirements on a sub-consolidated basis.⁽³⁾

From 2019, the PRA may also, in exercise of sound supervisory judgement, set a buffer rate for an SRB institution that is different to the one derived from the application of the FPC's framework or waive the buffer rate.

The split of responsibilities are summarised in **Table B** below.⁽⁴⁾

Table B Split of FPC and PRA responsibilities under the SRB Regulations

Authority	Legal responsibility
FPC	Specify criteria for assessing the extent SRB institutions pose a systemic risk. Create methodology for measuring the criteria and giving an SRB institution a single score. For each score specify a buffer rate.
PRA	Choose the level of application of the SRB. Apply the FPC methodology and derive a buffer rate. Exercise supervisory judgement when setting the buffer rate for each SRB institution; publicly justifying any discretion used.

Source: HMT SRB Regulations.

(1) The Capital Requirements (Capital Buffers and Macroprudential Measures) (Amendment) Regulations 2015; www.legislation.gov.uk/uksi/2015/19/pdfs/ukxi_20150019_en.pdf.

(2) Referred to as 'global systemically important institutions' in the CRD.

(3) See PRA (2015b).

(4) The PRA has further responsibilities under the Regulations in relation to recognition of EEA buffer rates.

3 Methodology for assessing and scoring systemic importance

This chapter sets out the FPC's proposals on the assessment of a firm's systemic importance, and how this assessment might be translated into a score that can be used to calculate a firm's corresponding SRB rate on an annual basis.

Criteria for assessment of systemic importance

The Financial Stability Board has set out the categories of critical economic functions of systemically important banks (Table C). These include deposit-taking, lending, payments services, and capital markets and wholesale activities, and reflect the key channels through which systemic banks can cause damage to the economy and financial system. In addition, the distress of systemic institutions can also have broader confidence effects on other financial institutions.

Table C Financial Stability Board's critical economic functions and activities of SRB institutions

Core activities of SRB institutions	
Deposit-taking	Lending
Capital markets and investment activities	Payments, clearing, custody and settlement
	Wholesale funding markets provision

Source: Bank of England.

Ring-fenced banks and building societies are, however, restricted by legislation from undertaking capital markets and investment activities, from providing wholesale funding, and in their clearing, custody and settlement activities. Their critical economic functions will therefore be predominantly limited to lending, deposit-taking and payments.

The Basel Committee has also set out principles for dealing with D-SIBs (see Annex 2), which among other elements set out suggested criteria for assessing systemic importance. These criteria include size, substitutability, interconnectedness and complexity — including complexity arising from cross-border activities.

UK legislation implementing the ICB recommendations aims to limit ring-fenced banks and building societies from becoming systemically important through interconnectedness with the rest of the financial system. It will also limit their involvement in complex financial transactions and their cross-border activities. For example, ring-fenced banks are prohibited (other than in limited circumstances) from having exposures to relevant financial institutions and having subsidiaries or branches outside the EEA. The relevant criteria

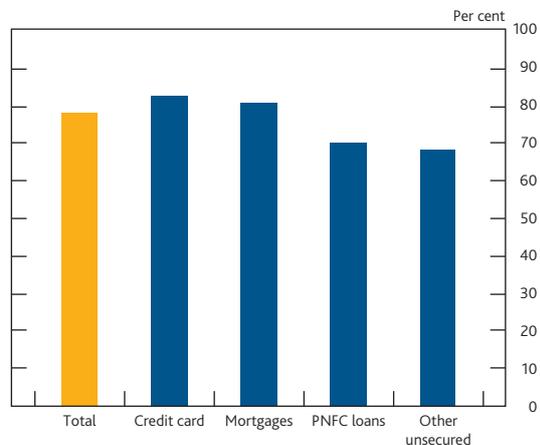
for assessing the systemic importance of SRB institutions are therefore size and substitutability, focused on their *deposit-taking, lending and payments*.

There is currently little evidence to suggest that firms in distress (outside of failure) disrupt *deposit-taking* and *payments* activities. Progress on resolution should help ensure the continuity of banks' critical functions in resolution and mitigate any potential systemic risk arising from disruption to deposit-taking and payments following from firm failure.

Taking all of these considerations into account, **the FPC judges that the key source of systemic importance is the potential impact an SRB institution may have on the economy through restricting lending to UK households and non-financial companies.**

Abrupt reductions in the availability of credit on a large scale can have a substantial impact on UK GDP. This is particularly relevant as the SRB institutions are expected to account for a substantial proportion of UK household lending and corporate lending (Chart 1), reflecting the large aggregate market share of the UK banking groups that will be subject to the SRB.

Chart 1 Aggregate market shares of major UK banking groups by type of lending^(a)



Sources: Statistical returns and Bank calculations.

(a) Market shares are based on data for all UK-resident monetary financial institutions for sterling only.

Measuring and scoring systemic importance

The FPC proposes to use 'total assets' of SRB institutions as a proxy to measure and score the criteria for systemic importance.⁽¹⁾

(1) Data on total assets is currently collected under CRR financial reporting requirements (FINREP) for certain consolidated groups, and under the PRA's 'FSA001' for solo entities and those consolidated groups that do not report FINREP. The PRA is currently undertaking a stock-take of reporting requirements, which may affect the manner in which total assets data is collected, but any work done will take into account the need to receive data on total assets from SRB institutions, at an appropriate level of consolidation (including RFB sub-groups).

Lending to households and non-financial companies is expected to comprise a large share of SRB institutions' total assets and therefore the FPC judges that total assets is a good proxy of these institutions' potential to constrain the provision of credit to these sectors. Annex 3 sets out further details of this relationship.

Using a measure of total assets also has the advantage of simplicity, and should not affect firms' choices about whether different types of assets are booked inside or outside the ring-fence.

Other metrics considered

For assessing, measuring and scoring the criteria for systemic importance, the FPC also considered using a richer set of criteria in its methodology. In particular, the FPC considered using a broader set of the Financial Stability Board's critical economic functions to assess systemic importance. However, it judged that this was unnecessary, mainly

because of the aforementioned restrictions on the activities of SRB institutions.

Additionally, the FPC considered placing greater emphasis on corporate lending in its scoring methodology on the grounds that the impact on the economy may be greater if credit supply is disrupted to companies (as opposed to households). There may also be more alternative providers of household than corporate lending. Such an approach would involve weighting lending to companies higher than lending to households to create an overall score of systemic importance.

The FPC decided against this approach, however, mainly because of concerns that it might create incentives for ring-fenced banks to move corporate lending outside the ring-fence.

4 Threshold for systemic importance

A key judgement in setting up the SRB framework is the choice of threshold below which firms in scope of the SRB are considered not to be systemically important for these purposes and therefore to warrant a 0% SRB rate.

In developing its judgement, the FPC considered a number of corroborative factors that could inform the threshold at which a firm may be considered systemically important, including: the potential level of disruption to the supply of credit in the United Kingdom; the size of firms perceived to benefit from government support; as well as a number of competition considerations to minimise the potential of creating barriers to expansion for challenger banks.

Combining firms' market shares in household and corporate lending with empirical evidence about firms' responses to capital shortages in the past, suggests that a typical firm with £175 billion of total assets experiencing a 2.5 percentage point capital shortfall could have the potential to disrupt around one sixth of UK credit supply in distress (see Annex 3 for details).

