Capital Requirements

Gold plate or lead weight?

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Executive Summary

The shock of the financial crisis has led decision makers across the West to declare 'never again' and the desire to make the banks 'safe' is an important part of this. In that regard the changes made by Basel 3 and the government's bill on banking reform to ensure the banks have more capital, more liquidity and less risk are ones that move in the right direction. Yet all of the debate about what to do with the banks is focused almost exclusively on safety. There is no debate on whether, by making the banks ever safer, we are actually preventing a recovery from the last financial crisis. In our view that is exactly what is happening.

If we force the banks to hold more capital, they can do so by raising that capital in the markets, using their profits to boost their capital or by reducing the size of their balance sheet (which normally means curtailing lending). While the banks did initially raise capital (mostly from the government in the case of RBS and Lloyds) it has been much more difficult since the Eurozone crisis erupted, with investors generally shunning banks as an asset class. With profits under pressure from write offs of previous bad loans and payments such as PPI, a good deal of the increase in capital ratios has had to come from shrinking balance sheets. The result has been that lending to companies has fallen by more than £10bn every year since 2009, a total decline of some £57bn from the peak in 2008.[1]

> "There is no debate on whether, by making the banks ever safer, we are actually preventing a recovery from the last financial crisis. In our view that is exactly what is happening"

That in turn has meant that, despite the billions spent on Quantitative Easing (QE) by the Bank of England, broad money growth has actually been negative. The simple fact is that without credit growth you cannot get the money supply to grow and without that you cannot have economic growth. If austerity has been the cause of the weakness of growth we believe that it is financial austerity, in the form of the FSA's and Bank of England's attempts to make the banking system safer, more than fiscal austerity that has been to blame. Indeed, in an ideal world monetary and financial policy should have been offsetting the impact of fiscal austerity but instead it has aggravated it.

Some decline in lending was inevitable. In the years before the financial crisis the banks had grown too fast and their balance sheets had become too bloated. However, should lending still be declining four years after the economy started to turn around? The Bank of England's view is that the banks do not have enough capital to lend and the Financial Policy Committee in November actually asked the FSA to look at bank balance sheets to see if they needed still more capital. Indeed, the FPC specifically questioned whether the banks' capital buffers were sufficiently robust.

1 Or using the Bank of England parlance non-financial private corporations

We believe this initiative is particularly ill-conceived coming as it did just a few months after the introduction of the Funding for Lending Scheme, which had offered to allow banks to use those very same capital buffers to support new lending. When the Bank of England says it is perplexed at why new lending is not responding to the scheme, perhaps it should reflect on what such an approach does to the desire and ability of banks to increase their lending.

SME lending is particularly hard hit as it can require up to five times as much capital as mortgage lending. For a bank that is struggling to meet a capital ratio, set by a regulator, it is the type of lending they are least likely to do, because it is the most capital intensive. Indeed, we believe it is this capital issue that explains the gap between banks saying there is no demand for lending and companies saying there is no supply. Banks feel they can only lend in a capital efficient way, so they offer to lend but only in exchange for guarantees or security or extra return (to either reduce the capital required or compensate for it) which makes the loan unattractive to the small companies.

The regulators argue that the solution is for the banks to raise extra capital so they can support new lending. Indeed, the Financial Policy Committee has made it clear that it intends to ask at least some of the banks to raise additional capital. Yet that capital comes at a cost. If, as is rumoured, RBS is forced to raise as much as £5bn of new capital, it may well cost it in the region of 8% or more.[2] That would cost it around £400m (pre-tax). That is a sizeable chunk out of an underlying profit of £3.5bn last year. Moreover, given what the FPC has said, such capital would not be to support new lending merely to support the assets currently on the balance sheet.

It is time for the authorities to realise that their desire to make the banks ever safer is backfiring. The banks are already much safer than they were in the run up to or during the financial crisis. RBS and Barclays have reduced their leverage from 27 and 33 times to 15 and 19 times respectively. Lloyds, Barclays and RBS have all doubled their core tier 1 capital ratios, and under the new Basel 3 (and CRD IV) rules they all have common equity tier 1 capital of close to 8% compared to the current requirements of 3.5% for common equity tier 1 and 4.5% for total tier 1 capital. In short the banks are not only much safer than they used to be, they are also comfortably above the minima that should now be in place. The Bank of England's latest attempts to force the banks to hold more capital are aimed at ensuring they have a large enough buffer above those minima. That might be sensible at the top of the cycle but not at a time when the economy is still trying to recover.

