

## Alex Brazier: A macroprudential approach to bank capital – serving the real economy in good times and bad

Speech by Mr Alex Brazier, Executive Director for Financial Stability Strategy and Risk of the Bank of England, at the 27th Annual Institute of International Bankers conference, Washington DC, 7 March 2016.

\* \* \*

*I am grateful to Rob Edwards, Jas Ellis and Calum Mitchell for their assistance in preparing these remarks.*

Your industry has known better starts to a year.

Bank stocks down, volatility up, earnings disappointing. All ghosts of crises past.

But one ghost has **not** returned to haunt us.

Questions about **returns** haven't translated as they've done before into questions about **resilience**.

Investors may have real questions about whether some banks can generate adequate return on equity in a difficult global economic and trading environment.

They may also be more alert to the risks in and appropriate returns to contingent capital instruments.

But when UK bank price-to-book ratios were this low in 2009, senior unsecured debt spreads were over 350bps.

At the height of the euro crisis in 2011, they were 300bps.

Today, they are just 73bps (chart 1).

Underlying that is the transformation of bank capital.

In the UK, major banks now have core tier 1 equity ratios averaging nearly 13%. Before the financial crisis they had – on Basel III definitions – just 4.5% (chart 2).

Those new levels of resilience are seen in the results of stress tests.

Last year, the Bank of England subjected UK banks to a sharp slowdown in China, a fall in oil prices and intense market volatility, coupled with stressed estimates of redress costs for past misconduct.

Across the system, banks in the test incurred losses of £37bn. That's over twice the losses of the system in the financial crisis.

Back then, losses on that scale would have wiped out almost two thirds of the capital of the entire British banking system.

With so much more capital today, the stress test showed those losses could be absorbed, even while the system continued to grow credit to the real economy.

Far from sideswiping the real economy under stress, the test showed the banking system could continue to support it.<sup>1</sup>

And yet, there is still, eight long years after the crisis, a lively debate in newspapers, blogs and academia, about whether the capital strength of the banking system should be built up further.

---

<sup>1</sup> Available at <http://www.bankofengland.co.uk/financialstability/Documents/fpc/results011215.pdf>.

About whether authorities should abandon the conclusions of Basel III and of the UK's post-crisis Independent Commission on Banking and compel banks to go further.

A debate like that is all to the good; these are important questions for society.

But it has to be balanced against the merits of clarity.

Clarity you need to run your businesses effectively.

Clarity investors need to allocate and price capital efficiently.

Clarity the public, and Parliaments, need to hold policymakers and banks to account.

That's why, in December, the Bank of England gave a clear statement about the appropriate baseline level of capital for the systemic part of the UK banking system.<sup>2</sup>

Across major UK banks, no less than 3.75% of total assets should be funded with tier 1 capital.

If risks were properly measured, this would translate into 11% of risk weighted assets.

However, there are shortcomings in existing measures of risk, including banks' own pension schemes, interest rate risk in banking books and concentrations of exposures.

So on current measures, we expect major UK banks to fund no less than 13½% of risk weighted assets with tier 1 equity.<sup>3</sup>

After a long march to build capital strength, UK banks are within a hair's breadth of that today. And the rewards of greater resilience are being reaped.

Our expectations for capital are founded on the need for a banking system that can serve the real economy, in good times and bad.

Our aim is to be prudent **and** to make macroeconomic sense.

Our aim is to be macroprudential.

***It's clear why the approach has to be prudent. The wider economic costs of poorly capitalised banks can be immense.***

The cutbacks of credit, of market making, and of essential payment services under stress can be economically devastating.

On average, during the Great Recession, output fell in those countries that experienced financial crises by nearly twice as much as in countries that did not. That gap in performance has persisted since.

We estimate the full, net present value, economic costs of typical past financial crises to have been catastrophic – around 75% of GDP and in some cases much more.

So nobody should deny the economic case for well capitalised banks. And it was obvious in the aftermath of the crisis where bank capital needed to go. Up. A lot.

---

<sup>2</sup> Available at <http://www.bankofengland.co.uk/publications/Documents/fsr/2015/fsrsupp.pdf>.

