

Summary: Analysis & Evidence

Policy Option 1

Description: Grant the FPC powers of direction with regards to a leverage ratio framework

FULL ECONOMIC ASSESSMENT

Price Base Year 2015	PV Base Year 2015	Time Period Years 10	Net Benefit (Present Value (PV)) (£m)		
			Low:	High:	Best Estimate: 293.6

COSTS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low	0		
High	0		
Best Estimate	0	586.6	5041.7

Description and scale of key monetised costs by 'main affected groups'

Imposing leverage ratio requirements on financial institutions will impose costs on them to the extent that they are required to raise capital in order to meet the new requirements. The analysis assumes that these costs will be passed on to consumers through higher lending spreads, which will impact the level of investment and, therefore, GDP. Firms that are bound by the leverage ratio will incur an opportunity cost to their cost of funding as equity funding is more expensive than debt funding. However, as set out above, we expect that firms will pass this cost on to borrowers through higher lending spreads.

Other key non-monetised costs by 'main affected groups'

Firms with average risk weights under 35% may be incentivised to change the composition of their balance sheets towards higher risk assets with higher returns in order to maintain return on equity, though these higher risk assets would attract higher risk-weighted capital requirements. As the FPC notes in its impact analysis, this could increase incentives for firms bound by the leverage ratio to lend to higher risk-weighted borrowers, including SMEs.

BENEFITS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low			
High	10		
Best Estimate	0	621.0	5335.3

Description and scale of key monetised benefits by 'main affected groups'

Financial crises result in significant output losses. By implementing a leverage ratio framework the Financial Policy Committee will increase the resilience of the financial system, improving its ability to weather periods of turbulence, and reduce the probability of crises occurring. The benefit of a reduction in the probability of a financial crisis occurring can be measured in terms of output losses avoided. The avoidance of output losses is a benefit to the UK as a whole.

Other key non-monetised benefits by 'main affected groups'

The introduction of a leverage ratio framework for UK firms will reduce the frequency of periods of financial instability while improving the ability of the financial system to weather losses when they do occur. These two effects should reduce the economic output forgone as a result of these periods of instability. Lack of practical experience of risk-weighted capital and leverage requirements being imposed in tandem precludes a robust estimate of the likely impact on the probability of financial crises and therefore output. However, we estimate that a one percentage point decrease in the likelihood of a crisis occurring has an annualised GDP benefit of £4.5 billion. As such, the non-monetised benefits of this policy are likely to be substantial.

Key assumptions/sensitivities/risks

Discount rate (%)

3.5

The key assumptions used in this assessment are the calibration of the FPC's leverage ratio framework, the assumptions that underpin the NiGEM and the behaviour of firms in response to leverage ratio requirements.

BUSINESS ASSESSMENT (Option 1)

Direct impact on business (Equivalent Annual) £m:			In scope of OIOO?	Measure qualifies as
Costs: £377.9	Benefits: £0	Net: -£377.9	No	NA

Summary: Analysis & Evidence

Policy Option 2

Description: Do nothing

FULL ECONOMIC ASSESSMENT

Price Base Year 2015	PV Base Year 2015	Time Period Years	Net Benefit (Present Value (PV)) (£m)		
			Low:	High:	Best Estimate: 0

COSTS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low	10		
High			
Best Estimate		0	0

Description and scale of key monetised costs by 'main affected groups'

Zero. The Government would not grant the FPC powers of direction and for the purposes of this assessment, we assume the FPC would not act. Therefore, there would be no costs. This scenario is the baseline for determining the incremental cost of option 1.

Other key non-monetised costs by 'main affected groups'

BENEFITS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low	10		
High			
Best Estimate		0	0

Description and scale of key monetised benefits by 'main affected groups'

Zero. The Government would not grant the FPC powers of direction and for the purposes of this assessment, we assume the FPC would not act. Therefore, there would be no benefits. This scenario is the baseline for determining the incremental benefit of option 1.

Other key non-monetised benefits by 'main affected groups'

Key assumptions/sensitivities/risks	Discount rate (%)	n/a
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BUSINESS ASSESSMENT (Option 2)

Direct impact on business (Equivalent Annual) £m:	In scope of OIOO?	Measure qualifies as
Costs: 0	No	NA
Benefits: 0		
Net: 0		

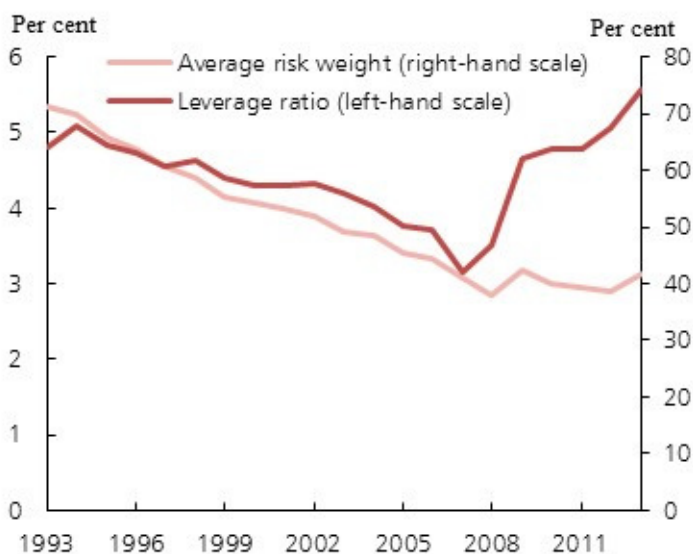
Introduction

1. This assessment considers the costs and benefits of providing the Financial Policy Committee (FPC) with powers of direction over the Prudential Regulation Authority (PRA) with regards to a leverage ratio framework.
2. On 26 November 2013, the Chancellor wrote to the Governor of the Bank of England asking that the FPC undertake a review of the leverage ratio. On 11 July 2014, the FPC published a consultation paper setting out its initial proposal for a leverage ratio framework.
3. On October 31 2014, the FPC published its conclusions and a recommendation on the required powers of direction in its *Review of the leverage ratio*. Specifically, the FPC recommended that it be granted powers of direction over the PRA to set leverage ratio requirements and buffers including:
 - a minimum leverage ratio requirement;
 - a supplementary leverage ratio buffer that will apply to Global-Systemically Important Banks (G-SIBs) and other major domestic UK banks and building societies, including ring-fenced banks; and
 - a countercyclical leverage ratio buffer (CCLB).
4. The Chancellor set out in a letter to the Governor that he accepted the FPC's recommendation and would seek to legislate in this Parliament.