Regulators and governments were stung by the crisis and, understandably, feel that they have to err on the side of caution. Hence we have Basel 3 that will require the banks to eventually hold 7% equity capital, compared to 2% previously, and total capital of between 10.5% and 13% compared to 8% under Basel 2.[3] The UK regulatory regime that will require ring-fenced banks to hold still more capital through an additional equity and other loss absorbing capital, taking the total Primary Loss Absorbing Capital to 17%, more than double the requirement under Basel 2. We have new leverage ratios to constrain the overall size of balance sheets at banks. And finally we have new liquidity and funding ratios that mean banks have to hold liquidity to meet their requirements in times of crisis and have much more stable funding. The regulators have understandably been keen to learn the lessons of the Northern Rock, HBOS, RBS and Lehmans style failures.

2 Assuming RBS issues a contingent bond, which appears the most likely source of new capital. The similar Barclays bond carried a coupon of 7.625%. Most analysts and investors we have spoken to believe the rate RBS would have to offer would need to be somewhat higher.

3 Depending on the size of the bank. Global Systemically Important Banks, such as HSBC, JP Morgan, Deutsche Bank, Citigroup, Barclays and RBS will be required to hold more capital than smaller banks.

Most of these measures do go in the right direction but the banks are already well on their way to meeting them. Basel 3 is not meant to be fully implemented until 2019, but most banks are aiming to be there in the next couple of years. The government's banking bill has not yet passed into law but Lloyds believes it already has the 17% Primary Loss Absorbing Capital in place. To put that into context, whereas for every £100 Lloyds used to lend to SMEs under the old regime of Basel 2, it would have to hold a minimum of £8 of capital, it now has to hold £17 of capital. No wonder lending to SMEs is falling.

It makes no sense to force the banks to raise more capital at a time when bank lending to business is falling and the 'real economy' remains, at best, subdued. If the pendulum had swung towards regulation that was too light touch and banks that were required to hold too little capital prior to the crisis, it has now swung too far the other way. We believe the idea behind the FLS was the right one. Encourage banks to lend and allow them to do so without allocating further capital against that lending. They have enough slack to do so. If the regulators led the way we believe the markets would follow and grant the banks the slack they need.

This is not just relevant to the UK. Jamie Dimon, the CEO of JP Morgan, commented recently "I think all banks will have too much capital in two and a half years. And they're not going to know what to do with it." We could not agree more. The regulators have been burnt and see their job as one of making sure the financial crisis can never happen again but the consequences of their actions in terms of lower growth, higher unemployment and higher fiscal deficits are real. Indeed, we do not believe it was any accident that European bank lending growth started to fall last year after the European Banking Authority forced banks to get to a tier one capital ratio of 9% by the summer.

Merely focusing on safety is not enough. We now have to focus on doing the right thing for the economy more broadly. To achieve this, the report makes four key recommendations:

Recommendation 1

Regulatory authorities, particularly the Bank of England through the Financial Policy Committee and Prudential Regulatory Authority, need to recognise that the drive to higher capital requirements has adverse consequences. In an ideal world we would like the Bank to abandon its likely demands for the banks to raise capital. Since we feel the Bank has committed itself to this course, we recommend that the Bank gives the banks flexibility over how and when they raise this capital and makes it clear that new capital raised can and should be used to increase lending. It should also make clear that any capital raise that is required will, unless there is a dramatic change in circumstances, be the final one it will ask the banks to make. The Funding for Lending Scheme stated that net new lending under the scheme would not require further capital. We would like the Bank of England and FSA to reaffirm this commitment. Finally we would like the Bank of England to understand that without credit growth it will not be able to boost demand in the economy and re-orientate its policy to reflect this.

