

3 October 2017: this document has been updated to reflect changes agreed by the Financial Policy Committee to its leverage ratio framework on 20 September 2017. These changes are set out in Box 1 on pages 9–11.

July 2015

# The Financial Policy Committee's powers over leverage ratio tools

Policy Statement



**BANK OF ENGLAND**







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## Policy Statement

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 legislation requires the FPC to prepare and maintain a written statement of the general policy that it proposes to follow in relation to the exercise of its powers of Direction. In April 2015, Her Majesty's Government gave the FPC powers of Direction over the Prudential Regulation Authority (PRA) in relation to leverage ratio requirements.<sup>(1)</sup> This decision followed Recommendations by the FPC as part of a review of the leverage ratio, published on 31 October 2014,<sup>(2)</sup> which the Chancellor had previously requested the FPC to undertake.<sup>(3)</sup> This document meets the legislative requirement to prepare a written statement with regard to the FPC's Direction powers in relation to leverage ratio requirements.

### 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

Martin Wheatley, Chief Executive of the Financial Conduct Authority

Alex Brazier, Executive Director for Financial Stability, Strategy and Risk

Clara Furse

Donald Kohn

Richard Sharp

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

This document was finalised on 30 June 2015 and, unless otherwise stated, uses data available as at 19 June 2015.

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ISSN 1754–4262

(1) HM Treasury's order available at: [www.legislation.gov.uk/ukSI/2015/905/pdfs/uksi\\_20150905\\_en.pdf](http://www.legislation.gov.uk/ukSI/2015/905/pdfs/uksi_20150905_en.pdf).

(2) Bank of England (2014a).

(3) The Chancellor's letter to the Governor on 31 October 2014, available at: [www.bankofengland.co.uk/publications/Documents/news/2014/chancellorletter311014.pdf](http://www.bankofengland.co.uk/publications/Documents/news/2014/chancellorletter311014.pdf).



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# The Financial Policy Committee's powers over leverage ratio tools

## Policy Statement

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### Executive summary

In April 2015, the Government made secondary legislation giving the Financial Policy Committee (FPC) powers of Direction over leverage ratio requirements and buffers for banks, building societies and Prudential Regulation Authority (PRA)-regulated investment firms. The Government's decision to legislate followed Recommendations made by the FPC as part of a review of the leverage ratio, requested by the Chancellor in November 2013<sup>(1)</sup> and published in October 2014.<sup>(2)</sup>

For any power of Direction given to the FPC, there is a statutory requirement for the FPC to prepare and maintain a general statement of policy. A draft of this Policy Statement was published to assist Parliament's scrutiny of the draft legislation on the leverage ratio. This Executive Summary provides the rationale for leverage ratio requirements and buffers. This Policy Statement includes material that the FPC is legally required to set out in a Policy Statement accompanying a Direction. It sets out the specific tools that are proposed, the firms that would be subject to them, the timelines for implementation, how these tools might affect financial stability and economic growth and how the FPC would take decisions over the setting of the countercyclical leverage ratio buffer (CCLB). It also explains the FPC's proposed calibration of the tools.

### The FPC and its regulatory powers

The FPC was established under the Bank of England Act 1998, through amendments made in the Financial Services Act 2012. It is responsible for protecting and enhancing the resilience of the UK financial system, including identifying, monitoring, and taking action to remove, or reduce, systemic risks. But the FPC is not required to achieve resilience at any cost. Its actions must not, in the provisions of the legislation, have a '*significant adverse effect on the capacity of the financial sector to contribute to the growth of the UK economy in the medium or long term*'. Subject to achieving its main objective, the FPC is required to support the Government's economic policy, including its objectives for growth and employment.<sup>(3)</sup>

The FPC has two main powers under the 2012 legislation. It can make Recommendations to anybody, including to the PRA and the Financial Conduct Authority (FCA). It can also give

Directions to those regulators to implement a specific measure to further the FPC's objectives. In April 2013, the Government gave the FPC a Direction power over sectoral capital requirements, which enables the FPC to change capital requirements on banks' exposures to specific sectors that are judged to pose a risk to the stability of the financial system as a whole. The FPC has also been made responsible for policy decisions on the countercyclical capital buffer (CCB) rate, which allows the FPC to change capital requirements for banks' exposures to UK borrowers in response to cyclical risks. The Government has also given the FPC powers of Direction over loan-to-value and debt-to-income limits for lending to owner-occupiers of residential property, and made it clear that it intends to consult on tools relating to buy-to-let lending later in 2015. A separate Policy Statement discusses these housing tools.

### The rationale for a leverage ratio requirement

Banks are subject at present to a range of regulatory risk-weighted capital requirements. Risk-weighted capital metrics relate a firm's capital resources — which can absorb losses and help it to remain solvent — to a measure of its exposures in which different types of assets are weighted based on estimates of their riskiness. Broadly speaking, there are two approaches to risk weighting: banks use risk weights specified by international regulators (the 'standardised approach') or banks use their own models to estimate risk weights, subject to the approval of the domestic regulatory authority (the 'internal ratings-based approach').

While risk-weighted measures of capital adequacy are sensitive to the risks banks face due to the composition of their portfolios, they are also susceptible to errors and uncertainties that are inherent in assigning risk weights.

Model-based approaches to deriving risk weights are inevitably a simplification of reality and may fail to account for low probability but high impact events that may not be seen in historical data. For example, some of the losses incurred by banks during the financial crisis were due to exposures to

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(1) The Chancellor's letter to the Governor on 26 November 2013, available at: [www.bankofengland.co.uk/publications/Documents/news/2013/chancellorletter261113.pdf](http://www.bankofengland.co.uk/publications/Documents/news/2013/chancellorletter261113.pdf).

(2) Bank of England (2014a).

(3) See Tucker, Hall and Pattani (2013) for more detail on the role of the FPC.

products seen as 'very low risk' on the basis of their historical record, such as AAA-rated 'super-senior' tranches of securitisations. And some models of stressed losses on mortgages in the United States did not factor in the possibility of a nationwide fall in house prices as that had not been seen in historical data.

Model-based approaches to risk weights are also unlikely to capture fully structural changes in the financial system. The financial system is a highly complex network which adapts to the very models that financial system participants and regulators use to understand and oversee it. Given that the financial system evolves over time, including in response to new regulations, it is hard to model with certainty how the market may behave tomorrow.

Standardised approaches to calculating risk weights are also susceptible to being miscalibrated. That may be because of analytical weaknesses in how they have been set by regulators, or as a result of pressures during international negotiations to set regulatory risk weights that favour certain types of exposure, irrespective of their riskiness.

The dangers of relying only on the risk-weighted approach were borne out by the events leading up to and culminating in the financial crisis. Prior to the crisis, banks in many countries, including the United Kingdom, were only subject to risk-weighted capital requirements. For major global firms, average risk weights fell almost continuously from around 70% in 1993 to below 40% at the end of 2008.<sup>(1)</sup> The financial crisis showed that this fall in average risk weights prior to the crisis did not reflect a true reduction in risk within the banking system.

A leverage ratio is a more simple indicator of a firm's solvency that relates a firm's capital resources to the nominal value of its exposures or assets as opposed to the riskiness of its portfolio. The lower a firm's leverage ratio, the more it relies on debt to fund its assets. Unlike the risk-weighted capital framework, a leverage ratio does not seek to estimate the relative riskiness of assets.

$$\text{Leverage ratio} = \frac{\text{Capital}}{\text{Exposures}}$$

The leverage ratio can guard against the danger that models or standardised regulatory requirements fail to assign risk weights that reflect the true underlying risk of assets. It can also protect banks against scenarios which are thought to be 'low risk' or are unforeseen altogether until they occur. The introduction of a leverage ratio requirement, alongside risk-weighted capital requirements, can limit firms' incentives to respond to increases in risk-weighted capital requirements by reducing estimates of risk weights or shifting asset

composition, rather than raising additional capital. Because the leverage ratio is also a relatively simple measure it might be more readily understood by market participants and be more comparable across firms than risk-weighted measures.

The introduction of a leverage ratio framework is also likely to have beneficial effects at the system level. High and rising levels of leverage in the system are often associated with credit booms, excessively large balance sheets and underpricing of risk, as occurred in the run-up to the financial crisis. Because buoyant economic conditions often coincide with periods of high profits and subdued credit losses, risk-weight models based on data from benign periods will tend to underestimate the potential for losses when conditions turn.

Leverage ratio requirements, on the other hand, can limit the extent to which capital levels in the system are driven down during benign conditions. In doing so, a leverage ratio can also curtail excessive balance sheet growth or act as a constraint to such excess before it occurs. It is striking that large international banks that experienced severe stress during the crisis had significantly lower leverage ratios, on average, than their peers which were less severely affected by the crisis.<sup>(2)</sup>

However, because of its insensitivity to risk, a leverage ratio on its own — without risk-weighted requirements — would not be an adequate basis for setting bank capital requirements. It might encourage riskier lending by banks that would have higher capital requirements than under a risk-weighted regime. For example, a firm might seek to shift its balance sheet towards exposures attracting higher risk weights and offering higher returns ('risk-shifting').

Stress testing — and the resulting policies to require banks to have sufficient capital to absorb losses in an adverse scenario — can mitigate some of the shortcomings of risk weights. But this relies on the ability of banks and policymakers to consider extreme events that are outside the realm of experience and on their ability to model the financial system response to them correctly. And without a leverage ratio framework, the benchmarks used to assess capital adequacy would still rely only on risk weighting.

In summary, a robust capital framework for banks requires three sorts of measure of capital adequacy: a risk-weighted measure, stress testing and a non-risk-weighted (ie leverage) measure. The UK regime now includes all of these measures.

### The FPC leverage ratio Direction powers

The Government has given the FPC powers of Direction over:

(1) See Chart 1 in Bank of England (2014a).

(2) BCBS (2010).



- A **minimum leverage ratio requirement** that would apply to all banks, building societies and PRA-regulated investment firms. It would be introduced for Global Systemically Important Banks (G-SIBs)<sup>(1)</sup> and other major domestic UK banks and building societies with immediate effect. Subject to a review in 2017 of progress on international leverage ratio standards, it expects to direct the PRA to extend the requirement to all banks, building societies and PRA-regulated investment firms from 2018.
- A **supplementary leverage ratio buffer** for UK G-SIBs and domestically systemically important banks, building societies and PRA-regulated investment firms subject to a systemic risk buffer (ring-fenced bodies and large building societies). This buffer would be phased in from 2016 for G-SIBs alongside the existing systemic risk-weighted capital buffers. For domestically systemically important banks, building societies and PRA-regulated investment firms — which at present would apply to ring-fenced banks and large building societies — this buffer would be implemented from 2019.
- A **countercyclical leverage ratio buffer (CCLB)** that would apply to all firms subject to the minimum requirement. It would come into force on the same timescale as the minimum requirement and its level would be reviewed by the FPC every quarter alongside the risk-weighted countercyclical capital buffer (CCB).

The FPC would expect the PRA to take timely and appropriate action to ensure that banks have a credible capital plan to remedy any breaches of minimum requirements or failures to hold a buffer, and would expect the PRA to decide on the most appropriate supervisory action in the event that a requirement is breached or an adequate buffer is not held.

The proposed leverage ratio framework aims to complement, in as simple a form as possible, the structure which already exists in the risk-weighted capital framework. That involves a minimum requirement as well as buffers to mitigate both the higher risk to financial stability from systemically important firms (for example, G-SIB buffers) and heightened system-wide risk, for example during a credit boom (the CCB). The FPC set out its policy for setting the CCB in its Policy Statement on the powers to supplement capital requirements.<sup>(2)</sup>

The FPC considers that this set of leverage ratio requirements and buffers is an essential addition to the capital framework for the United Kingdom, which will reduce the likelihood, severity and cost of future financial crises. Together the combination of risk-weighted capital requirements, a leverage ratio, and robust stress testing will constitute a capital framework that can help to ensure that individual banks are sufficiently resilient to cope with losses in future periods of

stress, and that the system as a whole is able to provide critical economic functions through the cycle.

There are clear benefits, in terms of implementation and accountability, to being able to use a power of Direction over these tools, even though the FPC also has a power to make Recommendations to the PRA. First, implementation of Directions may be more timely than for Recommendations. In particular, certain procedural requirements can be waived in respect of the CCLB if the PRA is adjusting the CCLB rate by way of a further Direction. Second, Directions are used within a clear framework, with a strong macroprudential mandate for varying policies over the cycle. For each Direction power, the FPC is required to produce and maintain a Policy Statement enhancing the transparency of the policymaking process. This can help banks to understand and anticipate how the FPC's actions will affect their capital planning and is part of the wider accountability framework within which the FPC operates. This does not preclude the possibility that the FPC, on occasion, may prefer to Recommend a change in such tools rather than issue a Direction.

### International co-ordination

Internationally, the leverage ratio is a key element of the post-crisis regulatory reform agenda. The Basel Committee on Banking Supervision (BCBS) finalised a definition of the leverage ratio in January 2014 which is the basis on which internationally active banks are disclosing their positions subsequent to 1 January 2015.<sup>(3)</sup> The BCBS will monitor the implementation of these disclosure requirements, and a final calibration is expected to be agreed by 2017, with a view to the introduction of a binding minimum requirement by 1 January 2018.

In the European Union, the Capital Requirements Regulation and Directive (referred to throughout as CRD IV/CRR)<sup>(4)</sup> require the European Commission to report to the European Parliament and Council by the end of 2016 on the impact and effectiveness of the leverage ratio, accompanied by a legislative proposal if that is appropriate.

The FPC sees a strong case for introducing a leverage ratio framework in the United Kingdom ahead of an internationally agreed standard. This reflects the number of systemically important banks present in the United Kingdom; the size of the UK banking system relative to the domestic economy; and the importance, therefore, of being able to manage effectively model risk and to respond consistently to risks to financial stability that might emerge before an international standard

(1) The CRDIV buffer and the FPC's supplementary direction power extend to 'Global-Systemically Important Institutions' ie banks, building societies and investment firms, for convenience this Policy Statement refers to these as 'G-SIBs'.

(2) [www.bankofengland.co.uk/financialstability/Documents/fpc/policystatement140113.pdf](http://www.bankofengland.co.uk/financialstability/Documents/fpc/policystatement140113.pdf).

(3) BCBS (2014).

(4) Capital Requirements Directive (2013/36/EU) and the Capital Requirements Regulation (EU) No 575/2013.

on leverage is agreed and implemented. The FPC notes that other authorities — including in the United States and Switzerland — have also implemented leverage ratio regimes recently with similar considerations in mind.

The FPC sees important benefits for the UK financial system of aligning with international standards, particularly for banks which are not judged to be systemically important and hence do not have supplementary capital buffers applied to them in the risk-weighted framework. The FPC will review progress towards an international standard for a minimum leverage ratio requirement in 2017, and consider the implications for the calibration of its proposed leverage ratio framework.

In using these tools, the FPC expects to co-operate closely with relevant overseas regulators and international committees, including at the European Systemic Risk Board (ESRB) and through other global fora, to ensure that macroprudential policy decisions are implemented effectively.

### Calibration of the tools and impact on financial stability and growth

The FPC proposes to set a minimum leverage ratio requirement of 3% of exposures.<sup>(1)</sup> The Committee judges this to be appropriate given domestic and international experience of bank losses during past episodes of banking stress, including the recent financial crisis — other things being equal, a 3% minimum leverage ratio requirement would have been sufficient to absorb the average peak losses experienced by major banks between 2007 and 2013 (see Section 2.5). The FPC has taken into account the relationship between the leverage ratio framework, risk-weighted capital requirements and stress testing. It has also considered these requirements in the context of forthcoming plans to enhance loss-absorbing capacity of G-SIBs in resolution.<sup>(2)</sup>

A minimum leverage ratio of 3% is approximately equivalent to 35% of the minimum risk-weighted capital requirements of 8.5%.<sup>(3)</sup> The FPC proposes to set supplementary leverage ratio buffers and the CCLB at 35% of the relevant buffer in the risk-weighted capital framework in order to maintain this 35% 'conversion factor'. Failure to maintain this relationship would mean that the leverage ratio would become a relatively less or more binding constraint both for systemically important banks, which have to carry additional risk-weighted capital buffers, and during times of high system-wide risk when the risk-weighted CCB would be increased. This could distort incentives — for example, encouraging banks to shift the average estimated riskiness of their portfolios — and potentially undermine the coherence of the wider capital regime.