Rationale for intervention

5. The recent financial crisis revealed serious weaknesses in the existing framework of internationally agreed standards of capital adequacy. Banks in most jurisdictions were only required to meet risk-weighted capital requirements and were not subject to leverage requirements. In the lead up to the crisis, some banks' balance sheets expanded significantly (i.e. their leverage ratios decreased) while average risk weights declined (see chart 1 below). Banks funded increases in their lending through greater amounts of relatively cheaper debt rather than equity.

Chart 1: Average risk weights and leverage ratios



Source: *The Banker and Bank calculations*

Note: The series represent the weighted averages across the sample of 17 global banks. Leverage ratio measured as Tier 1 capital/Assets.

Sample includes Bank of America, Barclays, BNP Paribas, BNY Mellon, Citigroup, Commerzbank, Deutsche Bank, HSBC, ING, JPM, LBG, RBS, Santander, State Street, UBS, UniCredit and Wells Fargo.

6. However, the riskiness of some assets turned out to be greater than initially thought. This meant that, as losses materialised, firms did not have enough capital to absorb them. For example, during the recent crisis, securities based on US sub-prime mortgage lending were shown to be riskier than initially believed when the US housing market entered a downturn. As the models used by some firms rely primarily on historical data to estimate the riskiness of assets, they can fail to capture the risk posed by infrequent, unlikely but costly risks. Moreover, the crisis revealed that some types of capital instruments that banks were holding were not sufficiently loss absorbing. As market confidence decreased, firms were left vulnerable because of increased roll-over risk of their short-term debt, and funding was severely curtailed. At the height of the crisis, this led to firms having to deleverage quickly, selling into a falling market. The losses on these assets depleted firms' regulatory capital. Firms were forced to deleverage further due to market concerns that they were not adequately capitalised relative to the exposures they still held, resulting in a destabilising negative feedback loop.
7. There is international agreement that the leverage ratio is a crucial complement to risk-based capital requirements and can play an important role in mitigating the risks described above. Firms' leverage ratios were a useful indicator of failure during the last crisis, and the period immediately preceding the crisis was characterised by sharp increases in leverage. Firms with high leverage ratios have greater amounts of capital to absorb losses which materialise and have less reliance on debt financing. Those with low leverage ratios rely relatively more on debt to fund their lending, exposing them to the risks described above.
8. The leverage ratio restrains balance sheet growth, ensuring that firms preserve a minimum amount of capital to absorb losses regardless of the risk profile of their assets. The international standard proposed by the Basel Committee on Banking Standards (BCBS) is currently a minimum 3% leverage ratio. In other words, a bank would be able to increase its exposures only up to a maximum of 33 times relative to the amount of Tier 1 capital it holds. As exposures are not weighted by risk in the calculation of the leverage ratio, imposing leverage limits also provides additional protection against uncertainties and risks that are difficult to model. The additional protection provided by a leverage ratio can be particularly important during the upswing of the credit cycle, when, as the financial crisis showed, risk may be systemically underestimated by risk-based models and those who use them (including regulators).
9. The leverage ratio's relative simplicity can also help improve market transparency and comparability, particularly as investors have become more sceptical about risk-weights. International work on the consistency of risk-weights has highlighted this. For example, although some variability is to be expected because of supervisory discretion and the way that firms model their risks, the Basel Committee on Banking Standards' review of the consistency of risk-weights applied in the trading book showed that there was considerable variability in risk-weights applied by different banks to the same hypothetical portfolio. Although work is ongoing to improve transparency and reduce variability of risk-weighted assets, it is still difficult for the market to compare how well-capitalised banks are using risk-based measures. The leverage ratio should help increase transparency and comparability of firms' solvency.
10. Although the Basel III agreement sets out the expectation that all firms will be required to meet a minimum leverage ratio of 3% from 2018, the FPC has recommended – and the government agrees – that there are financial stability benefits to applying additional leverage requirements to systemic firms, whose failure can have widespread implications for system stability, and for the FPC to be able to vary leverage requirements countercyclically. The leverage framework recommended by the FPC mirrors the risk-weighted capital framework

currently applied to firms, which sets out minimum capital ratios for all firms, additional capital buffers for systemically important firms and countercyclical requirements for all firms.

11. The FPC and the government believe that the resilience of the financial sector will be improved by the introduction of a leverage ratio framework as leverage ratio requirements will complement existing RWA capital ratios by:
- limiting balance sheet stretch, which has been shown to increase the vulnerability of firms to periods of market turbulence;
 - providing additional protection against uncertainties and risks that are difficult to model;
 - increasing the resilience of systemic institutions by requiring higher amounts of capital; and
 - enhancing the FPC's ability to increase resilience further during upswings of the credit cycle through the use of a countercyclical leverage ratio buffer, which will complement the additional capital ratio requirements imposed when the FPC sets the rate of the Countercyclical Capital Buffer (CCB).
12. The FPC expect that the leverage ratio framework will act as a complement to existing risk-weighted capital requirements and leverage requirements will be the primary constraint for relatively few firms when introduced. However, the existence of leverage limits will act to prevent excessive increases in leverage as seen in advance of the last crisis. The majority of the benefits of this framework stem from preventing imprudent behaviour in the future rather than applying additional capital requirements to firms now.