Recommendation 2

We would like to see much more flexibility in Basel 3 and its European equivalent CRD IV around capital floors. Under Basel 3 banks are going to be required

to build a capital buffer of 2.5% over and above the minimum capital ratio of 8%. If they fall into the capital buffer then their ability to distribute earnings becomes ever more restricted. We believe the system should be more flexible, particularly in the run up to full implementation of Basel 3. We would like the UK government to push for a more flexible buffer zone that would straddle both sides of the Basel 3 minimum rather than just on top of it. Basel 3 says that it should be expected that banks would enter buffer zones from time to time and that constraints should not be restrictive to result in the range becoming a new minimum capital requirement. We would like regulators to start interpreting the buffer zones as such. We also think it should be acceptable for banks to be able to breach minimum capital requirements in extremis. Regulators should not require banks to hold enough capital so that they would never drop below the capital minima in a stress test, even under extreme assumptions. This would lead to banks holding too much capital.

Recommendation 3

We believe that the Bank of England and FSA should allow UK banks to move to Basel 3 liquidity requirements immediately. The current UK liquidity regime requires banks to hold around 50% more liquidity than Basel 3 in more restrictive instruments. This would free up assets, which the banks could use for lending instead.

Recommendation 4

The government should oppose any further strengthening of the ring-fence around the UK banks. The UK now looks set to be the only major economic centre that will be imposing a ring-fence on its banks. The EU Commission has recognised the downside in terms of the impact on growth, with European Commissioner Michel Barnier saying "I don't want to penalise the work of banks when they work for the benefit of the economy and industry". He also said he was keen "to move on as soon as possible from the agenda of reactive repair to a proactive agenda". The comments of the Parliamentary Commission on Banking Reform on the ring-fence and other issues show that too many in the UK are still in "reactive repair" mode. We believe the ring-fence is the wrong answer to the wrong question. Retail banks are safer than investment banks as Northern Rock, Bradford & Bingley and HBOS proved. So we would argue that the regulators focus on protecting the whole bank and one way to do that is to ensure it remains competitive with its global counterparts. The ring-fence far from being electrified should be made as flexible as it needs to be for the competitiveness and efficiency of the banks.

Conclusion

Ensuring that we have a safe banks and a safe financial system is crucial. However, this paper argues that too much safety can actually be bad for the health of the economy. The banks are much safer than they used to be, having lowered their leverage, increased their capital and boosted their liquidity. It is time the regulators allowed the banks to use some of that increased financial strength to boost lending to the economy. Then and only then will we have a chance of seeing lending rising to SMEs and the economy starting a real recovery.

Introduction

The financial crisis of 2007–9 came as a major shock to investors, governments, central banks and regulators alike. The cost in terms of bailouts, lost economic output and higher fiscal deficits has been huge. Not surprisingly there has been an enormous amount of paper consumed examining the reasons behind the crisis and how to ensure it does not happen again. While much of the blame for the crisis, and the failures of financial institutions, has been heaped on the bankers for taking "reckless" decisions there has also been much examination of the regulatory failures, most notably in the area of capital regulation. Indeed, a central hypothesis that has emerged is that the banks were under capitalised and therefore unable to absorb the losses from those poor decisions. That in turn has led to demands for much tighter regulations and higher capital requirements epitomised by the new Basel 3 regulations.

As a result of this received wisdom, regulators around the world have been leaning on the banks to build up higher capital ratios to increase the safety of the financial system and ensure that the crisis can never happen again. This is completely understandable given public concerns. Indeed, the Bank of England has recently instituted what is in effect a stress test of bank balance sheets to see if they need to raise more capital. It is almost certain that the conclusions of this exercise will be that the banks do indeed need more capital.

While it is undoubtedly appropriate to take the necessary measures to ensure that we have a much more robust financial system than before, and that we make it as unlikely as possible for another financial crisis to occur, we also have to consider the downsides from such an approach. The key issue with the desire to ramp up capital ratios is that to do so banks either have to raise capital or cut the size of their balance sheets. Capital can either be raised from the markets or generated internally via retained profits, but markets have been very difficult to access for banks in the last few years while profitability has been damaged by the ongoing fallout from the financial crisis. This has meant that more of the adjustment has had to come from shrinking balance sheets, or more accurately risk weighted assets. While some of that can be achieved by selling off undesirable assets it has also meant banks have had to constrain lending too.

