BANK OF ENGLAND

Supplement to the December 2015 Financial Stability Report: The framework of capital requirements for UK banks

The framework of capital requirements for UK banks

Banks need to be able to absorb losses. The capacity to absorb losses ensures that, even after a shock, banks are able to meet their own liabilities as they fall due and continue their business. The failure or near-failure ('distress') of a bank, or banks, can have consequences well beyond those for the bank itself. The global financial crisis demonstrated how insufficiently capitalised banks resulted in severe restrictions on credit supply. Banks were bailed out using public funds. The banking system amplified the recession.

Banks' loss absorbing resources can be divided into two main components.

- 'Going concern' loss absorbing resources, typically in the form of common equity, can cushion the impact of losses in times of stress and ensure that the bank can keep operating and that it can maintain the supply of credit to the economy; and

- 'Gone concern' loss-absorbing resources, typically in the form of debt, can be bailed in when a bank has failed to ensure that the failure is orderly, does not result in further damage to the economy and that the taxpayer is not forced to bail out the bank.

Taken together, these 'going concern' and 'gone concern' requirements make up the *overall loss-absorbing capacity* of a bank, sometimes referred to broadly as 'bank capital'.

Though they have different purposes, the going and gone concern components are closely related. The greater the confidence that failing banks can be resolved without wider damage to the economy or needing to be bailed out with taxpayer funds, the less going concern capital is needed to insure against the costs of bank failure. The financial crisis exposed material failings in the level of banks' capital requirements, their structure, and the resources used to meet them. Banks,(1) including in the United Kingdom, were shown to have insufficient amounts of capital, of insufficient quality, to meet the losses that arose due to the crisis. As a result, they cut back lending which deepened the recession. In some cases they failed altogether and had to be bailed out so that they could continue to operate and avoid further damage to the economy.

Since the crisis, authorities in the United Kingdom, and at the European and global levels, have worked to establish much higher standards for banks' equity capital and other loss-absorbing capacity in order to fix some of the major fault lines that caused the financial crisis (Box 1 describes the different measures of capital used).

Over the last seven years, UK banks have continued to build their equity capital to safer levels, and expect to do so further in coming years (see the Banking sector section of the December 2015 *Financial Stability Report* — henceforth the *Report*).

The design phase of the reform process is reaching completion. That process, at domestic and international levels, has been a major complex effort, with a range of initiatives and reforms. The core elements are:

- Agreed international standards for 'going concern' bank equity and for the instruments that can be used to meet those requirements. These 'Basel III' standards reduce the probability that banks will fail;

- A new structure of these requirements to include buffers as well as hard minimums. Capital buffers enable banks to absorb losses without sharp cut backs in lending when the economy is under stress;

- More recently, new requirements have been established for banks to have additional capacity to absorb losses if they fail and enter resolution. This capacity will facilitate the resolution of banks, minimising damage to the real economy and any recourse to public funds.

(1) In this Supplement, the term 'banks' is used as shorthand for banks and building societies.

The combination of these measures has not only dramatically increased loss-absorbing capacity, but has also changed the incentives of banks and their investors both to avoid losses and to address them if they occur.

Authorities and banks have now moved into the next phase of reform: full implementation. It is now possible to, and appropriate to, provide greater regulatory certainty for banks and other stakeholders. The Financial Policy Committee (FPC) is therefore clarifying the overall equity and loss-absorbing capacity requirements for the UK banking system, and providing a timetable for final refinements.

This *Report* finalises the FPC's view on the overall calibration of the capital framework — both the going and gone concern elements — for the UK banking system. In doing so, it draws on updated analysis by Bank staff of the economic costs and benefits of bank equity.

The FPC's views are grounded in its objective of ensuring the provision of services to the real economy by the banking system is resilient to stress but is not so high as to damage the capacity of the banking system to support sustainable economic growth over the long term.

The FPC also recognises the need for a prudent, coherent and transparent framework of capital requirements for UK banks. Banks themselves, but also analysts, investors and the public at large, have a right to expect frameworks that are proportionate and predictable.

This *Report* therefore also describes how the framework of capital requirements is expected to transition from its current state to its end point in 2019 as well as ongoing work to refine requirements during that transition.

As the elements of this framework are implemented, the allocation of capital will evolve, so that each element of the framework serves a discrete transparent purpose, without duplication or overlap.

Section 2 of this Supplement describes in detail how the FPC intends to operate an important time-varying element of the capital framework: the countercyclical capital buffer that will be applied to banks' UK exposures. This tool will be used to ensure the banking system has a buffer of equity that varies over time to reflect the changing cyclical risks associated with those exposures.

The use of this buffer eliminates the need to ensure the banking system has sufficient equity at all times to face environments where risks are heightened. By varying this buffer, the FPC is seeking to make equity requirements more efficient with the aim of ensuring the banking system can provide essential services to the real economy in normal times and under stress.

Section 3 outlines how the framework described in this Supplement compares to capital frameworks in place in other jurisdictions.

Section 4 summarises the further steps that will be taken to clarify and finalise the framework.

Box 1
Measures of bank capital

Bank capital adequacy is typically expressed as a ratio of capital to a bank's assets (sometimes called their 'exposures'). This box outlines the types of bank liability that class as capital and the two measures of assets that are used: risk weighted and leverage exposures.

The **risk-weighted assets (RWAs) measure** assigns weights to a bank's assets to reflect their relative risk of incurring loss.

The **leverage measure** does not weight assets but simply captures the total value of assets. On average, UK banks' assets measured on a risk-weighted basis are around 37% of their assets measured on an un-weighted or leverage measure.

Most of this Supplement concerns measures of capital relative to risk-weighted assets. Box 4 describes the role of capital relative to leverage exposures in the overall framework.

The highest quality of capital is known as **common equity Tier 1 (CET1)**. CET1 is available to absorb losses in the widest range of circumstances. This is possible because only perpetual capital instruments count as CET1 and any dividend payments on these instruments must be fully discretionary. CET1 absorbs losses before any other type of capital.

Banks can also count other instruments in their regulatory capital calculations to a limited extent. **Additional Tier 1 (AT1)** capital includes perpetual subordinated debt instruments, but they must have conversion or write-down features. Contingent convertible or 'CoCo' bonds are the most common type of AT1 instrument.

Together, CET1 and AT1 capital makes up **Tier 1 capital**, which is considered to be the sum of capital instruments that a bank can use to cover losses while it remains a going concern. In this Supplement, 'equity' is used to refer to Tier 1 capital.

Another type of non-equity instrument, known as **Tier 2**, can absorb losses in gone concern, but may not be able to absorb losses while a bank remains a going concern. Unlike Tier 1, Tier 2 instruments need not be permanent, and they may have non-discretionary or cumulative coupons. In this Supplement, Tier 2 capital is treated alongside other liabilities that can absorb losses in resolution.

In addition to regulatory capital requirements, banks will also face new requirements on their **gone concern loss-absorbing resources**. Under EU law, these will be implemented for banks in the United Kingdom by setting **minimum requirements on own funds and eligible liabilities (MREL).**

MREL will determine the total loss absorbing capacity for each bank. Its equity requirements are one component of that total. These requirements mean banks that cannot simply be put into insolvency will need to issue a sufficient amount of long-term debt in a form which can readily absorb losses should the bank be put into resolution.

Resolution means that the bank can be recapitalised without taxpayer funds to meet regulatory equity requirements and can command market confidence while being restructured or wound down in an orderly fashion, ensuring the continuity of critical economic functions. This is described in more detail in Box 2.

1 The appropriate overall level of capital requirements

This section considers the appropriate level of capital required by the UK banking system, compares it to the current and planned requirements and outlines the transitions from the current framework to the end state in 2019.

The appropriate level of equity capital for the UK banking system

The FPC has considered analysis of the economic benefits and costs of banks' financing their activities with more equity, which can absorb losses in the course of business, rather than with debt or deposits.

The benefits of higher levels of equity were made clear by the financial crisis. Financial crises occur when banks are unable to meet their liabilities as they fall due — a position typically associated with a severe threat of their equity being depleted. Financial crises tend to have very long-lasting effects on output: calculations suggest the net present value of such crises can amount to three quarters of annual GDP.

All else equal, banks with higher levels of equity are less likely to fail because they have greater capacity to absorb losses. They are also likely to inspire greater confidence and be more able to continue to support the real economy even in a downturn, including by continuing to meet demand from creditworthy borrowers for loans. A banking system with more going concern equity is less likely to amplify economic stress.

These benefits should be weighed against the economic costs of bank equity. Greater equity requirements increase the overall funding costs for banks, notwithstanding that higher equity might reduce the absolute cost of debt and equity. Higher funding costs for banks translate into a higher cost of capital for the real economy, reducing household expenditures, business investment and potential economic output in the long term.

Overall, based on analysis of the economic costs and benefits of going concern bank capital, the Committee judges the appropriate Tier 1 equity requirement for the banking system, in aggregate, to be 11% of risk-weighted assets. A small part of this (up to 1.5%) can be met with contingent capital instruments. The FPC considers the appropriate level of common equity Tier 1 (CET1), the highest quality capital, to be 9.5% of risk-weighted assets.

This assessment refers to the equity requirements applied to the aggregate system and that do not vary through time. These are the structural requirements, on top of which there may also be time-varying additional requirements.

It also assumes that existing shortcomings in the definitions of risk-weighted assets are corrected. These shortcomings, for example around risks associated with defined benefit pension fund deficits that are not set against capital, or risk weightings that are too low, are typically compensated for today in additional equity requirements.