In determining its proposed calibration, the FPC also considered responses to its public consultation<sup>(4)</sup> and assessed the impact of its proposed leverage ratio framework on capital levels in the financial system, and on economic growth. Impact analysis showed that for the proposed calibration a

majority of banks would not see their overall capital requirement increase, and the aggregate increase in requirements across the system would be small — of the order of 2%–3% of the system-wide level of Tier 1 capital.<sup>(5)</sup> While the framework would have some impact on individual banks, including those with a high concentration of low risk weight assets such as some building societies and investment banks, this reflects the fact that the leverage ratio framework is intended to provide a guardrail against risk weight uncertainty.

To the extent that the leverage ratio framework requires some firms to increase their regulatory capital over and above levels required by the risk-weighted framework, this may lead to a tightening in credit availability for some borrowers. But, as discussed in Section 3, while there is uncertainty among academics and policymakers on the exact impact of higher capital on lending and the economy, most studies have found that the impact on credit conditions is relatively modest. The FPC judges that the introduction of the proposed leverage ratio framework would not have a material detrimental impact on aggregate credit creation for any segment of the lending market. Moreover there would be substantial benefits to the UK economy arising from a reduction in the probability or severity of financial crises.

### Approach for setting the CCLB

As a guiding principle, the FPC intends to move the risk-weighted CCB and the CCLB together, with the CCLB rate set as a proportion of the CCB rate. The FPC has already explained how it will set the CCB rate in its Policy Statement on its powers to supplement capital requirements.<sup>(6)</sup> In particular, the FPC is required by CRD IV/CRR to have regard to a 'buffer guide' — a simple metric which provides a guide for the size of the CCB rate based on the gap between the ratio of credit to GDP and its long-term trend. The FPC also considers a wider set of core indicators, alongside other relevant information such as market and supervisory intelligence. Since the FPC will, as a guiding principle, move the CCB and the CCLB together in response to changes in systemic risk, the FPC proposes to consider the same information for both tools. The set of core indicators is described in Section 4.

(1) Following consultation, in September 2017, the FPC recommended to the PRA that it modify the UK leverage exposure definition to exclude assets constituting claims on central banks (where they are matched by deposits accepted by the firm that are denominated in the same currency and of identical or longer maturity) and recalibrate the minimum leverage ratio capital requirement to 3.25%. These changes are set out in Box 1, and should be considered in tandem with any further references to a minimum leverage ratio requirement (under the UK leverage ratio framework) in this Policy Statement.

(2) In November 2014, the Financial Stability Board released a consultation document on proposals to set a minimum requirement for loss absorbing capacity on both a going concern and a gone concern basis for G-SIBs. See 'Adequacy of loss-absorbing capacity of global systemically important banks in resolution: Consultation Document', FSB (2014).

(3) The 8.5% Tier 1 risk-weighted requirement includes both the minimum and the capital conservation buffer.

(4) Bank of England (2014b).

(5) Tier 1 capital refers to those forms of bank capital which regulators have deemed in the CRD IV/CRR rules as being capable of absorbing losses while the bank remains a going concern.

(6) Bank of England (2014c).

## Box 1

### Changes to the UK leverage ratio framework relating to the treatment of claims on central banks

At its meeting on 20 September 2017, and following consultation, the FPC recommended to the PRA that its rules on the leverage ratio:

- exclude from the calculation of the total exposure measure those assets constituting claims on central banks where they are matched by deposits accepted by the firm that are denominated in the same currency and of identical or longer maturity; and
- require a minimum leverage ratio of 3.25%.

Central bank claims for these purposes include reserves held by a firm at the central bank, banknotes and coins constituting legal currency in the jurisdiction of the central bank, and assets representing debt claims on the central bank with a maturity of no longer than three months.

This Recommendation followed a temporary rule modification that was offered to firms in 2016 to exclude central bank claims from the exposure measure. In July 2016, the FPC had also set out its intention to recalibrate UK leverage ratio capital requirements to offset the mechanical reduction of capital requirements resulting from that change.

Following consultation the PRA changed the Leverage Ratio part of the Rulebook to implement these changes.

These amendments are intended to ensure that the leverage ratio does not act as a barrier to the effective implementation of any policy measures that lead to an increase in claims on central banks, while maintaining the level of resilience delivered by the leverage ratio framework.

The policy has been designed in the context of the current UK, international and EU regulatory framework. It will be kept under review, in part to assess whether any changes would be required due to changes in the UK regulatory framework, including those arising once any new arrangements with the European Union take effect.

#### Excluding central bank reserves

Including central bank reserves in the leverage ratio could have unintended consequences. In circumstances where firms' balance sheets increase because of an expansion in central bank balance sheets, regulatory leverage requirements could effectively tighten.

This could prompt banks to deleverage by shedding assets, cutting their supply of credit, or withdrawing from other activities. It could also act as a disincentive to access central bank liquidity facilities. This could affect the ability of the banking system to cushion shocks, and maintain the supply of credit to the real economy and support for market functioning.

At the same time, central bank reserves are a unique asset class because they are the ultimate settlement asset. If matched by liabilities in the same currency and of identical or longer maturity, they typically do not represent an exposure to risk. Therefore there is no need to build resilience against holdings of reserves.

#### Adjusting the leverage ratio calibration

Excluding central bank reserves from the exposure measure reduces the amount of capital needed to meet leverage ratio capital requirements, other things equal.

When setting leverage ratio capital requirements in 2014 and 2015, central bank balance sheets had already expanded to historically high levels. Since 2009, there has been a significant increase in central bank balance sheets in advanced economies, in particular reflecting the role of asset purchases within monetary policy frameworks.

The FPC judges that, once those reserves are excluded, recalibrating leverage ratio capital requirements is an appropriate means of restoring the level of resilience on the remainder of firms' balance sheets.

The original UK leverage framework, effective in PRA rules from January 2016, used the definition of leverage ratio exposures agreed by Basel 2014, as implemented in European law. It required: (i) a minimum requirement of 3%; (ii) additional buffers for systemically important firms that are 35% of their risk-weighted global systemically important institution (G-SII) buffer requirements; and (iii) a countercyclical leverage ratio buffer set at 35% of the firms' risk-weighted countercyclical buffer (CCyB) rate — the UK CCyB is expected to be in the region of 1% when risks are neither subdued nor elevated.<sup>(1)</sup>

Based on balance sheets when the FPC made its Recommendation in July 2016, the exclusion of reserves was estimated to reduce the Tier 1 capital required to meet the end-point UK leverage framework by around £13 billion in aggregate for the UK banks within scope of the UK leverage framework. The estimate of the amount of capital the framework would have required in steady state is based on

(1) [www.bankofengland.co.uk/publications/Documents/fsr/2015/fsrsupp.pdf](http://www.bankofengland.co.uk/publications/Documents/fsr/2015/fsrsupp.pdf).

average central bank reserves held in the year up until the time of exclusion. Based on the impact on leverage ratio capital requirements, on an exposure measure excluding central bank reserves, the FPC judged that increasing the minimum to 3.25% was an appropriate way of offsetting the impact of excluding central bank reserves on the level of resilience. In arriving at this view the FPC put weight on maintaining the simplicity of the leverage ratio framework.

The FPC expects the exclusion of central bank reserves from the leverage exposure measure and recalibration of leverage ratio capital requirements to provide benefits to financial stability and economic growth. It also judges the potential costs should not substantially affect the international competitiveness of London or the UK financial system.

### Feedback on the Consultation and the FPC's response

Parallel FPC and PRA consultations on these changes to the UK leverage ratio framework ran from 27 June to 12 September 2017.<sup>(1)</sup> Four responses were received from banks and industry associations representing financial services firms. Respondents broadly supported the exclusion of claims on central bank reserves from the leverage exposure measure in principle.

Some responses raised concerns about aspects of the proposed recalibration of the minimum leverage ratio requirement, and alignment of UK leverage ratio disclosure and reporting requirements.

These responses have informed the FPC's final consideration of its Recommendation to the PRA in the following ways.

### Timing of changes in relation to international standards

Respondents questioned how the proposed changes to the UK leverage ratio framework would interact with the finalisation in Basel of international leverage ratio standard and developments in EU legislation. Some respondents were concerned about changes being made in the United Kingdom at this time that might need further amendment.

The FPC had set out its intention in July 2016 to consult and decide on the appropriate form of recalibration of UK leverage ratio capital requirements to adjust for the impact of the exclusion of central bank reserves in 2017. The timing of the recalibration allowed the Bank to reflect the new minimum leverage ratio in its 2017 stress test, as announced in the Bank's 2017 stress-test scenario publication. The policy has been designed in the context of the current UK, EU and international regulatory frameworks and international discussions on the treatment of central bank reserves in the leverage ratio.

### Scope of application and future FPC reviews of the UK leverage ratio framework

Some respondents sought clarification as to whether the recalibrated minimum leverage ratio requirement would become applicable to other PRA-regulated firms, and at different levels of consolidation, in due course. Relatedly, some respondents were concerned that where the changes would lead to firms disclosing multiple leverage ratios, this would reduce comparability across firms.

The FPC's Recommendation relates only to the UK banks and building societies within the scope of application of the Leverage Ratio part of the PRA Rulebook (ie those with retail deposits equal to or greater than £50 billion on an individual or consolidated basis); currently those firms have to comply with that framework on the basis of their consolidated situation. The FPC will be conducting a comprehensive review of the elements of the leverage ratio framework in 2018, including the level and scope of application.

### Definitions

Some respondents sought clarification on the definition of central bank claims to be excluded, and suggested broadening the scope of eligible claims and the definition of deposits.

As set out in CP11/17, 'The PRA [will] exclude claims on central banks from the calculation of the total leverage exposure measure, where they are matched by deposits accepted by the firm that are denominated in the same currency and of identical or longer maturity. Central bank claims for these purposes include reserves held by a firm at the central bank, banknotes and coins constituting legal currency in the jurisdiction of the central bank, and assets representing debt claims on the central bank with a maturity of no longer than three months'.

The meaning of 'deposit' for these purposes is the same as in the Leverage Ratio part of the PRA Rulebook.

The FPC's primary intention with these changes is to ensure that leverage ratio capital requirements do not impede the effective transmission of monetary policy. The exclusion of instruments with short original maturity used to implement monetary policy is sufficient at this time to meet this objective.

### Interaction with the MREL framework

Some respondents were concerned about the implications of changes to the UK leverage ratio framework for minimum requirement for own funds and eligible liabilities (MREL), and sought clarity on the interaction between the two frameworks.

(1) [www.bankofengland.co.uk/pr/Pages/publications/cp/2017/cp1117.aspx](http://www.bankofengland.co.uk/pr/Pages/publications/cp/2017/cp1117.aspx).

The Bank as resolution authority has set out that it expects firms that are subject to a bail-in or partial transfer preferred resolution strategy to meet an end-state MREL from 1 January 2022 based on two times their regulatory capital requirements ie 2 x (Pillar 1 plus Pillar 2A) or 2 x any applicable leverage ratio requirement.<sup>(1)</sup> There are interim requirements that apply to G-SIIs from 1 January 2019 and for all firms subject to MREL above capital requirements from 1 January 2020. See the MREL Statement of Policy for further details.<sup>(2)</sup> Consistent with MREL being calibrated by reference to an institution's regulatory capital requirements, the FPC's proposed changes would apply to the applicable leverage ratio requirement used in setting a firm's MREL, restoring the intended level of resilience.

As acknowledged in the consultation, for firms that held relatively low levels of central bank reserves, the changes might mean a small increase in MREL, in particular during transitional arrangements when the leverage ratio may determine firms' MREL. However, the impact is dampened as end-point MREL for most firms is likely to be constrained by the risk-weighted capital framework.

### Impact on incentives to undertake low-risk weight, low-return activities

Some respondents raised concern about the potential effect of the change on firms' incentives to undertake low-risk weight, low-return activities, such as the provision of repo financing.

This potential impact had been considered in the consultation, and was judged to be small. Furthermore, as indicated by the recent report on Repo Market Functioning prepared by a Study Group established by the Committee on the

Global Financial System,<sup>(3)</sup> repo markets are in a state of transition and differ across jurisdictions in terms of both their structure and their functioning. As a result the impact on activities of regulation generally, including leverage ratio requirements, merits ongoing monitoring.

### The Financial Policy Committee:

Mark Carney, Governor  
 Jon Cunliffe, Deputy Governor responsible for financial stability  
 Sam Woods, Deputy Governor responsible for prudential regulation  
 Ben Broadbent, Deputy Governor responsible for monetary policy  
 Dave Ramsden, Deputy Governor responsible for markets and banking  
 Andrew Bailey, Chief Executive of the Financial Conduct Authority  
 Alex Brazier, Executive Director for Financial Stability, Strategy and Risk  
 Anil Kashyap  
 Donald Kohn  
 Richard Sharp  
 Martin Taylor  
 Charles Roxburgh attends as the Treasury member in a non-voting capacity

(1) For G-SIIs, in terms of leverage, MREL must be the higher of two times the applicable leverage ratio requirement or 6.75% of leverage exposures. Note that for partial transfer firms, MREL might be reduced to reflect the fact that less than the entire balance sheet of the institution will need to be recapitalised at the point of resolution.

(2) [www.bankofengland.co.uk/financialstability/Documents/resolution/mrelpolicy2016.pdf](http://www.bankofengland.co.uk/financialstability/Documents/resolution/mrelpolicy2016.pdf). Proposals in respect of 'internal MREL' and amendments to the Statement of Policy to address those were also consulted on by the Bank, see [www.bankofengland.co.uk/financialstability/Documents/resolution/mrelconsultation2017.pdf](http://www.bankofengland.co.uk/financialstability/Documents/resolution/mrelconsultation2017.pdf).

(3) [www.bis.org/publ/cgfs59.htm](http://www.bis.org/publ/cgfs59.htm).

## 1 Introduction

In April 2015, the Government made secondary legislation giving the Financial Policy Committee (FPC) powers of Direction over leverage ratio requirements and buffers for banks, building societies and Prudential Regulation Authority (PRA)-regulated investment firms. The Government's decision to legislate followed Recommendations made by the FPC as part of a review of the leverage ratio, requested by the Chancellor in November 2013<sup>(1)</sup> and published in October 2014.<sup>(2)</sup>

The FPC is required to produce and maintain a Policy Statement for its powers of Direction, setting out publicly the general policy that the FPC expects to follow in using its powers of Direction.

This Policy Statement is structured as follows. Section 2 describes the proposed leverage ratio requirements and buffers, including their scope of application, how they fit with the existing regulatory framework and how decisions to apply them would be communicated and enforced. It also explains the FPC's proposed calibration of the tools. Section 3 sets out the FPC's current assessment of how the leverage ratio framework would affect the resilience of the financial system and economic growth. Section 4 explains the circumstances in which the FPC might expect to adjust the setting of the CCLB and provides a list of core indicators that the FPC will routinely review when reaching decisions on the CCB and CCLB.

(1) The Chancellor's letter to the Governor on 26 November 2013, available at: [www.bankofengland.co.uk/publications/Documents/news/2013/chancellorletter261113.pdf](http://www.bankofengland.co.uk/publications/Documents/news/2013/chancellorletter261113.pdf).

(2) Bank of England (2014a).

## 2 Description and proposed calibration of the FPC's leverage ratio tools

The FPC believes that leverage ratio requirements are an essential part of the framework for assessing and setting capital adequacy requirements for the UK banking system.

