The Systemic Risk Buffer for UK Banks:
A Response to the Bank of England's Consultation Paper

By John Vickers

SPECIAL PAPER 244

LSE FINANCIAL MARKETS GROUP PAPER SERIES
APRIL 2016

The Systemic Risk Buffer for UK Banks:
A Response to the Bank of England's Consultation Paper

John Vickers[1]

April 2016

1.   Introduction

On 29 January 2016 the Bank of England (2016a) published for consultation the Financial Policy Committee's proposed framework for the systemic risk buffer for UK banks. The SRB is the additional buffer of equity capital, on top of capital requirements that apply to banks generally, that ring-fenced banks[2] (and large building societies) of systemic importance must have in their funding structures from 2019. Under the applicable Regulations (HM Treasury, 2015) the BoE may set SRB rates up to 3% in terms of risk-weighted assets (RWAs).

The BoE proposes to set asset thresholds for the application of the SRB such that (i) the SRB is zero below £175 billion of assets, which is close to 10% of GDP, (ii) no bank has the full 3% SRB rate, and (iii) net of the buffer applicable to some UK banks on account of their global systemic importance, the proposed SRB is expected to add just 0.3% of RWAs to equity capital the UK banking system. This approach follows a downward revision in the BoE's estimate of the appropriate level equity capital for UK banking.

In this response to the consultation I will argue that the BoE should instead apply the full 3% SRB rate to all major ring-fenced banks in the UK. The relevant banks could easily achieve that by 2019, and it would substantially enhance UK financial stability in the public interest.

The response is structured as follows. The next section sets the SRB in the wider context of domestic and global capital requirements for UK banks. Section 3 recaps some basic economics of optimal bank capital requirements and outlines the approach recommended five years ago by the Independent Commission on Banking (2011), which I chaired. Contrary to recent claims by the BoE, its current proposal is substantially weaker than the approach taken by the ICB. Section 4 examines the paper by BoE staff (Brooke et al, 2015) upon which the BoE bases its downward revision of appropriate bank equity capital levels. It is suggested that the analysis in the paper places undue reliance on the effectiveness of gone-concern loss absorbency (bail-in debt &c) and of countercyclical capital buffer policy. Adjusting for these factors, the BoE staff paper would itself imply much higher optimal equity capital requirements. Section 5 assesses the BoE's claim that its proposal is pro-

---

[1] All Souls College, Oxford. This paper has benefited from discussions with Anat Admati, Franklin Allen, John Armour, Daniel Awrey, Alex Brazier, John Cunliffe, Julian Franks, David Miles, Hyun Shin and Ansgar Walther, to whom I am most grateful. Of course all views expressed are mine alone.
[2] Ring-fenced banks are independently-capitalised entities (which may be part of wider banking groups) that carry out core retail banking activities and are prohibited from engaging in investment banking activities.

competitive – the contrary would appear to be the case – and notes that concern about the expansion of large banks itself suggests that they should have more equity capital. The concluding section summarises reasons why the BoE should reconsider its proposal.

2.   The capital framework

Chart A from the consultation paper, reproduced below as Figure 1, puts the SRB proposal in the context of the wider framework of equity capital requirements.

Figure 1: 2019 Tier 1 capital requirements
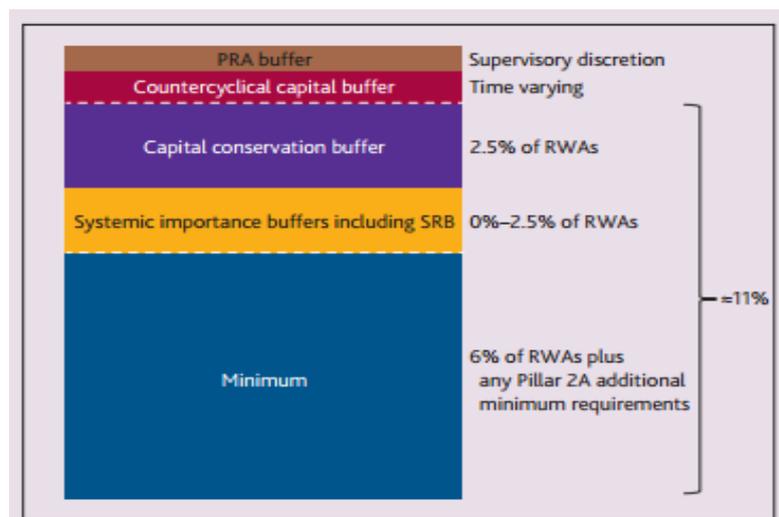
Bank of England (2016a, Chart A)

The figure illustrates the minimum required levels of Tier 1 capital that the BoE envisages by 2019, the date for completion of the Basel III capital requirements internationally. Tier 1 capital is broader than 'equity capital' as normally understood – i.e. common equity – because it also includes equity-like instruments such as contingent capital (co-cos). The effectiveness of co-cos as loss absorbers in crisis conditions is debatable but for regulatory purposes 1.5% of RWAs of such instruments may count towards capital requirements. Thus the 11% on the right of the figure corresponds to 9.5% of RWAs of common equity.

The Bank of England (2015, box 1) reports that UK banks' RWAs are currently around 37% of total (i.e. unweighted) assets, and for the purposes of its supplementary leverage cap the BoE uses a factor of 35%. An international programme to improve risk-weighting, which failed so comprehensively in the crisis, has yet to be completed. Applying the 35% factor would imply that a Tier 1 capital requirement of 11% in terms of RWAs corresponds to 3.85% of total assets, and that a common equity requirement of 9.5% of RWAs equates to 3.33% of total assets, or 30 times leverage in relation to common equity.