These compensating additional requirements average 2½% of risk-weighted assets. So if no risk measurement shortcomings were addressed, the appropriate measured level of Tier 1 equity in the system would be 13½% of risk-weighted assets. As currently measured, the UK banking system has Tier 1 equity of 13% of risk-weighted assets. So it only has a little more capital to build, in aggregate, by 2019.

The FPC considers it appropriate that around half of the system's going concern equity requirement should be in the form of buffers that can be used to absorb losses under stress rather than in hard minimum requirements that must be met at all times. These buffers serve a macroprudential purpose. By absorbing the impact of stress they reduce the need for banks to withdraw services, such as credit provision to the real economy.

The FPC's assessment of the appropriate level of capital is substantially lower than earlier estimates of the appropriate level of equity for the banking system, including those that were produced by the Basel Committee on Banking Supervision (BCBS) to inform the post-crisis Basel III standards.

The BCBS undertook a study of the macroeconomic costs and benefits of higher equity requirements, incorporating analysis from BCBS member organisations (including the Bank) to inform estimates of the appropriate level of equity for a generic advanced economy.(1) Assuming that financial crises to some extent reduced the path of economic activity permanently, the analysis found the appropriate equity requirement was around 18% of risk-weighted assets.(2)

New Bank of England analysis(3) updates and extends the BCBS analysis to reflect the experience gained since the global financial crisis and to take account of new regulatory reforms, in particular the introduction of credible and effective bank resolution regimes and the prospect of time-varying capital buffers. The Bank's analysis suggests that the optimal equity requirement for the system as a whole is materially lower than that found by the BCBS, in the region of 10–14% of banks' risk-weighted assets.

(1) Basel Committee on Banking Supervision (2010), 'An assessment of the long-term economic impact of stronger capital and liquidity requirements', August.
(2) This ratio has been converted to a Basel III equivalent to reflect the stricter definitions of capital and focus on going concern loss-absorbency, as well as revisions to the risk-weighting framework.
(3) Brooke *et al* (2015), 'Measuring the macroeconomic costs and benefits of higher UK bank capital requirements', *Bank of England Financial Stability Paper No. 35*, December.

There are three main reasons why the FPC judges the appropriate level of going concern equity to be materially below earlier assessments.

i) Effective resolution arrangements

The FPC judges that effective arrangements for resolving banks that fail will materially reduce both the probability and costs of financial crises. In the updated Bank of England analysis, these arrangements are assessed to reduce the appropriate equity requirement for the banking system by about 5% of risk-weighted assets.

Credible and effective resolution arrangements are expected to improve market discipline, and thereby reduce the probability of a future financial crisis by around a third. And the ability to recapitalise banks promptly and sufficiently at the onset of a crisis is expected to reduce the net present value of the economic cost of a crisis from around three-quarters to just under half of pre-crisis GDP.

The United Kingdom now has a bank resolution regime — the Bank of England has been established as the UK resolution authority with a full set of resolution powers. Banks are engaged in planning for resolution and are required to ensure their businesses and funding are structured in such a way as to facilitate their orderly resolution.

Importantly, standards for the total loss-absorbing capacity (TLAC) that globally systemic banks must hold have also been agreed at the international level; these determine the amount and nature of gone concern loss absorbing resources these banks must hold.

As set out in Box 2, these standards effectively require globally systemic banks to issue liabilities that can be used in resolution to absorb losses and recapitalise them after their equity requirement has been exhausted. These additional liabilities do not need to be equity and will more typically be unsecured long-term debt.

The TLAC standard established that globally systemic banks must have total loss-absorbing capacity of around 23% of risk-weighted assets.(1) In effect, this means that the biggest global banks will be required to have liabilities of at least 12% of risk-weighted assets, in addition to their going concern equity requirements, that can be used in resolution to absorb losses and recapitalise them.(2)

This internationally-agreed standard for global systemically important banks will be implemented under EU law in the United Kingdom by the Bank of England through 'minimum requirements for own funds and eligible liabilities' (MREL). MREL must be set individually for all banks under the European Bank Recovery and Resolution Directive.

The Bank will shortly consult on its approach to setting MREL, including for banks other than those judged to be globally systemic. For banks that cannot go into insolvency without causing wide disruption and will therefore have to be put in resolution, EU law requires them to have sufficient MREL to allow them to be recapitalised to a level that will allow them to continue to operate and maintain market confidence.

These changes will help to support a credible and effective resolution regime for banks in the United Kingdom, allowing individual banks to be recapitalised in resolution, without the need for public solvency support. Orderly resolution will minimise the damage to the real economy caused by bank failure and avoid unnecessary interruption to the critical functions those banks provide to the real economy.

ii) Effective supervision & structural reform

The FPC places weight on the role that forward-looking, judgment-led prudential supervision conducted by the Prudential Regulation Authority plays in ensuring the safety and soundness of individual UK banks. Such supervision can ensure that individual banks do not take excessive risks.

This is complemented by structural changes since the crisis. These include the ring-fencing of major UK banks as required by the Banking Reform Act, which will separate core deposit taking (from households and small/medium-sized businesses) from investment banking activities.(3) These restructuring efforts will support resolvability and increase the resilience of ring-fenced banks and large building societies to risks originating in other parts of their group or the global financial system.

Measures are also in place to restrict banks' large exposures and interconnectedness. New liquidity requirements are in train, restricting banks' ability to rely on short-term funding and so run potentially excessive maturity mismatch on their balance sheets. These measures will reduce the likely costs of distress in the banking system by removing some of the mechanisms that amplified stress in the global financial crisis.

iii) Active use of the UK countercyclical capital buffer

The Committee intends to make active use of the time-varying countercyclical capital buffer that will apply to

(1) The 18% minimum TLAC requirement for G-SIBs excludes their capital buffers. Including these buffers — the capital conservation buffer, the systemic importance buffers, and firm-specific supervisory buffers — gives a total requirement of around 23%.

(2) From 2022, global systemically important banks headquartered outside of emerging market economies will be required to meet a minimum total loss-absorbency capacity (TLAC) standard of at least 18% of risk-weighted assets and 6.75% of the Basel III leverage ratio exposure measure, in addition to going concern capital requirements. This implies additional resources of at least 12% of risk weighted assets over and above minimum Pillar 1 Tier 1 capital requirement (18% – 6% = 12%), with the 12% including 2% of Tier 2 capital instruments that can be used to satisfy the minimum Basel III Pillar 1 total capital requirement of 8%. Note that from 2019 until end-2021, the minimum TLAC requirement will be at least 16% of risk-weighted assets and 6% of the Basel III leverage ratio exposure measure.

(3) See 'The implementation of ring-fencing: prudential requirements, intragroup arrangements and use of financial market infrastructures', PRA CP37/15.

Box 2

The framework for setting 'gone concern' loss-absorbency standards: total loss-absorbing capacity requirements for globally systemic banks

On 9 November 2015, the Financial Stability Board published its final standard for the total loss-absorbing capacity that global systemically important banks must hold, which was subsequently endorsed by G20 Leaders. The Bank of England, as UK resolution authority, plans to implement this by establishing so-called 'minimum requirements for own funds and eligible liabilities' (MREL) as it is required to do under the European Bank Recovery and Resolution Directive. MREL will also extend requirements for gone concern loss-absorbing capacity over and above equity requirements to banks other than those covered by the global standard. The Bank will consult on its approach shortly.

The global standard requires authorities to ensure that globally systemic banks maintain sufficient gone concern loss-absorbing capacity to implement an orderly resolution that would minimise the impact of their failure on financial stability, while ensuring continuity of critical functions and avoiding exposure of public funds to loss.

By 2022, authorities must require global systemically important banks to have total loss-absorbing capacity of at least 18% of risk-weighted assets or 6.75% of (non-risk weighted) leverage exposures or to ensure orderly resolution. From 2019, the interim minimum floor will be 16% of risk-weighted assets or 6% of leverage exposures.

These requirements are for total loss absorption. They are not additive to going concern minimum capital requirements — they include minimum gone concern capital requirements. Given the minimum going concern international standard of 6% equity, the international TLAC standard implies that globally systemic banks will need additional loss-absorbing capacity of 12% of risk-weighted assets by 2022. The equity buffer requirements — set out in this Supplement — are additive to these total loss-absorbency standards.

The requirements will apply to 'resolution' entities — the banking group that will enter resolution when it fails. In some cases, this will be the parent entity of the banking group and there will be a 'single point of entry' for resolution. In other cases, where a bank can be split up in resolution without disruption, there will be 'multiple points of entry' for resolution and therefore multiple resolution entities to which the requirement will apply. The liabilities issued to meet the requirement will be issued by the resolution entity/ies.

Globally systemic banks will be required to disclose publicly the amount, nature and maturity of TLAC issued externally by resolution entities and how it is distributed within groups. This disclosure must be provided on a legal entity basis. This is crucial to ensure market discipline. The Basel Committee on Banking Supervision (BCBS) will publish a consultation on disclosure requirements in the near future.

Finally, banks will be subject to restrictions on their holdings of loss-absorbing instruments issued by other banks. This is important in minimising the risk of contagion. The BCBS has published a consultation on its proposal for banks' holdings of the loss-absorbing capacity of other banks to be deducted from their own total capital.

Ensuring sufficient loss-absorbing capacity is just one necessary element of ensuring effective resolution. For example, the Financial Stability Board has also published principles on cross-border effectiveness of resolution actions, as well as draft principles on funding in resolution and guidance on operational continuity through resolution.

banks' UK exposures.(1) The purpose of this, like other equity buffers, is to absorb losses in stress, enabling banks to continue to support the real economy and therefore avoid situations in which they amplify the stress.