In designing and calibrating its proposed leverage ratio framework, the FPC took into account that the leverage ratio framework would sit alongside existing microprudential and macroprudential risk-weighted capital requirements and stress testing. For UK G-SIBs, these requirements were seen in the context of forthcoming requirements for total loss-absorbing capacity (TLAC), designed to ensure that G-SIBs have sufficient loss-absorbing capacity on a gone-concern basis as well as on a going-concern basis. In November 2014, the Financial Stability Board (FSB) announced proposals to set minimum TLAC requirements expressed in terms of a bank's exposures on both a risk-weighted and an unweighted basis.<sup>(1)</sup>

### 2.1 What are the leverage ratio requirements and buffers?

A leverage ratio is a simple indicator of a bank's solvency that relates a firm's capital resources to its exposures or assets. The lower a firm's leverage ratio, the more it relies on debt to fund its assets. Unlike the risk-weighted capital framework, a leverage ratio does not seek to estimate the relative riskiness of assets.

$$\text{Leverage ratio} = \frac{\text{Capital}}{\text{Exposures}}$$

In the run-up to the global financial crisis, the build-up of excessive on and off balance sheet leverage was a material weakness of the banking system in many countries, including the United Kingdom. During the crisis, the banking sector was forced to rapidly reduce its leverage, exacerbating the impact on asset prices and on real economy lending. The leverage ratio aims to mitigate the risks of such excessive balance sheet 'stretch'.

Direction powers will enable the FPC to integrate the leverage ratio into the regulatory framework as a complement to existing risk-weighted capital requirements and the stress testing approach. The FPC's proposed leverage ratio framework includes three leverage ratio tools which have been designed to help the FPC to achieve specific objectives. These are:

- (a) **A minimum leverage ratio requirement**, to remove or reduce systemic risks attributable to unsustainable leverage in the financial system. The FPC expects the minimum leverage ratio requirement to enhance the effectiveness of capital regulation by guarding against the risk that a firm's internal risk models or regulatory models

fail to assign appropriate risk weights to assets and by limiting unsustainable balance sheet 'stretch' across the financial system.

- (b) **A supplementary leverage ratio buffer**, to remove or reduce systemic risks attributable to the distribution of risk within the financial sector. Imposing supplementary leverage ratio buffers on systemically important banks will complement the supplementary risk-weighted buffers which will be fully phased in by 2019. This will enable the FPC to tackle problems of moral hazard and implicit subsidy arising from the presence of banks which do not internalise the systemic costs that their failure can impose on the UK financial system and economy.
- (c) **A countercyclical leverage ratio buffer (CCLB)**, to remove or reduce systemic risks that vary through time, such as periods of unsustainable credit growth or other cyclical risks. The FPC expects that operating a CCLB alongside the CCB will help to mitigate risks to financial stability as they change over time.

The proposed leverage ratio framework aims to complement, in as simple a form as possible, the structure which already exists in the risk-weighted capital framework. That involves a minimum requirement as well as buffers to mitigate both the higher risk to financial stability from systemically important firms (for example, G-SIB buffers) and heightened system-wide risk, for example during a credit boom (the CCB).

The FPC's powers of Direction to apply supplementary and countercyclical leverage ratio buffers in addition to the minimum leverage ratio requirement will help to improve the efficiency of the UK leverage ratio framework by requiring that additional capital be held in parts of the system where, and at points in the cycle when, systemic risks are highest. Without these two components of the framework, the FPC judges that the minimum leverage ratio requirement would need to be higher so as to provide the same degree of protection against the full range of financial stability risks.

There are clear benefits, in terms of implementation and accountability, to being able to use a power of Direction over these tools, even though the FPC also has a power to make Recommendations to the PRA. First, implementation of Directions may be more timely than for Recommendations. In particular, certain procedural requirements can be waived in respect of the CCLB if the PRA is adjusting the CCLB rate by way of a further Direction. Second, Directions are used within a clear framework, with a strong macroprudential mandate for varying policies over the cycle. For each Direction power, the FPC is required to produce and maintain a Policy Statement

(1) Adequacy of loss-absorbing capacity of global systemically important banks in resolution: Consultation Document, FSB (2014).

enhancing the transparency of the policymaking process. This can help banks to understand and anticipate how the FPC's actions will affect their capital planning and is part of the wider accountability framework within which the FPC operates. This does not preclude the possibility that the FPC, on occasion, may prefer to Recommend a change in such tools rather than issue a Direction.

Internationally, the leverage ratio is a key element of the post-crisis regulatory reform agenda. The BCBS finalised a definition of the leverage ratio in January 2014 which is the basis on which internationally active banks are disclosing their positions subsequent to 1 January 2015.<sup>(1)</sup> The BCBS will monitor the implementation of the leverage ratio internationally, and a final calibration is expected to be agreed by 2017, with a view to migrating to a binding minimum requirement on 1 January 2018. In the European Union, the Capital Requirements Regulation and Directive (CRD IV/CRR)<sup>(2)</sup> require the European Commission to report to the European Parliament and Council by the end of 2016 on the impact and effectiveness of the leverage ratio, accompanied by a legislative proposal if that is appropriate.

It is expected that an international standard for a minimum leverage ratio requirement will be applied from 2018. The FPC therefore will review progress towards this in 2017, and consider the implications for the UK leverage ratio framework.

## 2.2 To whom would the leverage ratio tools apply?

In the first instance, the FPC proposes to direct the PRA to apply the minimum leverage ratio requirement to UK G-SIBs and other major domestic UK banks and building societies on a consolidated basis as soon as practicable.<sup>(3)</sup> Subject to the outcome of the FPC's review of progress on international standards in 2017, the FPC expects to direct the PRA to extend the minimum leverage ratio requirement to all banks, building societies and PRA-regulated investment firms from 2018. The term 'banks' is used in the remainder of this document to refer to the set of firms to which the proposed leverage ratio tools would apply from 2018.

The FPC proposes to direct the PRA to apply a supplementary leverage ratio buffer to systemically important banks — namely (i) UK banks that have been identified as G-SIBs and (ii) domestically systemically important banks — as systemic risk-weighted capital buffers for these banks are rolled out.

Globally, G-SIBs are identified in an annual assessment of banks conducted by the BCBS. Banks are identified as being G-SIBs according to a quantitative framework, which has been implemented in Europe through CRD IV/CRR.<sup>(4)</sup> Based on the current population of G-SIBs, the risk-weighted G-SIB buffer will range between 1% and 2.5% of risk-weighted assets, reflecting the bank's global systemic importance; these buffers will be phased in from 1 January 2016 for the 2014

cohort of G-SIBs.<sup>(5)</sup> The supplementary leverage ratio buffer for G-SIBs would be implemented in parallel with the risk-weighted G-SIB buffers.

In addition to G-SIBs, a supplementary leverage ratio buffer for domestically systemically important banks would be implemented in parallel with the corresponding systemic risk-weighted capital buffers, which will apply in full from 2019. Specifically, this would apply to the future ring-fenced banks, large building societies and any other banks if they become subject to a systemic risk-weighted capital buffer.

The FPC plans to undertake work during 2015 on the identification of banks and building societies which are domestically systemically important in the United Kingdom. Under CRD IV/CRR, from 2016, designated authorities in Member States are required to identify such banks, known in the European legislation as Other Systemically Important Institutions (O-SIIs). The process of identification will need to take into consideration relevant EBA guidelines, which broadly reflect the criteria and indicators used in the G-SIB framework (ie size, interconnectedness, complexity, and the substitutability of critical activities) but also allow for Member States to use additional criteria and metrics to reflect the specificities of their banking sector.<sup>(6)</sup> During 2015 the PRA will develop and consult on its approach to the identification of UK O-SIIs for implementation in 2016. The approach to O-SII identification is likely to inform the scope and levels of the systemic risk buffer for domestic systemically important banks and, therefore, the supplementary leverage ratio buffer from 2019. For these banks, the sizes of the systemic risk buffers will be considered by the FPC and PRA following a consultation in 2015; buffers are likely to fall within the range of 1% to 3% of risk-weighted assets.

The FPC proposes that the CCLB would be applied to banks from the point that they become subject to the minimum leverage ratio requirement. This means that UK G-SIBs and other major domestic UK banks and building societies would also be subject to a CCLB as soon as they become subject to a minimum leverage ratio requirement. Other PRA-regulated banks would only be subject to a CCLB from 2018 — once the minimum leverage ratio requirement is applied to them — and subject to the outcome of an FPC review in 2017.

(1) BCBS (2014).

(2) Capital Requirements Directive (2013/36/EU) and the Capital Requirements Regulation (EU) 575/2013.

(3) The PRA currently has a supervisory expectation to maintain a 3% minimum leverage ratio for certain firms. For 2014, this group comprised the firms included in the Bank's concurrent stress testing exercise.

(4) See the Official Journal of the European Union for the Regulatory Technical Standards on identification of global systemically important institutions and the Implementing Technical Standards for the relevant disclosure requirements, as well as the disclosure guidelines as set out on the EBA website.

(5) CRD IV Articles 131 and 162.

(6) The EBA guidelines on identifying O-SIIs were published in December 2014. Please refer to the 'EBA Guidelines on the criteria to determine the conditions of application of Article 131(3) of Directive 2013/36/EU (CRD) in relation to the assessment of other systemically important institutions (O-SIIs)', EBA/GL/2014/10.

**Table A** Summary of FPC's planned application of leverage ratio Direction powers

Component	Population of firms	Timing
Minimum leverage ratio	G-SIBs and other major domestic UK banks and building societies	Immediately
	All banks, building societies and PRA-regulated investment firms	From 2018, subject to a review in 2017
Supplementary leverage ratio buffers	G-SIBs and domestically systemically important banks, building societies and PRA-regulated investment firms	In parallel with corresponding risk-weighted buffers, hence phased from 2016 for G-SIBs and introduced in 2019 for domestically systemically important banks, building societies and PRA-regulated investment firms
Countercyclical leverage ratio buffer	G-SIBs and other major domestic UK banks and building societies	Immediately
	All banks, building societies and PRA-regulated investment firms	From 2018, subject to a review in 2017

The secondary legislation gives the FPC the power to set leverage ratio requirements on both a consolidated and an individual basis. Consolidated capital requirements determine how much capital needs to be held against a group's overall balance sheet. Individual capital requirements determine how much capital an individual firm needs to hold against its own balance sheet and affect the allocation of capital within a group. Under the PRA's implementation of CRD IV/CRR, risk-weighted capital requirements are applied on a consolidated, sub-consolidated and individual basis.

Taking the same approach to leverage ratio requirements would mean that the leverage ratio framework will be applied on a consolidated basis to banks to which supervision on a consolidated basis applies under CRD IV/CRR and on an individual basis to entities that are subject to risk-weighted minimum and buffer requirements.<sup>(1)</sup>

This approach would maintain overall consistency between the risk-weighted capital and the leverage ratio frameworks. It might have particular advantages for the CCLB. Not applying the CCLB on the same consolidation basis as the CRD IV/CRR CCB might imply that an increase in the CCB could be met to some extent through an optimisation of risk-weighted assets within the group. This could undermine the FPC's objectives in applying countercyclical capital policies.

However, the Committee recognises the potential costs of this approach, which must be set against the benefits. These costs relate to the reallocation of group capital and the possible requirement to raise additional capital to ensure that the sum of requirements for individual entities in a group can be met. In addition, other regulatory changes which are currently in train, including the implementation of ring-fencing, could influence the role of capital requirements imposed on individual regulated entities. As such, the Committee intends to delay a decision on when and how to apply requirements at individual entity level until its review in 2017.

The FPC has not asked for a power of Direction to set leverage ratio requirements for FCA-only regulated investment firms. These firms are unlikely to be systemically relevant since their balance sheets tend to be small compared with PRA-regulated banks. If the FPC became concerned about the leverage of

FCA-only regulated investment firms, the FPC could make a Recommendation to the FCA. The FPC can also make Recommendations to HM Treasury regarding its toolkit and could recommend that the scope of an existing tool be extended.

**Table A** summarises the FPC's leverage ratio Direction powers and application of these powers.

### 2.3 Definition of the leverage ratio

A leverage ratio is the ratio of a measure of a bank's capital resources to a gross measure of its exposures or assets.

#### Capital resources

The FPC believes that capital used to meet the leverage ratio and buffers should be sufficiently loss absorbing while a bank is a going concern.

The highest quality going-concern regulatory capital is Common Equity Tier 1 (CET1), which largely consists of common shares and retained earnings. Other types of capital instruments, known as 'Additional Tier 1' (AT1) instruments, can also constitute going-concern regulatory capital. AT1 instruments absorb losses through conversion to equity or by being written down when a bank's capital ratio falls below a certain level.<sup>(2)</sup> This allows AT1 instruments to increase going-concern resilience provided the trigger for conversion or write-down is set appropriately high.

The FPC believes that banks should use the highest quality of capital, CET1, to meet the majority of their leverage ratio requirements. It therefore proposes to limit the share of AT1 instruments eligible to meet a minimum leverage ratio requirement to 25% and to direct that all leverage ratio buffers be met with CET1 only. This arrangement would mirror risk-weighted framework requirements.<sup>(3)</sup>

Furthermore, the FPC believes that only 'high-trigger' AT1 instruments (ie those that trigger at a ratio of at least 7% CET1) should count towards the leverage ratio, to provide

(1) CRD IV/CRR requires leverage ratio disclosure at a consolidated level and also at the level of subsidiaries which the firm has identified as being significant to the group or to the local market (CRR Article 13).

(2) The coupons on AT1 instruments must also be fully discretionary.

(3) Up to 25% of the 6% minimum risk-weighted Tier 1 capital requirement may be met with AT1 capital.



greater assurance that the AT1 would convert to CET1 while the bank is still a going concern. The FPC is particularly mindful that AT1 instruments trigger based on a risk-weighted requirement which, for banks with low average risk weights, may not be reached despite the minimum leverage ratio requirement having been breached. The FPC believes its proposal to cap the part of the minimum leverage ratio requirement to be met by sufficiently high-quality AT1 at 25% strikes the right balance between certainty that capital will be truly loss absorbing and not putting UK leverage ratio requirements far out of line with those being developed internationally.

### Leverage exposure measure

A definition of leverage ratio exposures has been agreed internationally by the Basel Committee on Banking Supervision (BCBS, January 2014). The FPC expects to adopt the BCBS 2014 definition, as implemented in European law,<sup>(1)</sup> for the exposure measure in the denominator of the leverage ratio.

The BCBS 2014 leverage ratio exposure definition captures exposures which are accounted for either on or off a bank's balance sheet, since either type of exposure may be a potential source of losses to a bank. The starting point for measuring most exposures is to use their accounting values. However, the major accounting frameworks<sup>(2)</sup> differ in some respects, for example in the extent to which they recognise the netting of assets against liabilities for certain items, most notably derivatives and Securities Financing Transactions (SFTs). As a result, the Basel III leverage ratio exposure measure makes some adjustments to these exposures to ensure international consistency of measurement.

Accounting values do not provide a suitable measure of some exposures for the purposes of the leverage ratio, in particular for: derivatives, including credit derivatives; SFTs; and off-balance sheet exposures. For these exposures, the leverage ratio exposure measure uses specific methodologies designed to capture fully their inherent risks and reflecting the principles of the leverage ratio. For example, a bank's off-balance sheet commitments — such as credit lines or credit card services — are captured in the leverage ratio exposure measure by applying a so-called 'conversion factor' to the nominal value of the commitment. However, in contrast to the risk-weighted framework, for the leverage exposure measure the minimum conversion factor is set at 10% to ensure that such commitments are never treated as presenting zero risk.

## 2.4 How would these tools fit with the rest of the regulatory framework?

The three distinct components of the FPC's proposed leverage ratio framework are intended to integrate leverage ratio requirements into the current regulatory structure while

maintaining simplicity. The leverage ratio will play a complementary role to the risk-weighted capital ratio, including for systemically important banks and at times of high system-wide risk.