Objective

13. The objective of this legislation is to provide the FPC with the necessary macroprudential tools to achieve its objectives to protect and enhance the stability of the UK financial system by tackling systemic risks and to support the Government's economic objectives.
14. The FPC will be granted a power to direct the PRA to impose leverage ratio requirements and buffers on regulated banks and other financial institutions. Regulated firms will be required to meet the minimum requirement and, in some cases, hold additional leverage ratio buffers, preventing excessive increases in the aggregate amount of leverage in the financial system. Imposing these requirements will increase the resilience of the financial system to periods of stress and reduce the likelihood of financial crises occurring. Less frequent financial crises will provide significant benefits to the UK as a whole as these events have a material impact on the functioning of financial markets, with knock-on effects on credit creation and GDP.
15. The FPC is required to use its powers in a proportionate way and is prohibited from taking action that, in its opinion, would materially harm the ability of the UK financial sector to contribute to economic growth in the medium or long term. This ensures that the regulation is only being applied when it is perceived to be absolutely necessary for the financial stability of the UK.

Description of options considered

Option 1: Give the FPC direction powers over a leverage ratio framework

16. The government intends to grant the FPC the power to direct the PRA to set leverage ratio requirements and buffers consisting of:

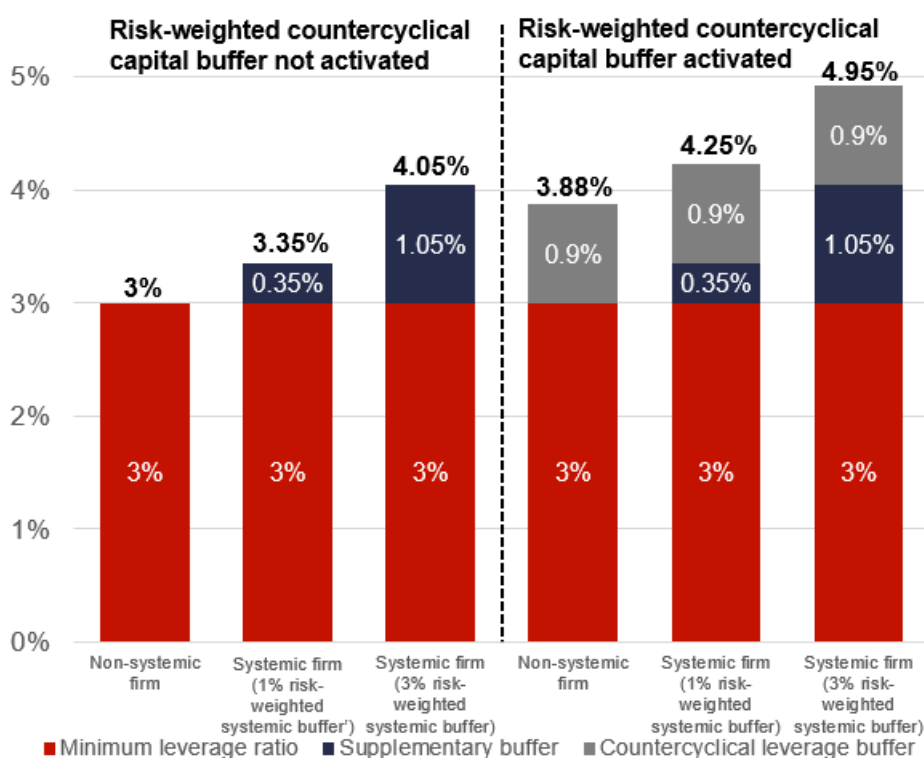
- a minimum leverage ratio that will apply to all PRA-regulated institutions; this will apply to G-SIBs and other major domestic UK banks and building societies with immediate effect and to all PRA-regulated banks, building societies and investment firms from 2018;
- a supplementary leverage ratio buffer for G-SIBs, ring-fenced banks and large building societies; the G-SIB leverage buffer will be phased in in parallel with the G-SIB risk-weighted systemic buffers as from 2016 and the leverage buffer for ring-fenced banks and large building societies will apply from 2019; and
- a countercyclical leverage ratio buffer that will apply to all institutions subject to the minimum; this will come into force to the same timescale as the minimum requirement.

17. The FPC has indicated that this framework would be calibrated as follows:

- a minimum leverage requirement of 3%;
- supplementary leverage ratio buffers set using a 35% ratio to G-SIB capital buffers and Systemic Risk Buffers (SRB); and
- a countercyclical leverage ratio buffer (CCLB) set using a 35% ratio to Countercyclical Capital buffer (CCB) rates.

Chart 2 shows potential leverage ratio requirements that would be imposed on firms of varying levels of systemic importance under the framework and calibration set out above.

Chart 2: Potential leverage ratio requirements



Source: HMT calculations

Note: CCLB requirements assume a CCB rate of 2.5 per cent

18. The supplementary leverage ratio buffer will be set as a proportion of the higher of the G-SIB capital buffer or the SRB. The proposed legislation does not grant the FPC a power of direction with respect to a supplementary leverage ratio buffer set as a proportion of any other capital requirement. If the FPC wishes to expand the power to cover other buffers, HMT would expect the FPC to make an evidenced-based recommendation to that effect to the Treasury. Ministers would then consider the merits of legislating to give effect to that recommendation.

19. The FPC has stated that a maximum proportion of 25% of the capital used by firms to meet the minimum requirement may be Additional Tier 1 (AT1), while the remainder must be Core Equity Tier 1 (CET1). Capital used to meet the supplementary leverage buffer and the CCLB must be CET1 alone.
20. The calibration of the framework is for the FPC to decide, but for the purposes of this assessment it is assumed that the calibration above is the one put in place by the FPC.