The Committee intends to vary the countercyclical capital buffer both up and down, commensurate with its view of the risks of potential losses on banks' UK exposures. In doing so, the Committee will avoid the need to capitalise the banking system for high risk conditions at all points in time: an outcome it judges to be economically inefficient.

The FPC intends to set the countercyclical capital buffer in a transparent, systematic manner. To further that transparency, it is today clarifying its strategy for the use of the buffer. That strategy is set out in Section 2 of this Supplement.

Uncertainty around estimates of appropriate equity requirements

Judgements about the appropriate level of bank capital are uncertain, reflecting the small number of independent banking crises experienced by the United Kingdom and similar advanced economies. A set of important judgements underlays the FPC's assessment. Most notably, if bank resolution were to prove unable to deliver the benefits projected in the assessment, the appropriate equity requirement for the system as a whole would be materially higher, at least 16%.

The FPC has assumed that any move to higher equity requirements can take place gradually, without significant economic transition costs. However, were any increase in equity requirements to be met by significant reductions by banks in their lending to the economy, and that were to cause very persistent damage to potential economic output, the appropriate equity requirement for the banking system — that balances the economic benefits and costs — could be lower.

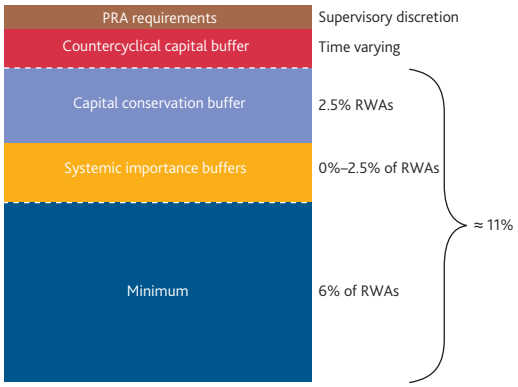
The FPC's judgement is therefore a central view. It recognises the uncertainty around these judgements and it will review its assessment periodically as more information and evidence becomes available.

Requirements for bank capital planned by 2019

This section describes the elements of the planned framework of equity and other loss-absorbing capacity requirements that will apply to UK banks by 2019. Some elements of this framework are currently in effect; other elements are being phased in and will take full effect by 2019. The transition from the current framework to the 2019 framework is discussed in the next section.

Chart 1 shows the going concern equity requirements that will apply to UK banks. **Table A** describes each in more detail, including the risks that each element of the requirements addresses, its calibration, which authority is responsible for its setting, when the requirement takes effect, and any remaining issues to be addressed in its calibration or use.

Chart 1 2019 Tier 1 capital requirements(a)



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

The requirements can be split into three classes: minimum levels of going concern equity that must be met at all times and apply to all banks; buffers of equity that can absorb losses under stress and apply across the system; and supervisory requirements for capital buffers that apply to individual banks.

i) Minimum equity requirements

These consist of a **minimum equity requirement for all banks that must be met at all times. This is 6% of risk-weighted assets.**

This is commonly referred to as 'Pillar 1'. Three quarters of this (4.5%) must be met with the higher quality Tier 1 capital — common equity Tier 1 (CET1). The remainder (1.5%) can be met with other Tier 1 capital, such as contingent capital instruments.(2)

ii) System-wide buffers of equity to absorb stress

Minimum equity requirements are augmented by a buffer of equity that can be used to absorb losses while a bank remains a going concern. These buffers serve a macroprudential purpose. By absorbing the impact of stress they reduce the need for banks to withdraw services, such as credit provision to the real economy. **The FPC considers it appropriate that**

(1) The FPC must assess and set a buffer rate for the UK on a quarterly basis to enable banks with exposures located in the United Kingdom to calculate their bank-specific countercyclical capital buffer. Banks are required, under PRA rules, to calculate their countercyclical capital buffer of CET1 capital equal to their total risk exposure amount multiplied by the weighted average of the countercyclical buffer rates that apply in the jurisdictions where the banks' relevant credit exposures are located. In this Supplement references to the 'countercyclical capital buffer' or, for example, to 'varying the buffer' are to be read, depending on the context, as references to the 'countercyclical capital buffer rate' or 'varying the buffer rate'.

(2) The minimum Basel III Pillar 1 total capital requirement of 8% can be satisfied by up to 2% of Tier 2 capital instruments. Those Tier 2 instruments are treated here as gone concern loss-absorbing capacity, although the Bank as resolution authority has the power to write these instruments down when a firm reaches the point of non-viability before any resolution would take place.

Table A Elements of the 2019 steady state capital framework

Element of the framework	Purpose	2019 calibration	Set by	In effect from	Comment
Going concern equity:		**Tier 1 capital relative to risk-weighted assets**			
Minimum requirements					
Pillar 1	Minimum requirements that banks must meet at all times.	6% (of which 4.5% CET1)	International standard	Now	
Buffers					
Capital conservation buffer	Buffer for all banks that can be used to absorb losses while avoiding breaching minimum requirements.	2.5%	International standard	Phased in between 2016–19	Will, on average, be offset through reductions in PRA Buffer (see below).
Countercyclical capital buffer	Buffer that can be varied over the financial cycle to match the resilience of the banking system to the scale of risk it faces. Individual banks' buffers will depend on the geographical composition of their exposures.	Time varying	FPC (on UK exposures) Foreign authorities (on exposures in other jurisdictions)	1 year from decision	See Section 2 of this chapter. Overall aim is to match the resilience of the banking system to the risks it faces.
Global systemic importance buffer	Buffer set for globally systemic banks to reduce their probability of failure or distress commensurately with the greater cost their failure or distress would have for the global financial system and economy.	0%–2.5% for UK banks (≈ 1.5% on average)	International standard	Phased in between 2016–19	Not currently operational. Will be phased in for HSBC, Standard Chartered Bank, RBS and Barclays.
Systemic risk buffer	Buffer set for ring-fenced banks and large building societies to reduce their probability of failure or distress commensurately with the greater cost their failure or distress would have for the UK economy.	0%–3% (≈ 0.5% on average)	PRA	2019	The FPC will consult on its framework for this buffer in January 2016.
Total		**≈ 11% Tier 1**			
Additional supervisory requirements					
Pillar 2A	Adjustment to minimum requirements to reflect risks not captured or not adequately captured in Pillar 1 (eg trading book and pension deficit risk).	2.4% on average, but will fall as current shortcomings in definitions corrected (see Box 5)	PRA	Now	Expected to transfer in part into Pillar 1 as shortcomings corrected.
Total (including Pillar 2A)		**≈ 13½% Tier 1**			
PRA buffer	Buffer to ensure that banks that are more at risk of loss than the system in aggregate have additional capital buffers to reflect that risk.	Firm specific; larger for those with poor risk management and governance or above-average sensitivity to the cycle	PRA	From 2016	Will fall as the capital conservation buffer is phased in and with review of overlap with the countercyclical capital buffer.
Gone concern and total loss-absorbing capacity:		**Loss absorbing capacity relative to risk-weighted assets**			
	Memo: liabilities (not necessarily equity) to absorb losses and recapitalise in resolution.	≈ 12%			
Total loss-absorbing capacity	Encompasses system-wide equity requirements and other loss absorbing capacity above, but not additional supervisory requirements.	≈ 23%	International standard for G-SIBs Bank of England to set for other banks	2019	FSB standard for G-SIBs has been finalised. Bank will consult shortly on UK implementation through MREL.

around half of the system's going concern equity requirement should be in the form of buffers that can be used to absorb losses under stress rather than in hard minimum requirements that must be met at all times.

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

- The **capital conservation buffer**, which applies to all banks, and is 2.5% of risk-weighted assets. This establishes a basic level of capacity across the system to absorb losses.

- This is supplemented by a system-wide **countercyclical capital buffer**. This is composed of UK and overseas elements. The FPC will set the element of the buffer that applies to banks' UK exposures and captures the time-varying risk of loss associated with those exposures. Overseas authorities will apply the buffer to exposures relating to their jurisdictions. This buffer is described in greater detail in Section 2.

  Taken together, the capital conservation buffer and countercyclical capital buffer are intended to ensure the banking system as a whole has sufficient capital to absorb the system-wide losses that could occur given the risk environment.(1)

- The buffer will be further increased for banks judged to be **systemically important** for either the global or domestic economy. That is, banks whose failure would cause more damage to the economy than others. The purpose of this part of the buffer is to allocate capital within the system to systemic banks in line with the greater costs of their failure to the economy.

  Banks judged by the Financial Stability Board to be **globally systemic** will have an additional buffer. In the United Kingdom, these banks are currently: HSBC, Barclays, Royal Bank of Scotland, and Standard Chartered. These buffer requirements range between 1% and 2.5% of risk-weighted assets(2) such that, for the system as a whole, they add equity of around 1.5% of risk weighted assets.

Ring-fenced banks and large building societies will also be subject to a domestic systemic risk buffer of between 0% and 3% of risk weighted assets. This buffer will apply from 2019 after ring-fenced banks are structurally separated from the rest of their banking groups. The FPC will consult in early 2016 on the framework for determining how this buffer should vary across banks and building societies. Box 3 provides guidance on the FPC's forthcoming consultation.

The domestic systemic risk buffer complements the buffer for globally systemic banks by focusing on the impact that the distress or failure of banks will have on the UK economy as opposed to the global financial system and economy. It is expected to add around ½% of risk-weighted assets to equity requirements of the system in aggregate, though it will add more than that to some parts of the system.