<sup>3</sup> Major UK banks are required to hold, on average, additional tier 1 capital of 2.5% of risk weighted assets under "pillar 2a" requirements. These compensate for existing shortcomings in risk measures and lift average capital requirements from 11% to 13.5%. Should the shortcomings in risk measures be corrected, measures of risk weighted assets would increase. But at the same time, our expectation for capital as a share of risk weighted assets would fall back. The two effects can be expected to offset so that no extra capital would be required. Ongoing work in the Basel Committee addressing excessive variability in risk weights should not materially affect overall capital requirements.

In fact, with market confidence so low at the time, more capital not only boosted resilience, it was also needed for lending to resume.

Capital was good for resilience **and** good for growth. That's why countries that recapitalised their banking systems quickly secured earlier and stronger recoveries, with the US leading the way.

***However, after a point, another unit of capital buys a much smaller fall in the probability of bank failure. There may be seriously diminishing returns.***

***And at the same time it's possible that ever more bank capital may not best serve the real economy.***

***It may be prudential. But it may not be macroprudential.***

We have to be alert to the possibility that more bank capital could hold back growth.

The costs of higher levels of capital can be overstated, including – let's face it – by some bank executives who mistake private costs to today's shareholders for true economic costs.

It's often forgotten that lower leverage makes equity and debt less risky, driving down the cost of both. That isn't just a textbook result; it's supported by the data.

But the evidence from numerous studies is that this effect is incomplete. Total funding costs do rise as companies – of all sorts, not just banks – swap debt for equity funding. And this effect goes beyond what can be explained by the differential tax treatment of debt and equity.<sup>4</sup>

The drivers of this are unclear. It's an area where there is much to learn; where partnership between the industry and academia could be productive in bringing theory and practice closer together.<sup>5</sup>

In general, it seems that investors' preferences for different types of assets are affected not just by the risk and return of those assets.

Equity investors seem to want higher, more volatile returns. They like their equity to be equity-like. So making it safer doesn't reduce its cost as much as it should.

And for banks, whose short-term debts are the money used by the real economy, the effect is compounded. Depositors **want** a stable liquid store of value for a rainy day. They don't want equity. So they understandably take some persuading to swap their rainy day fund into bank equity.<sup>6</sup>

Regardless of its cause, the evidence that higher capital requirements can push up bank funding costs can't be ignored. The costs will be borne by real borrowers – in higher cost of funds, and real savers – in lower returns.

In theory, monetary policy may be able to offset the overall effect of that on inflation. But it can't alter the fact that the costs will be higher of matching lenders with borrowers, capital providers with capital seekers, and risk takers with risk hedgers.

---

<sup>4</sup> Miles et al (2012) presents a central estimate that the reduction in the volatility of equity returns and riskiness of debt offsets about half the increase in funding costs that would, other things equal, result from switching debt to more expensive equity funding.

<sup>5</sup> Elliott (2013) sets out areas of disagreement in the debate about the economic costs of higher bank capital requirements.

<sup>6</sup> The low risk anomaly, whereby lower risk stocks generate no lower and in some cases even higher stock returns than higher risk stocks, is documented for banks by Baker and Wurgler (2013). The impact of depositor liquidity preference is discussed in Kashyap et al (2010).

That's not just a private cost. It's a social cost too.

At the margin, it will force a change in the mix of economic activity. The ability to turn future cashflows into today's investments will be curtailed. Spending will replace investment. Investment projects will have lower returns.

That holds back future economic potential.

Although it's impossible to be precise, it seems that once a baseline degree of resilience has been established, more capital could actually cost the economy.

We estimate that a 100bps increase in capital requirements across a banking system could result in an economic cost with net present value of 0.6% of GDP.<sup>7</sup>

This all raises an important macroprudential question: how to best protect the real economy without the unnecessary risk of holding it back?

Our answer in the UK has three parts.

***First, to protect the economy from the consequences of bank failure. And to do so at minimal economic cost.***

Effective bank resolution unlocks this. With minimum disruption to existing funding structures, it opens the door to preserving the functions of failed banks without recourse to the taxpayer.

Serious progress has been made in building resolution regimes. An EU-wide legal framework is now in place. Cross-border arrangements have been stepped up. Agreements have been reached on temporary stays to closing out contracts in resolution.

And the G20 agreement on Total Loss Absorbing Capacity (TLAC) standards for global systemic banks has a game-changing principle at its heart.

Systemic banks must have the capacity to replenish capital, up to minimum regulatory standards, even if all capital – of all tiers – has been completely burned through.<sup>8</sup>

It's a game changer because it hardwires the recapitalisation of failing banks. Bailed-in debt holders become, very quickly, the proud new owners of the bank.