Option 2 – “Do nothing”

21. This option is the base case for this assessment. In this option the FPC would not be given powers to direct the Prudential Regulation Authority (PRA) to implement a leverage ratio framework.
22. “Do nothing” does not mean “no change in the regulatory environment”. It only means that the FPC would not be given direction powers. Other changes to the regulatory environment will continue to happen. These may include the implementation of changes to EU law or changes to domestic regulatory practices. In particular, the implementation of the Capital Requirements Regulation/Directive IV (CRR/CRD4) and the introduction of capital buffers for global-systemically important banks (G-SIBs) and domestic-systemically important banks (D-SIBs) are assumed to be part of the baseline for this assessment.
23. It is important to note that the FPC has an existing power which allows it to make recommendations to the regulators (i.e. the PRA and FCA) about the exercise of their functions. These recommendations can be issued on a ‘comply or explain’ basis. Should the regulators decide not to implement these ‘comply or explain’ recommendations, they would be required to explain their reasons for not doing so.
24. It is therefore feasible that the FPC could recommend that the PRA and the FCA implement leverage ratio requirements if it was not granted a power of direction.
25. At its meeting in March 2013, the interim FPC made a set of recommendations concerning the regulatory capital positions of the major UK banks and building societies.¹ This included a recommendation that the PRA ensure that these institutions had credible plans in place to meet the higher leverage requirements that would come into effect after full implementation of Basel III.² As part of its implementation of these recommendations, the PRA announced that it would expect these firms to meet a 3% Tier 1 leverage ratio.³ All these firms are currently meeting a 3% leverage ratio.⁴

Analysis of costs and benefits

Introduction

26. As explained above, the “do nothing” option provides the base case for this impact assessment and it is assumed that other changes to the regulatory environment – changes which would happen irrespective of changes to the FPC’s powers of direction - would impact the costs and benefits of each option identically. The net present value (NPV) of each option would therefore be increased or decreased by the same amount, with the ranking of options therefore unaffected.
27. The costs and benefits of the “do nothing” option are therefore assumed to be zero and the costs and benefits of the preferred option are measured as incremental to the “do nothing” option.

¹ <http://www.bankofengland.co.uk/publications/Pages/Records/fpc/2013/record1304.aspx>. This recommendation was applied to the following firms: Barclays, Co-op, HSBC, Lloyds, Nationwide, RBS, Santander UK and Standard Chartered.

² <http://www.bankofengland.co.uk/publications/Documents/records/fpc/pdf/2013/record1304.pdf>

³ <http://www.bankofengland.co.uk/publications/Pages/news/2013/181.aspx>

⁴ PRA (2013b)

28. The cost and benefit figures produced in this assessment are purely illustrative and should not be considered as estimates of actual costs and benefits. All numerical estimates in this assessment should be treated as indicative, as they are subject to uncertainty and are highly sensitive to the underlying assumptions.
29. The monetised costs and benefits in this assessment are the estimated impact of the expected increase in capital held by firms as a result of the FPC's leverage ratio framework. However, the main benefits of the proposed regulation will accrue through the transmission mechanisms set out in paragraph 11. The government is unable to produce a robust quantitative estimate of these benefits at this time, but expects them to be significant (see paragraphs 32-34).

The Model

30. The monetised benefits and costs in this assessment have been estimated using the National Institute of Economic and Social Research (NIESR)'s global economic model of the world economy (NiGEM), modified to include a sub-model of the UK banking sector.
31. Within this model, higher bank capital reduces the likelihood of financial crises which can lead to reductions in GDP.⁵ However, the model generates some macroeconomic costs of higher levels of bank capital since it assumes that banks pass through the costs of increased regulatory capital requirements as higher lending spreads. This increases real economy borrowing costs, which reduces the level of investment and therefore output in equilibrium.⁶ Therefore, within this model, the net macroeconomic benefits of additional bank capital fall if the capital level increases too much.

Benefits of the Government's preferred option

Non-monetised benefits

32. The government expects the FPC's leverage ratio framework to benefit the UK economy by boosting the resilience of the financial system to systemic crises, which are associated with significant economic costs. The government believes that the resilience of the financial sector will be improved due to leverage ratio requirements complementing existing RWA capital ratios by:
- limiting balance sheet stretch; providing additional protection against uncertainties and risks that are difficult to model;
 - increasing the resilience of systemic institutions; and
 - enhancing the FPC's ability to increase resilience further during upswings of the credit cycle through the use of a countercyclical leverage ratio buffer.
33. The introduction of a leverage ratio framework for UK firms should, through the channels listed above, reduce the frequency of periods of financial instability while improving the ability of the financial system to weather losses when they do occur. These two effects should reduce the economic output forgone as a result of these periods of instability. However, as the UK capital framework has changed significantly in recent years due to the implementation of the Basel III agreement and there is no practical experience of both risk-weighted capital and leverage ratio requirements being applied to firms simultaneously, the government is unable to produce a robust estimate of the economic impact of these benefits.
34. The government believes that the benefit that will accrue from the introduction of a leverage ratio framework by the FPC will be significant. As an indicator of the scale of these benefits, the NiGEM estimates that a permanent reduction in the probability of a crisis occurring of 1% would lead to an expected GDP increase of £4.5bn per annum. The government believes

⁵ In the model, crises more frequently have temporary effects on GDP but some crises can have permanent effects and generate significant cumulative losses to UK GDP.

⁶ NiGEM assumes a constant returns to scale CES production function.

that this represents a significant benefit to the UK economy and that this benefit alone outweighs the potential costs of the policy.