Its relatively small impact on overall equity levels in part reflects that it will apply to the ring-fenced bank subgroup of banks and, in many cases, those banks will already be subject at group level to a global systemic buffer. The domestic systemic risk buffer will sit within any group capital buffer and will not be imposed on top of any globally systemic buffer applied to the group. The banking group will need more equity only if its global systemic buffer does not cover the amount of equity it needs to 'downstream' to the ring-fenced bank subgroup.

Together, non-time varying components of the overall capital framework sum to around 11% of risk weighted assets for the system as a whole. 9.5 percentage points of this will need to be met with common equity Tier 1 (CET1). This calculation excludes the time-varying countercyclical buffer.

These requirements are consistent with the FPC's judgement about the appropriate level of capital for the system as a whole. The FPC is not therefore seeking further structural increases in capital requirements for the system. It considers the remaining ongoing work on equity requirements at the international level to be concerned with the allocation of capital within the system and across various components of the capital framework.

iii) Additional capital requirements that apply to individual banks

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

- First, **additional minimum requirements** that vary by bank (referred to as 'Pillar 2A') and deal with shortcomings in the measures of risk weighted assets. In terms of Tier 1 capital, these currently average 2.4% of risk-weighted assets across major UK banks.

(1) In addition, sectoral capital requirements provide the FPC with a means for varying the risk weights on banks' exposures to three specific sectors: residential property, commercial property and other parts of the financial sector. The FPC expects to apply this tool if exuberant lending conditions in one of these sectors pose risks to financial stability. The FPC's strategy for deploying sectoral capital requirements is described in 'The FPC's powers to supplement capital requirements: a policy statement', January 2014.
(2) The G-SIB framework also includes a 3.5% top bucket, but this is currently empty.

Box 3
The Systemic Risk Buffer for ring-fenced banks and large building societies

The FPC will consult early in 2016 on its proposed framework for the Systemic Risk Buffer that will apply to ring-fenced banks and large building societies that provide more than £25 billion of household and small/medium-sized enterprise deposits. The framework will be finalised by 31 May 2016. The requirement, like ring-fencing itself, will be introduced in 2019. But consistent with the FPC's aim to achieve clarity over the capital framework, this box provides guidance on the forthcoming consultation.

The purpose of this buffer is to increase the capacity of these firms to absorb stress, thereby increasing their resilience relative to the system as a whole. This reflects the additional damage these firms would cause to the economy in the event their buffers of equity were exhausted. Although effective resolution arrangements — helped by ring-fencing itself — minimise the economic costs of failure itself, actions by these firms when they are close to failure, such as reducing credit supply, can have material economic consequences. These will be greater for firms that play a bigger role in the supply of credit.

Parliament has decided that the FPC should set equity buffers for these firms (which must be met with the highest quality capital instruments) up to 3% of risk-weighted assets. The possible rates will be 0%, 1%, 1.5%, 2%, 2.5% and 3%.

The FPC intends for larger firms within the population of ring-fenced banks and large building societies to be subject to larger buffers, reflecting the greater economic costs of their distress. It intends to determine whether banks are domestically systemic by reference to their total (not risk-weighted) assets. Banks and building societies with less than £175 billion of assets will not be subject to the buffer because the FPC judges the economic effect of distress at these firms to be no greater than for the system as a whole.

The FPC will consult on proposals under which no ring-fenced bank would be subject to a 3% buffer rate. The largest buffer would be 2.5%. However, were some firms to expand further, they could fall into a range of total assets covered by the 3% buffer.

As the FPC has already indicated, firms that are subject to this requirement because they are domestically systemic will calculate the buffer both in relation to the risk weight and the leverage measure. The leverage measure of the domestic systemic risk buffer will be 0.35 times the risk-weighted buffer.

Where a ring-fenced bank is a subsidiary of a banking group, the group will not be able to finance its equity claim on the ring-fenced bank with debt. So other things equal, the additional equity buffer on the ring-fenced bank will result in a larger equity buffer at the group level too. However, where the group is already subject to an additional equity buffer to reflect its global systemic importance, it will be able to use that buffer to finance some, or all, of the equity buffer in the ring-fenced bank.

Box 4
The FPC's framework of leverage requirements

The FPC continues to view leverage requirements as an essential part of the framework of capital requirements for banks.

Leverage requirements relate to equity (Tier 1 capital) relative to total assets (also referred to as exposures).(1) They do not use risk-weightings for different assets.

The purpose of the leverage ratio is to make the capital framework robust to the inherent errors and uncertainties in assigning risk weights. Without a leverage ratio requirement, a bank with low average risk weights would be able to fund its assets with a substantial amount of debt and only very little equity, a structure that would be particularly susceptible to small errors in estimated risk weights.

The FPC has therefore established a framework of leverage requirements that complements and sits alongside the framework of requirements based on risk-weighted assets.(2)

As a baseline standard, the FPC's leverage framework is for major banks and building societies to satisfy a minimum Tier 1 leverage ratio of 3%. Mirroring the risk-weighted capital framework, three quarters of this must be met with CET1 capital instruments.

The calibration of this baseline was, like the FPC's assessment of the appropriate level of equity relative to risk-weighted requirements, based on judgements about effective resolution, effective supervision, structural separation of banking groups, and active use of the countercyclical capital buffer.

Like the risk-weighted equity requirements, the FPC's leverage framework also includes a buffer that can be used to absorb losses in a stress on top of the baseline requirement.

The guiding principle behind the leverage buffer is that it will be 35% of the systemic and countercyclical elements of the buffer applied to each bank's requirement for equity relative to risk-weighted assets. This ensures that systemic banks are not able to meet their additional equity buffers relative to risk-weighted assets simply by reducing risk weights.

It also ensures that, as the FPC varies the countercyclical buffer through time, banks are not able to meet that additional buffer by reducing risk weights. This is particularly important in an upswing when risks may be perceived by banks and investors to be falling just when they are actually rising.

This means that a bank facing a 2.5% systemic risk buffer, operating in conditions that have caused the FPC to set a countercyclical buffer of 1%, will have a leverage requirement of 4.2% (**Table 1**).

Table 1 Risk-based capital and leverage requirements: example for an individual bank

	Tier 1 risk-weighted requirement (per cent of RWA)	Tier 1 leverage ratio requirement (per cent of exposure)
Minimum requirement	6	3
Capital conservation buffer	2.5	–
Systemic importance buffers (G-SIB buffer and SRB)	2.5	35% * 2.5
Countercyclical capital buffer	1	35% * 1
Total	12	≈ 4.2

(1) The starting point for measuring exposures in the leverage ratio is the accounting value of a bank's assets. But for some exposures, including banks' derivative positions and their securities financing transactions, accounting values are an unsuitable measure of risks and are replaced with specific methodologies. See Basel Committee on Banking Supervision (2014), *Basel III leverage ratio framework and disclosure requirements*, January.
(2) See 'The Financial Policy Committee's powers over leverage ratio tools: a policy statement', July 2015.

The shortcomings of measures of risk-weighted assets or definitions of equity include that:

- They take incomplete account for exposures of banks that are concentrated and therefore more likely to incur losses at the same time;
- There is incomplete coverage of risks associated with trading positions held by banks, including the risks of market illiquidity;
- There is no account of interest rate risks on banking book assets, which can arise, for example, because funding and lending terms are of different duration, where funding and lending interest rates may not be matched, and where customers have options for early repayment.

If, over time, corrections are made to definitions and measures, these additional minimum requirements will get smaller (see discussion of transition to 2019). This will offset the increase in capital that a more stringent measure of risk-weighted asset will imply. Correction to measurement of risk-weighted assets should not therefore affect the absolute level of capital in the system, though it will reduce capital ratios.

In order to ensure there is no double counting, the PRA Board keeps these requirements under regular review.

- Second, some individual banks will be subject to an additional component of their equity buffer, calibrated by supervisors to capture specific risks they face that are not captured in other buffers. **This is the PRA Buffer.**(1)

Banks may have balance sheets that are more sensitive to a given economic risk than the system as a whole. This can occur because they use risk weight models that are very sensitive to economic conditions, or because they have exposures that are more vulnerable than others to loss, such as high loan to value mortgages.

Banks whose risk management and governance has weaknesses will also be subject to a PRA Buffer, as will those who are exposed to specific conduct redress risks.

The distribution of individual bank requirements

In line with its remit, the FPC has considered the appropriate capital requirement for the banking system as a whole. It recognises that there will be a distribution of requirements for individual banks and building societies around that system level and that this distribution will be determined in part by supervisory requirements on individual firms.

Some firms that are not judged to be globally or domestically systemic will have lower equity requirements. This is the consequence of capital being distributed within the system towards larger, more systemic banks whose failure would cause more damage to the global and/or domestic economy. Some firms will face equity requirements greater than 11% — the amount the FPC judges appropriate for the system. These banks could be subject to:

- larger systemic buffers, reflecting their size or importance to economic activity;
- larger PRA buffers reflecting that they face materially greater risks than the system as a whole; and
- additional minimum requirements that reflect shortcomings in measures of capital or risk-weighted assets described above. These will be skewed to banks for which measurement of concentration risks, trading risk, interest rate risk and defined benefit pension risk are most acute.

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

The FPC acknowledges that some part of those voluntary buffers may also reflect uncertainty about the future level of equity requirements. In clarifying the future overall capital framework, it is seeking to minimise that motivation as far as possible.