Case study evidence is striking. Rapid recapitalisation of failed banks speeds economic recovery. It cuts the long-term costs of systemic bank failure in half.

But resolution through bail-in is more than a fire extinguisher. It's a non-flammable coating of the banking system too. It helps to prevent bank failures in the first place. Unsurprisingly, the evidence is that when debt holders face the consequences of failure, banks take fewer risks.

International estimates suggest that the removal of the heads-I-win-tails-you-lose 'too big to fail' subsidy cuts the risk of failure by a third.

As you know, the removal of that subsidy isn't a pipedream. Rating agencies are already removing "state support" uplifts from bank debt ratings.<sup>9</sup> And yes, it will raise

---

<sup>7</sup> This is very similar to estimates of Miles et al (2012), who find the effect of increasing capital from 3% of total assets to 6% of total assets to be around 6% of GDP.

<sup>8</sup> The Bank of England, as UK resolution authority, is now consulting on proposals to implement that principle in the UK for all systemic banks, as it must do under the European Bank Recovery and Resolution Directive.

<sup>9</sup> Moody's and S&P have removed or reduced government support from the ratings of some UK and US banks. Fitch has revised the support assumptions for UK and US banks to remove the 'Support Rating Floors' that capture government support assumptions.

the cost of banking services and reduce return on equity. But those costs are the flipside of the removal of a subsidy – they are not wider social costs.

It is essential that efforts to ensure even the largest banks can be resolved remain on track. In the UK, that includes the ringfencing of entities taking core deposits. Impediments to resolvability must continue to be addressed.

If those efforts hit obstacles, higher equity requirements will be needed to achieve the same ends. The necessary protections for the real economy have to be bought. The only question is at what price.

But even with an effective resolution backstop in place, the costs of systemic bank failure are far from insignificant.

***So the second part of our macroprudential approach is a baseline capital standard that makes economic disruption caused by a weak banking system extremely rare.***

***But not more so.***

Our baseline – tier 1 capital of 13.5% of risk weighted assets, or around 3.75% of total assets – aims to do this.

The dual key approach – risk-weighted capital and leverage – recognises the imperfections in risk weight models and guards against them.

On past loss performance, this standard reduces the probability of failure to extremely low levels, and the probability of simultaneous failures that drive crises to even lower levels. And that past performance includes the global financial crisis.

In the UK, even the two biggest failures of the crisis – Royal Bank of Scotland and Halifax Bank of Scotland – suffered losses comfortably within these baseline standards. Using Basel III definitions, both suffered losses – even over three years – of around 5% of risk weighted assets.<sup>10</sup>

So going further could have a sharply diminishing further effect on the probability of banking failure.

And it could run the risk of economic cost.

Our standard recognises those risks. By not taking it higher, we are seeking to strike a balance; to be macroprudential.

That balance is also served by the make-up of the requirements.

Hard floor capital requirements don't help the real economy. They simply move the point of failure and distress of banks to a higher level of capital. They may make banks more resilient, but they don't make credit supply and essential service provision more resilient.

So a large slice of bank capital should take the form of a useable buffer: a cushion that sits on top of minimum capital requirements that can be run down and built up gradually afterwards.

The emphasis is on useable.

---

<sup>10</sup> Over the three year period 2008–2010, HBoS incurred losses of £25bn. This amounted to around 5% of its 2008 risk weighted assets (£536bn on a Basel III basis). In the same period, RBS incurred losses on trading activities and impairments on all assets totalling £40bn, or 5% risk weighted assets (£783bn on Basel III basis). These banks failed because they entered the crisis with very low capital strength. On a Basel III basis, RBS is estimated to have had a CET1 ratio of just 1.97% at end 2007. HBoS had 4.1%. See FSA (2011) and Bank of England/FCA (2015).

That's why, although they are well meaning, mandatory restrictions on distributions of dividends, coupons and pay when capital buffers are used can have a perverse effect. They create incentives to avoid dipping into capital buffers by taking actions that have broader economic effects.<sup>11</sup>

Our baseline standards mean the biggest banks will be subject to a baseline capital buffer of nearly 5% of risk weighted assets, sitting on top of an 8.5% hard floor for tier 1 capital (see table 1).<sup>12</sup>

A buffer of 5% goes beyond agreed international standards.