The minimum capital requirement (in blue) must always be maintained. Of the 6% of RWAs, up to a quarter can be co-cos as just mentioned. This minimum is temporarily

enhanced by additional minimum requirements (under Pillar 2A of the capital regulations) for individual banks. This additional capital addresses shortcomings in current measures of RWAs, shortcomings that include banks' own pension schemes, interest rate risk in banking books and concentrations of exposures.[3] As those shortcomings are addressed, RWAs will rise because the average risk weight will increase, perhaps by 20% or so.[4] But the BoE does not expect that additional capital will be needed in consequence because the Pillar 2A additional capital that is already in place covers the anticipated risk weight improvements. In a sense, therefore, that capital will be re-designated as and when the risk weights improve.

On top of the minimum requirement are four types of common equity buffer. Buffers allow banks to continue as going concerns while equity capital is rebuilt following an adverse shock. The capital conservation buffer (in purple) of 2.5% of RWAs applies to all banks. Adding this to the 6% minimum gives the baseline figure of 8.5% of RWAs of Tier 1 capital required under Basel III, or 7% of common equity allowing for up to 1.5% of other Tier 1 capital such as co-cos.

The counter-cyclical capital buffer (in red) is a system-wide instrument of macro-prudential policy. The buffer can be increased in good times to guard against excessive credit growth and to build capital that can be run down in a downturn. The current setting of this buffer is zero but the BoE has indicated an intention to set it in the region of 1% of RWAs in a standard risk environment. The Bank of England (2016b) recently announced that the buffer would be at 0.5% of RWAs from 29 March 2017. At the same time overlapping aspects of existing Pillar 2 supervisory capital buffers will be removed, with the result that most of the banking system will see no change to their overall capital buffer requirements as a result of the increase in the counter-cyclical capital buffer. Thus the move is again largely a re-designation of capital rather than a net increase. A leverage ratio buffer accompanies the counter-cyclical capital buffer, again at the 35% rate mentioned earlier.

The consultation paper is about the domestic element of the systemic importance buffers (in yellow). Some UK banks have capital requirements higher than the Basel III baseline on account of being global systemically important banks (G-SIBs). Thus HSBC has an additional requirement of 2.5% of RWAs, Barclays has 2%, and RBS has 1%, as does Santander. This extra G-SIB capital has an indirect benefit for UK financial stability, but the capital is not devoted *pro rata* to the ring-fenced UK retail operations of the banks in question. For the capital resilience of ring-fenced banks in the UK, the setting of the domestic systemic risk buffer is therefore of crucial importance.

---

[3] Brazier (2016, page 3).

[4] Brazier (2016, footnote 3) quotes a ratio of 13.5/11, which is about 1.23.

The BoE's proposed calibration of the SRB is shown in Figure 2 below.[5] GDP at current prices was £1,865 billion in 2015. Therefore no SRB is applicable until a bank has assets of almost 10% of GDP. The full 3% rate, which would involve assets above 40% of GDP, is not expected to apply to any bank. This is the 'empty top bucket' approach. The intermediate buckets are equally spaced, in part "to deter the most systemic firms from getting even larger" (page 17).

Figure 2: SRB rates corresponding to ring-fenced banks' total assets

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

Bank of England (2016a, Table A)

Without access to banks' ring-fencing plans it is impossible to know which rates are likely to apply to which banks, but the aggregate expected impact is given in Table G of the consultation paper and Table 1 of Carney (2016). If the full SRB increment is raised, it would add 0.5% of RWAs UK system-wide (0.7% for the affected banks). But net of G-SIB buffer requirements the expected increment is just 0.3% of RWAs (0.45% for the affected banks). This is a relatively small increment, especially considering that Lloyds, which has the largest share of current accounts, is not a G-SIB. It would appear that the impact of the proposed SRB on other banks is rather small.

The interaction between the G-SIB buffer and the SRB is not wholly clear.[6] Where the G-SIB % rate exceeds the SRB % rate, some of the G-SIB buffer can be down-streamed to the UK ring-fenced bank to meet the SRB requirement. Given the domestic systemic importance of the UK G-SIBs it might seem surprising for the SRB rate ever to be the lower one but that happens widely on the BoE proposal. In the opposite case, where the SRB % rate is higher, G-SIB buffer capital can be down-streamed to meet the SRB requirement, but one hopes to a constrained extent or else the down-streamed capital would either not be secure in the ring-fenced banks (contrary to the principle of ring-fencing) or would erode the G-SIB buffer rate for the bank's non-ring-fenced activities (contrary to the global purpose of the G-SIB buffer).

---

[5] Under the Regulations each institution receives a single score according to measurable criteria, and each possible score has assigned to it a buffer rate, which must be 0%, 1%, 1.5%, 2%, 2.5% or 3%.
[6] See page 17 of Bank of England (2016a). Complexity stems from the fact that the G-SIB buffer applies at group level whereas the SRB applies at the ring-fenced bank within the group, and the FPC's SRB powers relate only to the latter.

Measures beyond the scope of the current SRB consultation may well be needed to take care of this point.

Tier 1 capital can absorb losses while a bank remains a going concern. In addition, a category of non-equity funding, such as subordinated debt subject to bail-in, is intended to provide *gone-concern* loss-absorbency for a bank in resolution. In resolution a "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".[7]

By 2019 G-SIBs will be required under global regulation to have 'total' loss-absorbing capacity (TLAC[8]) of at least 16% of RWAs (6% of total assets), including minimum equity capital requirements but excluding equity buffers. By 2022 these figures rise to 18% (and 6.75%). Under EU regulations on 'minimum requirements for own funds and eligible liabilities' (MREL), gone-concern loss-absorbency requirements will apply also to other banks.

The SRB question concerns equity capital, for which the BoE has explicitly revised down its estimate of appropriate requirements:

"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 to inform the post-crisis Basel III standards".[9]

The reasons given for this shift – which will be discussed in section 4 – are resolution arrangements, effective supervision, structural reform, and active use of the counter-cyclical capital buffer.