Transition to the 2019 end point capital framework

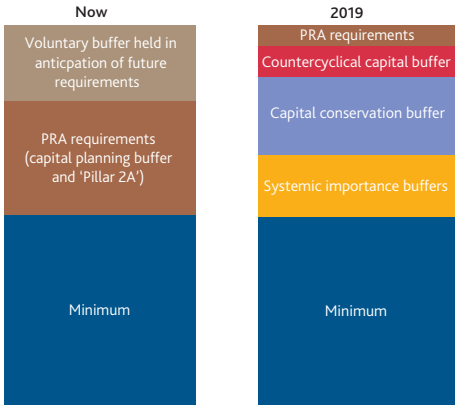
Although the minimum parts of the 2019 capital framework apply today, the elements of the equity buffers described above do not. The countercyclical capital buffer on UK exposures is currently set at zero. The capital conservation and global systemic bank buffers will be phased in between 2016 and 2019. And the systemic risk buffer will not be introduced until 2019.

The capital framework in place today includes a 'capital planning buffer' used by bank supervisors to ensure banks can absorb stress, and which reflects many of the risks that, by 2019, will be captured by other equity buffers. To avoid double counting, this buffer will need to be reduced as other buffers are brought in. The FPC and Prudential Regulation Authority Board will work together during the transition period to ensure risks are not double counted.

(1) The PRA's policy statement on Pillar 2 defines the aim of the PRA buffer as '[a buffer to] cover losses that may arise under a stress scenario, but avoiding duplication with the [conservation and countercyclical] buffers. Its purpose is to increase firms' resilience to such stress, in line with the PRA's risk appetite, so that firms can continue to meet their minimum requirements during a stressed period'.

Chart 2 shows, in a stylised way, the start and end points of this transition for equity requirements. The left bar depicts the existing going concern equity requirements for the UK banking system. It includes the minimum requirements in place today and the capital planning buffer. It also depicts the additional voluntary buffer of equity that banks are holding in anticipation of future requirements. The right bar depicts the requirements that will be in place in 2019, which were described above.

Chart 2 Transition to 2019 capital requirements(a)



(a) For 2019 requirements, please refer to the footnote in **Chart 1**.

At the aggregate level, the transition to 2019 reallocates capital currently in the system in four ways.

First, the capital conservation buffer will be phased in. As it does so, the Bank expects capital planning buffer requirements to fall from their current level. For the system as a whole (although not for every firm), the capital planning buffer already establishes the basic level of resilience that the capital conservation buffer is designed to achieve. So this transition will not result in higher capital requirements for the banking system overall.

Second, now that the FPC has fully established its strategy for using the countercyclical capital buffer (see Section 2), the Board of the PRA will review existing capital planning buffers, which have been set with reference to system-wide stress tests, to remove any element that captures risks that are to be assigned in future to the countercyclical capital buffer. This will result in some reduction in existing capital planning buffers.

Third, amendments to risk weight definitions will address some of the shortcomings in measures of risk-weighted assets. The ongoing 'Fundamental Review of the Trading Book' by the Basel Committee will make some corrections to the way market risks are capitalised, for example.

Box 5 describes prospective changes in the risk-weighted regime in more detail. As shortcomings in measures are addressed, additional supervisory requirements will be reduced.

Fourth, capital planning buffers will be reduced materially on average, but some element of individual firm risk will remain to be captured by the PRA Buffer by 2019. In line with the PRA's stated policy, this will capture only risks that other elements of the capital framework do not.(1)

(1) See 'The PRA's methodologies for setting Pillar 2 capital', July 2015, for further discussion of the purpose of the PRA buffer.

Box 5
Prospective improvements to the risk-weighting regime

At the global level, there is excessive variability in risk-weighted asset calculations across banks that cannot be explained by differences in asset quality. Work is under way internationally to address this with the objective of improving consistency and comparability in measures of risk-weighted assets and improve confidence in those measures.(1)

These include:

- reviewing the role of banks' internal models in the capital framework, including the case for floors on model-based capital requirements;
- revising the standardised approaches to calculating capital against credit and operational risks;
- a new approach to setting capital against risks in banks' trading books; and
- reviewing the treatment of exposures to sovereigns.

The objective of these reforms is to improve the measurement of the risks banks take — and hence the robustness of the risk weights applied to different exposures — and to make this measurement more consistent across banks and over time. For example, one desirable consequence would be to narrow gaps between standardised risk weights and those produced by banks' own models where such gaps are large. The risk weights assigned to high-quality mortgage exposures are one such example. **It is not the intention that these reforms will increase the overall level of capital in the system. They will, however, affect the distribution of capital across elements of the capital framework and across firms in the system.**

In the United Kingdom, the FPC and PRA Board are also considering ways of reducing the sensitivity of UK mortgage risk weights to economic conditions. The 2014 stress test demonstrated that the risk weights on some banks' residential mortgage portfolios can increase significantly in stressed conditions. As these issues are addressed, some banks' measures of risk-weighted assets will increase. However, because their measured capital position will be less sensitive to economic conditions, their individual supervisory equity buffer requirements will be reduced commensurately.

(1) See 'From the Vasa to the Basel framework: the dangers of instability', speech by Stefan Ingves, Chairman of the Basel Committee at the 2015 Annual Convention of the Asociación de Mercados Financieros, 2 November 2015, Madrid.

2 The FPC's strategy for the countercyclical capital buffer

As described in Section 1, the FPC intends to make active use of the countercyclical buffer (CCyB) that will be applied to banks' UK exposures. Authorities in foreign jurisdictions will also set the countercyclical capital buffer on exposures relating to their jurisdictions. This section concerns the FPC's strategy for setting the countercyclical capital buffer on UK exposures, which it does every quarter.

The FPC is updating its strategy and this section sets out its approach. This Supplement therefore complements the Committee's existing policy statement, which will be updated fully and re-issued in 2016 Q1.(1)

The FPC's strategy for setting the countercyclical capital buffer is based on five core principles:

1. **The primary objective of the countercyclical capital buffer is to ensure that the banking system is able to withstand stress without restricting essential services, such as the supply of credit, to the real economy.**

2. **The Committee therefore intends to vary the buffer — both up and down — in line with the risk, at the system level, that banks will incur losses on UK exposures.**

   It will aim to match the resilience of the UK banking system — measured by the total buffer of equity it holds — to the changing scale of risk it faces over time.

   This process will be broadly symmetric. Should risks abate, the countercyclical capital buffer will be reduced. When a stress event occurs, the usability of the countercyclical capital buffer will be enhanced by reducing it, if necessary to zero.

3. **Increasing the countercyclical capital buffer may also restrain credit growth somewhat and mitigate the build-up of risks to banks, but this is not its primary objective and will not usually be expected to guide its setting.**

   Other macroprudential tools, such as those aimed directly at lending standards or sectoral capital requirements, are better placed to address excessive growth of credit.

4. **The FPC intends to set the countercyclical capital buffer above zero before the level of risk becomes elevated**.

   In a post-crisis repair and recovery phase, the FPC expects to set the countercyclical capital buffer at zero for a prolonged period.

   The Committee expects to set a countercyclical capital buffer in the region of 1% of risk-weighted assets when risks are judged to be neither subdued nor elevated. This expectation will be kept under regular review and will change, for example, if the structure of banks' balance sheets were to evolve. Stress testing is one tool for making this assessment.

5. **By moving early, before risks are elevated, the FPC expects to be able to vary the countercyclical capital buffer gradually, and to reduce its economic cost.**

   This approach is likely to be more robust to the inherent uncertainty in assessing the degree of risk, to time lags in implementing the countercyclical capital buffer, and to uncertainty about its impact on credit conditions and the real economy. It is also likely to reduce transaction costs.

The countercyclical capital buffer and the risk environment

In general, the FPC's strategy for setting the countercyclical capital buffer will be to match the total equity buffer requirement of the banking system to the possible losses it could sustain under stress.(2) These possible losses will reflect the potential size of a stress and the sensitivity of banks' capital to a stress.

In future, stress testing will be a central tool to inform this assessment and is particularly valuable in assessing how the sensitivity of banks' balance sheets to stress may be evolving.(3) Stress testing takes place annually and will be complemented with more regular review by the FPC of a wide range of indicators of the possible severity of stress to which banks could be exposed.

These indicators include the 'Basel guide' — a de-trended ratio of private sector credit relative to GDP (see **Chart B** in Box 6) but are much broader.(4) They will include:

- measures of borrower balance sheet stretch;
- measures of gaps between asset and property prices and their equilibrium levels;
- the growth rate of credit and indicators of its availability; and

(1) See 'The FPC's powers to supplement capital requirements: a policy statement', January 2014.
(2) This is consistent with the recital 80 of the Capital Requirements Directive, which states that the aim of the countercyclical capital buffer is 'to ensure that [banks] accumulate, during periods of economic growth, a sufficient capital base to absorb losses in stressed periods. The [CCyB] should be built up when aggregate growth in credit and other asset classes with a significant impact on the risk profile of such [banks] are judged to be associated with a build-up of system-wide risk, and drawn down during stressed periods'.
(3) See 'The Bank of England's approach to stress testing the UK banking system', October 2015.
(4) On the selection of macroprudential indicators, see European Systemic Risk Board (2014), 'Operationalising the countercyclical capital buffer: indicator selection, threshold identification and calibration options', *Occasional Paper No. 5*.

- indicators of macroeconomic risk, such as economic imbalances.

In assessing risks of loss on UK exposures, the FPC will take into account not just the direct risks associated with the United Kingdom, but also spillover effects from risks originating overseas.

A more detailed list of the FPC's core indicators is provided in Annex 2 of the *Report*. The FPC will use these, and other, indicators, to assess the prevailing risk of incurring losses on UK exposures. In assessing indicators, the FPC will need to assess how much weight to place on past levels and growth rates of asset prices and credit given that equilibrium levels and sustainable growth rates may vary over time.