A risk-weighted capital ratio provides a granular assessment of the risks in banks' portfolios. The risk weights used to arrive at an estimate of risk-weighted assets are reliant either on standardised approaches determined by the regulator, which are typically based on historical industry-wide data, or on a bank's internal models reflecting its own historical experience, or on a combination of the two. To the extent that risk can be measured well given the available historical data, and that past experience is a good guide to the future, a risk-weighted ratio should in theory be superior to other capital measures at matching a bank's capital requirements to the risk of losses on its assets.<sup>(3)</sup>

But the financial crisis revealed significant weaknesses associated with both the internal model-based and the standardised approaches that are used to calculate risk-weighted ratios. For example:

- As all models are simplifications of reality, they are always 'wrong'. Though bad models can be improved, for example by relying on a range of models, better data or more accurate theory, there remains an irreducible amount of modelling uncertainty associated with trying to measure risk.
- Banks may face incentives to use the discretion inherent in internal modelling choices to reduce risk weights.
- Insufficiently large samples of historical data can lead to significant miscalibration in both internal and standardised models if they omit low-probability but large-impact events (known as 'tail events'). The data requirements for capturing these low-probability tail events with any reasonable statistical accuracy can at times be too demanding to be feasible for most banks.
- Models cannot capture events which are not foreseeable, for example due to new risks which emerge from innovations in the financial sector or *forces majeures* such as natural and man-made disasters and human or technical failure.
- Internal bank models are calibrated from the perspective of individual banks and assume risk is exogenous. They therefore do not capture correlations of losses across banks which are at the heart of systemic crises.

(1) On 17 January, the European Commission published a Delegated Act in the Official Journal of the European Union which revised the calculation of the leverage ratio.

(2) Such as International Financial Reporting Standards (IFRS) and US Generally Accepted Accounting Principles (US GAAP).

(3) See Gordy (2003).

- Complexity and lack of transparency in the risk-weighted framework can reduce the ability of markets to distinguish adequately between strong and weak banks on the basis of the risk-weighted ratio alone. This can have the effect of stifling market discipline, reducing competition and, in periods of stress, leading to contagion from weak to strong banks.

Stress testing, and associated policies to require that banks have sufficient capital to absorb losses in an adverse scenario, can mitigate some of the shortcomings of risk weights. But this relies on the ability of banks and policymakers to consider extreme events that are outside the realm of experience and on their ability to model the financial system response to them correctly. And without a leverage ratio framework, the benchmarks used to assess capital adequacy would still rely only on risk weighting. In the December 2014 *Financial Stability Report*, it was noted that, in future years, major UK banks are likely to be assessed in the Bank's concurrent stress tests against an explicit leverage ratio threshold, as well as a risk-weighted capital ratio, and banks would need to have plans in place to meet these requirements.<sup>(1)</sup>

Moreover, in environments which are characterised by complexity, small samples and uncertainties, simple indicators can outperform more complex ones.<sup>(2)</sup> Complementing the risk-weighted ratio with a leverage ratio requirement gives banks better protection against uncertainties and risks that are hard to model. On top of this, the relative simplicity of the leverage ratio might make it more readily understood by market participants and more comparable across banks than risk-weighted measures or stress test outputs.

The FPC's proposed approach to calibration, discussed in Section 2.5, is consistent with the FPC's proposed leverage ratio framework playing a complementary role to the risk-weighted framework, but with risk-weighted requirements forming the binding constraint for a majority of UK banks most of the time. The interaction of leverage ratio and risk-weighted requirements is discussed further in Section 3.

## 2.5 Proposed calibration of the FPC's leverage ratio framework

In its review of the leverage ratio,<sup>(3)</sup> the FPC set out how it expects to calibrate the components of its proposed leverage ratio framework.

The FPC judges that together the proposed leverage ratio framework and calibration will lead to prudent and efficient leverage ratio requirements for the UK financial system. In reaching its view on the proposed calibration, the FPC assumed that it would be able to set a specific buffer to recognise the higher risk to the economy posed by systemic banks, and at certain times in the credit cycle, through the application of supplementary and countercyclical leverage ratio buffers, respectively.

The FPC will review its Directions at least every twelve months in accordance with its statutory obligations. The purpose of these reviews is to determine whether the Direction ought to be revoked and the FPC will consider how risks have evolved against, among other things, its indicators and the initial impact assessment. Furthermore, the FPC intends to carry out a reassessment of the proposed calibration in a review of international progress on leverage ratio requirements, which the FPC will undertake in 2017. At this stage, the FPC will have information about international developments towards a leverage ratio framework, including in the European Union.

### Proposed calibration

For non-systemically important banks, the FPC proposes that the leverage ratio requirement will comprise a minimum leverage ratio requirement of 3% plus a CCLB rate set at 35% of a bank's institution-specific countercyclical capital buffer (CCB) rate. For UK G-SIBs and domestically systemically important banks, the FPC proposes that the leverage ratio requirement will comprise a minimum leverage ratio requirement of 3% plus a supplementary leverage ratio buffer and a CCLB, each set at 35% of each of the corresponding risk-weighted capital buffer rates. These proposals are summarised in **Table B**.

**Table B** Summary of the FPC's proposed calibration of components of the leverage ratio framework

Component	Proposed calibration
Minimum leverage ratio requirement	3%
Supplementary leverage ratio buffers	35% of corresponding risk-weighted systemic buffer rates For UK G-SIBs: <sup>(a)</sup> 0.35%–0.875% For domestically systemically important banks: 0.35%–1.05%, if systemic risk buffers are between 1% and 3% of RWAs.
Countercyclical leverage ratio buffer	35% of a bank's institution-specific countercyclical capital buffer rate, rounded to the nearest 10 basis points, as a guiding principle. <sup>(b)</sup>

(a) Based on current population of G-SIBs.

(b) See Section 2.6 for numerical examples of the calculation of a bank's CCLB rate and Section 4.1 for a discussion of the guiding principle.

### Influences on FPC's proposed calibration:

#### *Minimum leverage ratio requirement*

A minimum leverage ratio requirement of 3% is the level that the BCBS is currently monitoring as it prepares for the introduction of a binding minimum leverage ratio requirement by 1 January 2018. The FPC sees important benefits for the UK financial system of aligning with international standards for those banks which are not judged to be individually

(1) Bank of England (2014d), Box 5, 'Results of the 2014 stress test of major UK banks,' available at [www.bankofengland.co.uk/publications/Documents/fsr/2014/fsrfull1412.pdf](http://www.bankofengland.co.uk/publications/Documents/fsr/2014/fsrfull1412.pdf).

(2) See Haldane and Madouros (2012) and Aikman *et al* (2014).

(3) Bank of England (2014a).

systemically important and hence are not subject to supplementary risk-weighted buffers.

In 2010, the BCBS conducted a data collection exercise to inform its calibration of a minimum leverage ratio requirement. This exercise found that the large international banks which had experienced severe stress during the crisis — defined as banks experiencing failure, being acquired under stress or receiving government assistance — had significantly lower leverage ratios than their peers which were less severely affected by the crisis (see **Table C**). The exercise also examined the critical values of the leverage ratio that would have correctly classified more than 50% of both the stressed banks and the non-stressed banks in the sample. This critical value was found to lie in the range 3%–4%.<sup>(1)</sup> On the basis of the BCBS evidence the FPC's view is that 3% is an appropriate minimum leverage ratio requirement.

**Table C** End-2006 mean leverage ratios for groups of stressed and non-stressed banks<sup>(a)</sup>

	Stressed banks	Other banks
Tier 1 Capital/Assets	3.89%	4.19%
<i>Excluding countries with leverage ratio requirements</i>		
Tier 1 Capital/Assets	3.02%	3.65% <sup>(b)</sup>

Source: Uses data in Table 2 in 'Calibrating regulatory minimum capital requirements and capital buffers: a top-down approach', BCBS (October 2010).

- (a) Sample for these leverage ratios include up to 89 banks from multiple countries. Leverage ratios calculated for end-2006 data.  
 (b) In this subsample, the difference in mean leverage ratios for the groups of stressed and non-stressed banks is statistically significant at the 10% level.

Further, under CRD IV/CRR the minimum Tier 1 risk-weighted requirement for banks is 8.5%, comprising a minimum Tier 1 requirement of 6% plus a capital conservation buffer of 2.5%. The ratio of the minimum leverage ratio to risk-weighted requirements (3:8.5) indicates that the leverage ratio would bind on banks with an average risk weight of approximately 35% or less. The FPC's average risk weight indicator for a peer group of major UK banks stood at just under 40%, as of the latest reading. This suggests that a 3% minimum requirement would be consistent with the FPC's proposed leverage ratio framework playing a strong complementary role alongside the risk-weighted framework, but with risk-weighted requirements forming the binding constraint for a majority of UK banks most of the time.

The FPC intends to maintain the proportionate relationship between the leverage ratio and risk-weighted requirements when calibrating the supplementary and countercyclical leverage ratio buffers by setting them at 35% of the rate of the corresponding systemic or countercyclical buffer in the risk-weighted framework. Failure to maintain a proportionate relationship would mean that the leverage ratio would become a more or less binding constraint both for

systemically important banks and for any bank during times of high system-wide risk.<sup>(2)</sup>

#### *Supplementary leverage ratio buffers for systemically important banks*

The FPC's proposed calibration implies that supplementary leverage ratio buffer rates for UK G-SIBs, when fully implemented, would range between 0.35% and 0.875% based on the current population of G-SIBs. This is based on the range of the risk-weighted G-SIB buffers of between 1% and 2.5% of risk-weighted assets, which will be imposed under CRD IV/CRR for the current population of G-SIBs.

The size of risk-weighted buffers for domestically systemically important banks has not yet been decided. The Government has stated that rates of the systemic risk buffer for ring-fenced banks and large building societies from 2019 will be in the range 0%–3% of risk-weighted assets. Once legislation on these systemic risk buffers is in place, the FPC expects to develop a framework to set the size of the systemic risk buffer for individual banks. If the systemic risk buffer rates are in the range of 1%–3% then the FPC's proposed calibration will result in supplementary leverage ratio buffer rates in the range of 0.35% to 1.05%.

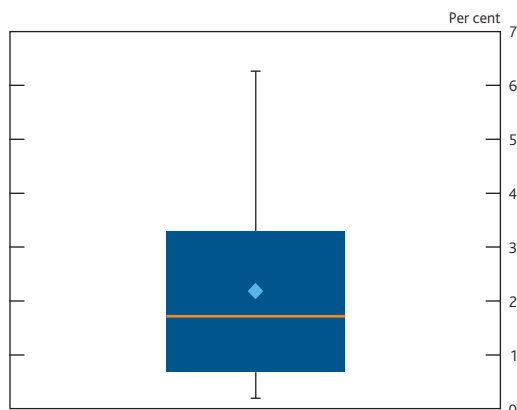
In setting out its proposal for the size of supplementary buffers, the FPC also had regard to empirical evidence on the size of historical losses incurred by major banks, as a proportion of their balance sheets. **Charts 1 and 2** present a measure of peak losses for a range of UK and international banks. They indicate that, if a minimum leverage ratio had been in place at the start of the financial crisis, other things being equal, a 3% minimum leverage ratio requirement would have absorbed the average peak losses experienced by major banks between 2007 and 2013. However, losses in over a quarter of banks would not have been absorbed by a 3% leverage ratio requirement. If additional leverage ratio buffers (supplementary, countercyclical) had also been in place, other things being equal, more banks would have been better able to withstand the peak losses that they experienced during this period.

The sum of minimum and supplementary buffers implied by the FPC's proposed leverage ratio framework would not have been sufficient to absorb peak losses seen at the worst affected banks in the recent crisis. But the FPC believes that it is justifiable to set the static minimum and supplementary buffers at these levels, provided that there is also a countercyclical leverage ratio buffer to build up additional

(1) BCBS (2010), *Calibrating regulatory minimum capital requirements and capital buffers: a top-down approach*. Note that this exercise used total assets as the denominator of its leverage ratio and hence the critical value would likely be at the bottom of the 3%–4% range for a leverage ratio including off balance sheet exposures.

(2) This approach to calibration was proposed by the Independent Commission on Banking (2011), which recommended increasing the minimum leverage ratio for ring-fenced banks in proportion to the higher risk-weighted requirements it proposed for them.

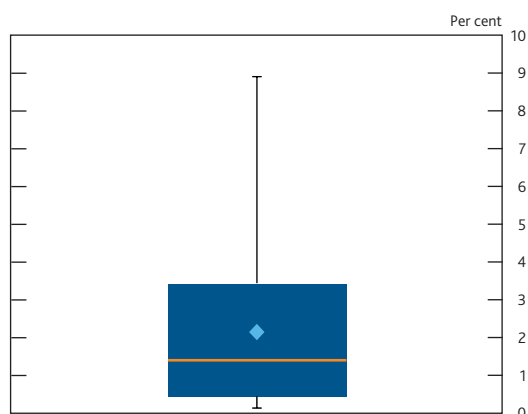
**Chart 1** Distribution of peak losses as a percentage of 2006 total leverage ratio exposures for a sample of UK banks<sup>(a)(b)(c)</sup>



Sources: Annual reports and Bank calculations.

- (a) Half-yearly loss values calculated as loss to pre-tax net income + 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 2** Distribution of peak losses as a percentage of 2006 total assets for an international sample of banks<sup>(a)(b)(c)(d)</sup>



Sources: Capital IQ, SNL Financial and Bank calculations.

Note: There was an error in some of the data included in this chart when it was first published in the FPC's review of the leverage ratio in October 2014. This has been amended in the current version of the review, republished online on 4 February 2015.

- (a) Half-yearly loss values calculated as loss on estimated pre-tax net income + 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.  
 (c) Some firms included in the sample have reported on a non-IFRS basis for which some accounting netting rules differ from those under IFRS. Results are not materially different for the subsample including solely IFRS reporting firms.  
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loss-absorbing capacity in response to cyclical risks, one example of which might be rapid growth of credit.

In its proposed calibration of supplementary buffers the FPC also took into account wider changes to risk-weighted capital requirements, stress testing, loss-absorbing capacity and resolution regimes that have been made since the crisis. It recognised that in the future stronger resolution regimes, which require banks to have greater gone-concern loss absorbency, will lower the costs of bank failures for the wider economy. And the FPC acknowledged that the PRA is not operating a zero failure regime, including for systemically important banks.

In addition, the FPC had regard to the decisions by authorities in other countries which have also announced domestic leverage ratio requirements ahead of the international timetable. In the United States and Switzerland, systemically important banks will be required to meet leverage ratio requirements greater than 3% with a view to achieving complementarity between risk-weighted and leverage ratio requirements.<sup>(1)</sup>

#### *Countercyclical leverage ratio buffers*

The FPC intends to use a guiding principle of setting a bank's CCLB rate in proportion to its risk-weighted CCB rate, using the same 35% conversion factor as for the supplementary leverage ratio buffer. When the FPC judges that system-wide risk is increasing — and it is not clearly confined to a specific sector which may be best targeted instead by a sectoral capital requirement (SCR)<sup>(2)</sup> — the FPC will increase the CCB and the CCLB.

For example, if a bank's CCB rate is set to 2.5% of risk-weighted assets, its CCLB rate would be set to 0.9% of its leverage ratio exposures. This would provide significant additional loss absorbing capacity in periods of heightened system-wide risk, for example during a period of rapid credit growth. **Table D** illustrates the FPC's proposal for how individual banks would calculate their institution-specific CCLB rates. The guiding principle is discussed further in Section 4.

- (1) In Switzerland, leverage ratio requirements have been applied to systemically important Banks since 1 January 2013, requiring banks to meet a leverage ratio of between 3.1% and 4.56% by 2019, depending on the level of their risk-weighted requirements in the national framework. This requirement comprises a hard minimum component and a buffer component, which is informed by the nature of the firm's risk-weighted requirements (Capital Adequacy Ordinance; SR 952.03). In the United States, from 1 January 2018, a supplementary leverage ratio will be applied to all banks on advanced approach internal models. At the bank holding company level, this is composed of a 3% minimum for all these bank (final rule adopted April 2014). G-SIBs will be required to have a further two percentage points leverage ratio buffer (5% total requirement); firms that enter the buffer region will face restrictions on discretionary capital distributions. G-SIBs' insured depository institutions will be required to meet a 6% minimum to be considered 'well capitalised'.  
 (2) The FPC has powers of Direction over Sectoral Capital Requirements (SCRs). The SCR tool allows the FPC to change capital requirements on exposures to specific sectors judged to pose a risk to the system as a whole. See Bank of England (2014c) for a full description of the SCR powers of Direction.