Basel III sets a minimum buffer of 2.5% for all banks (the conservation buffer) and supplements it only for banks of global importance. We are intending to go further for big banks of domestic importance, just as the United States is going further on capital buffers for its largest banks.<sup>13</sup>

A buffer of 5% gives room for systemic banks to absorb losses without being forced to close their doors and cease their service to the economy. It achieves not just greater bank resilience, but greater resilience of service to the macro economy.

It's macroprudential.

Stress tests tell us that this capital buffer would be big enough to absorb a deep UK recession with sharply rising interest rates and falls in property prices, or a deep global recession, centred on China and emerging markets, with associated global deflation.

But it would be a mistake to think that a 5% capital buffer is always and everywhere the right one.

***So the third part of our approach is flexibility.***

***Flexibility to raise capital buffers if the threat of future losses grows, and cut them again if those threats materialise or recede.***

That flexibility avoids what might otherwise be a need to capitalise the system for the very riskiest times, all the time. It avoids taking unnecessary risks of holding the real economy back.

There will be times when risks are heightened and so to protect the economy, banks should have bigger capital buffers. Broadly, we are seeking to match the size of those buffers – the strength of defence – to the threat of future losses as they change over time.<sup>14</sup>

But how will we know the threat level has changed?

---

<sup>11</sup> The Bank of England has called on the European Commission to revisit such rules in the European Capital Requirements Directive IV. The Bank's response to the Commission's call for evidence is available at <http://www.bankofengland.co.uk/financialstability/Documents/regframework/detailedanswers010216.pdf>

<sup>12</sup> The 8.5% minimum is composed of 6% common international standard agreed under Basel III plus the 2.5% pillar 2a requirement that reflects shortcomings in risk measures. See footnote 3.

<sup>13</sup> We plan only for only the systemic part of the banking system to have a 5% buffer. In line with Basel standards, smaller banks will be subject to a buffer only half the size. That reflects the difference in economic costs between a big – systemic – bank coming close to or actually failing and a small bank doing so.

<sup>14</sup> This will take effect by supplementing baseline capital requirements with the countercyclical capital buffer rate on UK exposures.

We'll be looking for the evidence that borrowers might have overstretched; that asset prices could be vulnerable to reversal; and that economic imbalances exist that could correct.

Assessing risks isn't the same as "calling the cycle". We shouldn't be asking whether a downturn or a bad event is destined to happen. We are not looking for irrefutable proof. Capital buffers should be based on whether the evidence says there is a threat that *could* materialise in future, not *whether* it is going to.

The most interesting thing I heard a senior policymaker say about the financial crisis, not a Bank of England policymaker, was that we spent far too long thinking about whether there was a housing bubble and not enough time thinking about what if there is a housing bubble.

The consequences for banks will be informed by our annual stress test. With the stress scenario varying systematically with our assessment of the risks, the test will guide us as to how – given banks' exposures – our judgement about the risks should be reflected in capital buffers.

In addition, we'll have a bias to acting early and gradually – to raising countercyclical capital buffers before the threat level is seen to be heightened.

The Bank of England expects to be adding around 1% to the capital buffer on UK exposures of all banks, even before the overall threat of future losses looks high.

That bias reflects the time lags in implementation and in the cost of time-varying buffers lagging behind the threats. As well, there is clear evidence that sudden, sharp increases in capital requirements can have a material effect on credit supply and economic activity. Acting earlier allows us to take smaller steps.

With this approach, the UK's systemic banks will, except in post-crisis repair, be required to run with capital buffers a little above our baseline standard. Leverage requirements will also be scaled up, with banks typically being required to fund no less than 4% of total assets with tier 1 capital.

Should the threat level rise above normal, so too will capital buffers. They'll go as far as needed to ensure banks' defences keep up with threats if they grow.

And importantly, if threats materialise, or shrink, we'll reduce our expectation for capital buffers back towards the baseline level.

In doing this, we're aiming to turn what's happened in the past on its head. Bank capital buffers have been too small in the good times and needed to be built up in the bad. They were pro-cyclical and amplified the bad times.

Now, we're making them countercyclical. Buffers will be built up from their base level as the risks grow, so they can be drawn down, if and when the risks materialise. In the bad times, banks will be able to absorb losses and move on to continue to serve the real economy.

Our flexibility extends beyond moving capital buffers up and down.

With higher baseline capital and leverage requirements now being reached, we are learning about the effects of those requirements on the provision of services to the real economy.