3. Some economics of bank capital and the ICB's approach

The equity requirements in the BoE proposal are very low indeed by comparison with what leading academic economists regard as a suitable baseline. For example, in 2010 twenty signatories of an open letter, including now two Nobel laureates, stated that:

"Basel III is far from sufficient to protect the system from recurring crises. If a much larger fraction, at least 15%, of banks' total, non-risk-weighted, assets were funded by

---

[7] Bank of England (2015, box 1).

[8] Hopefully 'total' is a misnomer. Otherwise the other 93% of bank funding is immunised from any potential loss, to the (contingent) detriment of the taxpayer.

[9] Bank of England (2015, page 4).

equity, the social benefits would be substantial. And the social costs would be minimal, if any".[10]

That figure is four times the BoE proposal. Amati and Hellwig (2013) argue for 20-30% of total assets, six to eight times the BoE proposal. In his recent book King (2016, page 280) says more modestly that increasing equity capital to at least 10% of banks' total assets "would be a good start". These proposals cap leverage at 4 to 10 times, compared with about 30 times on the BoE proposal.

The case for greatly increasing minimum equity requirements is straightforward. Higher bank equity has huge social benefits by (i) reducing the probability of banking crises and (ii) reducing the damage when they nevertheless occur. Yet the costs to *society* of more bank equity are close to zero, at least starting from levels as low as Basel III. In short, some very important insurance is effectively available practically for free.

For *banks* however, equity is a relatively costly form of funding. This is partly because debt finance generally receives more favourable tax treatment than equity finance. But that is not a social cost, and it is plainly no basis for a public policy argument that financial stability should be compromised. The other main reason why banks and their shareholders are averse to equity funding – whether by new issuance or retained earnings – is that, by reducing insolvency risk, it has benefits that flow to creditors and are not fully appropriated by the shareholders themselves.[11] Reducing too-big-to-fail risk, which falls on the public as contingent creditor if it happens, is a prime instance of this effect. More bank equity reduces the likelihood and scale of public bail-out. So long as there is any prospect of bail-out, debt funding is effectively subsidised relative to equity funding.

The interests of banks and the public interest are directly opposed in this regard. Moreover, eliminating the subsidy is necessary but not sufficient for good policy. Given the collateral damage from bank failures, protection against them is desirable even after the implicit subsidy has been eliminated. Likewise in environmental policy, pollution should be discouraged, not simply unsubsidised.

None of this is to say that banks should be entirely funded by equity, which would eliminate bank deposits and the liquidity services that they provide. But starting from thirty-fold leverage, that is hardly a constraining factor. On the contrary, the reliability of bank deposits as a store of value is enhanced, not diminished, by reducing such high leverage levels.

These considerations led the ICB (2011) to conclude that the Basel III capital standard was much too low. But the ICB did not recommend equity capital requirements anything like as high as those stated at the start of this section. Rather, the ICB recommended, as illustrated

---

[10] Admati et al (2010).
[11] Admati and Hellwig (2013) provide an extensive analysis of this key point. See also Admati (2016).

in Figure 3, that all major ring-fenced banks should have a systemic risk buffer, which the ICB termed the 'ring-fence buffer', of 3% of RWAs of common equity. (The ICB used 'equity' to mean common equity, whereas the BoE uses the term more broadly to encompass Tier 1 capital. For comparison with BoE percentages one therefore needs to add 1.5% of RWAs to the right-hand column of Figure 3.)

Figure 3: The ICB's illustrative calibration of the SRB

Size of ring-fenced bank (RWAs/GDP)	Illustrative classification of banks by size[22]	Ring-fence buffer (equity-to-RWAs)	Minimum equity-to-RWAs ratio[23]
< 1%	All others	0%	7%
1% – 3%	Co-op, Verde,[24] Clydesdale Bank	(3/2 x (RWAs/GDP–1%))	7% + ring-fence buffer
> 3%	Barclays, HSBC, Lloyds Banking Group (LBG), Nationwide, Royal Bank of Scotland (RBS), Santander UK	3%	10%

ICB (2011, Table 4.2)

The left-hand column of Figure 3 is in terms of RWAs/GDP whereas Figure 2 was in £ billion of total assets. Using the 35% conversion factor for RWAs, 3% of RWAs/GDP is about £160 billon. Thus the threshold for the application of the *top* 3% SRB rate on the ICB proposal is lower than the threshold for the *lowest* positive SRB rate on the BoE proposal. For major ring-fenced banks the BoE's average SRB rate is 1.3% of RWAs, less than half the ICB recommendation.

Figure 4: ICB illustration of capital buffers for a ring-fenced bank with a 3% SRB
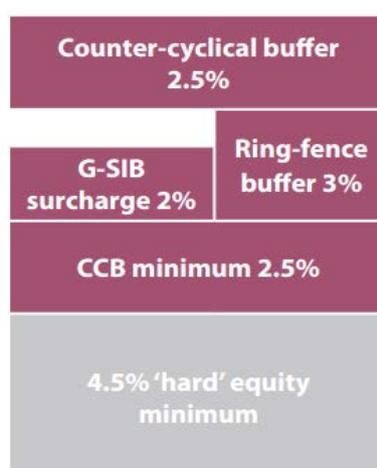
ICB (2011, Box 4.5)

Figure 3 does not show any G-SIB buffer or counter-cyclical capital buffer. Figure 4 illustrates their inclusion for a ring-fenced bank with RWAs/GDP of 4% – so total assets of perhaps £215 billion – during a period when the counter-cyclical capital buffer is set at 2.5%

of RWAs. The various equity components sum to 12.5% of RWAs in the example shown, or 14% adding 1.5% of RWAs to get things in terms of Tier 1 capital. On the BoE proposal the same bank would have an SRB of just 1% of RWAs instead of the ICB's 3%.