**Table D** Illustrative CCB and CCLB rates for different banks

	Credit exposures	UK CCB rate (percentage points)	Foreign CCB rate (average across countries, percentage points)	Institution-specific CCB rate (percentage points)	Institution-specific CCLB rate (percentage points, rounded to 10 basis points)
Bank A	100% UK 0% Foreign	1	2.5	1	0.4
Bank B	75% UK 25% Foreign	1	2.5	1.375	0.5
Bank C	90% UK 10% Foreign	1	2.5	1.15	0.4

## 2.6 How would decisions on leverage ratio tools be co-ordinated with overseas regulators?

The UK authorities have worked closely with other authorities internationally, in particular through the BCBS and EU Commission, to agree a common measure of leverage. By proposing to follow closely internationally agreed definitions for the elements of the leverage ratio numerator and denominator, the FPC is maximising comparability and consistency with requirements in other jurisdictions and ensuring that banks are preparing appropriately for the expected introduction of an internationally standardised leverage ratio framework. The FPC expects to work closely with overseas regulators, including at the ESRB, to ensure that leverage ratio frameworks are developed in a coherent way across countries and to foster effective implementation of macroprudential policy decisions.

The proposed leverage ratio requirements would come into force for all PRA-regulated banks in 2018, in line with the international timetable, after the BCBS reviews the calibration of a minimum leverage ratio framework by 2017 and possible EU legislative proposals on the leverage ratio are introduced by the end of 2016.

The FPC is, however, proposing to introduce the leverage ratio framework for G-SIBs and other major domestic UK banks and building societies ahead of the internationally agreed standards. This reflects the number of systemically important banks present in the United Kingdom; the size of the UK banking system relative to the domestic economy; and the importance, therefore, of being able to manage model risk effectively and to respond consistently to risks to financial stability that might emerge before an international standard on leverage is agreed and implemented. Setting out a framework now will also help banks with their planning, especially by providing clarity for systemically important banks on how the supplementary leverage ratio and risk-weighted requirements will fit together.

The FPC has considered the implications of moving in advance of international developments by including a CCLB component in the UK framework. At least at the outset, any use of the CCLB by the FPC is unlikely to benefit from the same level of reciprocation by authorities in other countries as is expected

for the CCB under existing EU legislation — although the FPC can encourage other authorities to reciprocate, either bilaterally or via its membership of the ESRB.

An international framework for the setting of CCLBs — along the lines that exists for the CCB — would have a number of benefits for the effectiveness of the FPC's proposed leverage ratio framework over the medium-term. For example, leverage ratio buffers would be reciprocally applied to the branches of overseas banks which are active in the United Kingdom at the same time that they are applied to domestic banks pursuant to an FPC direction; and leverage ratio buffers would be applied to banks domiciled in overseas jurisdictions in addition to UK banks active in those jurisdictions. However, the FPC judges that neither issue is sufficiently material to outweigh the significant financial stability benefits of the FPC being able to direct the PRA to apply a CCLB to the largest UK banks as soon as practicable.

The FPC proposes to direct banks to calculate their institution-specific CCLB rate as 35% of their institution-specific CCB rate. Banks that operate internationally face a CCB rate that 'shall consist of the weighted average of the countercyclical buffer rates that apply in the jurisdictions where the relevant credit exposures of the institution are located'.<sup>(1)</sup> **Table D** illustrates how individual banks would calculate their institution-specific CCB rate and their institution-specific CCLB rate. The institution-specific CCB rate for an exclusively domestically active bank (Bank A) will be the UK CCB rate, whereas for an internationally active bank (Bank B or Bank C) it will be a weighted average of the UK CCB rate and foreign CCB rates. Applying this approach to setting the CCLB will ensure that the relative bindingness of leverage ratio requirements and risk-weighted requirements remains the same for all banks, even when countercyclical policies are applied.

The FPC proposes that a bank's institution-specific CCLB rate will be rounded to the nearest 10 basis points in order to avoid small movements in leverage ratio buffer requirements due to changes in CCB rates in countries where banks have a relatively small share of their total exposures. In the examples

(1) Article 140 of CRD IV. The weighted average is calculated on the basis of the proportion of each bank's own funds requirement for credit risk that relates to the relevant credit exposures in each jurisdiction.

in **Table D**, Bank C's CCLB rate is the same as that of Bank A because its share of foreign exposures is relatively small. Bank B has a larger share of foreign exposures, so its institution-specific CCB rate is more sensitive to foreign CCB rates; this is reflected in its institution-specific CCLB rate.

## 2.7 How would the FPC's decisions on leverage ratio tools be communicated and enforced?

The FPC's policy decisions — and the text of any Directions given to the PRA — are published in a quarterly FPC Record.<sup>(1)</sup> The FPC explains the background to these decisions in its six-monthly *Financial Stability Report*. The FPC is required to include an estimate of the costs and benefits of its actions — unless, in its opinion, such an assessment is not reasonably practicable. A copy of the *Financial Stability Report* must be laid before Parliament by HM Treasury; likewise, unless already laid, a copy of any FPC Direction published in the FPC's Record.

The PRA must implement Directions by the FPC as soon as reasonably practicable. However, FPC Directions cannot specify the means by which, or the time within which, the PRA must implement the Direction. The FPC recognises that the implementation timeline will depend on a number of factors including any procedural requirements that apply to the PRA, the implementation approach chosen and the need to provide banks with a reasonable period to respond.

Under CRD IV/CRR, banks will typically have twelve months to meet an increase in the CCB, although the legislation provides for a shorter implementation period in exceptional circumstances. A decision to decrease the CCB can take effect immediately. The FPC may make a Recommendation on the timing of implementation alongside a Direction, which could be subject to a duty to 'comply or explain'.

The FPC could, in some circumstances, recommend that the PRA allow a longer period — of up to 24 months — for banks to comply with increases in the CCLB. The FPC could make such a Recommendation with respect to all banks, or a class of banks. The factors that would affect the FPC's Recommendation on the length of time banks would have to comply with increases in the CCLB are discussed in Section 2.8.

Where the FPC gives a Direction to the PRA, the PRA will confirm to the relevant banks the action that they should take, including over what timeframe and will report back to the FPC on progress. The FPC expects the PRA to take timely and appropriate action to ensure that banks have a credible capital plan to remedy any breaches of minimum requirements or failures to hold a buffer, and would expect the PRA to decide on the most appropriate supervisory action in the event that a requirement is breached or an adequate buffer is not held.

The FPC considers that it is essential to the operation of the leverage ratio framework that banks' leverage ratios as defined above, as well as the requirements placed upon them, are transparent to market participants. The FPC believes that disclosing leverage ratios and leverage ratio requirements will help market participants to assess banks' risk profiles and capital adequacy. The FPC has the power to make Recommendations to the PRA to ensure that banks subject to the leverage ratio framework make the appropriate disclosures.

## 2.8 How would the FPC's Recommendations on the length of time to comply with CCLB requirements be determined?

As discussed in Section 2.7, under CRD IV/CRR, banks will typically have twelve months to meet an increase in the CCB, although the legislation provides for a shorter implementation period in exceptional circumstances. A decision to decrease the CCB can take effect immediately. The FPC can make Recommendations to the PRA with regard to the permissible length of time for banks to comply with CCLB Directions. In the Leverage Ratio Review, the FPC proposed that, in some circumstances, it could recommend to the PRA to allow a period for banks to comply with increases in the CCLB of up to 24 months. The FPC could make such a Recommendation with respect to all banks, or a class of banks — for example, mutuals. In considering whether to make a Recommendation of a longer compliance period, the FPC would judge the potential benefits of this in relation to the potential costs.

The main potential benefit of requiring the CCLB to be met as quickly as the CCB is that banks would have to take measures more quickly to ensure they are better capitalised should systemic risks crystallise. Also, the FPC's countercyclical policy could be more effective at reducing lending, which may be fuelling a credit boom or other cyclical risks.

A potential cost to the economy of requiring the CCLB to be met as quickly as the CCB could arise if leverage-constrained banks have to contract lending severely or curtail the provision of other services because they find it difficult or expensive to issue or retain capital to meet higher leverage ratio requirements. This may conflict with the FPC's requirement not to take an action which, in its opinion, would be likely to have a significant adverse effect on the capacity of the financial sector to contribute to the growth of the UK economy in the medium or long term.

The FPC intends to use information from its core indicators and other sources to weigh the potential costs against the potential benefits. In circumstances when it judges the

(1) Under the legislation, there is a general provision to allow the FPC not to publish its decisions immediately where this would be against the public interest. But it must keep the decision not to publish under review. This does not relate to the CCB as, under CRD IV/CRR, designated authorities are obliged to publish decisions quarterly.

benefits to exceed the costs, the FPC proposes to recommend to the PRA to allow all banks, or a subset of banks such as mutuals, up to 24 months to comply with increases in the CCLB. In doing so, it would be taking into account any

potential risks to its statutory objectives from extending the period beyond twelve months and balancing these potential risks against the need for its actions to be proportionate to the systemic risks it is seeking to reduce.

### 3 Impact of the tools on financial stability and growth

This section sets out the potential impact of each of the elements of the proposed leverage ratio framework — the minimum leverage ratio requirement (Section 3.1), the supplementary leverage ratio buffer (Section 3.2), and the countercyclical leverage ratio buffer (Section 3.3) — on financial stability and growth. Section 3.4 presents the FPC's quantitative analysis of the impact of introducing the proposed leverage ratio framework.

The analysis considers the incremental impact of the proposed leverage ratio framework over and above existing plans under CRD IV/CRR to move to higher risk-weighted capital requirements by 2019. This incremental impact is shown to be modest.

Figure 1 is a stylised illustration of the key channels arising from the application of the risk-weighted and leverage ratio frameworks.

#### 3.1 Impact of minimum leverage ratio requirement

The risk-weighted capital framework for banks has changed significantly through the implementation of Basel III.<sup>(1)</sup> Banks are now required to hold a higher quantity and quality of capital, including a capital conservation buffer, which banks can run down during periods of stress, and a countercyclical capital buffer, which may be adjusted at the discretion of the macroprudential authorities.

There are three broad ways in which banks might respond to higher risk-weighted capital requirements:

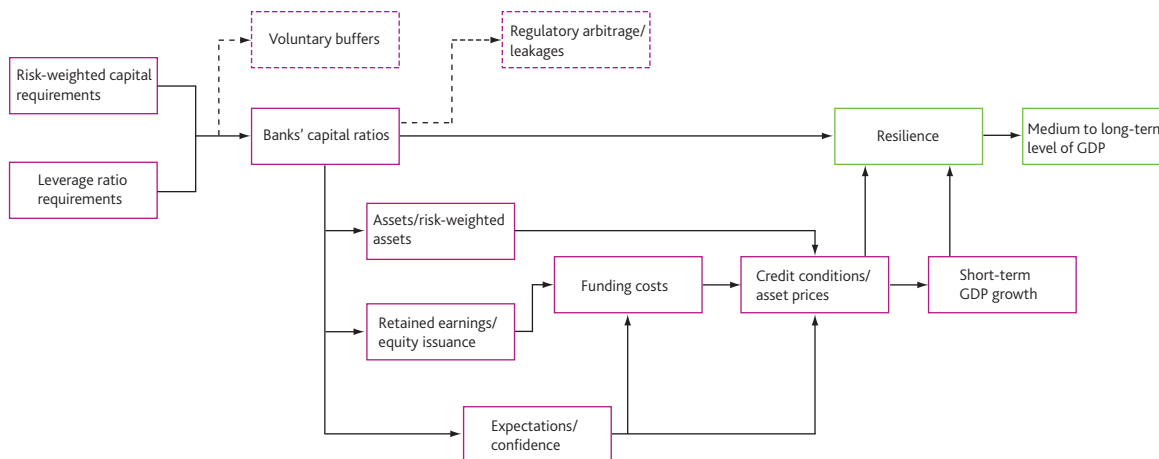
- First, they may be able to offset the increase by *reducing any voluntary buffers of capital* above regulatory requirements, leaving overall capital levels unchanged. Banks typically fund themselves with more capital than they are required to hold by the regulatory framework to ensure that they do not breach regulatory requirements under most foreseeable circumstances.
- Second, some banks may seek to *raise capital*, either through retained earnings or by issuing new shares.
- Third, banks may *reduce their risk-weighted assets*. This can be achieved either by reducing exposures or by rebalancing exposures away from riskier assets.

The inclusion of leverage ratio requirements alongside risk-weighted capital requirements would limit the ability of banks to improve their risk-weighted capital ratios through the third of these channels.

If the introduction of a minimum leverage ratio requirement meant that a bank increased its regulatory capital relative to its risk-weighted requirement, there would be a direct positive impact on the resilience of that bank. But the extent to which a leverage ratio requirement would be the binding requirement on a bank depends on the interplay between the two types of capital requirement.

Chart 3 provides a simple illustration of that interaction. It shows that there is a 'critical' average risk weight at which leverage and risk-weighted capital constraints would bind equally.<sup>(2)</sup> Banks with average risk weights *below* this 'critical' level would be bound by the leverage ratio; banks with average risk weights *above* this level would be bound by the risk-weighted ratio.

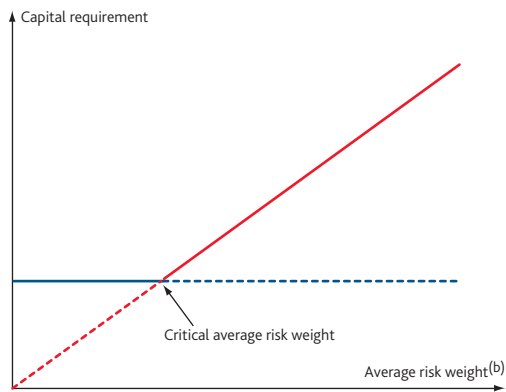
Figure 1 The impact of risk-weighted and leverage ratio requirements and buffers on financial stability and growth



(1) Implemented in Europe through CRD IV/CRR.  
 (2) This is an approximation only. The 'total assets' measure is not the same in both ratios because of different treatments of off balance sheet items.



**Chart 3** Stylised capital requirements implied by the leverage ratio and the risk-weighted ratio<sup>(a)</sup>



Source: Bank calculations.

- (a) The risk-weighted capital requirement increases linearly (red line). The leverage ratio capital requirement stays constant (blue line). The 'critical average risk weight' is the average risk weight for which both ratios imply the same amount of capital.
- (b) Risk-weighted assets/total assets.

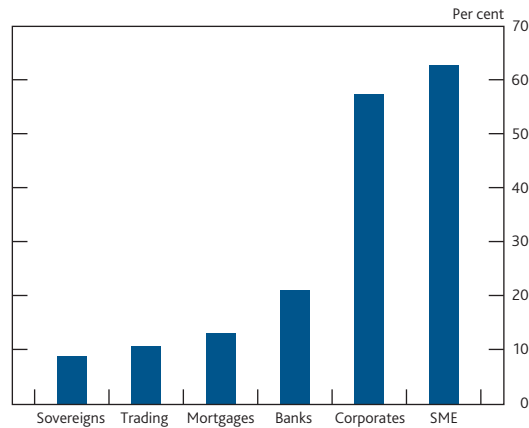
Requiring additional capital for banks with an average risk weight *below* the critical level would be consistent with the resilience objectives of the leverage ratio. Without a leverage ratio requirement, a bank with low average risk weights would be able to fund its portfolio with a substantial amount of debt and only very little loss-absorbing equity. As such, it would be particularly susceptible to small errors in estimated risk weights or to the type of unexpected shocks against which the leverage ratio provides a guardrail. This is represented in **Figure 1** by the arrows running from higher leverage ratio requirements (and risk-weighted capital requirements) to banks' capital ratios and to resilience.

The proposed calibration of the FPC's leverage ratio framework would impose an effective minimum average risk weight of approximately 35% (as discussed in Section 2.5). The range of assets that typically have risk weights below 35% indicates the sorts of business models and activities that might be most impacted by the introduction of a minimum leverage ratio requirement.<sup>(1)</sup>

Banks which have a high proportion of investment banking activities, such as trading in intra-financial sector products (ie securities, repo and derivatives market activity), are more likely to have low risk weights because their balance sheets are typically dominated by trading exposures and exposures to other banks. In addition, banks and building societies that have PRA permission to use internal models to determine risk-weighted capital requirements for their mortgage books typically apply risk weights of less than 35% to these exposures. **Chart 4** shows the average modelled risk weights on different asset classes; it illustrates that sovereign, trading, mortgage and bank exposures receive relatively low risk weights.