That assessment will inform the FPC's judgement about the approach to setting the countercyclical capital buffer, which can be described in four stages. These are outlined below. Although they describe a 'financial cycle', which is distinct from the business cycle in both its frequency and amplitude, the FPC does not consider the financial system as always moving through the stages in the same order. For example, risks can abate rather than always build, including because the FPC takes action to address them.

Stage 1: Risks facing the financial system are very subdued: the post-crisis repair phase

Risks facing the financial system will normally be subdued in a post-crisis repair and recovery phase when the financial system and borrowers are repairing balance sheets. As such, balance sheets are not over-extended. Asset and property prices tend to be low relative to assessed equilibrium levels. Credit supply is generally tight and the risk appetite of borrowers and lenders tends to be low.

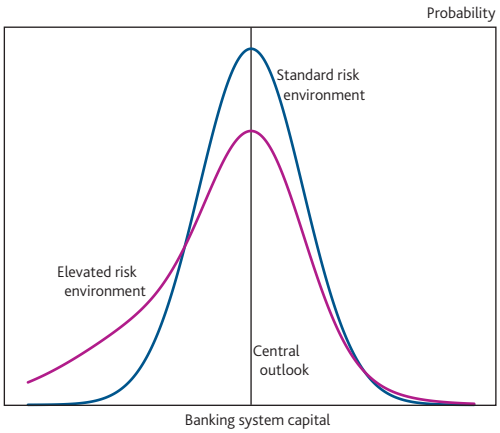
The probability of banks coming under renewed stress is lower than average. So in these environments the FPC expects to set a countercyclical capital buffer rate on UK exposures of 0%.

Stage 2: Risks in the financial system re-emerge but are not elevated: a standard risk environment

In this risk environment, borrowers will not tend to be unusually extended or fragile, asset prices are unlikely to show consistent signs of over, or under, valuation, and measures of risk appetite are likely to be in line with historical averages, though, for the reasons set out above, the historical average needs to be treated with great care.

The distribution of risks of loss on UK exposures at this point is likely to be reasonably symmetric, as shown by the blue line in **Chart 3**. Large losses are possible, but they are in the tail of the distribution of possibilities.

Chart 3 Stylised distribution of risks to banking system capital in standard and elevated risk environments



The FPC intends to set a countercyclical capital buffer rate on UK exposures after the economy moves into this phase. It currently expects, in this period, that the countercyclical capital buffer will be in the region of 1% of risk-weighted UK exposures. But this estimate depends on the sensitivity of banks' equity to a standard risk level. So this estimate will be kept under review.

Over time, it is possible that the structure of banks' balance sheets — and the financial system as a whole — will evolve to make banks more or less sensitive to economic shocks. If this happens, the FPC's view of where the countercyclical capital buffer rate can be expected to be in a standard risk environment will change.

A strategy in which the countercyclical capital buffer rate is in the region of 1% in a standard risk environment is consistent with the FPC moving the buffer up before risks become elevated. This will allow it to move in more gradual steps. This gradualism as risks increase has two benefits:

- The FPC judges it to be more robust to the uncertainty inherent in measuring risks to financial stability (see Box 6 for a discussion). This uncertainty relates to the complexity of the financial system, and its tendency to evolve over time.

  The strategy of 'moving early' is also more robust to the time lags between risks becoming apparent and macroprudential policies being implemented — for instance, banks have twelve months to adjust to an FPC decision to increase the countercyclical capital buffer. Activating the buffer before risks become elevated provides the banking system with a positive buffer that can be cut in the event of a material adverse shock.

- A gradual approach is likely to have a smaller impact on bank funding conditions and therefore real economic

Box 6
Uncertainty in gauging the risk environment

The distribution of risks facing the banking system at any point in time is unobservable and difficult to estimate with accuracy. This box illustrates the types of indicator the FPC will review in order to form its judgements. Those judgements will be reflected in the setting of the countercyclical capital buffer on UK exposures and on the severity of the 'cyclical scenario' in the annual concurrent stress test of major banks.

The FPC assesses the risk environment by monitoring and analysing a range of indicators of macrofinancial conditions, which serve as proxy measures of the actual distribution of risks. These indicators include measures of leverage in the non-financial private sector, of terms and conditions in financial markets and underwriting standards in the banking system, and of asset valuation pressures more broadly. These indicators have generally been found to provide warning signals of financial instability across a number of episodes in a number of countries. Many of these indicators are summarised in the Risk outlook section of the *Report*; see also Annex 2 of the *Report*, which lists the FPC's core indicators.

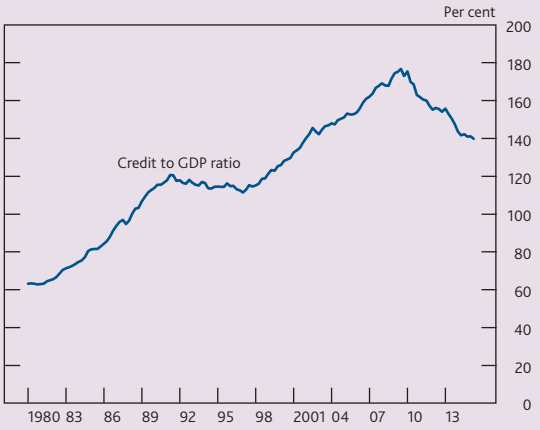
In some periods, indicators of the risk environment provide a relatively consistent picture. For instance, in the mid-2000s, most risk indicators were at highly-elevated levels: credit had been growing rapidly for more than a decade; spreads on various assets were under-pricing credit and liquidity risks; and real estate valuations and some other asset prices were at or near historical highs. Similarly, in the aftermath of the financial crisis, these indicators provided a consistent picture of subdued risks across the board.

But there are also periods where the outlook presented by risk indicators is less clear cut, such as at the current juncture. The level of private non-financial credit, for instance, remains elevated by historical and international standards, at 139% of GDP (**Chart A**). Despite having fallen by around 35 percentage points since its peak in 2010, the ratio remains at a level similar to that which prevailed in the early 2000s, prior to the financial crisis. This suggests the financial system may remain vulnerable to adverse shocks to the household and corporate sectors.

The sustainable level of the credit to GDP ratio is unlikely to be constant over time, however. Shifts in demographics, in long-run real interest rates, in financial liberalisation, and in taxation policies are all likely to affect the sustainable level of credit. With this in mind, **Chart B** presents an estimate of the credit to GDP 'gap', which uses a commonly used statistical tool to extract an estimate of the trend. The FPC is required to calculate a buffer guide each quarter based on this measure and to take it into account when setting the countercyclical capital buffer. In contrast to the picture conveyed by the level of the credit to GDP ratio, the gap suggests that risks are currently extremely subdued: it is close to its historical minimum at -25 percentage points. It would take annual growth in credit of around 10% for each of the next three years to move this indicator into positive territory.

Comparisons with historical averages of real credit growth that include the long period of sustained growth prior to the crisis similarly suggest that credit growth is moderate at present. But such measures are themselves unreliable. The

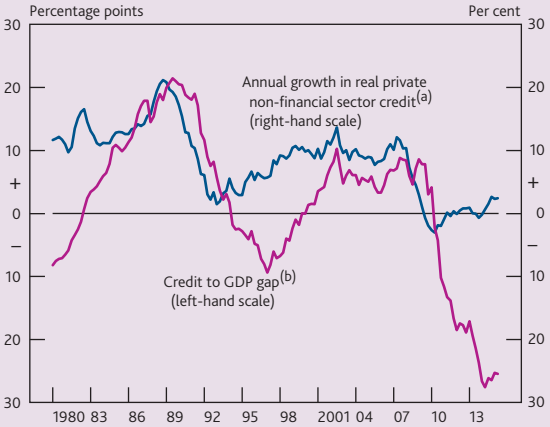
Chart A Private non-financial sector credit to GDP ratio[(a)]



Sources: BBA, Revell, J and Roe, A (1971), 'National balance sheets and national accounting — a progress report', *Economic Trends*, No. 211, ONS and Bank calculations.

(a) 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 series is deflated by the GDP deflator.

Chart B Real credit growth and the credit to GDP gap



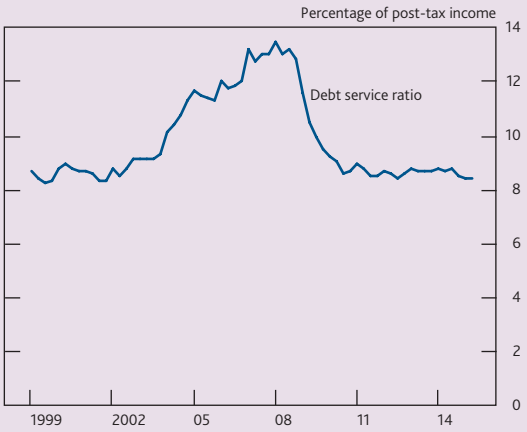
Sources: BBA, Revell, J and Roe, A (1971), 'National balance sheets and national accounting — a progress report', *Economic Trends*, No. 211, ONS and Bank calculations.

(a) See footnote on **Chart A**.
(b) 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 for further explanation of how this series is calculated.

strong growth trend prior to the crisis was clearly not sustainable and might not be consistent with the path of credit to GDP in the years ahead.

An important determinant of the sustainable credit to GDP trend is likely to be the affordability of debt. **Chart C** presents a measure of the ease with which households are able to service their debts. Despite the prevailing high level of overall indebtedness in the household sector, 'income gearing', the ratio of interest payments to income, is around historical average levels. This reflects the low level of interest rates at present, which reduces the burden of servicing this elevated level of debt. This serves to emphasise the important role of market interest rates in shaping the risk environment facing the banking system at present.