Although the ICB proposal was for substantially more equity capital than the BoE has proposed, it is well below the levels indicated at the start of this section, for example the 15% of total assets in the quotation from the 2010 open letter criticising the Basel III baseline. But that difference stems not from a fundamentally different view about the inadequacy of the Basel standard. It arises largely because the question facing the ICB was not what the global standard should be, but what the standard should be for UK ring-fenced banks given the (inadequate) global standard.

The ICB expressed considerable sympathy for arguments in favour of setting much higher minimum equity requirements, but it faced a constrained problem.[12] Otherwise the ICB would have recommended higher equity capital requirements. An important constraint on the extent to which equity requirements for UK banks could exceed those for banks based elsewhere was the possibility of geographic arbitrage, especially within the EU. Second, depending on global regulation of other kinds of financial institution, very high equity requirements for banks could incentivise, to an undesirable extent, migration of some activities outside the banking system. Third, there was the transition problem of how steeply equity ratios could be raised without causing further macroeconomic damage. This challenge, which was quite acute as the ICB completed its work in 2011 given the Eurozone crisis at the time, has since eased.[13]

The ICB's 2011 judgement, taking all these considerations into account, was an SRB of 3% of RWAs for all major ring-fenced banks – i.e. with assets above say £160 billion in today's terms. This recommendation on equity requirements is to be seen in conjunction with supplementary ICB recommendations on loss-absorbing debt requirements, which will be discussed further below. On the other, non-ring-fenced, activities of UK-based banks, the ICB accepted, with international arbitrage in mind, that they should be regulated as agreed at international level, subject to there being credible resolution plans. This policy package, with its elevated capital requirements for ring-fenced banks, addressed what the Chancellor called the 'British dilemma' of how to remain a successful global financial centre without undue risk to taxpayers or the broader economy.

It can well be argued that the SRB should be set higher than the ICB's 3% of RWAs. But the top rate currently permitted by the regulations is the 3% rate. So as far as the immediate policy question is concerned, all those in favour of a higher rate should support full use of the scope available, contrary to what the BoE has proposed.

---

[12] See ICB (2011, paragraphs 4.33ff).

[13] That constraint having eased, ICB logic would now imply a higher recommended SRB, other things equal.

In a curious twist to the debate, the BoE has claimed that it is proposing common equity capital requirements higher than what the ICB recommended.[14] That claim is wrong. Clearly the BoE's proposed SRB is well below that recommended by the ICB, and there is no good reason to think that other elements of the equity capital framework would be lower on the ICB approach than on the BoE's.

Figure 5: The BoE's 'apples to apples' comparison: Estimated average common equity requirements for major UK ring-fenced banks (RWAs as currently measured)

	Ring-fenced banks	
	BoE	ICB
Pillar 1 (common equity)	4.5	4.5
Capital conservation buffer	2.5	2.5
Systemic buffers (SRB and G-SIB)	1.3	3.0
Pillar 2A (common equity)	1.9	-
Countercyclical buffer	1.0	-
Pillar 2B (common equity)	+	+
Total common equity	11.2+	10.0+

Portion of Carney (2016, Table 1) on common equity requirements for ring-fenced banks

Carney (2016) claims otherwise, as shown in the relevant portion of his Table 1, reproduced as Figure 5. The average systemic risk buffer rate on the BoE proposal is 1.3%, less than half the ICB's 3% of RWAs. Yet the BoE appears to come out ahead in the overall comparison, by 11.2 to 10.0% of RWAs. On a true comparison this difference reverses.

Note first that the BoE's comparison has attributed a zero counter-cyclical capital buffer to the ICB but a normal level of 1% of RWAs to its own framework (which is in fact at zero, albeit with a gradual increase to 0.5% of RWAs a year from now). The zero attribution to the ICB is baseless. The ICB explicitly saw the buffer as one that, among other things, "can be run down in a downturn". That obviously implies a normal setting well above zero, and the ICB illustration in Figure 4 had the counter-cyclical capital buffer at 2.5% of RWAs.

Second, the BoE has also attributed to its column 1.9% of RWAs of Pillar 2A common equity capital, but again with a zero corresponding attribution to the ICB. As with the counter-cyclical buffer capital, the differential treatment lacks foundation. Pillar 2A capital is for risks to banks that are either not captured, or not fully captured, under the minimum capital requirements. The ICB did not specify levels of Pillar 2A capital. For one thing, unlike the supervisory authority, it lacked the information to do so. But it does not follow at all that the ICB favoured, or that any approach in the spirit of the ICB's analysis would favour, zero

---

[14] See for example Bailey and Cunliffe (2016) in response to Vickers (2016a), and Governor Carney's (2016) letter to the Treasury Committee of 5 April following his evidence on 23 February 2016.

Pillar 2A capital. Such an attribution would amount to saying that the ICB opposed, or would oppose, capital for risks to banks that are either not captured, or not fully captured, under the minimum capital requirements. Needless to say, that would be the opposite of the truth.[15]

Moreover, the 1.9% of RWAs of Pillar 2A capital in the BoE column is *temporary*, compensating for current shortcomings in risk weights:

> "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".[16]

They are an interim measure, of a perfectly sensible kind. The ICB was no less keen on better risk weights than is the BoE.[17] As and when they are corrected, that capital in the BoE framework will be re-designated so as to comply with the improved risk weights (and to meet the 0.5% counter-cyclical capital buffer from March 2017). So the large amount of Pillar 2A capital that the BoE attributes to its own framework but not the ICB's will disappear when there is no longer a need for compensating additional requirements. A fair comparison would make a similar[18] attribution to the ICB – compensating in the same way so long as risk weight shortcomings persist – or else would have done the comparison on the basis of corrected risk weights, without the Pillar 2A capital in either column.