As part of its review of the role for a leverage framework in the United Kingdom, the FPC performed a quantitative impact

**Chart 4** Average modelled risk weights on different asset classes for UK banks and building societies<sup>(a)</sup>



Source: Regulatory returns.

- (a) UK solo-entities as of 2013 Q3.

analysis to assess the likely impact of the leverage ratio framework on individual banks and markets. That exercise is discussed in Section 3.4. Overall, the FPC judges that the impact on individual banks of the leverage ratio framework 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.

### 3.2 Impact of supplementary leverage ratio buffers

The imposition of supplementary leverage ratio buffers on globally and domestically systemically important banks would complement the supplementary risk-weighted buffers that will be fully phased in by 2019. The FPC expects supplementary leverage ratio buffers to lean against some of the market failures associated with systemically important banks and to improve system-wide resilience. Requiring these banks to be funded using more loss-absorbing capital and less debt can remedy some of the funding cost advantage that can arise from an implicit subsidy if investors regard them as too big to fail. A number of studies have suggested that the size of the implicit subsidy for large banks is material, although it has been falling in recent years. Recent and planned regulatory reforms are expected to reduce it further over time.<sup>(2)</sup> Supplementary leverage ratio buffers would make such banks more resilient which is especially important because of the proportionately larger negative effects of their distress or failure on the wider economy.

Requiring only the banks that are identified as being systemically important to meet higher leverage ratio requirements is efficient as it does not impose additional costs on smaller banks which do not benefit from the same funding cost advantages or have the same impact if they fail.

(1) Since the FPC proposes to set leverage ratio buffers as 35% of the equivalent buffer in the risk-weighted framework, the implied critical average risk weight would be broadly constant for all banks, at all times.

(2) There are alternative methods for estimating the size of implicit subsidies for large banks, see for example Li, Qu and Zhang (2011), Noss and Sowerbutts (2012), Acharya, Anginer and Warburton (2014) and IMF (2014).

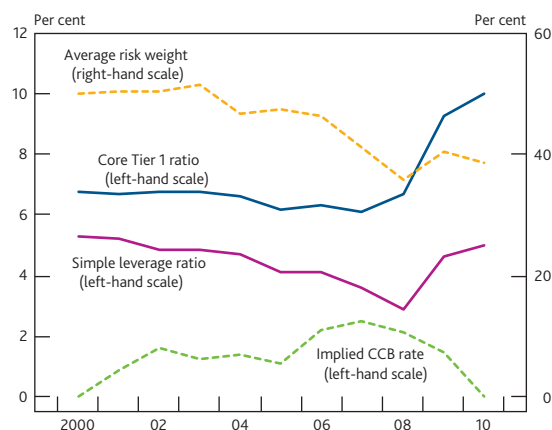
### 3.3 Impact of CCLB

Together with the FPC's powers over the risk-weighted countercyclical buffer (CCB), the FPC proposes to apply a countercyclical leverage ratio buffer (CCLB) to complement the CCB.

A primary aim of introducing a CCLB alongside the CCB would be to boost the resilience of banks in the upswing of the credit cycle and to allow banks to run down capital as conditions turn. Increasing capital buffers may also help check a lending boom.

Evidence from the United Kingdom highlights the potential benefits from using the CCLB in conjunction with the CCB. **Chart 5** shows UK banks' risk-weighted and leverage ratios in the run-up to the financial crisis. Risk-weighted ratios remained fairly steady during this period while average risk weights and leverage ratios were declining. Had the CCB been activated during this period, banks might have responded to it by decreasing their average risk weights further to meet the additional buffer requirement. For example, they might have increased their holdings of assets that received relatively low risk weights or sought to 'optimise' capital models. So the CCB alone might not have been sufficient to provide greater resilience against the risks associated with investing in such low risk-weighted assets.

**Chart 5** UK banks' risk-weighted capital and leverage ratios<sup>(a)(b)(c)(d)</sup>



Sources: BBA, ONS, Revell, J and Roe, A (1971), 'National balance sheets and national accounting — a progress report', *Economic Trends*, Vol. 310.5, No. 211, May, pages xvii-xvii, PRA regulatory returns, published accounts and Bank calculations.

- (a) Major UK banks' aggregate core Tier 1 capital as a percentage of their aggregate risk-weighted assets. The major UK banks peer group comprises: Abbey National (until 2003); Alliance & Leicester (until 2007); Bank of Ireland (from 2005); Bank of Scotland (in 2000 only); Barclays; Bradford & Bingley (from 2001 until 2007); Britannia (from 2005 until 2008); Co-operative Banking Group (from 2005); Halifax (in 2000 only); HBOS (from 2001 until 2008); HSBC; Lloyds TSB/Lloyds Banking Group; National Australia Bank (from 2005); Nationwide; Northern Rock (until 2008); Royal Bank of Scotland; and Santander (from 2004).
- (b) Simple leverage ratio calculated as aggregate peer group equity over aggregate peer group assets.
- (c) Average risk weight calculated by dividing aggregate peer group risk-weighted assets by aggregate peer group assets.
- (d) The implied CCB rate is the level of the CCB implied by the size of the credit to GDP gap according to the CRD IV 'buffer guide' (based on Basel III). The buffer guide maps the credit to GDP gap onto a CCB rate, so that the guide is 0% when the credit to GDP gap is below 2%, between 0% and 2.5% when the credit to GDP gap is between 2% and 10% and 2.5% when the credit to GDP gap is higher than 10%. The year-end credit to GDP gap is used to derive the implied CCB rate for each year.

There is some preliminary evidence that while a countercyclical risk-weighted capital tool can boost resilience, it may only be partially successful in slowing credit growth across the economy during a boom. For example, Bridges *et al* (2014) found that, historically, banks cut loan growth by more for higher risk-weighted commercial real estate and other corporates assets than for lower risk-weighted household secured lending. Noss and Toffano (2014) found that while lending to both households and private non-financial corporations contracted in the past following an increase in banks' capital requirements, the effect on household lending was far weaker and more gradual. A number of factors could contribute to these findings, but they are also consistent with banks reducing their holdings of high risk-weighted assets more readily when risk-weighted capital requirements are increased. To the extent that the CCB and CCLB are raised in conjunction, these effects are less likely to apply, which may mean that countercyclical capital policies are more effective in curtailing lending booms.

### 3.4 Quantitative analysis of the impact of introducing the proposed leverage ratio framework

The costs of financial crises can be extremely large and there is now mounting evidence that the effects on economic activity can be long-lasting, if not permanent.<sup>(1)</sup> Economic modelling used by the FPC in its quantitative analysis<sup>(2)</sup> estimates that a permanent 1 percentage point reduction in the probability of crises would lead to an increase in the net present value of GDP equivalent to £4.5 billion per annum.<sup>(3)</sup> That being so, if the leverage ratio, alongside other tools in the capital framework, is successful in reducing the likelihood and severity of financial crises, even by modest amounts, its use is likely to have positive benefits for the expected level of UK GDP over time.<sup>(4)</sup> This channel is shown by the arrow linking resilience to the medium to long-term level of GDP in **Figure 1**.

To the extent that the FPC's proposed leverage ratio framework would require some banks to increase their regulatory capital over and above the levels required by the risk-weighted framework, the economic impact of higher system-wide capital can be estimated empirically. There is uncertainty among academics and policymakers about the exact size of the impact of higher system-wide capital on the real economy. The FPC's central forecast is that the introduction of its leverage ratio framework will have a small net beneficial impact on the level of GDP, relative to the

- (1) See Cerra and Saxena (2008), International Monetary Fund (IMF) (2009) and Reinhart and Rogoff (2009).
- (2) In its economic modelling, the FPC used a global economic model of the world economy known as 'NiGEM', developed by the National Institute of Economic and Social Research. This includes a sub-model of the UK banking sector, which has been revised and updated by the PRA. The PRA enhancements to the NiGEM model are described in *FSA Occasional Papers 38* and *42*.
- (3) Losses from crises in this calculation are based on historical losses of advanced economies and correspond to the best estimate.
- (4) This is consistent with the conclusion from the Impact Analysis in the FPC's review of the leverage ratio (Bank of England (2014a)).

introduction of changes to the risk-weighted framework.<sup>(1)</sup> In making that judgement, the FPC took account of the outputs from a global economic model of the world economy,<sup>(2)</sup> as well as considering other factors.

**FPC's quantitative impact analysis**

For a sample of 29 PRA-regulated banks, each bank's regulatory capital requirements under the FPC's proposed leverage ratio framework was compared to its total risk-weighted capital requirements and buffers in 2019.<sup>(3)</sup> Banks typically fund themselves with more capital than the amount of their regulatory requirements to provide a 'voluntary buffer' against breaching regulatory requirements if the bank starts to experience losses. For the purposes of the FPC's analysis, it has been assumed that banks would seek to maintain the same level of voluntary buffers over their risk-weighted capital requirements and leverage requirements.<sup>(4)</sup>

In total, eight of the 29 banks in the sample would need to raise additional capital in 2019 as a result of the introduction of the FPC's proposed leverage ratio framework, over and above the capital that will be needed due to the existing plans to move to higher risk-weighted capital requirements under CRD IV/CRR. The aggregate increase in requirements across the system would be of the order of 2%–3% of the level of Tier 1 capital.

**Table E** demonstrates the breakdown of the additional capital required by the proposed leverage ratio framework by bank size and type, and provides a comparison to projected 2019 Tier 1 capital levels under two scenarios for the size of any systemic risk buffers. The size of risk-weighted systemic buffers for domestic systemically important banks has not yet been determined, as discussed in Section 2.2. Since these buffers are likely to fall within the range of 1%–3% of risk-weighted assets, the lower and upper bound scenarios have been assessed in this analysis and are shown in **Table E**.

**Table E** demonstrates that building societies, investment firms and custody banks are estimated to face the largest proportionate increases in capital needs under the FPC's proposed leverage ratio framework. That the leverage ratio would bind most strongly for banks undertaking activities with low estimated risk weights reflects the fact that it is intended to tackle risk-weight uncertainty (ie that risk weights may not reflect the true riskiness of an activity).

The seven building societies in the sample, which account for approximately 85% of total building society assets, are estimated to require an incremental £2.1 billion of Tier 1 capital, equating to 18.5% of their risk-weighted capital charge under the assumption of a 3% systemic risk buffer rate.

**Chart 6** shows that although only three UK building societies currently have permissions to use internal modelling, their

**Table E** Estimated marginal impact of the FPC leverage ratio framework on 2019 Tier 1 capital resources<sup>(a)</sup>

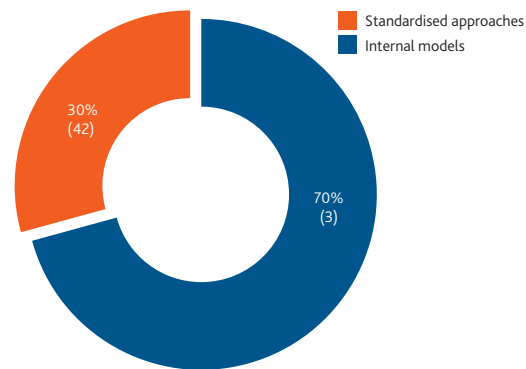
	1% systemic risk buffer rate assumption		3% systemic risk buffer rate assumption	
	£ billions	Percentage of 2019 risk-weighted Tier 1 capital stock	£ billions	Percentage of 2019 risk-weighted Tier 1 capital stock
All firms	9.0	2.2%	9.6	2.3%
<i>of which</i>				
Large <sup>(b)</sup>	8.2	2.1%	8.7	2.1%
Small	0.9	5.8%	0.9	5.7%
<i>of which</i>				
Banks	0.4	0.1%	0.4	0.1%
Building societies	1.6	14.8%	2.1	18.5%
Investment firms/custody banks	7.1	11.2%	7.1	11.2%

Source: Bank calculations.

(a) Figures shown to one decimal place.

(b) Large firms in the table are those with total accounting assets greater than £100 billion.

**Chart 6** Total assets held by building societies<sup>(a)(b)</sup>



Source: Regulatory returns.

(a) Data as of 2013 Q4.

(b) Percentage shows proportion of assets held by building societies using internal models and those on standardised approaches. The number in parentheses shows how many firms belong to the relevant group.

relative size means that in practice 70% of total building society assets are risk weighted using internal models.

The seven investment firms/custody banks in the sample are estimated to require an incremental £7.1 billion of Tier 1 capital, equating to 11.2% of their risk-weighted Tier 1 capital charge under the assumption of a 3% systemic risk buffer rate.

For those banks that would be affected by the proposed leverage ratio framework, a requirement to reduce their reliance on debt and use more equity funding would strengthen their resilience to shocks. In addition to the

(1) Through implementation of the CRD IV/CRR package of bank regulatory reforms.

(2) The NiGEM model, discussed in footnote (2) on page 24.

(3) By 2019, all of the components of the risk-weighted and the proposed leverage ratio frameworks will have been fully phased in. The specific data used and assumptions made in that exercise are explained in Section 4 and Annex 2 of Bank of England (2014a).

(4) Specifically, it was assumed that banks will hold a voluntary buffer of 20% of their total risk-weighted capital requirements (ie for a firm with a Tier 1 risk-weighted requirement of 10%, they will target holding an additional capital buffer of 2% of risk-weighted assets) and a voluntary buffer of 10% over their total leverage ratio requirement. These parameters are based on historical data and market intelligence.

benefits that it would bring for the wider system, it would also contribute to more sustainable returns to banks' debt holders, which might reduce the cost of funding for banks.

Some banks which are affected by increases in the leverage ratio may respond by raising spreads on lending. This is likely to reduce the availability of credit for some borrowers and may therefore reduce overall spending in the economy, particularly in sectors that rely heavily on bank credit. This channel is shown by the arrow in **Figure 1** linking credit conditions to short-term GDP growth.

To the extent that banks' internal allocation of the cost of funding to specific business units attempts to reflect the capital requirements that apply to different asset classes, the current risk-weighting framework will tend to make lending spreads vary in proportion with risk weights. For example, spreads on loans to corporate borrowers will tend to be higher than on loans to financial institutions in part to reflect differences in the level of debt funding permitted for the two forms of lending. All else being equal, the introduction of the FPC's proposed leverage ratio framework might be expected to reduce differences in lending spreads between those asset classes which currently attract very low risk weights and those asset classes with higher risk weights.

The overall impact of the leverage ratio framework on prices in markets for such low risk-weighted assets is uncertain. It will depend on the mix of lenders active in those markets, how they allocate capital and price products internally, and the extent to which competitive forces drive a reallocation of activities to banks not bound by the framework. In addition, some banks for which the FPC's proposed leverage ratio framework might bind, including large investment firms/custody banks, are subsidiaries of foreign groups that will be subject to higher leverage ratio requirements at group level than their UK subsidiaries would face under the FPC's proposed framework (eg those headquartered in the United States or Switzerland, which have already announced plans to impose supplementary leverage ratio requirements on systemically important banks). As such, the imposition of a leverage ratio framework on the UK entity may not require additional capital raising for the group as a whole. This is likely to reduce any impact on the cost of services to customers.

Based on the estimated impact of the introduction of the FPC's proposed leverage ratio framework, the FPC used an economic model to produce an assessment of the benefits and costs to the economy.<sup>(1)</sup> Within this model, higher bank capital reduces the likelihood of financial crises which can lead to reductions in GDP.<sup>(2)</sup> However, the model generates some macroeconomic costs of higher levels of bank capital since it assumes that banks pass through the costs of increased regulatory capital requirements as higher lending spreads.

This increases real-economy borrowing costs, which reduces the level of investment and therefore output in equilibrium.<sup>(3)</sup> Therefore, within this model, the net macroeconomic benefits of additional bank capital fall if the capital level increases too much.

The model suggests that there are net benefits to the additional capital in the system as a result of the cumulative impact of the CRD IV reforms, including the introduction of buffers for global and domestically systemically important banks (rows 1 and 2 of **Table F**).<sup>(4)</sup> The impact of adopting the leverage ratio requirements in addition to these other reforms is negligible in this model given the small increase in capital resources involved (row 3 of **Table F**). **Table G** shows the confidence intervals around the point estimates.