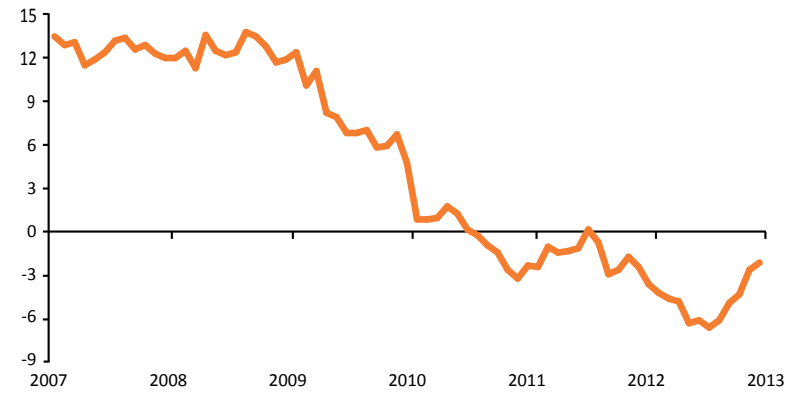
The latter has not all been entirely deliberate in that it is not simply that banks have not wanted to lend, rather the capital rules mean they have had to adjust the way in which they lend. Loans to SMEs and high loan-to-value mortgages require much more capital than buying government bonds, highly rated corporate bonds or sub 60% loan-to-value mortgages. This has meant that banks have had to tailor their lending to ensure it is capital efficient, which makes it less available or less attractive to companies and individuals. Anyone who looks at an advert for a new low rate mortgage in the UK will almost certainly find somewhere in the small print that it applies only to low loan-to-value ratios. Those with higher

ratios tend to have to pay higher rates to compensate the bank for the higher capital required.

Equally, making banks hold markedly higher levels of liquidity puts a squeeze on their balance sheets since they still need to hold capital against those liquid assets (unless they are AAA or AA- rated). They will also have to pare back other assets in their balance sheet (such as loans) if they are trying to meet a leverage target, such as the one that Basel 3 and the UK Financial Services Bill introduces. In addition, holding those liquid assets also puts pressure on profitability since, by definition, the liquid assets regulators want banks to hold offer less yield than traditional bank assets. We are not talking small numbers either, Barclays alone has had to increase the amount of liquid assets it holds by around £130bn since before the crisis. Even in the context of a £1.6tn balance sheet that is a big number.

The overall result is that it is more difficult for banks to lend. This can be seen by the weakness of lending growth around the world but most notably in the UK and Europe. Bank lending has actually been falling since 2009 and in year on year terms it has been negative since mid 2010 (see chart). Lending to companies has fallen by more than £10bn a year every year since 2009, including last year. The Funding for Lending Scheme has helped stabilise things of late but it has yet to prompt a recovery in lending. The lack of credit growth accounts for the weakness of monetary growth and, we believe, economic growth. The Bank of England's attempts to ease monetary policy through Quantitative Easing have been completely offset by its (and the FSA's) desire to raise capital requirements at the banks.

Figure 1: M4 bank lending % yoy



Source: Bloomberg

There has been some progress on the policy front of late with the decision to ease liquidity requirements both in the UK and globally (through the Basel committee) so that liquidity can be run down when it is required. It has also been recognised that, within limits, the banks should be able to rely on the central bank's position as lender of last resort rather than overcompensating with excess liquidity. In other words the liquidity buffers have been recognised as something

that can be eaten into when necessary. Similarly the introduction of the Funding for Lending Scheme in the UK has given the banks access to longer maturity lending at low rates, again giving the banks more assurance that if they lend then the funding will be there.

At the margin these measures will help, but if the banks continue to be capital constrained then it will likely struggle to work. One option is to force the banks to raise more capital so that they potentially have excess capital and are therefore not constrained in their lending. This appears to be the tactic of the Bank of England, where the Financial Policy Committee believes that the banks are undercapitalised for the risks they have on their balance sheet. The Bank seems to think that by forcing the banks to raise capital they will be able to start lending again. We believe that the current effort to force the banks to raise capital will have the opposite effect. Given that the Bank has just shifted the goalposts for the banks, would they really want to lend more and risk hitting their capital limits? Almost certainly not, just in case the Bank (and the FSA) decides to shift the goalposts yet again.