There is no escaping this. The numbers in Figure 5 are explicitly for RWAs as currently measured, i.e. before anticipated corrections. (Recall that the SRB will apply from 2019.) As risk weights improve, the 'ICB' numbers will decrease as the denominator of the equity/RWA ratio rises (perhaps by up to the 1.23 factor in footnote 3). For example, the 7% of RWAs of Pillar 1 plus conservation buffer capital would drop below 6%, in breach of Basel III. (Needless to say, this would grossly at odds with the ICB's position.) Extra capital equivalent to the Pillar 2A capital would then have to be added to the ICB column if it were not already in place. Again the BoE's purported difference goes away. Put another way, attributing 1.9% of RWAs of equity capital to the BoE on account of risk weight problems, but zero to the ICB, effectively uses different risk weights for the BoE and ICB, which is clearly not comparing like with like.

---

[15] As well as general openness to the authorities applying additional discretionary capital requirements to groups of firms, the ICB recommended moreover that regulators have discretion to impose a 'resolution buffer' of up to 3% of RWAs of common equity. Paragraph 4.42 of ICB (2011) has an illustrative example of a bank with a common equity requirement of 15.5% of RWAs: Basel baseline 7% + 3% of SRB + 2.5% counter-cyclical capital buffer + 3% resolution buffer.

[16] Bank of England (2015, page 4).

[17] And for illustrative purposes assumed an average risk weight of 50% (ICB, 2011, pages 92 and 117).

[18] Or higher, because there is more capital needing risk weight compensation in the ICB column.

Cutting through the complications of risk weights, the ICB baseline for major ring-fenced banks' Tier 1 capital was well above 4% of total assets, whereas for the BoE it is just 3.75% (Brazier, 2016) even including considerable G-SIB buffer capital not devoted to the ring-fenced banks. In terms of the key issue of the capital securely backing ring-fenced banking, the ICB-BoE difference is significantly greater. Indeed it emerges from Carney (2016, page 7) that the global systemic risk buffer rates for UK banking groups overall *exceed* the BoE's proposed domestic systemic buffer rates – 1.7% of RWAs versus 1.3%.[19] Contrary to the Chancellor's solution to the 'British dilemma', the BoE is proposing a *lower* requirement domestically than globally.

In short, the BoE's supposedly 'apples-to-apples' comparison with the ICB is no such thing. The BoE proposal is for substantially lower equity capital requirements. On a truly apples-to-apples basis the ICB recommended 15% or so more equity capital for major ring-fenced banks.

Beyond this point-by-point comparison is a fundamental policy difference. The ICB considered global standards for equity capital to be too weak by some margin, and recommended that UK should go well beyond them in respect of all major ring-fenced banks. Governor Carney by contrast is satisfied that post-crisis banking reform is substantially complete, and is proposing a systemic risk buffer for ring-fenced banks that would add relatively little equity capital to the UK system net of international requirements, and would be weaker than global requirements for major UK banking groups.

4. The BoE's lower estimate of optimal equity capital requirements

As noted above, the BoE is explicit that its assessment of the appropriate level of bank capital is substantially lower than earlier estimates. The reasons given for the lowering are (i) effective resolution arrangements, (ii) effective supervision and structural reform, and (iii) active use of the counter-cyclical capital buffer. All these factors were anticipated/ recommended by the ICB, though with caution about the effectiveness of resolution arrangements.

The analysis in the BoE staff paper by Brooke et al (2015) is evidently a foundation for the BoE policy position, so the paper deserves close scrutiny. Its analysis is said to indicate an optimal equity requirement of 10-14% of RWAs for the system as a whole, materially below earlier estimates including that of the Basel Committee on Banking Supervision (BCBS) in 2010. Since full use of the scope to set an SRB of 3% of RWAs for all major UK ring-fenced banks would still be within this estimated range, the paper would not provide much reason

---

[19] At group level the G-SIB and SRB requirements combine to add 2.1% of RWAs, of which 1.7% is from G-SIB requirements and 0.4% from incremental equity at group level to meet SRB requirements. One imagines that Lloyds accounts for much of this increment.

to favour the BoE's milder policy even if its analysis was accepted without question. Important elements of the analysis are however very questionable.

The paper conducts a cost-benefit analysis of equity requirements based on a set of assumptions, some of which have particular significance. The organising equation for the analysis is:

Net benefit of higher capital = {Reduction in probability of crisis due to higher capital × Net present cost of a crisis} – {Reduction in output due to higher lending spreads}.

The first term of the right-hand side is a benefit of more capital and the second term is a cost. At the optimum the net benefit is zero.

An initial puzzle is that a potentially important benefit of higher capital is missing from the equation, namely a term relating to {Reduction in severity of crisis} from higher equity. More equity would reduce crisis severity because it reduces the capital shortfall in the system. As the Bank of England (2016c, page 7) itself recently stated:

"there is significant evidence that well-capitalised banks are more likely to survive in a crisis, less likely to cut lending during periods of economic stress, and less likely to suffer funding problems that could result in forced sales of assets with damaging knock-on consequences for the financial system".

Equity capital is better in a crisis than *gone*-concern loss-absorbency – which the BoE assumes to have a large effect reducing crisis severity[20] – because equity is a more certain and straightforward loss-absorber.[21] It is hardly a matter of indifference whether a major bank becomes a gone concern. So the 'missing benefit of equity' issue appears material, and in tension with the BoE's assumption that gone-concern loss-absorbency greatly reduces the likely harm from crises.

The sensitivity of the results of the BoE model to the assumptions applied to it is shown in Chart 9 of the paper, reproduced as Figure 6. On the left is the central estimate of optimal Tier 1 capital (on a Basel III basis) from the long-term economic impact (LEI) study conducted by the BCBS in 2010. That study indicated optimal capital of 16-19% of RWAs. The BoE paper indicates the lower range of 10-14% with a 12% midpoint. There are four main differences – two ups and two downs with an overall large net down.