**Table F** Estimate of net benefits

£ billions per annum <sup>(a)</sup>	Net benefits
CRD IV <sup>(b)</sup>	8¼
+ G-SIB and D-SIB requirements	9
+ G-SIB and D-SIB requirements, and FPC leverage ratio requirements	9

(a) Annualised net present value of the chained-volume measure (2012) of UK GDP. Figures are rounded to the nearest quarter of a £ billion.

(b) As reported in PRA (2013a). The CRD IV provisions for capital buffers for systemically important firms were out of the scope of the PRA's August 2013 consultation paper, which is why their impact is not reflected in the first row of the table.

**Table G** Confidence intervals around net benefits<sup>(a)</sup>

Interval	£ billions per annum <sup>(b)</sup>	
	Lower	Upper
95% confidence	-1	24
90% confidence	1	22
80% confidence	3	19

(a) For estimated net benefits of CRD IV, including G-SIB and D-SIB buffer requirements, and FPC leverage ratio requirements (final row in **Table F**).

(b) Annualised net present value of the chained-volume measure (2012) of UK GDP.

The finding of positive net benefits in the presence of a leverage ratio requirement and the package of earlier regulatory reforms indicates that the gross beneficial impact on the level of output due to a reduced probability of future financial crises outweighs the gross cost that may arise as a result of a higher cost of credit to the real economy.

There are limitations to using this macroeconomic model to assess the costs and benefits of leverage ratio requirements. In terms of the benefits, the model only reflects the leverage ratio framework as an additional capital requirement and so does not directly or fully capture the primary benefits of a

(1) The NiGEM model, discussed in footnote (2) on page 24.

(2) In the model, crises more frequently have temporary effects on GDP but some crises can have permanent effects and generate significant cumulative losses to UK GDP.

(3) The NiGEM model assumes a constant returns to scale CES production function.

(4) For the purposes of generating the system-wide net benefits, an upper bound scenario where all future ring-fenced banks and large building societies are subject to a 3% systemic risk buffer has been used. However, as **Table E** shows, the system-wide capital shortfalls are not very dissimilar under different assumptions about the size of the systemic risk buffer.

leverage ratio framework (a guardrail against risks arising from errors in regulatory risk weights and internal models and unforeseeable events, and to prevent unsustainable bank balance sheet stretch). The benefits to resilience are also likely to be underestimated since the increases in capital will most often correspond to cases where robustness against excessively low risk weights is particularly needed. In terms of the costs, the macroeconomic model only analyses the extent to which increases in capital held in the banking system affect the cost of financial intermediation in the broader economy. To the extent that the leverage ratio requirement raises the cost of financial activities other than intermediation, these costs will not be captured in this analysis.

It should also be noted that there is uncertainty among academics and policymakers on the exact size of the impact of higher system-wide capital on the real economy. **Table H** summarises some of the findings in the empirical literature which have attempted to estimate the impact. It shows that the assumptions in the economic model that the FPC has used to inform its impact analysis are close to the mid to low end of the empirical estimates in the literature. Note that the one percentage point increase in capital requirements to which the impact estimates in **Table H** relate is approximately three times higher than the total estimated increase in requirements due to the introduction of the FPC's leverage ratio framework.

The analysis above assumes that the eight banks that would be bound by the leverage ratio would respond primarily by raising lending spreads and passing on additional costs to customers. That said, it is also possible that they would shift to some degree into activities that have higher risk weights. This type of response is known as 'risk-shifting'. In practice, the empirical evidence for risk-shifting is limited (Box 2), though that may reflect the fact that experience of a binding leverage ratio is limited. Some degree of risk-shifting by banks from low to higher risk-weighted assets may be observed in response to the introduction of the proposed leverage ratio framework.

Overall the FPC judges that the impact on individual banks of the leverage ratio framework 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.

**Table H** Illustrative examples of the impact of a 1 percentage point increase in banks' headline capital requirements on credit conditions

	Loan rates (basis points)	Loan volumes (per cent)
Aiyar, Calomiris and Wieladek (2014) <sup>(a)</sup>	–	[-5.7, -8.0]
Bridges <i>et al</i> (2014) <sup>(b)</sup>	–	-3.5
Elliott (2009) <sup>(c)</sup>	[4.5, 19.0]	–
Francis and Osborne (2012) <sup>(d)</sup>	–	0.0
Macroeconomic Assessment Group (2010) <sup>(e)</sup>	17.3 [5.1, 25.0]	-1.4 [-0.7, -3.6]
Global economic model of the world economy (enhanced NiGEM) <sup>(f)</sup>	15.4	-0.9

- (a) Results based on an econometric analysis of the impact of the UK Financial Services Authority's microprudential Pillar 2 requirements over the period 1998–2007. Reported results show the cumulative impact across a range of estimated models on lending to private non-financial corporations (PNFCs), excluding the potential for leakages via foreign branch lending, with the maximum and minimum reported in square brackets. Monetary policy is held constant.
- (b) Bridges *et al* (2014) undertake an econometric analysis of the impact of changes in microprudential regulatory capital requirements on bank capital and bank lending in the United Kingdom between 1990 and 2011. They analyse the lending response in four different sectors. They find that banks, on average, cut, in descending order of magnitude based on point estimates, loan growth for commercial real estate, other corporates and household secured lending in the year following an increase in capital requirements. The response of unsecured household lending is smaller and not significant over the first year as a whole. Loan growth mostly recovers within three years. The result for aggregate lending displayed in the table is calculated as the cumulative impact over three years for each sector, weighted by each sector's share of lending as at 2011. Monetary policy is held constant.
- (c) Results based on a loan pricing equation calibrated for US banks linking capital requirements to lending rates. The maximum effect refers to the case where banks are able to pass through in full the costs of higher aggregate capital requirements to their customers. The minimum effect assumes a modest decline in banks' funding and administrative costs. Results are calculated from Tables 1 and 2 in Elliott (2009). Monetary policy is held constant.
- (d) Taken from Francis and Osborne (2012), Table 5. Results based on an econometric analysis of the impact of microprudential Pillar 2 requirements imposed by the UK Financial Services Authority over the period 1996–2007. Results assume a 44% pass-through from regulatory capital requirements to banks' capital ratios. Monetary policy is held constant.
- (e) The Macroeconomic Assessment Group (MAG) analysed the impact of the transition to Basel III across a range of alternative models, calibrated across a wide variety of jurisdictions (including the United Kingdom). The reported figures in the table refer to the median impact across a range of estimated models (see Annex 2.2 in MAG (2010)), with the maximum and minimum reported in square brackets. Estimation assumes implementation of permanently higher capital requirements over two years. Results are for the 18th quarter of the simulation. Monetary policy is held constant.
- (f) Long-run effects estimated from a structural vector error correction model of the UK banking industry using data between 1989 and 2012 which links capital requirements, credit spreads, and macroeconomic variables. Results reflect the average impact on the volume of credit to households and PNFCs and on the average interest rate spread between loans and deposits for each sector. Monetary policy is held constant. It is assumed that no equivalent policies by other countries are taken.

It is possible that some activity and lending may migrate to banks to which the FPC's proposed leverage ratio framework would not apply, such as FCA-only regulated investment firms. These firms are unlikely to be systemically relevant since their balance sheets tend to be small compared with PRA-regulated banks. For this reason, the FPC has not requested powers of Direction over FCA-only regulated investment firms. If it became concerned over the leverage of FCA-only regulated investment firms, the FPC could make Recommendations to the FCA.

## Box 2 Evidence for risk-shifting

There is an extensive literature documenting the shift of banks' balance sheets towards riskier assets at the level of individual, financially distressed banks — a phenomenon sometimes known as 'gambling for resurrection'.<sup>(1)</sup> But only a few empirical studies have systemically addressed the question of whether coarser regulatory approaches, such as the leverage ratio or standardised approaches, cause banks to shift risks.

One exception is the study by Furlong (1988), which examined how the behaviour of 98 US bank holding companies was affected by the introduction of the leverage ratio in 1981. Furlong measured bank riskiness using the volatility of the return on assets, as implied by the volatility of the return on equity using the Black-Scholes option formula. While Furlong found that the riskiness of US banks increased after the leverage ratio was introduced, he found no difference between the banks constrained by the regulation and unconstrained banks. However, he also found that constrained banks reduced their holdings of low-risk, liquid assets by more than unconstrained banks — consistent with some degree of risk-shifting.

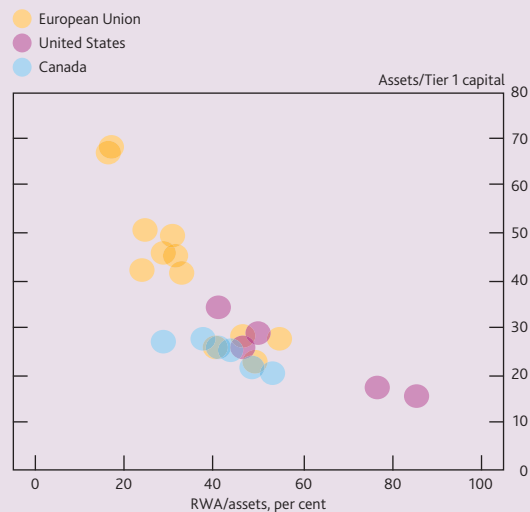
Sheldon (1996) employed a similar approach to study the impact of Basel I on bank risk. Basel I was based on a standardised measure of risk with little granularity. Using a sample of 219 banks across eleven countries, he found that the volatility of asset returns fell following the introduction of Basel I, indicating reduced risk-taking, but without any discernible difference between the banks constrained by the regulation and those that were not.

Becker and Ivashina (2013) provide more recent evidence of risk-shifting from the insurance sector. The authors find that insurers' corporate bond portfolios appear to be systematically biased towards higher-yield, higher-risk bonds within each regulatory risk-weight bucket. This result is more pronounced for insurance firms for which capital requirements are more binding. The authors also study the portfolios of pension and mutual funds — neither of which are subject to capital regulation — and find no evidence of risk-shifting for these firms.

Using cross-country data on large banks, **Chart A** plots the average risk weight of large banks in Canada, the EU and the United States as of end-2007 against their balance sheet leverage. Continental European and UK banks faced only a risk-weighted regime. Canadian and US banks faced the same constraints, but were also leverage constrained.<sup>(2)</sup> EU banks by and large had greater leverage and lower average risk weights

than North American banks. In contrast, North American banks tended to have higher average risk weights, which may be indicative of risk-shifting, a more conservative risk-weighted framework, or other structural differences in the banking system, for instance, the incidence of mortgages on banks' balance sheets.<sup>(3)</sup>

**Chart A** Average risk weights, leverage and capital ratios of major EU, US and Canadian banks<sup>(a)(b)</sup>



Sources: Bloomberg, FDIC, annual reports.

- (a) Data as of end-2007. Sample includes Bank of America, Barclays, BMO, BNP Paribas, BNY Mellon, CIBC, Citigroup, Crédit Agricole, Credit Suisse, Deutsche Bank, HBOS, HSBC, JPM, Lloyds, NBC, RBC, RBS, Santander, Scotiabank, Société Générale, State Street, TD, UBS, UniCredit, Wachovia and Wells Fargo.
- (b) Canadian and US banks' balance sheet size is adjusted for IFRS.

(1) Eisdorfer (2008).

(2) In contrast to the Canadian leverage ratio, the US leverage ratio version only captured on balance sheet items. As a result, US banks could conceal their true leverage by putting assets off balance sheet. This might make their Asset/Tier 1 capital ratio less informative.

(3) US banks were subject to a Basel I type framework during this period. The EU and Canada were in the process of implementing Basel II, so some banks might have applied parts of Basel II (which generally resulted in lower risk weights).

## 4 Indicators for adjusting the countercyclical leverage ratio buffer

### 4.1 Setting the CCB and CCLB

The FPC already has powers over the risk-weighted countercyclical capital buffer.<sup>(1)</sup> The CCB is designed to provide an additional capital buffer to absorb unexpected losses at times of elevated risks to financial stability and to provide incentives for banks to rein in excessive or underpriced exposures, which might reduce losses following a downturn in the credit cycle. The FPC proposes to apply a countercyclical leverage ratio buffer (CCLB) to complement the risk-weighted CCB, as discussed in Section 3.

The FPC has explained how it will set the UK CCB rate in its Policy Statement on its powers to supplement capital requirements.<sup>(2)</sup> When the FPC does not judge there to be material threats to resilience in the United Kingdom, it expects the CCB rate applied to UK exposures to be set to zero. When the FPC judges that system-wide risk is increasing — and it is not clearly confined to a specific sector which may be best targeted by a Sectoral Capital Requirement — the FPC will tend to increase the CCB. The CCB will be reduced back to the normal microprudential floor either when threats to resilience are judged to have receded, or when credit conditions are weak and the size of banks' capital buffers is judged to be more than sufficient to absorb future unexpected losses. The FPC intends to revisit its strategy on setting the CCB during 2015 alongside work on establishing the Medium Term Capital Framework.

The FPC would expect to follow a guiding principle of setting a bank's CCLB rate in proportion to its risk-weighted CCB rate, using a 35% conversion factor. Varying the CCB and the CCLB in this way would preserve the relationship between the risk-weighted capital and leverage ratio requirements through the cycle. That would ensure that countercyclical policy is effective in leaning against the build-up of risks in the financial system since it would encourage banks to take steps to rein in excessive risk-taking, rather than shifting the composition of their assets.

The FPC does not expect to depart from this guiding principle. However, the FPC would remain alert for exceptional circumstances where it might be desirable not to move the CCB and the CCLB in proportion using a 35% conversion factor. Departure from that guiding principle could imply adjusting the CCB without adjusting the CCLB, or *vice versa*; or adjusting the CCB and CCLB rates using a different conversion factor. While it is difficult to anticipate in advance such scenarios, some possible examples could include:

- a general boom in assets which receive high risk weights, where an increase in a bank's CCLB rate by less than 35% of the increase in its CCB rate would provide a regulatory

incentive for banks to invest relatively more in lower risk-weighted assets.

- a general boom in assets which receive low risk weights, where an increase in a bank's CCLB rate by more than 35% of the increase in its CCB rate would provide a regulatory incentive for banks to invest relatively more in higher risk-weighted assets.

The FPC would take decisions on setting the CCB and CCLB rates at the same time, based on its judgement of system-wide risk. The CCB rate is set quarterly and is currently at zero per cent.

### 4.2 Indicators for the CCB and CCLB

Since the FPC will, as a guiding principle, move the CCB and the CCLB together, it would consider the same information in deciding on their use. Many indicators can be useful in shaping the decisions of the FPC on countercyclical tools and helping to explain those decisions publicly. No single set of indicators can ever provide a perfect guide to systemic risks, or to the appropriate policy responses, due to the complexity of financial interlinkages, the tendency of the financial system to evolve over time, and time lags before risks become apparent. The choice of indicators will also evolve over time as the FPC learns from experience, as data availability and quality improve, and as new research is undertaken. Judgement will play a material role in all FPC decisions and policy will not be mechanically tied to any specific set of indicators. To support its judgement, the FPC will monitor a wide set of information, varying over time depending on the emerging risks, including both market and supervisory intelligence, and 'stress tests' of banking sector resilience.

The FPC does, however, routinely review the core indicators set out in **Table I** on pages 32–33 when setting the CCB. These indicators have been helpful in identifying emerging risks to financial stability in the past. The choice of the core indicators is discussed in detail in the FPC's Policy Statement on its powers to supplement capital requirements.<sup>(3)</sup> They include measures of balance sheet stretch within the financial system and among borrowers, and measures of terms and conditions in financial markets. Since instability often follows periods of rapid change in the financial system, it will be important to consider both significant changes in indicators and their absolute level. In addition, the FPC is required by CRD IV/CRR to have regard to a 'buffer guide' — a simple metric which provides a guide for the size of the CCB rate based on the gap between the ratio of credit to GDP and its long-term trend.

(1) The Bank of England is designated as the authority for setting the CCB, with policy functions to be exercised by the FPC as a Committee within the Bank of England.