The problem with the capital ratios, as they stand, is that if you start to approach the upper end of the limit you have no choice but to curb your lending. That capital ratio limit is a hard limit. One leading banker has commented that the current policy is like one of creating heavyweight boxers but with glass jaws, arguing that the policy requires banks to build up lots of capital, but as soon as they start to use it they risk running up against the limits. In extremis, if they breach them, the management and shareholders can be knocked out. Unlike liquidity buffers the capital is not there to be used, unless you are going bust.

The result is that the drive to make the financial system safer, through raising capital ratios, is actually causing monetary policy to be less effective and hampering the recovery. That in turn is actually making the banks more fragile because some businesses that might survive, or loans that might be repaid, were the recovery to be stronger will likely fail or default. The desire to gold plate our banks is actually creating a lead weight for the recovery.

This paper argues for a rethink on three key fronts. First, it argues that the authorities, particularly the Bank of England through its Financial Policy Committee and the Prudential Regulatory Authority, should recognise that the drive to higher capital requirements has adverse consequences. Given that the chances of another financial crash (outside a Eurozone collapse) are quite slim we would argue that it makes sense to give the banks some flexibility on their capital, particularly if this was linked to higher lending.[4] There were hints of this at the time of the introduction of the FLS but we believe that there must be a stronger statement of intent. Indeed, the capital raise that the Bank of England is likely to force on the banks would be much more effective if they were told they could use the extra capital to lend. The Bank should also say that, unless there is a dramatic change in circumstances, the adjustment in capital will be final.

Second, we would like the UK authorities to lobby the Basel Committee (and the EU who implement it via CRD IV) to make a temporary breach of capital requirements less onerous. Under Basel III the banks are going to be required to build a capital buffer over and above the minimum 8% of 2.5%, taking total minimum capital required to 10.5%. If they start to eat into that then their ability to distribute earnings (via dividends or bonuses) becomes ever more restricted.

4 A Eurozone collapse (which we define as an exit involving Spain and Italy) would be such a cataclysmic event that it is very hard to know how much capital the banks would need. In such an outcome policy would have to move to an emergency setting. Trying to ensure the banks have enough capital to meet such an event is, we believe, pointless.

We believe that the whole system should be more flexible, particularly in the run up to full implementation of Basel 3. We would like the UK government and the Bank of England to push for a much bigger buffer zone, but one that would straddle the Basel 3 minimum, rather than just sit on top of it. Banks would be allowed to use capital for what it was originally meant for – to fund more lending or for loss absorption. As the Basel 3 notes it should be expected that banks would enter buffer zones from time to time and that constraints should not be restrictive to result in the range becoming a new minimum capital requirement. It is vital that this is the case. We would like to see the banks be given time to rebuild their buffers if they dropped below the upper threshold, without penalty. Only if they failed to rebuild the buffer in a given period of time would they face penalties restricting payouts. We would also allow banks to dip below their Basel 3 minimum in times of extremis without the threat of losing control of the bank, but subject to an agreed plan being put in place to rebuild the capital. This would make the capital buffer much more flexible, which given that capital minima much higher now would be logical.

> "If we are to provide a millstone around the neck of UK banking and credit creation it should be made as light as possible"

Third, in the case of the UK we would suggest two changes. First, current UK liquidity requirements mean that banks have to hold around 50% more liquidity and in more restrictive instruments than in fully implemented Basel 3. We would like to see the FSA and Bank of England allow the UK banks to move to fully implemented Basel 3 immediately. This would release a lot of liquidity that could be put into alternative assets. Second the UK is the only European country that looks set to put in place a fully-fledged ring-fence. We believe the measure is excessive, likely to damage the competitiveness of the UK banking industry and prove restrictive in terms of credit supplied to the UK economy. In an ideal world we would like the idea of a ring-fence to be abandoned and replaced with good regulation but we realise that this is politically impossible. If we are to provide a millstone around the neck of UK banking and credit creation it should be made as light as possible.

This document proceeds as follows. In chapter 1 we examine the history of capital requirements, looking at how it has developed since Basel 1 first came into being. We look at why Basel 2 decided to introduce risk based capital weightings, and how Basel 3 tries to address the flaws in Basel 2. Chapter 2 looks at the financial crisis, what went wrong and whether the received wisdom of the causes of the crisis is really true. In particular we examine if the bulk of the crisis was really a function of one particular element, mortgage backed securities going horribly wrong. Chapter 3 looks at the regulatory response to the crisis and goes into the detail of Basel 3 and the UK's Financial Services Bill. Chapter 4 then examines the impact of that regulatory response, what is wrong with it and how it can be made to work better.