---

[20] Carney (2016, page 3) goes so far as to say that credible resolution strategies leave "the system less reliant on going-concern capital to do the heavy lifting".

[21] Brooke et al (2015) do not analyse the relative merits of going- and gone-concern loss-absorbency and hence the optimal mix between the two.

Figure 6: Differences between BoE and BCBS estimates of optimal capital requirements
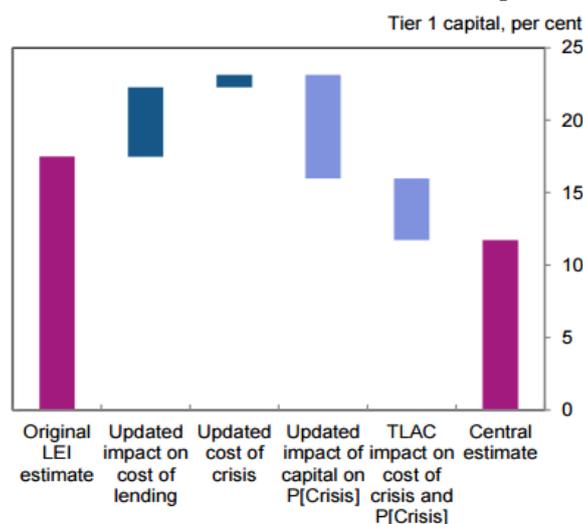
Brooke et al (2015, Chart 9)

A serious criticism of the LEI study was the relatively high economic cost in terms of GDP reduction attributed to higher bank capital. As discussed earlier, there are good reasons to believe that, at least starting from low capital levels, the cost to the economy of enhanced capital requirements is approximately zero (the 'free insurance' point). The cost to banks is another matter because of the debt/equity tax wedge, the reduction in implicit subsidy and more generally the externality to providers of debt finance from greater equity. But those factors suggest that higher bank equity helps correct economic distortions, to the benefit of economic well-being, not to its detriment. Moreover, the cost to banks of both equity and debt funding should reduce as equity is increased, leaving the overall cost of funding little changed in the absence of tax and implicit subsidies (the 'Modigliani-Miller' effect).

Relative to the BCBS study, the BoE analysis at least makes some allowance for this, shown in the first dark blue bar, which takes the estimated optimal capital level to over 20% of RWAs. There are good grounds[22], however, for going a lot further, in which case the estimated optimal capital level would rise much more. The 'cost' of more equity assumed in the BoE analysis is based on a 10% spread between the costs of equity (11%) and debt (1%). Such a spread makes sense only if equity is much riskier than debt, which itself is suggestive of inadequate equity.

Governor Carney (2016, page 2) seems to be firmly of the view that bank capital is costly to society, even at its current levels, and he quotes the statutory requirement on the FPC not to act in a way that damages the capacity of the financial sector to contribute to UK economic growth. But more bank capital would increase that capacity, not reduce it. This is a central

---

[22] Again see, for example, Admati and Hellwig (2013) and Admati (2016).

point of the recent speech by Hyun Shin (2016), head of research at the Bank for International Settlements in Basel:

> "both the macro objective of unlocking bank lending and the supervisory objective of sound banks are better served if banks have more capital. In general, sound banks lend more, and do so in a sustainable way over the cycle".

Shin's empirical finding is that a 1 percentage point increase in the equity/total assets ratio is associated with a 0.6 percentage point increase in subsequent lending growth. He stresses the potential importance of banks' retained earnings in this process:

> "For typical levels of bank leverage, it would appear that banks could go a long way towards mitigating their supposedly higher cost of equity funding by keeping back more of their profits for retained earnings".

Yet banks, including in the UK, are paying out large amounts of equity capital in dividends, and their freedom to do so is increased the lower are requirements for going-concern capital.

Returning to Figure 6, the other dark blue bar reflects a small upward adjustment in the estimated economic cost of crises (ignoring gone-concern loss-absorbency). The effects of the crisis do indeed seem deeper and more prolonged even than appeared in 2010.[23] And the strain on public finances has turned out to be significantly greater than expected, which could substantially increase the damage from a future crisis.

Particularly important, however, are the large downward adjustments shown in the pale blue bars. The first is due to the BoE analysis having a much lower estimate of crisis probability, for a given equity level, than the BCBS study. Of the reasons given for this on page 16 of the paper, one stands out. The BoE study is conditioned on *average risk conditions*, i.e. at the midpoint of the cycle. This is a strange conditioning assumption to make for assessing crisis probability. Risk conditions towards the peak of the cycle would seem more relevant to the policy question at issue. Table 7 of the paper indicates how important this assumption is. Estimated crisis probability would be *six times higher* if conditioned on peak risk conditions. That would be above, not well below, the estimates in the BCBS study, which were based on data for the full range of the credit cycle.

In short, the BoE study derives results that are "explicitly focussed on the costs and benefits of higher capital for *normal risk conditions*".[24] That is a very questionable basis for a policy decision concerning general risk conditions, especially when the benefits of more capital are

---

[23] This is another reason for revising upwards the ICB recommendation with the benefit of hindsight.
[24] Brooke et al (2015, page 12), emphasis added. The average risk conditioning assumption does not appear among the 'key assumptions' listed by Carney (2016, page 9).

greatest in conditions of elevated risk. One would not base flood defence policy on cost-benefit analysis of improving flood defences in average weather conditions.