Some of those effects have come into sharper focus in recent months. Sovereign repo markets have shown signs of reduced liquidity, for example. And there are also signs of reduced market-making activity in sovereign and corporate bond markets.

None of these developments should make us rush to amend capital standards that have been put in place to protect the real economy. After all, the levels of dealer

activity and of market liquidity in the run-up to the crisis were ephemeral. They did not serve the real economy.

It is important that other parts of the financial system, such as asset managers, adapt to the new environment and manage liquidity positions prudently.

But these developments should, and they are, prompting us to assess whether targeted amendments to the design of regulations could benefit the real economy, without exposing it to more risk.

The design of new requirements was macroprudential. So must be their implementation.

The system has come a long way on the march to more capital and greater resilience.

The benefits of that are being seen today. Lending to real economies is growing again. Resilience is more insulated from questions about returns.

With resolution regimes well advanced and game-changing bail-in principles established, the upward march to higher capital levels can soon reach the new baseline.

A baseline that, on what we know today, protects the real economy without unnecessary risk of holding it back.

And with the flexibility to adapt and continually align resilience with threats, we have a compelling answer to the question of how to marry prudence with macroeconomic sense.

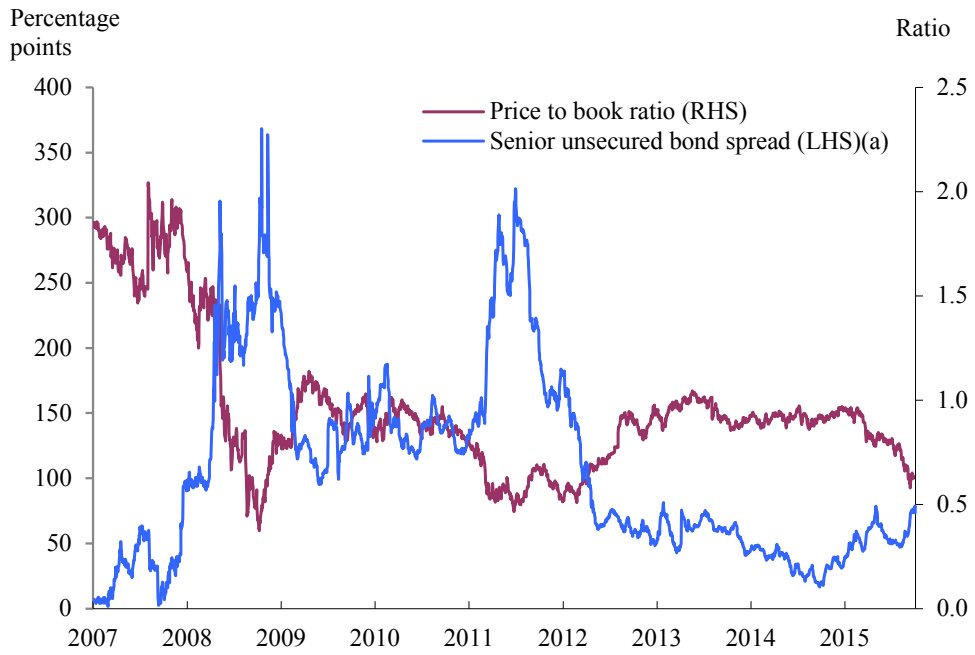
So that you can protect and serve the real economy in good times and bad.

Thank you.



Chart 1

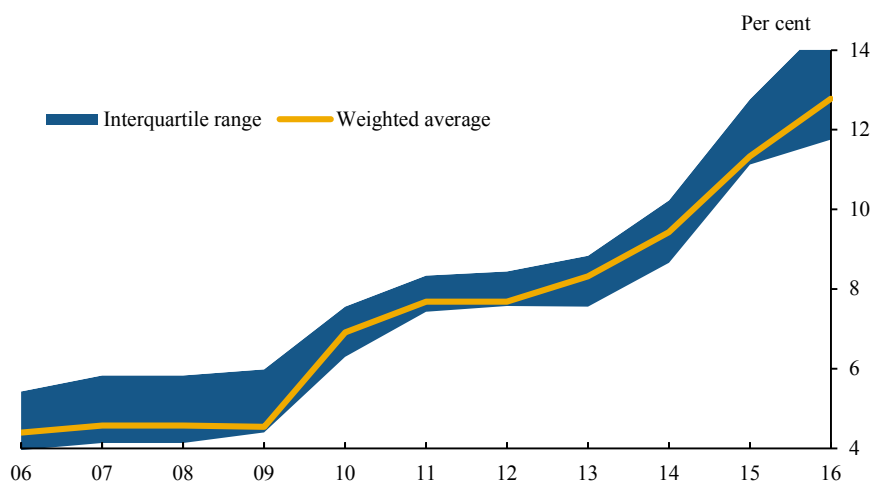
**Major UK bank price to book ratios and  
wholesale funding spreads**



Sources: Bloomberg, Thomson Reuters Datastream and Bank calculations.