(2) Bank of England (2014c).

(3) See Section 4 in Bank of England (2014c).

The FPC has stated in its previous Policy Statement on capital instruments that the greater the degree of deviation from historical benchmarks suggested by the core indicators, the more homogeneous the picture that the different indicators convey, and the more consistent that picture is with market and supervisory intelligence, the more likely it is that the FPC will adjust the CCB rate. The same principle would apply for the CCLB.



## 5 Conclusion

Effective macroprudential policy tools are important to the FPC's ability to meet its objectives. The Government has given the FPC powers of Direction over minimum and buffer leverage ratio requirements. This Policy Statement sets out how the FPC envisages each type of leverage ratio requirement working, discusses their likely impact on financial stability and economic growth, and explains the circumstances

in which the FPC might expect to adjust the proposed calibration and setting of each requirement.

This document meets the legislative requirement to prepare a written statement with regard to the FPC's Direction powers in relation to leverage ratio requirements. As experience of operating the regime grows, the Policy Statement will be reviewed and updated by the FPC in line with its statutory obligations.

Table A.1 Core indicator set for the countercyclical capital buffer<sup>(a)</sup>

Indicator	Average, 1987–2006 <sup>(b)</sup>	Average 2006 <sup>(c)</sup>	Minimum since 1987 <sup>(b)</sup>	Maximum since 1987 <sup>(b)</sup>	Previous value (oya)	Latest value (as of 19 June 2015)
<b>Bank balance sheet stretch<sup>(d)</sup></b>						
1 Capital ratio						
Basel II core Tier 1 <sup>(e)</sup>	6.6%	6.3%	6.2%	12.3%	n.a.	n.a.
Basel III common equity Tier 1 <sup>(f)</sup>	n.a.	n.a.	7.2%	11.4%	10.2%	11.4% (2015 Q1)
2 Leverage ratio <sup>(g)</sup>						
Simple	4.7%	4.1%	2.9%	5.9%	5.5%	5.9% (2014)
Basel III (2010 proposal)	n.a.	n.a.	n.a.	n.a.	4.2%	n.a.
Basel III (2014 proposal)	n.a.	n.a.	n.a.	n.a.	n.a.	4.4% (2014)
3 Average risk weights <sup>(h)</sup>						
	53.6%	46.4%	34.6%	65.4%	36.1%	37.4% (2014)
4 Return on assets before tax <sup>(i)</sup>						
	1.0%	1.1%	-0.2%	1.5%	0.3%	0.5% (2014)
5 Loan to deposit ratio <sup>(j)</sup>						
	114.5%	132.4%	96.0%	133.3%	99.1%	96.0% (2014)
6 Short-term wholesale funding ratio <sup>(k)</sup>						
<i>of which excluding repo funding<sup>(k)</sup></i>	n.a.	24.3%	12.6%	26.5%	14.1%	12.6% (2014)
	n.a.	15.6%	5.8%	16.1%	5.8%	6.3% (2014)
7 Overseas exposures indicator: countries to which UK banks have 'large' and 'rapidly growing' total exposures <sup>(l)(m)</sup>						
	In 2006 Q4: AU, BR, CA, CH, CN, DE, ES, FR, IE, IN, JP, KR, KY, LU, NL, US, ZA			In 2014 Q1: CN, IE, HK, MY, SG, TW		In 2015 Q1: AE, JP, KY
8 CDS premia <sup>(n)</sup>						
	12 bps	8 bps	6 bps	298 bps	67 bps	82 bps (19 June 2015)
9 Bank equity measures						
Price to book ratio <sup>(o)</sup>	2.14	1.97	0.52	2.86	0.93	0.99 (19 June 2015)
Market-based leverage ratio <sup>(p)</sup>	9.7%	7.8%	1.9%	15.7%	5.3%	5.5% (19 June 2015)
<b>Non-bank balance sheet stretch<sup>(q)</sup></b>						
10 Credit to GDP <sup>(r)</sup>						
Ratio	124.5%	159.4%	93.8%	179.1%	150.8%	145.1% (2014 Q4)
Gap	5.8%	6.2%	-26.2%	21.5%	-23.1%	-25.3% (2014 Q4)
11 Private non-financial sector credit growth <sup>(s)</sup>						
	10.1%	9.8%	-2.8%	22.8%	-0.4%	2.5% (2014 Q4)
12 Net foreign asset position to GDP <sup>(t)</sup>						
	-3.1%	-12.1%	-23.8%	20.4%	-23.8%	-19.8% (2014 Q4)
13 Gross external debt to GDP <sup>(u)</sup>						
<i>of which bank debt to GDP</i>	193.9%	321.8%	123.0%	406.7%	333.6%	327.3% (2014 Q4)
	128.2%	202.6%	84.4%	275.6%	183.9%	176.4% (2014 Q4)
14 Current account balance to GDP <sup>(v)</sup>						
	-1.8%	-2.2%	-6.1%	0.6%	-5.6%	-5.6% (2014 Q4)
<b>Conditions and terms in markets</b>						
15 Long-term real interest rate <sup>(w)</sup>						
	3.10%	1.27%	-0.88%	5.29%	0.35%	-0.42% (19 June 2015)
16 VIX <sup>(x)</sup>						
	19.1	12.8	10.6	65.5	11.6	13.9 (19 June 2015)
17 Global corporate bond spreads <sup>(y)</sup>						
	115 bps	87 bps	52 bps	486 bps	108 bps	132 bps (19 June 2015)
18 Spreads on new UK lending						
Household <sup>(z)</sup>	480 bps	352 bps	285 bps	840 bps	693 bps	658 bps (Mar. 2015)
Corporate <sup>(aa)</sup>	107 bps	100 bps	84 bps	417 bps	249 bps	237 bps (Dec. 2014)

(a) A spreadsheet of the series shown in this table is available at [www.bankofengland.co.uk/financialstability/Pages/fpc/coreindicators.aspx](http://www.bankofengland.co.uk/financialstability/Pages/fpc/coreindicators.aspx).

(b) If the series starts after 1987, the average between the start date and 2006 and the maximum/minimum since the start date are used.

(c) 2006 was the last year before the start of the global financial crisis.

(d) Unless otherwise stated, indicators are based on the major UK bank peer group defined as: Abbey National (until 2003); Alliance & Leicester (until 2007); Bank of Ireland (from 2005); Bank of Scotland (until 2000); Barclays, Bradford & Bingley (from 2001 until 2007); Britannia (from 2005 until 2008); Co-operative Banking Group (from 2005); Halifax (until 2000); HBOS (from 2001 until 2008); HSBC (from 1992); Lloyds TSB/Lloyds Banking Group; Midland (until 1991); National Australia Bank (from 2005); National Westminster (until 1999); Nationwide; Northern Rock (until 2011); Royal Bank of Scotland; Santander (from 2004); TSB (until 1994); Virgin Money (from 2012) and Woolwich (from 1990 until 1997). Accounting changes, eg the introduction of IFRS in 2005 result in discontinuities in some series. Restated figures are used where available.

(e) Major UK banks' aggregate core Tier 1 capital as a percentage of their aggregate risk-weighted assets. The core Tier 1 capital ratio series starts in 2000 and uses the major UK banks peer group as at 2014 and their constituent predecessors. Data exclude Northern Rock/Virgin Money from 2008. From 2008, core Tier 1 ratios are as published by banks, excluding hybrid capital instruments and making deductions from capital based on PRA definitions. Prior to 2008, that measure was not typically disclosed and Bank calculations approximating it as previously published in the *Financial Stability Report* are used. The series are annual until end-2012, half-yearly until end-2013 and quarterly afterwards. Sources: PRA regulatory returns, published accounts and Bank calculations.

(f) The Basel II series was discontinued with CRD IV implementation on 1 January 2014. The 'Basel III common equity Tier 1 capital ratio' is calculated as aggregate peer group common equity Tier 1 levels over aggregate risk-weighted assets, according to the CRD IV definition as implemented in the United Kingdom. The Basel III peer group includes Barclays, Co-operative Banking Group, HSBC, Lloyds Banking Group, Nationwide, RBS and Santander UK. Sources: PRA regulatory returns and Bank calculations.

(g) A simple leverage ratio calculated as aggregate peer group equity (shareholders' claims) over aggregate peer group assets (note a discontinuity due to the introduction from 2005 of IFRS accounting standards, which tends to reduce reported leverage ratios thereafter). The Basel III (2010) series corresponds to aggregate peer group Tier 1 capital (including grandfathered instruments) over aggregate Basel 2010 leverage ratio exposure. The Basel III (2014) series corresponds to aggregate peer group CRD IV end-point Tier 1 capital over aggregate Basel 2014 exposure measure, and the previous value is for June 2014. Note that the simple series excludes Northern Rock/Virgin Money from 2008. The Basel III series consists of Barclays, Co-operative Banking Group, HSBC, Lloyds Banking Group, Nationwide, RBS and Santander UK. The series are annual until end-2012 and half-yearly afterwards. Sources: PRA regulatory returns, published accounts and Bank calculations.

(h) Aggregate end-year peer group risk-weighted assets divided by aggregate end-year peer group published balance sheet assets. Data for 2014 H1 onwards are on a CRD IV basis. Sample excludes Northern Rock for all years. Series begins in 1992 and is annual until end-2012 and half-yearly afterwards. Sources: Published accounts and Bank calculations.

(i) Calculated as major UK banks' annual profit before tax as a proportion of total assets, averaged over the current and previous year. When banks in the sample have merged, aggregate profits for the year are approximated by those of the acquiring group. Series is annual. Latest value shows return on assets between end-2013 and end-2014. Previous value is for 2013 as a whole. Sources: Published accounts and Bank calculations.

(j) Major UK banks' loans and advances to customers as a percentage of customer deposits, where customer refers to all non-bank borrowers and depositors. Repurchase agreements are excluded from loans and deposits where disclosed. One weakness of the current measure is that it is not possible to distinguish between retail deposits from households and deposits placed by non-bank financial corporations on a consolidated basis. Additional data collections would be required to improve the data in this area. The series begins in 2000 and is annual until end-2012 and half-yearly afterwards. Sources: Published accounts and Bank calculations.

(k) Share of total funding (including capital) accounted for by wholesale funding with residual maturity of under three months. Wholesale funding comprises deposits by banks, debt securities, subordinated liabilities and repo. Funding is proxied by total liabilities excluding derivatives and liabilities to customers under investment contracts. Where underlying data are not published estimates have been used. Repo includes repurchase agreements and securities lending. The series starts in 2005. Sources: Published accounts and Bank calculations.

(l) This indicator highlights the countries where UK-owned monetary financial institutions' (MFIs) overall exposures are greater than 10% of UK-owned MFIs' tangible equity on an ultimate risk basis and have grown by more than 1.5 times nominal GDP growth in that country. Foreign exposures as defined in BIS consolidated banking statistics. Uses latest data available, with the exception of tangible equity figures for 2006–07, which are estimated using published accounts. Sources: Bank of England, ECB, IMF *World Economic Outlook (WEO)*, Thomson Reuters Datastream, published accounts and Bank calculations.

(m) Abbreviations used are: Australia (AU), Brazil (BR), Canada (CA), Switzerland (CH), People's Republic of China (CN), Germany (DE), Spain (ES), France (FR), Ireland (IE), Italy (IT), Hong Kong (HK), India (IN), Japan (JP), Republic of Korea (KR), Cayman Islands (KY), Luxembourg (LU), Malaysia (MY), Netherlands (NL), Singapore (SG), Taiwan (TW), United Arab Emirates (AE), United States (US) and South Africa (ZA).

- (n) Average of major UK banks' five-year senior CDS premia, weighted by total assets. Series starts in 2003. Includes Nationwide from July 2003. Sources: Markit Group Limited, published accounts and Bank calculations.
- (o) Relates the share price with the book, or accounting, value of shareholders' equity per share. Simple averages of the ratios in the peer group, weighted by end-year total assets. The sample comprises the major UK banks excluding Britannia, Co-operative Banking Group and Nationwide. Northern Rock is excluded from 2008 and Virgin Money from 2012. Series starts in 2000. Sources: Thomson Reuters Datastream, published accounts and Bank calculations.
- (p) Total peer group market capitalisation divided by total peer group assets (note a discontinuity due to introduction of IFRS accounting standards in 2005, which tends to reduce leverage ratios thereafter). The sample comprises the major UK banks excluding Britannia, Co-operative Banking Group and Nationwide. Northern Rock are excluded from 2008 and Virgin Money from 2012. Series starts in 2000. Sources: Thomson Reuters Datastream, published accounts and Bank calculations.
- (q) The current vintage of ONS data is not available prior to 1997. Data prior to this and beginning in 1987 have been assumed to remain unchanged since *The Blue Book 2013*.
- (r) Credit is defined as debt claims on the UK private non-financial sector. This includes all liabilities of the household and not-for-profit sector except for the unfunded pension liabilities and financial derivatives of the not-for-profit sector, and private non-financial corporations' (PNFCs) loans and debt securities excluding derivatives, direct investment loans and loans secured on dwellings. The credit to GDP gap is calculated as the percentage point difference between the credit to GDP ratio and its long-term trend, where the trend is based on a one-sided Hodrick-Prescott filter with a smoothing parameter of 400,000. See Countercyclical Capital Buffer Guide at [www.bankofengland.co.uk/financialstability/Pages/fpc/coreindicators.aspx](http://www.bankofengland.co.uk/financialstability/Pages/fpc/coreindicators.aspx) for further explanation of how this series is calculated. Sources: BBA, ONS, Revell, J and Roe, A (1971), 'National balance sheets and national accounting — a progress report', *Economic Trends*, No. 211 and Bank calculations.
- (s) Twelve-month growth rate of nominal credit. Credit is defined as above. Sources: ONS and Bank calculations.
- (t) As per cent of annual GDP (four-quarter moving sum). Sources: ONS and Bank calculations.
- (u) Ratios computed using a four-quarter moving sum of GDP. MFIs cover banks and building societies resident in the United Kingdom. Sources: ONS and Bank calculations.
- (v) As per cent of quarterly GDP. Sources: ONS and Bank calculations.
- (w) Five-year real interest rates five years forward, derived from the Bank's index-linked government liabilities curve. Sources: Bloomberg and Bank calculations.
- (x) The VIX is a measure of market expectations of 30-day volatility as conveyed by S&P 500 stock index options prices. Series starts in 1990. One-month moving average. Sources: Bloomberg and Bank calculations.
- (y) 'Global corporate debt spreads' refers to the global broad market industrial spread. This tracks the performance of non-financial, investment-grade corporate debt publicly issued in the major domestic and eurobond markets. Index constituents are capitalisation-weighted based on their current amount outstanding. Spreads are option adjusted, (ie they show the number of basis points the matched-maturity government spot curve is shifted in order to match a bond's present value of discounted cash flows). One-month moving average. Series starts in 1997. Sources: BofA Merrill Lynch Global Research and Bank calculations.
- (z) The household lending spread is a weighted average of mortgage and unsecured lending spreads, with weights based on relative volumes of new lending. The mortgage spread is a weighted average of quoted mortgage rates over risk-free rates, using 90% LTV two-year fixed-rate mortgages and 75% LTV tracker, two and five-year fixed-rate mortgages. Spreads are taken relative to gilt yields of matching maturity for fixed-rate products until August 2009, after which spreads are taken relative to OIS of matching maturity. Spreads are taken relative to Bank Rate for the tracker product. The unsecured component is a weighted average of spreads on credit cards, overdrafts and personal loans. Spreads are taken relative to Bank Rate. Series starts in 1997. Sources: Bank of England, CML and Bank calculations.
- (aa) The UK corporate lending spread is a weighted average of: SME lending rates over Bank Rate; CRE lending rates over Bank Rate; and, as a proxy for the rate at which banks lend to large, non-CRE corporates, UK investment-grade company bond spreads over maturity-matched government bond yields (adjusted for any embedded option features such as convertibility into equity). Weights based on relative volumes of new lending. Series starts in October 2002. Sources: Bank of England, BBA, Bloomberg, BofA Merrill Lynch Global Research, De Montfort University, Department for Business, Innovation and Skills and Bank calculations.

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