This suggests that were firms of this size to experience distress significant enough to deplete all of their going-concern Basel buffers (ie the 2.5% capital conservation buffer in absence of a systemic buffer; see Box 2), disruption to markets could be significant in the event that firms seek to rebuild the resulting capital shortage (2.5 percentage points) quickly. In that case it would be difficult for other firms to absorb significant amounts of deleveraging over a short period of time (from both a financial and an operational perspective). Therefore, in that event the FPC considers the resulting disruption to the credit market is likely to impact the financial system and its ability to provide credit to the real economy.

Given the existing market shares of UK firms, the majority of lending in the United Kingdom (c. 80%) is provided by firms of size c. £200 billion total assets or more. Those firms were also estimated to receive rating agencies credit rating uplifts now or in the past due to expectations of government support, which contributes to the perception of 'too-big-to-fail'.

Bank research⁽¹⁾ suggests that banks of sizes up to \$100 billion total assets (c. £70 billion) may benefit from economies of scale once funding cost advantages attributable to implicit subsidies are accounted for. Such economies may promote more efficient economic outcomes. The FPC's proposed systemic threshold of £175 billion total assets errs considerably on the upside of this estimate; this judgement reflects the impact of policy developments that have been introduced since the crisis, which contribute to removing implicit subsidies.

Allowing room for firms to expand and to benefit from such economies may reduce the risk of the SRB acting as a barrier to expansion for challenger banks. A more diverse provision of financial services could spread market shares across a wider number of firms, reducing some of the risks posed by systemically important institutions and supporting efforts to build a more resilient provision of financial services.

A range of thresholds for systemic importance have been set by other countries (see Table D below). The smallest identified D-SIBs vary considerably in size across countries, ranging between 2%–48% of GDP and reflect the nature of the provision of services in their domestic economies. In UK terms, £175 billion total assets would correspond to c.10% of GDP. This would place the United Kingdom around the mid-point (median) of this range of thresholds.

Table D Smallest systemically important bank in other countries

Country	Percentage of GDP
Australia	48
Austria	3
Finland	14
Netherlands	10
Canada	10
Denmark	8
Hong Kong	35
Norway	14
Sweden	17
United States	2

Sources: Capital IQ, Thomson Reuters Datastream and Bank calculations.

Taking all of the above together **the FPC proposes that £175 billion of total assets would be an appropriate threshold for systemic importance.** Setting a nominal threshold is consistent with the wider regime (including the threshold for becoming an 'SRB institution'). However such a threshold could be adjusted in the future (for example in line with nominal GDP or inflation) as part of the FPC's mandated two-yearly reviews of the framework.

(1) See Davies and Tracey (2014).

5 Calibration of SRB rates

This chapter sets out the FPC's proposed calibration of the SRB. The FPC proposes to calibrate SRB rates in a way that reflects SRB institutions' systemic importance, meaning that firms with higher levels of total assets — and therefore greater potential to damage the UK economy — would be subject to higher buffers and therefore greater levels of resilience.

In calibrating the SRB, the FPC considered how much additional capital is needed to offset the greater potential harm that distress of these institutions could do to the UK economy.

SRB institutions that are below the threshold where the FPC considers firms to be systemically important for these purposes (£175 billion total assets), but are above the £25 billion retail and SME deposits threshold required to be designated an SRB institution, are expected to be subject to a 0% SRB rate.

For determining the necessary level of additional capital required for systemic firms via the SRB, the FPC drew on a range of inputs, before reaching a judgement on the appropriate design and calibration of the SRB framework. Inputs include an 'expected impact' framework complemented by an analysis of historical losses incurred by banks. This chapter sets out these inputs and the judgements reached by the FPC in determining its proposed calibration.

Expected impact framework

One way to approach the calibration of an SRB is to set additional capital buffers for systemic firms commensurate with estimates of the additional damage that they could cause to the economy in the event of their distress.

Such an 'expected impact approach' determines the additional capital required so that the expected impact on the economy from the distress of a systemic firm is made equal to that of a non-systemic firm.

A firm's 'expected impact' is estimated as the product of its probability of distress and its size, measured by total assets. Size is used as a proxy measure for its impact on the economy in the event of distress. (The probability of distress (PD) will depend on a range of factors, not necessarily linked to size.)

$$\text{Expected Impact} = \text{PD} * \text{Total Assets} \quad (1)$$

Using this equation, the SRB may be set to lower the PD of SRB institutions so that the expected impact of their failure is equal to that of a non-systemic firm.

This is not an exact science and a number of assumptions are needed to gain insight from this framework.

First, size is used as a proxy for the impact on the economy of a firm's distress. Larger firms have higher lending market shares in the United Kingdom, and so have the potential to do more harm to the economy through constraining lending when in distress.

Second, a benchmark non-systemic firm needs to be identified against which to compare the expected impact of an SRB institution. A firm with total assets corresponding to the FPC's proposed systemic threshold — £175 billion assets — is used.

Third, estimates are required for the rate of reduction in the probability of distress as equity capital requirements are increased above the requirements for non-systemic firms. Historical data is used to estimate this relationship. It suggests that the rate at which the probability of distress decreases slows as capital ratios rise.

Fourth, all institutions are assumed to start at a baseline Basel III Tier 1 capital requirement (including capital conservation buffer) of 8.5% of RWAs.⁽¹⁾

Using these assumptions, the framework is applied for an SRB institution by (i) calculating the ratio of its total assets to that of the benchmark firm of £175 billion, and (ii) setting the required SRB rate at the level that reduces its PD in proportion to (i). The higher a firm's total assets relative to the benchmark (right-hand side of (2)), the higher its SRB rate to deliver the necessary reduction in relative PD (left-hand side of (2)).

$$\frac{\text{PD (8.5\%)}}{\text{PD (8.5\% + SRB)}} = \frac{\text{total assets}_{\text{systemic}}}{\text{total assets}_{\text{non-systemic}}} \quad (2)$$

Repeating this approach for SRB institutions of different sizes sets a sliding scale of SRB rates as the amount of a firm's total assets increases. And 'buckets' for SRB rates — that is ranges of total assets corresponding to a specific SRB rate — can be determined. The steps to do so are illustrated in Annex 4 together with the outcomes for SRB buckets.

These outcomes reflect one set of assumptions, however. A number of those assumptions are particularly uncertain, including how the potential damage to the economy caused by the distress of an SRB institution varies with its size. The results should therefore be taken as indicative only.

Historical loss distributions

Given the policy objective to hold SRB institutions to a higher standard of resilience, an alternative perspective is to ask what proportion of past losses experienced by banks would be covered by different SRB rates. This approach is analogous to

(1) This baseline excludes Pillar 2 and buffers for systemic banks, as well as the countercyclical capital buffer.

that commonly used in risk management. And it complements the expected impact approach which, while also using historical losses, is not designed to consider how far various SRB rates might mitigate losses in the tail of the probability distribution of losses.

Changes to the risk-weighting regime make it difficult to compare losses over time in risk-weighted space. We therefore compare losses with buffer rates, where both are measured in units of un-weighted exposures rather than in units of RWAs.