1
The History of Capital Requirements

Banking is an essentially risky business because of the leverage it involves. This is because the business of banking is to take in deposits and lend them back out again. It does this multiple times but each time it allocates an amount of capital against the new loan. That capital is both to absorb any potential losses but can also be invested in liquid assets to provide funds with which the bank can reimburse its depositors. The result is a balance sheet where their liabilities (in simple terms) are the sum of all their deposits while their assets are loans, be they mortgages, business loans, credit cards etc plus their capital. The riskiness in banks is a function of the leverage of that capital.[5]

First, on the asset side, if banks suffer losses they do not need to see all the assets wiped out to go out of business. If a bank is 10 times levered, that is it has assets equal to 10 times its capital, it only takes a 10% loss on those assets to wipe out its capital and send the bank into bankruptcy (this is what the likes of Lehman Brothers and RBS found out in the crisis).

Second, when depositors ask for their money back, banks are expected to provide the funds. That is normally fine for one or even multiple withdrawal requests but if there is a panic (perhaps because the bank is experiencing losses) and the bulk of customers start to request their money back the bank may not be able to raise the cash. To do so would require asking its borrowers to repay their debts immediately, which some, or indeed most, may not be able to do.[6] The risk the bank takes is called maturity transformation, because its deposits are normally repayable on demand or with a modest delay but its loans are made for longer periods of time – in the case of mortgages this can be for up to 30 years.

Banks need to have capital and liquidity buffers both to be able to repay any demands and also to absorb any losses on its assets (or loans). In theory as long as the market is comfortable that a bank have enough liquidity and capital then the bank can always borrow to meet any demands from its customers. Borrowing from other banks or from corporations is called wholesale borrowing. In simple terms, Northern Rock failed because it was dependent on such wholesale borrowing and when the markets seized up after the start of the financial crisis it found it could not attract sufficient funds and therefore could not meet the demands of its depositors. With the Bank of England initially reluctant to lend the required money to Northern Rock we ended up with a run on the bank, the first in 130 years. That is why central banks are normally called lenders of last resort because they are who banks turn to when all else fails.

5 In modern banking those assets can just as easily be government bonds, equities, mortgage backed securities or corporate debt.

6 This is the problem Northern Rock faced.

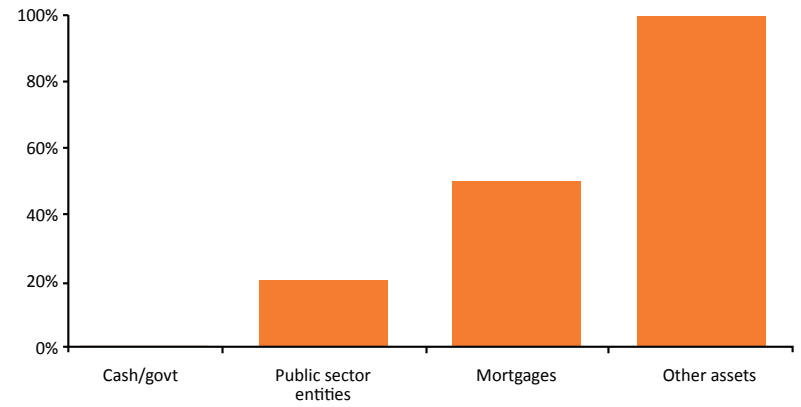
Historically it was up to the banks how much capital and liquidity they held. The owners of the banks needed to have enough financial strength to ensure that their depositors did not demand their money back. If the bank management made poor decisions over their lending or they were simply unlucky (because of drought or war) then there were runs on banks. Those runs frequently had adverse economic consequences, most notably in the US where the bank runs of the 1930s prompted the Great Depression. The Banking Act of 1933 brought in deposit insurance for commercial banks and saving and loans institutions. As a result legal minimum capital requirements were brought in for US banks.

In other parts of the world central banks were frequently tasked with ensuring that banks were sufficiently robustly capitalised so that the support that had to be provided to banks from time to time was limited. Increasingly though other countries also began to adopt deposit insurance as well. The result was that capital requirements developed on an ad hoc basis around the world.