Monetised benefits

35. The Bank of England have undertaken a quantitative assessment of the net benefits resulting from expected increases in regulatory capital held in the UK financial system under the FPC's proposed leverage ratio framework. This analysis uses the NiGEM to estimate the impact of additional regulatory capital held by firms on the likelihood of financial crises occurring and therefore the impact on GDP. In the model, increases to regulatory capital reduce the likelihood of a financial crisis occurring, which results in benefits to GDP as the losses associated with crises are less frequent. These benefits are netted off against the increased costs resulting from firms increasing their lending spreads, which has knock-on impacts on lending and investment. These costs are discussed later in this assessment.
36. To undertake this impact analysis the FPC has collected data on the capital, risk-weighted assets and leverage ratio exposures of 29 PRA-regulated firms, which together represent over 65% of the total consolidated balance sheet assets of PRA-regulated banks, building societies and investment firms. The data collected relates to consolidated level balance sheets as at 31 March 2014.⁷ For each entity the data collected, in combination with other regulatory returns, allow the calculation of the Basel 2014 leverage ratio exposure measure, Basel III risk-weighted assets and different measures of Basel III regulatory capital (CET1 and Tier 1 capital, on a Basel III end-point basis). Table 1 below shows the sample of firms broken down by firm type.

Table 1: Sample of firms

Firm type	Number in sample
Banks	15
Building societies	7
Investment firms/custody banks ^(a)	7
Total	29

(a) Entities have been classified on the basis of the nature of their principal activities

37. The Bank of England has projected the steady state risk-weighted capital requirements for these firms using the assumptions set out later in this assessment. The estimates that follow assume that all domestic systemically important firms (D-SIBs) are subject to a 3% D-SIB capital buffer, which is the upper limit for capital buffers that can be imposed. If a lower D-SIB buffer was assumed, the costs and benefits would be lower. This assumption was chosen because it produces the largest capital shortfall for the banks in the sample and therefore provides information on the upper bound realisation of the policy. The Bank estimate that the introduction of the FPC's leverage ratio framework will result in an increase of Tier 1 capital of £9.6 billion, approximately 3% of the Tier 1 capital stock required to meet the estimated 2019 risk-weighted capital requirements of the firms in the sample. Eight of the 29 firms in the sample would need to raise additional capital, above that required to meet risk-weighted requirements under CRR/CRDIV, as a result of the FPC's leverage ratio framework.
38. This increase in regulatory capital results in approximately a 0.034 percentage point reduction in the likelihood of financial crises, which results in a benefit to output of £123 million per annum.⁸ This is approximately £1.5 billion in net present value terms. However, caution is required when interpreting the incremental benefits of the policy (introducing

⁷ Data for one firm as at 30 June 2014. For a small number of firms in the sample, data were collected on the most significant solo entities within the UK consolidation group.

⁸ Calculated as the change with respect to the likelihood of financial crises in the baseline scenario.

leverage ratio requirements) relative to the benefits of existing CRDIV capital requirements. Although the order in which the elements of any prudential policy package are introduced does not affect the calculation of the cumulative benefits, the order will affect the size the benefits calculated for each policy element. The estimate of gross benefits here is a lower bound of the estimate of the benefits of the policy (assuming that the leverage requirement applies after other capital requirements).

Costs of the government's preferred option

Costs for regulated firms

39. The FPC intends for its leverage ratio framework to act as a complement to risk-weighted requirements and expects that the majority of firms will not need to raise additional capital as a result of leverage ratio requirements. However, some firms will find that the leverage ratio is the binding capital requirement and will have to raise capital above that required to meet risk-weighted requirements.
40. For firms that are bound by the leverage ratio, assuming that they decide not to run down any voluntary buffers that they may hold above regulatory requirements, they can respond to an increase in leverage requirements by:
- increasing retained earnings, for example by reducing cash dividend payments or discretionary staff remuneration;
 - issuing new equity and/or reducing other forms of funding; and/or
 - reducing their exposures by reducing the size of their loan portfolios and/or changing the composition of their balance sheets towards higher risk assets with higher returns.
41. This assessment assumes that firms that are bound by the leverage ratio reduce their reliance on debt financing, moving towards funding through eligible capital instruments, and that they keep the asset side of their balance sheet constant.
42. As set out above, the Bank estimates that 8 firms will need to raise additional capital to meet leverage ratio requirements in the steady state and that this shortfall will total approximately £9.6 billion.
43. The macroeconomic costs and benefits of this additional capital can be estimated quantitatively using the NiGEM. It is also possible to assess the private costs to those firms with shortfalls which would have to issue or retain capital to meet their steady state leverage ratio requirements.
44. The private costs can be decomposed into (a) the one-off costs of raising the capital itself if firms meet their additional capital requirements by issuing capital externally and (b) the ongoing costs of remunerating the capital.
- a) The private costs to a firm of raising the capital externally are expected to be de minimis. Banks are already raising, or preparing to raise, significant amounts of capital as a result of other regulatory initiatives (including CRD IV and the structural reform programme). We expect that, given the limited amount to be raised, the administrative costs of raising this capital can be incorporated within existing capital raising programmes.
 - b) Capital is a riskier asset for investors to hold and requires higher remuneration than other forms of liability funding. That said, other things being equal, as the proportion of capital increases, there is a concomitant reduction in the risk attached to other liabilities and thus the return paid to investors. The opportunity cost of debt and equity is not, therefore, fixed. As the proportions of debt and equity change on deposit takers' balance sheets, we expect that there will be changes in the relative prices. We do not have clear empirical evidence of the extent to which debt and equity prices are

likely to move. However, we can produce an indicative estimate of the ongoing costs of remunerating the capital by using an estimate of the opportunity cost of equity relative to debt funding. An often-used assumption is that the cost of equity (debt) funding is 10% (5%)⁹, giving an opportunity cost of equity funding of 5% and suggesting total ongoing costs across the firms with a capital shortfall of £0.48 billion p.a.¹⁰ This is a stylised assumption and has not been produced by the NiGEM. These costs to firms have been used to calculate the direct cost to business figures shown on the summary sheet of this assessment, but as the analysis assumes that firms will pass this cost to consumers, this assessment shows a zero net cost to firms.