The FPC's calibration of the leverage ratio minimum requirement drew on similar historical losses and provides a starting point to gauge how much of the tail of the loss distribution would be covered at different SRB rates. This is done by scaling the SRB rates by the 35% conversion factor which is used to translate risk-weighted requirements into leverage space.

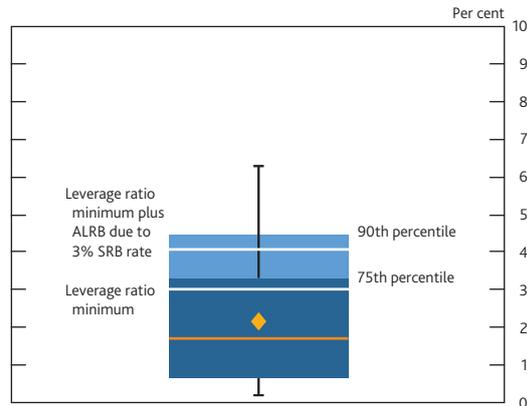
Scaling the SRB rates by the 35% conversion factor means that a 3% SRB rate corresponds to a c. 1% rate on un-weighted exposures. **Charts 2 and 3** show that an additional 1 percentage point requirement on un-weighted exposures above the 3% leverage ratio minimum requirement would be sufficient to cover peak losses experienced by about 80% of UK or international banks in the recent crisis. The sample of firms in **Chart 2** is not large enough to determine what SRB rates would be necessary to cover percentiles above the 90th, but drawing on the international sample of large banks (**Chart 3**) suggests that requirements on un-weighted exposures above the leverage ratio minimum of up to c. 4% could be warranted to cover, for example, the 95th percentile, translating to risk-weighted buffers of up to 12%.

In line with the FPC's stated intention in its leverage ratio policy statement⁽¹⁾ the SRB will raise requirements on un-weighted exposures via the additional leverage ratio buffer (ALRB). This is discussed in detail in Chapter 6.

This measure of losses seeks to determine systemic buffer requirements based on a very demanding standard: peak losses incurred in the recent systemic crisis. It presumes that the most systemic firm should hold capital at all points in the cycle against the risk of maximum losses incurred in a systemic crisis. As such, it may be interpreted as a broader assessment of going-concern buffers appropriate for the most systemic firms — which would include the G-SIB and SRB systemic buffers, countercyclical buffers and firm-specific PRA buffers.

An alternative is to look at the losses that large, international banks have experienced in periods other than the recent crisis, in order to consider losses banks may face across a range of periods of financial instability. This data is only available for a

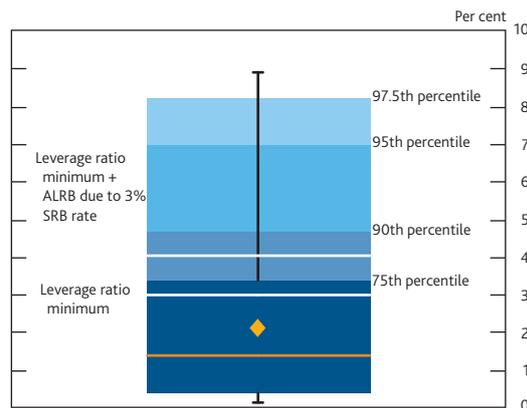
Chart 2 Distribution of peak losses as a percentage of 2006 total un-weighted exposures for a sample of UK banks^{(a)(b)(c)}



Sources: Annual reports and Bank calculations.

- (a) Half-yearly loss values calculated as loss to pre-tax net income plus unrealised net gains/losses. Peak losses calculated over the period 2007 H1 to 2013 H1.
- (b) Eleven firms in sample. Lines extending vertically from the box indicate firms with the minimum and maximum peak losses in the sample. Lower and upper boundaries of box represent first and third quartiles of the distribution, respectively. Line within box represents the median. Marker within box represents the mean.
- (c) Internal calculations used to estimate total exposures from 2006 total asset values.

Chart 3 Distribution of peak losses as a percentage of 2006 total assets for an international sample of banks^{(a)(b)}



Sources: Capital IQ, SNL Financial and Bank calculations.

- (a) Half-yearly loss values calculated as loss on estimated pre-tax net income plus unrealised net gains/losses. Peak losses calculated over the period 2007 H1 to 2013 H1. Income values exclude income attributable to minority interests.
- (b) Forty-two firms in sample. Lines extending vertically from the box indicate firms with the minimum and maximum peak losses in the sample. Lower and upper boundaries of box represent first and third quartiles of the distribution, respectively. Line within box represents the median. Marker within box represents the mean.

sample of large, international banks. **Table E** shows that to cover losses up to the 97.5–99th percentile in risk-weighted terms for example, banks would need capital buffers of at least 6.1–10.9 percentage points in order to absorb losses, maintain lending and to continue to meet minimum equity requirements. Outside of those minimum requirements, current and prospective requirements for firms may be expected to cover c. 6.0 percentage points of losses.

(1) See Bank of England (2015c).

Table E Losses experienced by international banks 1993–2014

Percentile	Three-year loss (percentage of RWAs)
90	0.1
95	3.2
97.5	6.1
99	10.9
99.5	17.5

Sources: Capital IQ and Bank calculations.

An activist countercyclical policy would be expected to add to this as risks build in the system — building up for example 2.5 percentage points or more of requirements countercyclically. An SRB rate of 2.5–3.0 percentage points would then be warranted to cover losses between those percentiles of the historical loss distribution.

Both of these historical loss analyses are sensitive to a number of uncertainties, including the interpretation of losses data from the past given the extent of regulatory reform post crisis, survivorship biases in the past data, the point of non-viability for institutions in the future, the impact of previous public sector interventions, and mappings from un-weighted to risk-weighted assets. As a result, these numbers may inform, but cannot on their own determine, an SRB calibration.

Committee judgments on framework calibration and design

Given these uncertainties, the FPC recognised that it needs to supplement the approaches described above with a series of key judgements. This section sets out the judgements that informed the Committee's proposed calibration of the framework.

Impact of post-crisis regulatory reforms

A key question is how far data on the past experience of bank losses is informative for the range of potential losses banks might incur in the future.

As set out in the Supplement to the December 2015 *Financial Stability Report*, the FPC judges that post-crisis regulatory reforms — in particular the introduction of credible and effective bank resolution regimes and the prospect of time-varying capital buffers — have materially reduced the appropriate level of going concern equity from earlier estimates.⁽¹⁾

Credible and effective resolution arrangements are expected to improve market discipline, and therefore reduce the probability of a future financial crisis by around a third. The ability to recapitalise banks promptly and sufficiently at the onset of a crisis is also expected to reduce the economic costs of a crisis.

Orderly resolution will minimise the damage to the real economy caused by bank failure and avoid unnecessary interruption to the critical functions those banks provide to the real economy.

Effective supervision, such as the forward-looking and judgement-led prudential supervision carried out by the PRA, can help to ensure that individual banks do not take excessive risks.

Structural reform, including ring-fencing critical activities of major UK banks, will support resolvability and increase the resilience of ring-fenced banks and large building societies to risks originating in other parts of their group or the global financial system.