Chart C Household debt service ratio[(a)]



(a) Household debt service ratio calculated as mortgage interest payments plus mortgage principal repayments as a proportion of total household income. Household income has been adjusted to take into account the effects of Financial Intermediation Services Indirectly Measured.

activity. The effect of the countercyclical capital buffer on economic conditions is highly uncertain and there is no strong empirical base for its assessment. It is possible that its effects could be highly non-linear.

Small increases that banks can meet through retained earnings should have a relatively small effect on the cost of capital to the real economy. And sharp increases that could prompt deleveraging by banks could have disproportionately large effects. The Committee's gradual approach is consistent with its primary objective for the countercyclical capital buffer being to match resilience to risks, rather than to manage credit growth.

Stage 3: Risks in the financial system become elevated: stressed conditions become more likely

As risks in the financial system become elevated, borrowers are likely to be stretching their ability to repay loans, underwriting standards will generally be lax, and asset prices and risk appetite tend to be high. Often risks are assumed by investors to be low at the very point they are actually high. The distribution of risks to banks' capital at this stage of the financial cycle might have a 'fatter tail', such as that shown by the magenta line in **Chart 3**. Stressed outcomes are more likely.

In such environments, the FPC will increase the countercyclical capital buffer rate beyond 1%. There is no upper bound on the rate that can be set by the FPC. But under EU law and internationally agreed standards, foreign authorities are mandated to reciprocate increases in the rate on UK exposures only up to 2.5% of risk-weighted UK exposures.

The FPC does not consider studies of past cycles necessarily to be a good guide to how the CCyB is likely to need to move in the future. Active use of the buffer will itself help to reduce the likely losses in high risk environments because, in having the capacity to absorb shocks, the banking system will be less of an amplifier of economic shocks than in the past. Moreover, structural reforms introduced since the financial crisis, notably ring-fencing, but also limits on interconnectedness and large exposures and reforms to derivatives markets, will reduce the impact on banks of even elevated risk levels. And, as noted above, historical levels and growth rates of credit and asset prices may not be a good guide to sustainable future levels and growth rates.

The absence of reliable historical guides to the appropriate countercyclical capital buffer rate in higher risk environments is another factor driving the FPC's gradual approach. It is also consistent with the FPC's intended approach to informing the setting of the countercyclical capital buffer using the annual stress test of major UK banks (see Box 3 in the *Report*).

Stage 4: Risks in the financial system crystallise

Should a stress materialise and banks need to draw on the countercyclical capital buffer, the FPC will cut the rate, including where appropriate to zero. In doing so, the FPC will be allowing the system to use any buffer that has been built up to reflect the risks thereby avoiding the system amplifying the economic stress. This will allow banks to recognise losses without a severe impact on their lending to the real economy.

Any decision to reduce the countercyclical capital buffer will take immediate effect and the FPC expects to accompany such decisions with an indication of how long it expects the buffer to remain at zero. Consistent with its strategy for the post-crisis repair and recovery phase, the FPC will expect the countercyclical capital buffer to remain at zero for a prolonged period.

The impact of raising the countercyclical capital buffer

Banks will be given twelve months to adjust their balance sheets in response to an increase in the countercyclical capital buffer before the requirement comes into force. The benefits of greater resilience may therefore take time to appear. The effects may be felt earlier, however, if banks anticipate shifts in the CCyB in their capital planning, and re-price term loans from the announcement date of policy changes.

The impact on each banks' overall equity requirement will reflect the importance of UK exposures in its risk-weighted assets. UK assets account for only around 35% of major UK banks' credit exposures in aggregate, so a 1% countercyclical capital buffer rate on UK exposures equates to an increase of about 0.35% in the aggregate requirement for equity relative to risk-weighted assets. Given current risk-weighted assets, this is equivalent to just under £10 billion of additional loss-absorbing capital.

The CCyB applies to all banks, building societies and large investment firms. The benefits of greater resilience may be diminished if its use leads to some lending migrating to institutions to which the tool does not apply. The FPC will monitor the extent of any such leakages and, if it judges necessary, will make Recommendations to HM Treasury or the regulators to expand the scope of this tool.

In addition to its direct impact on the resilience of the banking system, the FPC recognises that increases in the CCyB will also have knock-on effects on credit conditions and hence the central outlook for the economy. This effect is expected to be small, particularly if the policy steps taken by the FPC are gradual.

To see why the expected impact on credit conditions is likely to be small, if the cost of equity is 10 percentage points higher than the cost of debt and risk-weighted assets are around half of total exposures, then a 1 percentage point increase in the UK countercyclical capital buffer rate will raise the cost of funding UK exposures by just 5 basis points, all else equal (ie 1% x 10 percentage points x 0.5 = 0.05 percentage points). The impact on the cost of capital for the UK real economy is likely to be smaller still, as bank credit accounts for only about a third of firms' total external financing.

This simple calculation is broadly in line with existing research findings on this topic. Across the various models used by the Basel Committee on Banking Supervision in examining the possible impact of Basel III, for instance, the median estimated increase in lending spreads in response to a 1 percentage point *permanent* increase in capital requirements was 17.3 basis points, with a range from 5–25 basis points.(1) This is corroborated by Bank of England analysis (Brooke *et al* (2015)), which finds that lending spreads increase by 5–10 basis points for each percentage point permanent increase in risk-weighted capital requirements.

Such estimates of the impact of the CCyB should be interpreted with caution, however, because there is limited empirical evidence of the impact of varying system-wide capital buffers over the financial cycle. The Spanish dynamic provisioning regime is perhaps the best example of a countercyclical capital regime in practice. There is some evidence that provisions built up via this regime prior to the crisis helped to cushion the impact of the crisis on bank lending (Jiménez *et al* (2012)).(2) But the overall stock of provisions was too small to absorb the very large credit losses that banks suffered: the stock of provisions at Spanish deposit-taking institutions reached 0.9% of total assets at the peak of the cycle in 2007.

Moreover, it is well known that past relationships are often a poor guide to the future, particularly when there are large structural changes in the economy. The creation of the FPC might be one such structural change. To give one example of how this might affect the CCyB impact multipliers described above, if financial markets come to anticipate that an increase in the CCyB will be reinforced by further increases in the future if excessive risk-taking continues, then an FPC decision to increase the CCyB could lead banks collectively to reduce their risky lending. There could, in other words, be an important role for the CCyB in shaping banks' expectations.

The impact of higher capital requirements may also be highly non-linear if applied quickly, in large steps, or to individual banks. For instance, Aiyar, Calomiris and Wieladek (2014) examine firm-specific supervisory changes in capital requirements, and find that a 1 percentage point increase in capital requirements leads to a 6 to 9 percentage point reduction in corporate loan growth.(3) Bridges *et al* (2014) find an impact of similar magnitude in banks' commercial property loans, but a significantly smaller response in household lending.(4)

One possible explanation for the magnitude of these results is that equity funding is especially costly for individual banks experiencing capital shortfalls, perhaps because investors interpret an equity issuance as a signal that the firm's stock is overvalued. So individual banks facing capital shortfalls choose to adjust by restricting lending growth. The

(1) See Macroeconomic Assessment Group (2010), 'Assessing the macroeconomic impact of the transition to stronger capital and liquidity requirements: Interim Report', *Bank for International Settlements*, August.
(2) See Jiménez, G, Ongena, S, Peydro, J and Saurina, S (2012), 'Macroprudential Policy, Countercyclical Bank Capital Buffers and Credit Supply: Evidence from the Spanish Dynamic Provisioning Experiments', *National Bank of Belgium Working Paper No. 231*.
(3) See Aiyar, S, Calomiris, C and Wieladek, T (2014), 'Does macro-prudential regulation leak? Evidence from a UK policy experiment', *Journal of Money, Credit and Banking*, Blackwell Publishing, Vol. 46(1), pages 181–214.
(4) See Bridges, J, Gregory, D, Nielsen, M, Pezzini, S, Radia, A and Spaltro, M (2014), 'The impact of capital requirements on bank lending', *Bank of England Working Paper No. 486*.

countercyclical capital buffer is less likely to imply such high costs of equity because it applies to the entire banking system.

The FPC is alert to these potential costs, which reinforce its intended strategy of moving the countercyclical capital buffer in gradual increments.

Improving understanding of the quantitative effects of the CCyB will be an important future topic for research by academics and staff in policy institutions.

Foreign exposures

The countercyclical capital buffer rate set by the FPC applies to all UK exposures, irrespective of the country of origin of the lender. Similarly, other countries set the countercyclical capital buffer rates that apply to lending by UK banks' overseas.

For an internationally active bank, the CCyB that applies will be a weighted average of the CCyB rates in effect across the jurisdictions in which it has credit exposures (**Table B**).

Table B Illustrative CCyB rates for different banks

	Credit exposures	UK CCyB rate (per cent)	Foreign CCyB rate (per cent)	Institution-specific CCyB rate (per cent)
Bank A	100% UK 0% Foreign	1	2.5	1
Bank B	50% UK 50% Foreign	1	2.5	1.75

Countercyclical capital buffer rates up to 2.5% of risk-weighted asset set by EU countries must be reciprocated by other EU authorities under EU law as of January 2016. The FPC also expects to reciprocate countercyclical capital buffer rates above 2.5%.