45. This assumption is based on household credit and corporate credit spreads data used to calibrate the NiGEM. These quarterly data cover the period 1989 to 2013. Charts 3 and 4 show how the NiGEM models the reaction in lending spreads based on the data.

Chart 3: Response of corporate lending spreads to an increase in capital ratios in the NiGEM¹¹

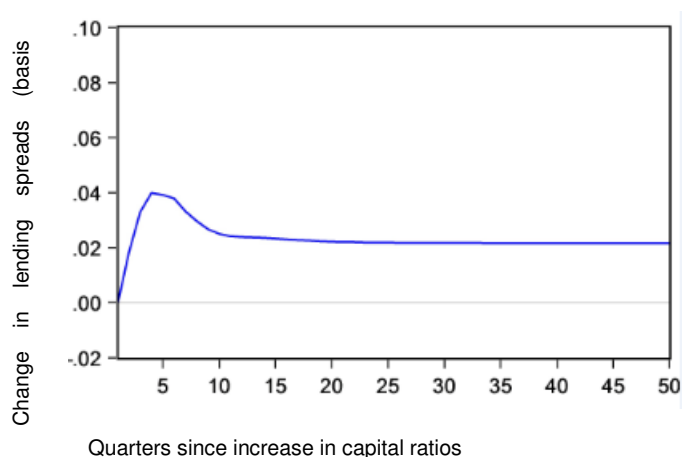
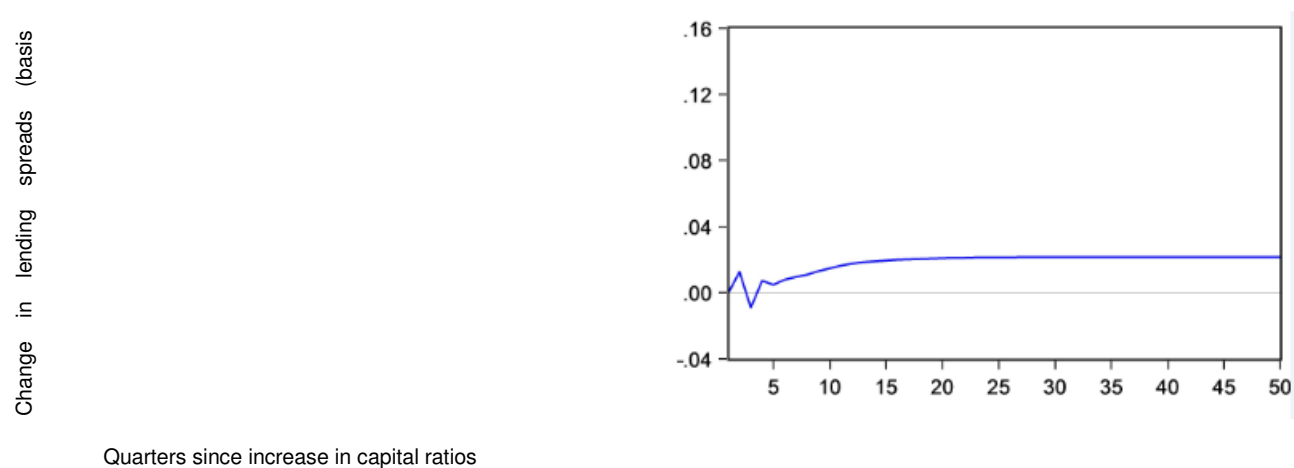


Chart 4: Response of household lending spreads to an increase in capital ratios in the NiGEM



46. The seven building societies in the sample, representing approximately 85% of total building society assets, are estimated to require an incremental £2.1 billion of Tier 1 capital, equating to 18.5% of their risk-weighted capital charge under the baseline scenario with a 3% systemic risk buffer rate. Only two of these firms are estimated to require further capital. The seven

⁹ These are the assumptions used in the PRA's Impact Analysis for CRDIV (see CP5/13 for an explanation) and in Miles, Yang and Marcheggiano (2013).

¹⁰ £9.6Bn x 5% = £0.48Bn.

¹¹ Charts 3 and 4 show the response to an 0.3 percentage point increase in capital ratios as modelled in NiGEM. The increase in lending spreads seen in these charts would scale up or down with changes in the size of the shock.

investment firms/custody banks in the sample are estimated to require an incremental £7.1 billion of Tier 1 capital, equating to 11.2% of their risk-weighted Tier 1 capital charge under the baseline scenario. Four of these firms are estimated to require further capital. The expected additional capital required as a result of the FPC's leverage ratio framework is summarised in table 2.

Table 2: estimated impact of the FPC leverage ratio framework on 2019 Tier 1 capital requirements

Firm type	£ billion	Percentage of 2019 risk-weighted Tier 1 capital stock
Banks	0.4	0.1
Building societies	2.1	18.5
Investment firms/custody banks ^(a)	7.1	11.2
Total	9.6	2.3

Source: Bank calculations

47. All of the firms that would be within the scope of a leverage requirement are already required to report their leverage ratio to the PRA and expect to be subject to a minimum leverage ratio from 2018 as set out in Basel III. The largest UK banks and building societies are already meeting a 3% minimum leverage ratio as part of a supervisory expectation by the PRA.¹² As such, the government does not believe that firms will incur material transitional costs due to the FPC being granted powers of direction with regards to a leverage ratio framework.