Active use of the UK countercyclical capital buffer applied to banks' UK exposures will, like other equity buffers, allow losses to be absorbed in stress, enabling banks to continue to support the real economy and therefore avoid situations in which they amplify the stress. Varying the buffer both up and down will avoid the need to capitalise the banking system for high risk conditions at all points in time, which the FPC judges would be economically inefficient.

Taking account of all these developments in the regulatory framework, the FPC's view is that the appropriate SRB calibration would, all else equal, lie below those suggested mechanically by approaches based on expected impacts or historical loss experience.

Choice of the maximum applicable SRB rate

As set out in the SRB Regulations, the FPC can specify SRB buffer rates up to a maximum of 3%. This is consistent with what the FPC has judged necessary for the SRB, once the impact of post-crisis regulatory reforms are taken into account.

The analysis of historical losses illustrated how the FPC could consider a maximum 3% SRB combined with a countercyclical capital buffer, varied according to changes in the Committee's view of the risk of potential losses on banks exposures, as sufficient in order to generate the necessary level of capital to be maintained throughout the cycle.

The Bank's cost-benefit assessment for overall capital requirements for the major UK banks, suggests there are net benefits of additional capital requirements across the systemic banks of up to 1%–3% at the mid-point of the financial cycle relative to the Basel III end-point.⁽²⁾ This is based on the Bank's assessment of macroeconomic costs and benefits of higher bank capital requirements relative to the Basel III Tier 1

⁽¹⁾ See Bank of England (2015b).

⁽²⁾ *Ibid.*

requirements, which come into full force in 2019. The economic benefits derive from the reduction in the likelihood and costs of financial crises. The economic costs are mainly related to the possibility that they might lead to higher bank lending rates which dampen investment activity and, in turn, GDP.

The SRB will add less than 1 percentage point of aggregate capital to the system. This, in part, reflects the interaction of the SRB with G-SIB buffers where the estimates assume that G-SIB resources at group level will be down-streamed into ring-fenced entities to cover SRB requirements from 2019. The interaction between the SRB and the G-SIB buffer therefore affects the distribution of capital within the group. For example, where the monetary amount of capital that the firm holds against the G-SIB buffer at the group level is less than what it needs to hold at the ring-fence level for the purposes of the SRB, the firm could downstream its G-SIB buffer to meet its ring-fence SRB requirement in part. Where the group G-SIB requirement is greater than the SRB requirement (in terms of amount of capital), then part of the G-SIB buffer can be downstreamed to meet the ring-fence SRB requirement in full.

As set out in the Basel Committee's D-SIB framework, home and host authorities should seek to avoid the double counting of risks when applying buffers at different levels of consolidation.⁽¹⁾ Given the scope of the SRB and the geographical scope of SRB institutions, the FPC believes that there is currently no such double counting given D-SIB regimes elsewhere.

Calibration of SRB buckets below the maximum rate

As set out in the SRB Regulations, the FPC can specify a finite set of buffer rates (0, 1, 1.5, 2.0, 2.5, and 3%) for its framework. The FPC considered setting equally-sized buckets or setting buckets that widen as firms become more systemically important. The FPC is proposing to use equally-spaced buckets. This is because:

- equally-sized buckets are more likely to deter the most systemic firms from getting even larger, compared with buckets that widen as total assets increase;
- such an approach may facilitate competition from the less systemic firms (all else equal); and
- the resulting framework aligns more closely with other frameworks internationally — including the Financial Stability Board's and the US Federal Reserve Board's framework for US G-SIBs as well as a number of D-SIB frameworks introduced elsewhere.

Proposed calibration of the SRB framework

Taking the above factors together, the FPC proposes that the thresholds for each SRB bucket are equally spaced, including for the upper 3% bucket.

Together with a proposal that SRB rates rise in intervals of 0.5 percentage points from 1% to 2.5%, this would suggest the bucket structure set out in Table F. The framework would initially have an empty bucket of 3% which would be applied to the most systemic firms should their assets expand further than those set out in existing data and in firms' current ring-fencing plans.

Table F Proposed SRB calibration

Risk-weighted SRB rate	Total assets (£ billions)	
	Lower threshold	Upper threshold
0%	–	<175
1%	175	<320
1.5%	320	<465
2%	465	<610
2.5%	610	<755
3%	≥755	

As set out in the SRB Regulations, the FPC is required to review the SRB framework at least every two years. The calibration of the SRB, including the thresholds and the structure of the 3% bucket (eg an upper threshold) could form part of this review. Also as part of that review, the thresholds could be adjusted (for example in line with nominal GDP or inflation) given they are expressed in nominal terms. In addition, in the future the FPC may consider whether to make a recommendation to HM Treasury on a change to the United Kingdom's legal framework for the SRB, and within that permitted by the CRD, to alter the maximum rate that can be set for the SRB (currently 3% of RWAs) — especially if the 3% bucket becomes populated.⁽²⁾

The proposed SRB calibration would add less than 1 percentage point to the aggregate capital ratio of the UK parents of the six largest SRB institutions. This is within the Bank's assessment of the level at which extra capital would yield positive net macroeconomic benefits. The costs and benefits of the proposed calibration are discussed further in Chapter 7.

(1) See BCBS (2012) para 40: 'The Committee is of the view that any form of double-counting should be avoided and that the higher loss absorbing requirements derived from the G-SIB and D-SIB frameworks should not be additive. This will ensure the overall consistency between the two frameworks and allows the D-SIB framework to take the complementary perspective to the G-SIB framework.'

(2) It is worth noting that raising the SRB rate above 3% would entail involvement of EU authorities in the decision process, as well as re-consultation by HM Treasury on changes to the SRB Regulations. Furthermore, the European Commission is in the process of considering the macroprudential review of the CRD and the CRR.

6 Leverage ratio

The SRB is a risk-weighted capital buffer. The FPC has already indicated that firms that are subject to the SRB will calculate a buffer in relation to a leverage measure as well as the risk-weighted measure. To do this, the FPC's leverage ratio framework includes a supplementary leverage ratio requirement for systemically important banks, referred to as the additional leverage ratio buffer (ALRB).⁽¹⁾ The ALRB will apply to UK G-SIBs and other major domestic UK banks and building societies, including ring-fenced banks, as systemic risk-weighted capital buffers for these banks are rolled out.

The FPC directed the PRA to apply the ALRB to UK G-SIBs, to be phased in alongside risk-weighted requirements in July 2015, when it issued a Direction and Recommendation to the PRA to implement the leverage ratio framework for UK G-SIBs and other major UK banks and building societies on a consolidated basis. For UK G-SIBs, the framework includes an ALRB set at 35% of a firm's risk-weighted G-SIB buffer rate, in addition to a minimum leverage ratio requirement of 3% and a countercyclical leverage ratio buffer. The 35% conversion factor aims to ensure complementarity between the risk-based capital framework and the leverage ratio framework across institutions (via the ALRB) and over time (via the countercyclical leverage ratio buffer). On 7 December 2015, the PRA published final rules to take effect on 1 January 2016 in order to implement the FPC's Direction and Recommendation on the leverage ratio framework.

The FPC has yet to apply the leverage ratio framework, including the ALRB, to ring-fenced banks: it has proposed to direct the PRA to do this from 2019, in parallel with the introduction of the SRB.