(a) Constant-maturity unweighted average of secondary market spreads to mid-swaps for the major UK lenders' five-year euro senior unsecured bonds or a suitable proxy when unavailable.

Chart 2  
Major UK banks' approximated CET1 capital ratio



Sources: PRA regulatory returns and Bank calculations.

(a) Major UK banks' estimated common equity Tier 1 capital as a percentage of their risk-weighted assets. Calculated as aggregate peer group common equity Tier 1 levels over aggregate risk-weighted assets, according to the CRD IV definition as implemented in the UK. Major UK banks are Barclays, Co-operative Bank, HSBC, LBG, Nationwide, RBS and Santander UK.

(b) From 2006, the chart shows Bank calculations approximating common equity Tier 1 capital ratios.

(c) From 2014, the chart shows common equity Tier 1 capital ratios as reported by banks.

Table 1  
Average Tier 1 capital requirements across  
UK systemic banks

Tier 1 Capital Requirements	%RWA	% Total Assets (leverage)
<b>Minimum requirements (no less than 75% CET1)</b>	<b>8.5%</b>	<b>3%</b>
Pillar 1	6%	
Pillar 2a (reflecting shortcomings in risk measures)	2.5%	
<b>Baseline capital buffers (CET1)</b>	<b>5%</b>	<b>0.75%</b>
Capital conservation buffer	2.5%	
Additional buffers for systemic importance	2.5%	
<b>Total Tier 1 baseline requirements</b>	<b>13.5%</b>	<b>3.75%</b>
+ UK countercyclical buffer rate at standard risk level	1%	0.35%

## References

**Baker, M and Wurgler, J (2013)**, 'Do strict capital requirements raise the cost of capital? Bank regulation and the low risk anomaly', *National Bureau of Economic Research Working Paper* No. 19018, May.

**Bank of England (2015)**, 'Supplement to the December 2015 Financial Stability Report: The framework of capital requirements for UK banks', available at <http://www.bankofengland.co.uk/publications/Documents/fsr/2015/fsrsupp.pdf>

**Bank of England (2015)**, 'Stress testing the UK banking system: 2015 results' available at <http://www.bankofengland.co.uk/publications/Documents/speeches/2016/speech883.pdf>.

**Bank of England Prudential Regulation Authority and Financial Conduct Authority**, 'The Failure of HBoS plc' <http://www.bankofengland.co.uk/pru/Documents/publications/reports/hbos.pdf>.

**Bank of England (2016)**, 'Bank of England response to the European Commission Call for Evidence on the EU Regulatory Framework for Financial Services', available at <http://www.bankofengland.co.uk/financialstability/Documents/regframework/detail/edanswers010216.pdf>.

**Brooke, M, et al (2015)**, 'Measuring the macroeconomic costs and benefits of higher UK bank capital requirements', available at [http://www.bankofengland.co.uk/financialstability/Documents/fpc/fspapers/fs\\_paper35.pdf](http://www.bankofengland.co.uk/financialstability/Documents/fpc/fspapers/fs_paper35.pdf).

**Elliott, D (2013)**, 'Higher bank capital requirements would come at a price', *The Brookings Institution*, February, available at <http://www.brookings.edu/research/papers/2013/02/20-bank-capital-requirements-elliott>.

**FSA (2011)**, 'The Failure of the Royal Bank of Scotland', *Financial Services Authority Board Report* <http://www.fsa.gov.uk/pubs/other/rbs.pdf>.

**Kashyap, A, Stein, J and Hanson, S (2010)**, 'An analysis of the impact of substantially heightened capital requirements', *Mimeo*, May, available at <http://chifi.shufe.edu.cn/upload/htmleditor/File/120919100455.pdf>.

**Miles, D, Yang, J and Marcheggiano, G (2013)**, 'Optimal bank capital', *Economic Journal*, Vol. 123, pages 1–37.