Costs to the economy

48. Where firms bound by the leverage ratio choose to reduce their reliance on debt financing, this would tend to decrease their return on equity due to the generally lower cost of financing through debt relative to equity financing. Firms may choose to absorb this cost, thereby reducing their profitability, or increase lending spreads in order to pass this cost onto consumers. In the NiGEM, increased costs to firms resulting from an increased reliance on capital funding are passed on to borrowers through increases in their lending spreads. This comes about because of the underlying theoretical rationale in the NiGEM, which is a New Keynesian macroeconomic model. In this model, firms in the real economy choose their demand for labour and physical capital in order to maximise their profits. Real economy firms' demand for physical capital depends on the cost of investment. In the model, firms can finance investment by either borrowing from banks or from equity investors (e.g. on the stock market). To the extent that firms rely on bank funding, the cost of bank borrowing (lending spreads) flow through to the real economy. Higher lending spreads increase the costs of borrowing, which – all else equal - reduces the level of investment and therefore output in the steady state.

49. As explained above, the costs to output as a result of higher lending spreads is netted off against output benefits as a result of less frequent financial crises. The NiGEM estimates that lending spreads will increase on average by 1.4 basis points, resulting in a cost to output of approximately £93 million per annum.

Costs to the regulators

¹² Barclays, HSBC, Santander UK, Lloyds Banking Group, Royal Bank of Scotland, Co-operative Bank, Nationwide and Standard Chartered.

50. As stated above, all the firms in scope of a leverage ratio requirement are already reporting their leverage ratio to the PRA. As such, the government does not believe that the regulators will incur any additional operational costs as a result of the FPC being granted powers of direction over the PRA with respect to a leverage ratio framework.

Non-monetised costs

Impact on low-risk business models

51. Firms are currently required to meet RWA capital ratios based on the composition of their exposures, and the government's proposals would also require them to comply with leverage ratio requirements. The government recognises that, depending on the FPC's calibration of its framework, these additional requirements could impose costs on some firms and negatively impact their ability to compete with firms that are less bound by the new requirements. Firms with low average risk weights are most likely to find that they are bound by the FPC's proposed leverage requirements.
52. The calibration put forward by the FPC would impose an effective minimum average risk weight of 35% (i.e. firms with an average risk weight below 35% would be bound by leverage ratio requirements rather than risk-weighted capital requirements).
53. While firms' average risk weights are determined by the types of exposures they have, average risk weights are also impacted by the modelling used by firms to calculate those risk weights. Firms that have sufficient capability are granted permission to calculate their risk weights using internal models rather than using the standardised model. Internal models usually allow greater recognition of collateral, netting and historical loss rates: this results in a broader range of assets that can have risk weights below 35% (e.g. residential mortgages can often be assigned low risk weights in firms' internal models.)
54. The range of assets that can typically have risk weights below 35% indicates the typical business models that might be most impacted by a leverage ratio requirement. Banks and investment firms which have a high proportion of investment banking activities, such as trading in intra-financial sector products (i.e. securities, repo and derivatives market activity) are more likely to have low risk weights. In addition, banks and building societies that have PRA permission to use internal models to determine risk-weighted capital requirements for their mortgage books typically have average risk weights below 35%. The Bank estimates that only three UK building societies have permission to use internal modelling, which could mean that their average risk weights are below 35%, while the majority of UK building societies (42) use standardised models and would therefore not be expected to be bound by a leverage ratio under the FPC's proposed calibration. It should be noted that the three building societies that use internal modelling account for 70% of the total assets held by building societies in the UK.
55. Firms with average risk weights under 35% may be incentivised to change the composition of their balance sheets towards higher risk assets with higher returns in order to maintain return on equity, though these higher risk assets would attract higher risk-weighted capital requirements. As the FPC notes in its impact analysis, this could increase incentives for firms bound by the leverage ratio to lend to higher risk-weighted borrowers, including SMEs. Firms' decisions as to how to modify their assets in response to leverage ratio requirements cannot be predicted with certainty.

Key assumptions, risks and sensitivities

Calibration of the framework

56. The calibration assumption used in the Bank's modelling is a minimum leverage ratio requirement of 3% that applies at a consolidated level to all UK systemically important firms, starting immediately. All other firms within the scope of the proposal would be subject to the same requirement from 2018 onwards. UK systemically important firms would be subject to

additional supplementary leverage ratio buffer requirements of 35% of their corresponding risk-weighted buffers. This equates to additional buffers in the range 0.35%–1.05% for this group. It is assumed that the G-SIB requirements are phased in through four equal sized annual steps from 1 January 2016 to 1 January 2019, while buffers on other systemically important firms apply in full from 2019.

57. It is assumed that the countercyclical capital buffer adds an additional 0.5% of capital requirements in the risk-weighted framework on average over the cycle, following the assumption used in the PRA's CRD IV impact analysis, and that this would lead to an equivalent average countercyclical leverage ratio buffer of 0.2% in steady state (scaling by a factor of 35% and rounding to the nearest 10 basis points). This assumption has been made to provide an estimate of the average CCLB requirements that will be applied over a credit cycle. However, the FPC has stated that "When the FPC does not judge there to be material threats to resilience in the United Kingdom, it expects the CCB rate applied to UK exposures and Sectoral Capital Requirements to be set to zero" and therefore the government expects that the 'resting rate' of the CCLB will also be zero.¹³
58. As firms often hold capital in excess of that required by regulators, it is also assumed that firms will hold a voluntary capital buffer of 20% above their risk-weighted capital requirements and 10% above their leverage ratio requirements. For example, it is assumed that a firm with a leverage ratio of 3% will hold capital to satisfy a 3.30% minimum ratio.

The NiGEM

59. The structure of and assumptions used in the NiGEM model are described in detail in Annex 1 of FSA Occasional Paper No. 38.¹⁴

Firms' behaviour

60. A key risk to this assessment is the behaviour of firms. Individual firms will decide how to react to policy changes by the FPC, e.g. whether to internalise or pass on costs, which could impact the level of costs and/or benefits of macro-prudential policy.
61. A particularly important assumption is that firms will fully pass on the cost of additional capital requirements through higher lending spreads. In practice, banks may choose to recoup these costs by other means: increasing non-lending revenue, lowering rates paid on deposits, or by lowering operating costs. However, the use of these alternatives would be a commercial decision for individual firms and the Government cannot forecast this with any degree of certainty. Use of these other means would reduce the need to raise the price of borrowing and would lower the impact on output as the price of credit would not increase as much as if firms fully pass through the cost of raising and holding additional macro-prudential capital to borrowers.