The paper openly acknowledges that "in periods where economic risks are elevated – such as after credit booms – *the appropriate level of capital would be much higher*" but says that:

> "It would be inefficient to capitalise the banking system for these elevated risk environments at all times, based on our analysis of the economic costs of higher bank capital levels. This motivates the use of time-varying macro-prudential tools, such as the counter-cyclical capital buffer".[25]

In effect, then, the BoE analysis is premised upon both agile and clairvoyant use of the counter-cyclical capital buffer.[26] As a practical matter this is improbable, and certainly not to be relied upon. Macro-prudential policy is in its infancy, and even when mature will be inevitably imperfect and incapable of rapid and potentially large adjustment as policymakers' perceptions of risk conditions change. Those perceptions themselves have to be formed in the fog of uncertainty and will often be found wanting. Moreover, increases in the counter-cyclical capital buffer rate require a year's notice, save in exceptional circumstances. And in such circumstances, a sharp increase in the rate might well be contrary to other policy objectives.

Claims about the prospect of active use of the counter-cyclical capital buffer therefore do not justify assessing the pros and cons of capital requirements on the basis of normal risk conditions. The capital framework must be resilient in more adverse risk conditions. Adjusting for this, the BoE's own model would indicate the desirability for the public interest of much higher equity capital requirements.

The other pale blue bar reflects the assumption fed into the BoE model that the future resolution regime will recapitalise banks that cease to be going concerns in a fast and effective way, and that bail-in will reduce the need for fiscal consolidation and prevent sharp increases in private sector borrowing costs. On the basis of this quite bold assumption the cost of crises is assumed to be reduced by almost a third. Without the assumption, the estimate of optimal capital levels would be increased by up to 5% of RWAs.

The building of resolution regimes and gone-concern loss-absorbency is a very important and welcome policy development following the crisis. But those regimes and debt instruments are untried and untested.[27] To rely on them to the extent of the BoE's modelling

---

[25] Brooke et al (2015, page 4).
[26] The FPC's policy on deployment of this buffer is set out in Bank of England (2016c).
[27] Related experience to date is not comforting. See for example, the litigation over the Portuguese *Novo Banco* case.

assumption is in my view misguided as a basis for policy on equity capital requirements. For a major bank to cease to be a going concern is a very serious matter, the probability of which should and can be minimised, especially when that can be done at low (if any) cost to the economy.[28]

Both downward adjustments, which together amount to about 11% of RWAs, are therefore very questionable. Without the adjustments, equity capital in excess of 20% of RWAs would be optimal if one accepted the other elements of the BoE model. Moderating the adjustments, even by just a quarter, would shift the 10-14% estimated range to 13-17%, which would in turn suggest that capital levels would be significantly sub-optimal even if the top SRB rate of 3% were applied to all UK ring-fenced banks.

Without the questionable downward adjustments the BoE estimate of optimal capital requirements would broadly accord with the findings of Miles et al (2012), who used a similar cost-benefit analysis framework. Their estimate was that common equity 16-20% of RWAs should be required, assuming that RWAs correctly reflect the riskiness of banks' exposures. In terms of Tier 1 capital that equates to perhaps 20-25% of RWAs. Thus the optimal capital requirement as estimated by Miles et al is about double the BoE's. The prime reasons – mirroring the pair of questionable downward adjustments by the BoE – relate to assumptions about the probability and severity of crises.

It is true that altering other assumptions in the BoE's model could decrease estimated optimal capital levels, and the paper highlights transition costs in this regard. But Brazier (2016, page 3) states that UK banks are already "within a hair's breadth" of 11% of RWAs of Tier 1 capital (with risks properly measured). Adding a few percentage points more by 2019 should therefore not cause undue strain, especially having regard to retained earnings possibilities, nor result in significant transition costs.[29]

Finally, a danger of discussing any modelling exercise such as this is a spurious impression of precision. The authors of the paper are admirably clear about the large range of uncertainty around their estimates, and about the sensitivity to key assumptions. That uncertainty itself gives further reason to favour higher levels of equity capital, especially common equity, because that is the most – and perhaps the only – uncertainty-proof form of bank funding. Moreover, the capital numbers used in regulation are accounting figures, and are themselves uncertain measures of the constantly-changing underlying position. This measurement uncertainty is a further reason to have ample capital buffers.

---

[28] Vickers (2016b) used the metaphor that, while more fire extinguishers reduce the average damage from a fire, that is no good reason to economise on fire prevention.
[29] Transition costs might however weigh against sharp rises in the counter-cyclical capital buffer, contrary to the implicit assumption in the model that such policy can be deployed actively in a timely way.

5. Competition issues arising from the BoE's proposal

An important feature of the BoE's proposed calibration of the SRB framework is that it "would initially have an empty bucket of 3% which would be applied to the most systemic firms should their assets expand further than those set out in existing data and in firms' current ring-fencing plans".[30] As Deputy Governors Bailey and Cunliffe (2016) explain:

> "we want to put banks on notice that if they become more systemically important they could face higher capital requirements — and avoid giving firms an incentive for further growth".

This accords with the aim quoted earlier of deterring the largest firms from getting even larger. (At the root of this is the fact discussed earlier that equity is a relatively costly form of funding for *banks* as distinct from the economy generally.)

This approach raises two significant issues.[31] The first is that the policy is anti-competitive, not pro-competitive. Effective competition is about rivalry among firms to offer customer good deals. It is not about deterring firms from crossing size or market share thresholds. While high market shares are a possible *indication* that rivalry might not be strong, policy measures that discourage firms, including large ones, from expanding their businesses *reduce* rivalry. This happens both directly (as large firms are discouraged from winning new business) and indirectly (as smaller firms face softer competition from larger ones).

There is a general problem with the Regulations here that it would be good to remedy in due course. As a ring-fenced bank crosses one of the critical size thresholds the 'tax rate' jumps. Moreover, unlike the income tax system, the higher rate is applied to all assets, not just the extent to which assets exceed the threshold that has been crossed. This creates very high marginal 'tax' rates at those points. This could significantly deter growth by banks as they approach critical thresholds.[32] Likewise, for a bank that starts just above a threshold there could be a significant incentive to contract. It is hard to gauge how great are the incentives induced by these threshold effects, but it may be inferred from the BoE statement just quoted that they are material.