In October 2015, the PRA consulted on a number of issues in relation to ring-fenced banks, including the application of risk-weighted capital requirements. The PRA has proposed to apply the SRB for a ring-fenced bank on a sub-consolidated basis where a ring-fenced sub-group is in place; and making a decision on a case-by-case basis where the PRA has determined that a ring-fenced bank should not be required to meet prudential requirements on a sub-consolidated basis.⁽²⁾

The FPC has not specified the level of application for the leverage ratio framework including the ALRB for ring-fenced banks. But it has noted more broadly that there are benefits of maintaining consistency in the level of application of risk-weighted capital and leverage ratio frameworks and that these needed to be set against potential costs.

Given the PRA consultation for risk-weighted requirements for ring-fenced banks and the FPC's previous aim to maintain consistency between the risk-weighted and leverage ratio frameworks, the FPC proposes that the ALRB, as well as other

leverage ratio requirements, apply to ring-fenced banks at the level of application of the SRB, ie at the level of the ring-fenced bank sub-group.⁽³⁾ Where the consolidated group is subject to leverage ratio requirements, the relevant leverage ratio requirements would also apply at the level of the consolidated group.⁽⁴⁾

The ALRB will apply to SRB institutions other than ring-fenced banks at the consolidated level in parallel with the introduction of the SRB.

There is a broader question of whether the FPC leverage ratio framework should apply also on an individual basis, that is to individual entities within groups or sub-groups that are also subject to risk-weighted requirements. The FPC's policy statement on the leverage ratio framework in July 2015 set out then the FPC's intention to delay a decision on when and how to apply requirements at individual entity level until a review in 2017.⁽⁵⁾

The FPC's policy statement also set out that the FPC's review would also consider progress toward an international standard for a minimum leverage ratio requirement and implications for the calibration of the UK leverage ratio framework, as well as whether to extend the minimum leverage ratio requirement and countercyclical leverage ratio buffer to all PRA-regulated banks, building societies and investment firms from 2018, subject to its review in 2017.

(1) See Bank of England (2015c) for more detail on the leverage ratio framework. Bank of England Act 1998 (Macro-prudential Measures) (No. 2) Order 2015 refers to an 'additional leverage ratio'. The policy statement linked above refers to a 'supplementary leverage ratio'. The two terms refer to the same policy tool.

(2) See PRA (2015b).

(3) For those ring-fenced banks where the PRA has determined that prudential requirements do not need to be applied on a sub-consolidated basis, a decision will be made on a case-by-case basis.

(4) In such cases, the interaction of requirements set at multiple levels within a group is managed to avoid that requirements are duplicative.

(5) See Bank of England (2015c).

7 Cost-benefit analysis

This chapter sets out the high-level costs and benefits of the SRB calibration discussed in Chapters 4 and 5.

The main way in which the SRB produces benefits is by increasing the resilience of SRB institutions and therefore reducing the likelihood that they will curtail lending. Supporting lending growth leads to higher levels of output than would be the case without the SRB.

These benefits however will be offset by economic costs in the short run if firms need to raise additional capital. That might cause banks to deleverage, which would lead to output losses during the transition period. Additional capital requirements may also raise firms' funding costs and lending spreads which may have a structural impact on credit provision.

The analysis below examines these trade-offs. It takes into account: (i) the economic costs of transitioning to the SRB; (ii) benefits associated with lower deleveraging in future downturns; and (iii) the net long-run benefits of higher capital, based on Bank analysis of the macroeconomic costs and benefits of higher UK bank capital requirements.⁽¹⁾ The net benefits of the SRB are estimated to be positive.

Impact on capital

The SRB calibration discussed above would add aggregate capital of 0.45% of group RWAs for D-SIBs (Table G).

Table G Estimated marginal impact of SRB on affected firms and UK system-wide RWAs based on calibration discussed above

Per cent		
Aggregate capital added as per cent of the RWAs of:	If full SRB increment is raised	Net of G-SIB buffer ^(a)
Firms expected to be impacted ^(b)	0.70	0.45
UK system-wide ^(c)	0.50	0.30

Source: Bank calculations.

(a) Assumes available G-SIB buffer resources equal to 1.9% of the aggregate RWAs of the firms expected to be affected by the SRB.

(b) 2019 estimated group RWAs of the firms expected to be impacted by the SRB.

(c) UK system-wide RWAs include all PRA-regulated firms as of 2015 Q3.

Costs of transitioning towards the SRB

Banks affected by the SRB that face a capital shortfall may choose to deleverage in the short-run rather than raise the additional capital. This could lead to decreased lending and output losses for the UK economy. The size of this potential deleveraging will primarily depend on the level of firms' capital shortfall and the extent to which other lenders can substitute for the loss of credit provision.

In markets where 'substitutability' is high, competition from other providers will constrain banks' ability to increase interest rates and any possible reduction in lending will be largely

offset through increased lending by other firms or other funding sources.

Evidence suggests substitutability is likely to be high for most types of lending with the exception of SME lending (Box 4). Given the relatively low substitutability of SME lending in the short run, as well as the importance of SMEs to the UK real economy,⁽²⁾ transition costs will likely be driven through the impact of the SRB on SME lending.

Assuming that the aggregate capital shortfall will be equal to the full net marginal requirement due to the SRB, provides an upper bound on the impact such deleveraging may have. Using different substitutability and point-in-cycle assumptions, the upper bound for the range of transition costs is found to be around a quarter of a per cent of GDP (Table H).

Table H Range of costs of introducing SRB as a percentage of GDP assuming banks will be short of the full amount of the SRB

Assumption on bank deleveraging	GDP impact (NPV, per cent)
Low: based on mid-cycle estimates/high substitution	0–0.15
High: based on downturn estimates/low substitution	0–0.25

Source: Bank calculations.

Benefits through the impact on firms' deleveraging in future downturns

In an economic downturn firms with more available loss-absorbing capital face less pressure to deleverage. Using the same assumptions as for the transition costs, the benefits that will arise from the reduced deleveraging in future downturns because of the SRB are estimated to be around two thirds of a per cent of GDP (Table I).⁽³⁾

Table I Gross benefits of SRB via lower deleveraging in future downturns

Assumption on bank deleveraging	Gross benefit (NPV, per cent of GDP)
Low: based on mid-cycle estimates/high substitution	0.6
High: based on downturn estimates/low substitution	0.7

Source: Bank calculations.

Macroeconomic costs and benefits of higher UK bank capital requirements

The macroeconomic cost-benefit framework published by the Bank in December 2015⁽⁴⁾ suggested that there continue to be

(1) See Brooke *et al* (2015).

(2) SMEs are estimated to account for around 60% of UK employment, 54% of output and 33% of investment.

(3) This is driven by private non-financial corporations (PNFC) lending in future downturns being around 1.5% higher than without the SRB.

(4) See Brooke *et al* (2015).

net benefits of additional capital requirements across systemic banks of up to 1%–3% of RWAs at the mid-point of the financial cycle. The SRB calibration discussed above would add aggregate capital of 0.45% of RWAs for UK D-SIBs, which is well within the range expected to deliver net positive macroeconomic benefits.