Basel I: The first international standard for capital requirements

That ad hoc process changed in 1974 when, in the aftermath of a German bank failure, the G10 established the Basel Committee on Bank Supervision (BCBS) at the Bank for International Settlements (BIS). In 1988 the BCBS agreed a regulatory framework for bank capital that became known as Basel I. By the early 1990s Basel I was being implemented in most countries, including the UK and US.

Figure 2: Basel 1 capital required by asset class



Source: Bank for International Settlements

Basel I sought to standardise the efforts of regulators around the world to stipulate a minimum level of capital. Under Basel I a bank's regulatory capital was determined by the ratio of its capital divided by the risk adjusted value of its assets. That ratio had to be 8% or higher, implying a maximum "risk-adjusted" leverage ratio of 12.5 times. The risk adjusted value of the assets was determined by grouping the assets into four different categories and then applying a risk weight to those different categories. Assets that were deemed to be riskless (cash, government bonds, gold) received a zero percent risk weight, in other words no

capital had to be held against them. The second category included obligations issued by "public sector entities" such as Fannie Mae and Freddie Mac in the US (known as GSEs[7]). This category also included OECD bank debt. The third category was residential mortgages which received a 50% capital weight. Finally all other assets such a business loans, retail loans, real estate and capital of other banks had a 100% weight. So for these loans for every £100 that was lent £8 of capital was required. For mortgages the equivalent figure was £4 and for GSE bonds just £1.60 of capital.

Although Basel I was effective at standardising capital requirements internationally it had flaws that soon became apparent. All OECD government bonds were treated as equally riskless, so British, US, Italian, Spanish etc bonds were effectively deemed to be identical from a risk perspective. At the other end of the spectrum all business loans were treated the same, regardless of the size of that business. The Basel committee were trying to make generalisations based on historic experience. The banks themselves and their local regulators were left to determine the details.

The problem was that these type of definitions led to what is known as "regulatory arbitrage". That is the banks used the regulations to reduce the amount of capital they needed to put against a certain category of asset. For example, and this was the precursor of what went wrong in the US housing market, a US bank could originate a mortgage and keep it on its own balance sheet with a 50% capital weight or it could sell it to Fannie Mae or Freddie Mac and buy it back as part of a larger bond with a 20% capital weight. In other words, it could effectively have the same asset on its balance sheet for only 40% of the capital or, put another way, by buying the bonds instead of keeping the individual mortgage it could have 2.5 times as many assets on its balance sheet for the same capital.

To put it into context if we assume that a bank's cost of funding is 3% and that it can make a business loan by lending at 6%, then on a £100,000 loan it will make £3,000. To do this it will have to use £8,000 of capital. For the same amount of capital it could lend £200,000 for a mortgage, which we will assume it will charge at 5%. The profit is then £4,000. The result is a greater profit even though the rate of interest is lower. If instead it buys a mortgage backed bond yielding 4%, it can buy £500,000 of these with the same amount of capital, generating a profit of £5,000. For the banker under these type of capital rules it is more interesting to buy £500,000 of mortgage backed bonds yielding 4% than to lend £100,000 to a business at 6%. This is all fine unless something goes wrong. It would take an 8% writedown on the business loan to wipe out the capital but only a 1.6% writedown on the mortgage backed security.

The Basel regulations accordingly favoured certain types of lending over others, with mortgages and asset backed securities preferable to business loans or unsecured personal lending. It also shows how leverage can be attractive for banks from a return on capital perspective but also how that leverage can be dangerous if the banks get their calculations wrong, as so many did in the financial crisis.

Basel 2: The move to credit related weightings

The shortcomings of Basel I in terms of its limited number of categories were soon recognised and the Basel Committee set about drawing up its successor Basel 2. The new Accord was agreed and introduced in June 2004 but the likely

7 Government Sponsored Entities – These organisations were created to lower the cost of funding to different parts of the US economy, most notably the US housing market.

conclusions of the Accord were clear some years ahead. The Basel Committee was determined to finesse the categories and it became clear that they were likely to do this by using external credit ratings from the likes of S&P, Moody's and Fitch.