For now, however, the Regulations are a given. For competition among large banks – which is probably the most important dimension of retail competition – the best approach for competition is likely to be a *flat rate* SRB, which would avoid the discontinuities (as in the ICB approach for ring-fenced banks with assets above £160 billion or so).

---

[30] Bank of England (2016a, page 17).

[31] This section draws from Vickers (2016c), where a fuller discussion may be found.

[32] And/or seriously distort incentives for placing business outside the ring-fence.

There is still a problem of how to scale up to a large-bank flat rate without blunting competition from smaller challenger banks. On this, ICB (2011, paragraph 4.43) stated:

> "However, a situation in which a bank operating just below a size threshold has no ring-fence buffer and a bank operating just above it has the full equity ring-fence buffer of 3% of RWAs would in itself create an anti-competitive discontinuity (although this will be less of a problem to the extent that smaller banks are in any case required to operate with higher capital ratios)."

The ICB recommended a sliding scale approach to meet this point (see the second row of the table in Figure 3 above) but that would require change to the Regulations. So would making the 'tax' rates incrementally banded, like income tax, so as to avoid the spikes in marginal rates. That is to say, the first £X billion would be at one level, and the next £Y billion at another. But then, unless size thresholds were radically reduced, or the range of SRB rates widened, the *average* SRB level would fall considerably, contrary to financial stability objectives.

A second issue is raised by the rationale for the BoE's proposed 'empty bucket' policy for the top rate. If there is thought to be a benefit to financial stability from deterring expansion by the largest banks, that would indicate that the too-big-to-fail problem in relation to those banks had been left seriously under-treated – and hence that SRB rate levels are too low. Then the better approach for financial stability, as well as competition, would be to apply the top 3% rate to at least the largest banks, rather than a lower rate combined with a regulatory deterrent to expansion.

6. Summary and conclusion

The equity capital of UK banking is fundamental to the country's financial stability. Equity capital has been far too thin and it remains too low. The BoE should make full use of its powers under the applicable Regulations and take the opportunity it now has to apply an SRB of 3% of RWAs to all major UK ring-fenced banks.

The proposal in the BoE's consultation paper falls short. The analytical basis for the BoE's downward revision of estimated optimal capital requirements rests on very questionable assumptions, especially concerning the effectiveness of resolution regimes and of dynamic counter-cyclical buffer policy. In particular, it is unsound to base equity buffer policy on analysis for average or typical risk conditions. The benchmark should be more elevated risk conditions.

Making more prudent and realistic assumptions about resolution and counter-cyclical capital buffer policy would result in much higher estimates of optimal equity capital even on

the BoE's own analytical approach. Indeed, using SRB powers to the full, with a comprehensive 3% rate, would leave equity capital levels sub-optimal.

Viewed from a wider perspective, the policy issue discussed in this response may seem relatively narrow, since it concerns a range of 3% of RWAs – not much more than 1% of total assets – for UK ring-fenced banks. But even for those who with good grounds favour much greater equity capital, the policy question is very important for the UK, and has parallels internationally.

These issues deserve public debate, and the announcement on 15 April that the Treasury Committee of the House of Commons will initiate further work on bank capital standards is very welcome.

References

Admati, A. (2016), 'The missed opportunity and challenge of capital regulation', *National Institute Economic Review*, 235, R4-14.

Admati, A. et al (2010), 'Healthy banking system is the goal, not profitable banks', letter published in the *Financial Times*, 9 November.

Admati, A. and M. Hellwig (2013), *The Bankers' New Clothes: What's Wrong with Banking and What to Do about It*, Princeton University Press.

Bailey, A. and J. Cunliffe (2016), 'Proposals designed to fulfil BoE's core mission', letter published in the *Financial Times*, 17 February.

Bank of England (2015), *Supplement to the December 2015 Financial Stability Report: The framework of capital requirements for UK banks*.

Bank of England (2016a), *The Financial Policy Committee's framework for the systemic risk buffer: A Consultation Paper*.

Bank of England (2016b), Financial Policy Committee statement from its policy meeting, 23 March 2016.

Bank of England (2016c), *The Financial Policy Committee's approach to setting the countercyclical capital buffer*.

Brazier, A. (2016), 'A macro-prudential approach to bank capital: serving the real economy in good times and bad', speech given at the 27th Annual Institute of International Bankers conference, Washington DC.

Brooke, M., O. Bush, R. Edwards, J. Ellis, B. Francis, R. Harimohan, K. Neiss and C. Siegert (2015), 'Measuring the macroeconomic costs and benefits of higher UK bank capital requirements', Financial Stability Paper 35, Bank of England.

Carney, M. (2016), Letter to the Rt Hon Andrew Tyrie MP, Chairman of the Treasury Select Committee, 5 April.

HM Treasury (2015*), The Capital Requirements (Capital Buffers and Macro-prudential Measures) (Amendment) Regulations.*

Independent Commission on Banking (2011), *Final Report: Recommendations*.

King, M. (2016), *The End of Alchemy: Money, Banking and the Future of the Global Economy*, Little, Brown.

Miles, D., J. Yang and G. Marcheggiano (2012), 'Optimal bank capital', *Economic Journal*, 123, 1–37.

Shin, H. (2016), 'Bank capital and monetary policy transmission', remarks at the ECB and its Watchers XVII conference, Frankfurt, 7 April.

Vickers, J. (2016a), 'The Bank of England must think again on systemic risk', opinion column published in the *Financial Times*, 15 February.

Vickers, J. (2016b), 'Equity buffers are in the public interest', letter published in the *Financial Times*, 18 February.

Vickers, J. (2016c), 'The Bank of England's proposed framework for the systemic risk buffer', note to the CMA's retail banking market investigation team, 23 February.