Based on the benefits of the additional system-wide capital due to the SRB and the calibration option discussed in this consultation, the SRB is expected to deliver benefits equivalent to around 0.15% of GDP by lowering the risk of financial crises.⁽¹⁾

Net benefits

Bringing together the costs and benefits, a net benefit of around 0.6%–0.8% of GDP is projected. These benefits will outweigh any impact on lending spreads. Assuming a 10% equity premium, each 1% increase in capital requirements would push up firms' overall funding costs by around 5 basis points. The extent to which firms are able to pass this on to consumers will also depend on the level of competition and substitution in the market. Based on the evidence on substitutability of lending in retail markets outlined in Box 4 the FPC believes that firms' ability to pass on this cost to consumers will be constrained.

These calculations are likely to understate the true benefits of the SRB which, as it focuses capital on those firms that pose the highest risk to UK financial stability, is likely to reduce the probability of financial crises by more than system-wide capital buffers would.

The impact of the SRB on competition and diversity in the banking sector

Impact on competition

To the extent that the SRB helps alleviate the funding advantages that SRB institutions enjoy through rating agencies' credit rating uplifts, it will help level the playing field and lessen barriers to effective competition.

The design of the SRB calibration described in this consultation document also facilitates competition by mid-ranking and smaller SRB institutions. The £175 billion threshold for systemic importance ensures that smaller firms have enough space to grow before being subject to the SRB. Past that threshold the widely spaced buckets and graduated increase in the surcharge also ensure that less systemic firms also have enough head-room in which to compete.

Finally, the Competition and Markets Authority (CMA) also concluded in its *Retail banking investigation: provisional findings report*⁽²⁾ that additional capital requirements for systemic firms contribute to reducing competitive disadvantages incurred by new and small entrants arising out

of the use of the standardised risk weighting approach for credit risk exposures.

Impact on diversity of business models

As a risk-weighted capital requirement, the SRB is sensitive to the different risks banks and building societies face depending on their business model. Increasing the leverage ratio by an additional leverage ratio buffer will complement the risk-weighted systemic requirement.

The additional leverage ratio buffer will ensure that systemically important banks and large building societies that are bound or constrained by the leverage requirement are made more resilient. This would help achieve the net benefits described above and preserve the level playing field between systemically important institutions that are impacted by the leverage ratio and those impacted by the risk-weighted requirements.

Similar to the SRB, the additional leverage ratio buffer will help alleviate the funding advantages of SRB institutions that are bound or constrained by the leverage requirement. This will lessen barriers to effective competition between those systemically important firms and other firms whose business models make them similarly likely to be impacted by the leverage requirement. Effective competition for all types of lending is key for maintaining a diverse set of business models in the banking industry.

The impact of the leverage ratio framework, including the additional leverage ratio buffer, was considered by the FPC as part of its calibration of the UK leverage ratio in 2014. The FPC concluded at the time that the impact on individual firms would be modest and would not have a detrimental impact on aggregate credit creation for any sector of banks or segment of the lending market. Similar to its conclusions at the time, the FPC expects the additional leverage ratio buffer that corresponds to the SRB to have a minor impact on the overall requirements of the firms that will be impacted by it.

(1) This figure is consistent with the analysis by Brooke *et al* (2015) and is calculated on a net present value basis using discount rates from HM Treasury's *Green Book*.

(2) See CMA (2015).

Box 4 Substitutability of lending in retail markets

'Substitutability' in this context is defined as borrowers' ability to switch to another lender if they face an increase in interest rates, some other deterioration of lending conditions, or are unable to renew a loan with their current lender. For first-time borrowers this simply reflects the range of alternative providers. Substitutability will be lower in markets where competition does not work well. In these markets, clients of firms subject to an SRB are less likely to find an alternative lender if the loan conditions offered by SRB institutions deteriorate.

The CMA⁽¹⁾ identified a combination of factors that limit competition in SME lending — including barriers to searching, product linkages and incumbency advantages. Over 90% of SMEs that borrow from a bank or building society, do so from their main current account provider, and SMEs rarely switch current accounts. Moreover, half of start-up SMEs open their business account with the same provider with which they have a personal current account.

These product linkages give large firms an incumbency advantage. Their SME clients might not react to increases in interest rates or deterioration in other conditions, and switch to an alternative provider.

Some SMEs however are likely to change lender in response to a deterioration in credit conditions. They could include SMEs that in the past have switched business current accounts or have taken a loan from a bank or building society that is not their current account provider, and start-up SMEs without an existing banking relationship. While it is difficult to estimate with precision the level of substitutability, these SMEs could account for 5% to 15% of SME lending.

For other types of lending, substitutability is likely to be higher. While switching rates are low also for personal current accounts, consumers often take out mortgages and credit cards with a provider that is not their main bank or building society.⁽²⁾ Large companies tend to be more sophisticated borrowers and have multiple banking relationships. They are also likely to have access to capital markets, which SMEs are less likely to.⁽³⁾

(1) CMA (2015), *Retail banking investigation: provisional findings report*.

(2) Around 60% of mortgages and 58% of credit cards are provided by a bank that is not the main current account provider. CMA (2015), *Retail banking market investigation: updated issues statement*.

(3) There might be, however, barriers to competition that limit substitutability also for corporate borrowers, in particular for smaller ones. The Financial Conduct Authority (FCA) is conducting a market study on competition in investment and corporate banking. See FCA (2015), *Investment and corporate banking market study — Terms of reference*.

Annex 1

Examples of existing and proposed D-SIB frameworks

	Range of capital requirements including SIB buffers ^(a)	D-SIB buffers (per cent of RWAs)	D-SIB buffer calibration criteria	Current state of policies relating to leverage ratio requirements or buffers
United Kingdom	7.0%–10.0% CET1	0%–3.0% CET1 (see proposals in this consultation)	Total assets. PRA can overlay supervisory judgment.	3% minimum, plus a countercyclical leverage ratio buffer, to be set to 35% of the corresponding risk-weighted capital buffer and to apply to all firms from the point they become subject to the minimum requirement (1 January 2016 for major UK banks and building societies and 2018 for all firms). ^(b) There is also a supplementary leverage ratio buffer for G-SIBs and SRB institutions to be phased in alongside the existing systemic risk-weighted capital buffers and to be set to 35% of the corresponding risk-weighted capital buffer rate.
Australia	7.0%–8.0% CET1 10.5%–11.5% total capital	1% CET1	Multiple indicators of size, substitutability, interconnectedness and complexity.	Disclosure requirement from 1 January 2015 for authorised deposit-taking institutions. Government's 'Financial System Inquiry' recommended a leverage ratio of between 3%–5%.
Canada	7.0%–8.0% CET1 10.5%–11.5% total capital	1% CET1 for 6 largest banks	Multiple indicators of size, substitutability, and interconnectedness.	3% minimum as of 1 January 2015.
Denmark	7.0%–10.0% CET1	10.5%–13.5% total capital 1% to 3% CET 1	Average of market shares in total assets, lending and deposits.	Expert group recommendation is 3% minimum, with some differentiation for Danish mortgage banks. EU disclosure requirement since 1 January 2015.
Hong Kong	7.0%–10.5% CET1 10.5%–14.0% total capital	1% to 3.5% CET 1	Multiple indicators of size, substitutability, interconnectedness, and complexity, complemented by supervisory judgement.	Disclosure requirement for locally incorporated authorised institutions from April 2015.
Netherlands	7.0%–10.0% CET1 10.5%–13.5% total capital	1% to 3% CET1	Total assets and lending market shares, quantitative and qualitative indicators of interconnectedness.	De Nederlandsche Bank has imposed an expectation on four systemically important banks that they meet a minimum 4% leverage ratio by 2018. Subject to EU disclosure requirement since 1 January 2015.
Norway	10.0%–12.0% CET1 13.5%–15.5% total capital	2% CET 1	Total assets of at least 10% of GDP, or a lending market share of at least 5%. Discretionary overlay based on size, cross-jurisdictional activity, complexity, substitutability and interconnectedness.	EU on track to introduce a 3% leverage requirement from 2018. Disclosure requirement since 1 January 2015.
Sweden	7.0%–10.0% CET1 10.5%–15.5% total capital	3% CET 1	Multiple indicators of size, substitutability, and interconnectedness.	EU on track to introduce a 3% leverage requirement from 2018. Disclosure requirement since 1 January 2015.
Switzerland	7.0%–10.0% CET1 10.5%–28.6% (total capital)	1.5%–2.0% CET1 added to Swiss firms' G-SIB buffers. D-SIB buffers not published.	Information not yet published.	3% minimum and 2% buffer for G-SIBs as of 1 January 2019. ^(c)
United States	7.0%–11.5% (CET1)	0%–2% CET1 added to US firms' G-SIB buffers.	The United States has not designated D-SIBs.	3% minimum requirement. 5% for G-SIBs from 2018. 3% buffer for insured depository institutions (IDIs), giving a total requirement of 6% for IDIs.