For countries outside the European Economic Area (EEA), the FPC can set countercyclical capital buffer rates for UK banks that are higher than those chosen by the relevant overseas authorities when, in its view, the overseas buffer rate is not sufficient to protect UK firms from risks of losses on those exposures. The European Systemic Risk Board (ESRB) has an important role in co-ordinating such decisions across the EEA.

The FPC and PRA will monitor risks to loans and asset prices in regions to which the UK financial system has material exposures, and where they judge that risks are building, they will take action to ensure UK banks have adequate equity buffers to absorb stresses associated with those exposures, including through use of the PRA buffer.

The role of stress testing in the overall capital framework

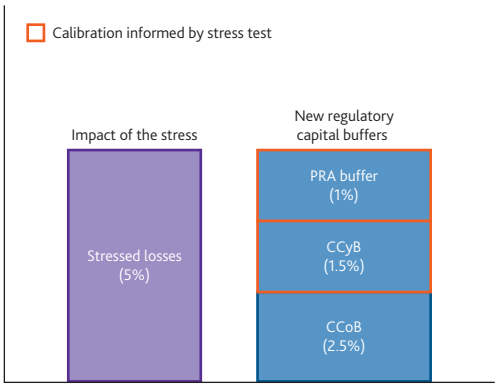
The Bank will continue to conduct annual, concurrent stress tests of the UK banking system, covering the major UK banks. Currently the exercise includes seven banks: Barclays plc, HSCB Holdings Group, Lloyds Banking Group, Nationwide Building Society, Royal Bank of Scotland Group, Santander UK plc, and Standard Chartered Bank Group.

These tests are an integral part of, not an alternative to, the framework of equity requirements for banks. Stress tests are used to assess whether buffers of equity that vary through time or across firms are sufficient to absorb the risks that the system, and individual banks within it, face. They will be used to inform the setting of the countercyclical capital buffer and the PRA buffer for individual firms. This will draw on both the concurrent stress test of major UK banks and also individual firm supervisory stress tests.

As outlined in 'The Bank of England's approach to stress testing the UK banking system', the Bank plans to link the severity of its annual stress test scenario to the state of the financial cycle.(1) That is, in the financial cycle downswing when risks are low, the test will be less severe, and in the financial cycle upswing when risks are high they will be more severe. The severity will vary systematically over time, in line with policymakers' judgements around the magnitude of domestic and international risks.

The Bank will then assess whether the system, and firms within it, has buffers of equity relative to risk weighted assets that are sufficient to absorb the stress. The Bank will do this by comparing banks' required equity buffers to the impact of the stress scenario on equity relative to risk-weighted assets. The required buffer includes the PRA buffer, conservation buffer and countercyclical capital buffers set by the FPC on UK exposures, and by foreign authorities on exposures to other jurisdictions (**Chart 4**).

Chart 4 Calibration of regulatory capital buffers for an illustrative bank



(1) See 'The Bank of England's approach to stress testing the UK banking system', October 2015 for further details.

The results of the stress tests will inform the setting of the countercyclical capital buffer on UK exposures and of individual firm PRA buffers, but there will be no mechanical link between buffer setting and stress test outcomes. In general, where the impact of the stress is smaller than the required equity buffer, consideration will be given to reducing the UK countercyclical capital buffer and/or an individual firms' PRA buffer. Where the impact of the stress is larger, consideration will be given to increasing them.(1)

All elements of the equity buffer are able to absorb loss in a *real* stress event. However, the purpose of the globally systemic buffers, which will begin to be phased in during 2016, is to ensure that these banks can withstand a more severe stress than the system as a whole. So the Bank will consider the impact of the *hypothetical* stress scenario relative to both the total required equity buffer and also to the equity buffer excluding the element to reflect global systemic importance.

This will ensure that globally systemic banks will be able to absorb greater stress than that applied to the system as a whole in the annual exercise. To ensure consistency, the stress test scenario will be of a severity that reflects the risk appetite of the FPC and the PRA Board for distress in the system in aggregate and not of a greater severity that would reflect the lower risk appetite for failure of highly systemic institutions.(2)

The 'hurdle rate' in the stress test for equity relative to risk-weighted assets — the equity ratio that banks must maintain after applying the hypothetical stress event — will reflect this.

- There will a strong presumption that any bank falling below its minimum capital requirements (Pillar 1 and additional correctional requirements — Pillar 2a) will be required to take action to improve its capital position.

- If a bank is projected to fall below the sum of its minimum requirements and global systemic buffer requirement in the stress, it will still be expected to strengthen its capital position over time, but the supervisory response is likely to be less intensive.

(1) The results of future stress tests will help the FPC and the PRA co-ordinate their policy responses and ensure that the banking system as a whole, and individual banks within it, have sufficient capital buffers to be able to withstand future stresses. To facilitate that co-ordination and avoid double-counting, the FPC will move first. It will consider the case for adjusting system-wide capital buffers, through the countercyclical buffer (or, if appropriate, sectoral capital requirements). The PRA will then consider the case for amending individual banks' PRA buffers, taking into account the FPC's action.

(2) An alternative approach would have been to subject each bank to a different severity of scenario, reflecting its systemic importance. The chosen approach reflected practical considerations.

3 How does the United Kingdom's framework compare with those in other countries?

A number of countries have announced policies to ensure that their systemically important banks have capital standards that exceed the internationally agreed baseline. This section summarises the main initiatives that result in higher capital requirements and compares them to the United Kingdom's framework.

In the **United States**, systemically important banks, as identified by the Basel G-SIB framework, are subject to higher capital requirements. The Federal Reserve Board finalised a rule in July 2015 that requires globally systemic banks (G-SIBs) in the United States to have a risk-based capital surcharge given by the higher of two calculation methods.

The first is based on the internationally agreed method and considers size, interconnectedness, cross-jurisdictional activity, substitutability and complexity. The second is calibrated to deliver significantly higher surcharges and includes an additional indicator based on a firm's reliance on short-term wholesale funding. At present, all but one firm from the US G-SIB peer group will be using the US-specific method with consequently higher capital buffers than in countries following the Basel methodology, including the United Kingdom. Capital surcharges currently range from 1% to 4.5% of RWAs.

US banks are also subject to a leverage ratio requirement. As in the United Kingdom, systemically important banks will face higher leverage requirements. From 2018, US banks designated as globally systemic will be subject to a 5% leverage ratio at the bank holding company level and a 6% leverage ratio at their insured deposit-taking subsidiaries. This compares to a leverage ratio of 3.4%–3.9% for UK G-SIBs, though UK banks will also be subject to a countercyclical leverage buffer.

In the **European Economic Area**,(1) CRD IV implements the Basel G-SIB standards. In addition, it provides options for member states to exceed the baseline minimum standard, including for domestic systemically important banks (D-SIBs). **Sweden** and **Norway** have set a 5% additional risk-weighted requirement for their D-SIBs, and have chosen to apply the 2.5% capital conservation buffer immediately. Baseline Tier 1 requirements in both countries are therefore around 13.5% of RWAs. On top of this, both countries have introduced a countercyclical capital buffer (currently set at 1.5%, effective from mid-2016). Several other European countries have introduced additional capital requirements for D-SIBs. For example, in **Denmark** and the **Netherlands**, D-SIB buffers have been set at 1%–3% of RWAs. By 2019, total Tier 1 requirements will be 9.5%–11.5% in these countries.

In October 2015, **Switzerland** announced proposed increases in the going-concern capital requirements for its G-SIBs. Risk-weighted going-concern Tier 1 capital standards for Swiss G-SIBs have been set at just over 14% of RWAs. The risk-weighted requirement must be satisfied using at least 10 percentage points of CET1. G-SIBs must also comply with a Tier 1 leverage ratio standard of 5%; 3.5 percentage points of the leverage standard must be met with CET1 with the remainder met using 'high trigger' Tier 1 contingent convertible (CoCo) instruments. This is somewhat more stringent than the leverage ratio that UK G-SIBs are subject to, both in CET1 and Tier 1 terms (although, as noted above, the countercyclical leverage buffer would increase the total requirement in the United Kingdom). Swiss authorities have also set a countercyclical capital buffer of 2% targeted at residential real estate exposures.

The TLAC requirements for Swiss globally systemic banks will be well in excess of the FSB standard. The risk-based requirement will be 29% of RWAs with capital buffers included. The non-risk weighted TLAC requirement will be set at 10% of leverage exposures. Swiss globally systemic banks will be able to meet half their TLAC requirements with non-capital instruments.

Hong Kong and **Singapore** are also introducing higher capital requirements for D-SIBs. In Hong Kong, these additional requirements range from 1%–2.5% of RWAs and will apply fully by 2019, taking total Tier 1 capital requirements to up to 11%. In Singapore they are set at 2% of RWAs and have applied since 1 January 2015, although transitional periods will be allowed.

(1) Countries of the European Union plus Iceland, Liechtenstein and Norway.

4 Next steps

Consistent with the FPC's aim, further steps will be taken to clarify and finalise the capital framework for UK banks in the remainder of 2015 and in 2016.

- In December, the Bank will consult on **overall loss absorbency requirements** through 'minimum requirements for own funds and eligible liabilities'.

- Early in 2016, the FPC will consult on its framework for the **systemic risk buffer** that will be applied to ring-fenced banks and large building societies.

- In the first quarter of 2016, the PRA Board will complete its **review of existing supervisory requirements** to remove any potential overlap with the FPC's strategy for using the UK countercyclical capital buffer and supervisory requirements will begin to be adjusted as other buffer requirements begin to be phased in.

- By the end of 2016, the Basel Committee will **address shortcomings in measures of risk-weighted assets**. The PRA Board keeps its compensating supervisory requirements under review and will adjust these as appropriate.