Rationale and evidence that justify the level of analysis used in the IA

Proportionality

62. The data sample used to produce the indicative monetised costs and benefits in this assessment was created through a data collection exercise run by the Bank of England. In order to avoid a disproportionate burden on firms, who were all adapting to the demands of Common Reporting (COREP) requirements which have been recently introduced by the CRDIV, the Bank chose to request data from the most significant PRA-regulated firms. Not all of the firms which were contacted provided the requested data. However, the government believes that the sample used is representative as it covers the majority of UK assets and the firms outside the sample generally make use of the standardised approach to determine their risk weights so are unlikely to be bound by the FPC's leverage framework as calibrated in this assessment.

¹³ <http://www.bankofengland.co.uk/financialstability/Documents/fpc/policystatement140113.pdf>, pages 12 and 13.

¹⁴ <http://www.fsa.gov.uk/pubs/occpapers/op38.pdf>

Small and Micro Business Assessment

63. The government has asked the Bank of England to estimate how many small and micro businesses will be in scope of the FPC's leverage ratio framework. The Bank estimates that 4 micro businesses and an additional 29 small businesses will be in scope of the FPC's leverage ratio framework. However, as these firms are small and relatively unsophisticated, the government does believe that they make use of internal modelling so are unlikely to have average risks weights below 35% and, therefore, be bound by a leverage ratio requirement under the FPC's proposed calibration.
64. The government notes that small and micro businesses will be subject to a minimum leverage ratio in 2018 as part of the Basel 3 agreement, as implemented in Europe through CRR/CRD4, which is expected to be 3 per cent. The FPC have stated that firms which are not systemically important will not be subject to the minimum leverage ratio until 2018 and so will not face additional capital requirements compared to the baseline from the minimum requirement. Small and micro firms will be subject to the CCLB, but the resting rate of the CCB and, therefore, the CCLB is zero, so firms will not be subject to additional requirements when there are no material risks to financial stability. The FPC has also indicated that it will give consideration to allowing some types of firm greater amounts of time to meet increases in the CCLB. This discretion could be used to allow small and/or micro firms more time to raise additional capital, if the FPC felt that this was proportionate and consistent with its policy objectives.
65. The government notes that as Small and Medium Enterprise (SME) lending often attracts relatively high risk weights, that firms bound by the FPC's leverage ratio framework could be incentivised to realign their business models away from low-risk weight assets (e.g. residential mortgages) and towards greater provision of SME lending. Greater provision of SME lending would benefit small and micro businesses.
66. Given that the FPC's leverage requirements are unlikely to be the binding capital constraint for small and micro businesses, the government does not propose to exempt small and micro businesses from the scope of the FPC's powers of direction with regards to leverage ratio requirements. Exempting these firms would reduce the effectiveness of the FPC's leverage ratio framework. Although small and micro firms are unlikely to have significant impacts on financial stability in isolation, their behaviour in aggregate could have material impacts on financial stability. Exempting these firms would compromise the FPC's ability to meet its statutory objectives.

One In Two Out rule

67. The FPC is charged with supporting UK financial stability by removing or reducing systemic risks to the financial system. The powers the Government intends to give to the FPC will be used to reduce or remove systemic risks to the financial system stemming from excessive leverage. As such, these proposals are exempt from *One In Two Out* as provided for by paragraph 1.9.8 v. of the *Better Regulation Framework Manual*.

Equality impact

68. The Government has considered its obligations under the Equalities Act 2010. The Government does not believe these measures will impact upon discrimination, equality of opportunity or good relations towards people who share relevant protected characteristics under that act.
69. The Government considers that the proposals are compatible with the Convention rights protected under the Human Rights Act 1998.

Environmental, social and sustainable development impacts

70. The government does not anticipate any impact upon greenhouse gases, wider environmental issues, health and well-being, human rights, the justice system, rural proofing and sustainable development. This assumes that the proposed FPC direction powers would not change the relationship between certain environmental phenomena and GDP.

Summary and preferred option

71. The Government believes the benefits of providing the FPC with direction powers over the PRA with regards to a leverage ratio framework outweigh the potential costs.
72. The Government's preferred option will be implemented via secondary legislation under section 9L of the Bank of England Act 1998 as amended by the Financial Services Act 2012.
73. The government does not intend to review this legislation, but notes that the FPC is required to produce explanations of its actions and keep them under review.
74. The Bank of England Act 1998 requires that the FPC must publish an explanation of why it has chosen to exercise its power of direction, the way it has chosen to exercise the power and how this action is consistent with the Committee's statutory objectives and the FPC's requirement to consider the proportionality of its actions. These explanations must include a cost benefit analysis where the Committee believes it is reasonably practicable to produce such analysis. The government is strongly in favour of these explanations including cost benefits analysis and expects the FPC to require a high bar for not producing these estimates. Explanations and cost benefit analysis by the FPC are a key accountability mechanism for the FPC.
75. The Bank of England 1998 also requires that the FPC reviews any outstanding directions given to the PRA or Financial Conduct Authority (FCA) within a year of the direction being given and then at least annually following the initial review. The purpose of these reviews are to consider whether the direction ought to be revoked. The government expects that the FPC will give consideration the direction's compatibility with the Committee's statutory objectives and the principle of proportionality when undertaking these reviews.
76. Explanations and reviews by the FPC will be published in the Financial Stability Report, which is produced by the Committee twice a year.