(a) Includes only Pillar 1 minimum requirements, capital conservation, and the higher of G-SIB and D-SIB buffers.

(b) Subject to a review in 2017.

(c) This is a proposed revision to the current Swiss leverage ratio framework.

Annex 2

Basel Committee's D-SIB Principles⁽¹⁾

Assessment methodology

Principle 1: National authorities should establish a methodology for assessing the degree to which banks are systemically important in a domestic context.

Principle 2: The assessment methodology for a D-SIB should reflect the potential impact of, or externality imposed by, a bank's failure.

Principle 3: The reference system for assessing the impact of failure of a D-SIB should be the domestic economy.

Principle 4: Home authorities should assess banks for their degree of systemic importance at the consolidated group level, while host authorities should assess subsidiaries in their jurisdictions, consolidated to include any of their own downstream subsidiaries, for their degree of systemic importance.

Principle 5: The impact of a D-SIB's failure on the domestic economy should, in principle, be assessed having regard to bank-specific factors:

- (a) Size;
- (b) Interconnectedness;
- (c) Substitutability/financial institution infrastructure (including considerations related to the concentrated nature of the banking sector); and
- (d) Complexity (including the additional complexities from cross-border activity).

In addition, national authorities can consider other measures/data that would inform these bank-specific indicators within each of the above factors, such as size of the domestic economy.

Principle 6: National authorities should undertake regular assessments of the systemic importance of the banks in their jurisdictions to ensure that their assessment reflects the current state of the relevant financial systems and that the interval between D-SIB assessments not be significantly longer than the G-SIB assessment frequency.

Principle 7: National authorities should publicly disclose information that provides an outline of the methodology employed to assess the systemic importance of banks in their domestic economy.

Higher loss absorbency (HLA)

Principle 8: National authorities should document the methodologies and considerations used to calibrate the level of HLA that the framework would require for D-SIBs in their jurisdiction. The level of HLA calibrated for D-SIBs should be informed by quantitative methodologies (where available) and country-specific factors without prejudice to the use of supervisory judgement.

Principle 9: The HLA requirement imposed on a bank should be commensurate with the degree of systemic importance, as identified under Principle 5. In the case where there are multiple D-SIB buckets in a jurisdiction, this could imply differentiated levels of HLA between D-SIB buckets.

Principle 10: National authorities should ensure that the application of the G-SIB and D-SIB frameworks is compatible within their jurisdictions. Home authorities should impose HLA requirements that they calibrate at the parent and/or consolidated level, and host authorities should impose HLA requirements that they calibrate at the sub-consolidated/subsidiary level. The home authority should test that the parent bank is adequately capitalised on a standalone basis, including cases in which a D-SIB HLA requirement is applied at the subsidiary level. Home authorities should impose the higher of either the D-SIB or G-SIB HLA requirements in the case where the banking group has been identified as a D-SIB in the home jurisdiction as well as a G-SIB.

Principle 11: In cases where the subsidiary of a bank is considered to be a D-SIB by a host authority, home and host authorities should make arrangements to co-ordinate and co-operate on the appropriate HLA requirement, within the constraints imposed by relevant laws in the host jurisdiction.

Principle 12: The HLA requirement should be met fully by common equity Tier 1 (CET1). In addition, national authorities should put in place any additional requirements and other policy measures they consider to be appropriate to address the risks posed by a D-SIB.

(1) Taken from Basel Committee on Banking Supervision (2012).

Annex 3

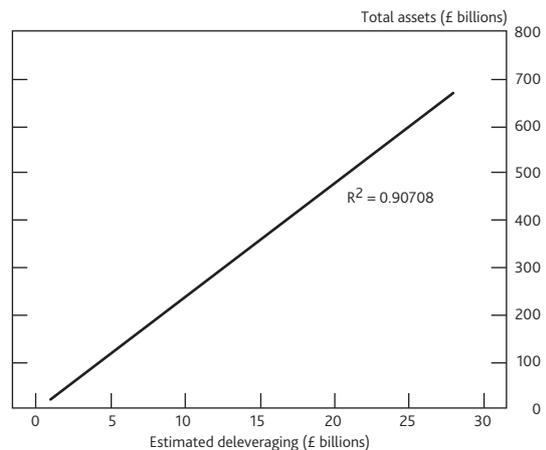
Relationship between total assets and deleveraging

The Financial Stability Board identified a set of critical activities, which are also reflected in the Basel Committee's criteria for assessing systemic importance — namely size, substitutability, interconnectedness and complexity. Ring-fencing and building societies legislation seeks to prevent SRB institutions becoming systemic through the latter two channels. So the main drivers of systemic importance for SRB purposes for these firms are their size and substitutability in the provision of critical economic functions: deposit-taking, provision of credit and payments services.

Within these activities and for SRB purposes, the FPC has identified the key source of systemic importance for SRB institutions to be a sharp reduction in their supply of credit to the real economy in the event of firm distress. This suggests two criteria for assessing the risks posed by SRB institutions: (i) the potential for firms to restrict their provision of credit to UK households; and (ii) the potential for firms to restrict their provision of credit to UK non-financial corporates. The FPC has judged total assets to be sufficient to measure both the size and substitutability of SRB institutions due to the high correlations between total assets and estimates of potential deleveraging of credit for households (**Chart A**) and for private non-financial corporations (PNFCs) (**Chart B**).

To calculate estimates of firm deleveraging of household and PNFC credit, estimates of firms' credit provision are combined with estimates from academic research⁽¹⁾ conducted by Bank staff for how much firms, on average, responded behaviourally to capital shortages in the past when faced with unexpected rises in (microprudential) capital requirements. These deleveraging estimates are then plotted against firm size. The resulting empirical relationship between firm size and deleveraging of credit suggests that a firm of size £175 billion may be expected, on average, to disrupt around one sixth of estimated aggregate (household plus PNFC) lending flows.

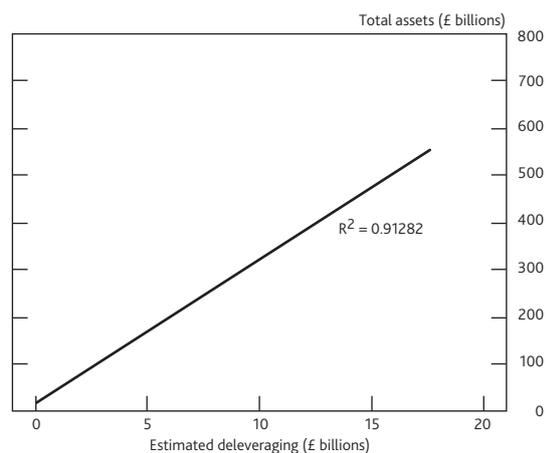
Chart A Estimated relationship between deleveraging of household credit and total assets^{(a)(b)(c)}



Sources: Statistical returns, firms' 2019 ring-fencing plans and Bank calculations.

- (a) Data as of June 2015. Thirteen firms in sample.
- (b) Household lending includes secured lending, credit card and other unsecured lending to UK resident individuals.
- (c) Deleveraging estimates calculated based on 2.5 percentage point shock to risk-weighted Tier 1 capital.

Chart B Estimated relationship between deleveraging of PNFC^(a) credit and total assets^{(b)(c)}



Sources: Statistical returns, firms' 2019 ring-fencing plans and Bank calculations.

- (a) Private non-financial corporations (PNFCs) are companies that produce goods and/or provide non-financial services.
- (b) Data as of June 2015. Thirteen firms in sample.
- (c) Deleveraging estimates calculated based on 2.5 percentage points shock to risk-weighted Tier 1 capital.

(1) See Bridges *et al* (2014).

Annex 4 Applying the expected impact framework

Step 1: calibrate buckets of SRB rates on a relative basis (specified in units of relative probability)

- (i) Find relationship between probability of distress (PD) and capital ratios.

Using data on the past distribution of losses (1993–2014), an empirical relationship between PD and capital ratios is constructed (Chart A). Given this, a firm with a Tier 1 capital ratio of 8.5% would be estimated to have a PD of just over 4%, assuming a distress threshold of 6% Tier 1 (all going-concern buffers exhausted). On this basis, increasing the capital ratio to 9.5% (ie imposing a 1% SRB rate) reduces the PD to 3.5%, a relative reduction in PD by a factor of 1.2 (= 4.2/3.5).

- (ii) Determine the SRB rates needed to achieve different reductions in PD.

Repeating the calculation in (i) for different increments of additional capital (ie SRB rates) provides the relative reduction in PD that would be achieved by each SRB rate. This is indicated in 1 percentage point increments in Table 1.

- (iii) Given this relationship, determine SRB thresholds.

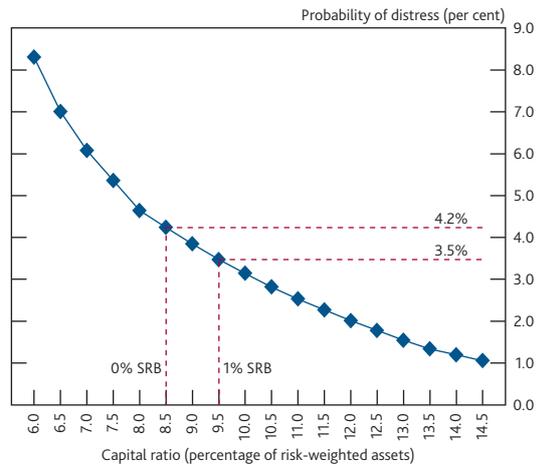
While Table 1 provides a schedule of SRB rates for different point reductions in probability, discrete intervals of relative probabilities are needed for each SRB rate. For example, graduating the SRB rate in 1 percentage point units would require each bucket to span the range of PD reduction factors requiring between 0.5 percentage points of capital below the SRB rate and 0.5 percentage points of capital above it. Formulae for upper and lower bucket thresholds are set out opposite. Repeating this for different SRB rates provides the illustrative buckets shown in Table 2.

Step 2: translating buckets into units of total assets

Systemic importance scores are assumed to proxy individual firm harm. Under this framework, relative harm is equated with relative probability. Therefore SRB buckets are expressed in units of relative scores using relative scores = relative harm = relative probability. Next, the score of the non-systemic benchmark is determined, which corresponds to a relative score of 1.

This is set at a score of **£175 billion total assets**. The remaining thresholds are then translated into (£ billions total asset) scores by multiplying the non-systemic benchmark score by the PD reduction factor of each threshold (Chart B).

Chart A Empirical relationship between PD and capital ratios based on historical losses^(a)



Sources: Capital IQ and Bank calculations.

(a) Distress is defined as falling below six per cent Tier 1 capital ratio.

Table 1 Empirical relationship between PD and capital ratios based on historical losses^(a)

Setting the SRB rate at...	Reduces the PD by a factor of...
1%	1.2x
2%	1.5x
3%	1.9x
4%	2.4x
5%	3.2x
6%	4x

Sources: Capital IQ and Bank calculations.

(a) Distress is defined as falling below six per cent Tier 1 capital ratio..

$$\text{Lower threshold} = \frac{\text{PD}(8.5\%)}{\text{PD}(8.5\%) + \text{SRB rate} - (0.5\%)}$$

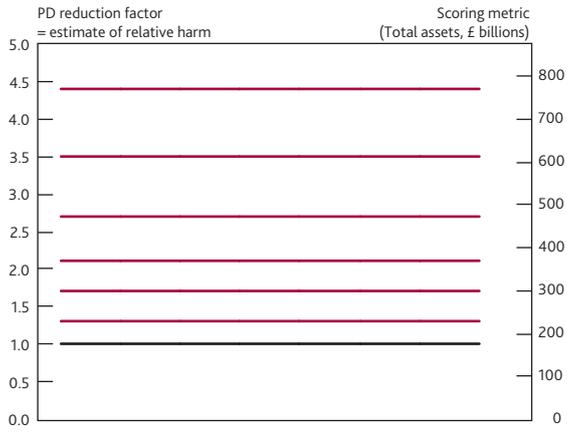
$$\text{Upper threshold} = \frac{\text{PD}(8.5\%)}{\text{PD}(8.5\% + \text{SRB rate} + 0.5\%)}$$

Table 2 Illustrative PD reduction factor thresholds for SRB surcharge buckets

SRB rate	Lower threshold	Upper threshold
0%	0.0	1.0
1%	1.0	1.3
2%	1.3	1.7
3%	1.7	2.1
4%	2.1	2.7
5%	2.7	3.5
6%	3.5	4.4

Source: Bank calculations.

Chart B Illustrative bucket thresholds in terms of total assets



Source: Bank calculations.

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