To quote from the Basel 2 final proposals:

> *"The fundamental objective of the Committee's work to revise the 1988 Accord has been to develop a framework that would further strengthen the soundness and stability of the international banking system while maintaining sufficient consistency that capital adequacy regulation will not be a significant source of competitive inequality mong internationally active banks. The Committee believes the revised framework will promote the adoption of stronger risk management practices by the banking industry, and views this as one of its major benefits…. In developing the revised Framework the Committee has sought to arrive at significantly more risk-sensitive capital requirements".*

In fact as we shall see the introduction of increased risk-sensitivity led to much worse risk management by the banks. The Committee also introduced a "three pillars approach" (minimum capital requirements, supervisory review, and market discipline). This meant that the banks would be required to limit their risk by meeting minimum capital requirements and that the regulators and to an extent the market would enforce it.

Table 1: Standard & Poors ratings definitions

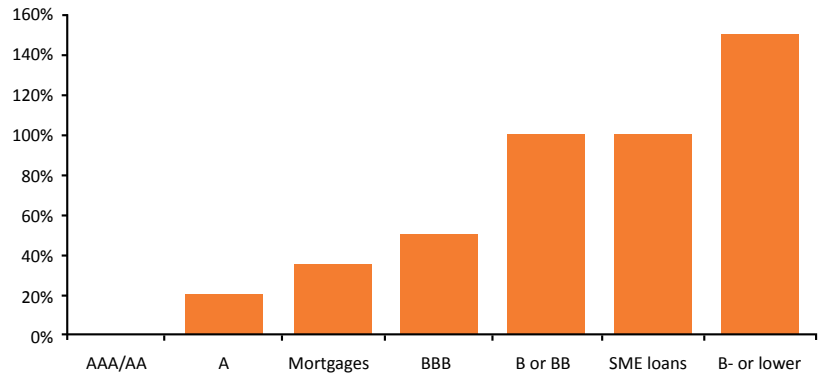
Rating	Definition
AAA	Extremely strong capacity to meet financial commitments. Highest Rating.
AA	Very strong capacity to meet financial commitments.
A	Strong capacity to meet financial commitments, but somewhat susceptible to adverse economic conditions and changes in circumstances.
BBB	Adequate capacity to meet financial commitments, but more subject to adverse economic conditions.
BB	Less vulnerable in the near term but faces major ongoing uncertainties to adverse business, financial and economic conditions.
B	More vulnerable to adverse business, financial and economic conditions but currently has the capacity to meet financial commitments.
CCC	Currently vulnerable and dependent on favorable business, financial and economic conditions to meet financial commitments.
CC	Currently highly vulnerable.
C	Currently highly vulnerable obligations and other defined circumstances.
D	Payment default on financial commitments.

Source: Standard & Poors

The regulators would do so by reviewing the risk management and capital calculations of the banks, while the market would impose discipline through a mark to market approach on assets forcing banks to adjust their valuation of assets according to prevailing valuations in the market and through reaction of investors to the information disclosed. Most analysis of what went wrong has focused on

the first element and many regulators have criticised the high levels of leverage and low levels of capital that the system enforced. There has been less focus on regulation itself and the role of market discipline. There is a good case to be made that reflecting market valuations in capital ratios has major flaws. Interestingly the Bank of England, in its recent review of bank capital requirements for the UK banks, made reference to the fact that the banks seemed to be under-provisioned against prevailing market prices for assets. They also highlighted the low market valuation of the banks as a possible indicator that they were overstating the true value of their assets.[8]

Figure 3: Basel 2 capital weights



Source: Bank for International Settlements

The biggest change though was the introduction of more sensitivity to credit assessment, be it internal or rating agency based. For example, instead of all OECD government bonds receiving the same weighting they would be weighted according to their credit rating. AAA or AA bonds would still receive a zero weight, but single A would require a 20% weighting, BBB a 50% weighting, BB or B a 100% weighting and anything below B- a 150% weighting. Basel 2 was widely adopted in Europe but in the US was never formally adopted. However, as Friedman and Kraus point out in "Engineering the Financial Crisis" it was applied through the "Recourse Rule" to securitised assets.[9, 10] Recourse in this context reflected the credit risk that a bank incurred in providing credit enhancements to investors in a securitisation of assets. The Recourse Rule, according to the regulators, "*provides an efficient mechanism for banking organisations to buy and sell loan assets or credit exposures and thereby to increase the organisation's liquidity.*"[11] In theory it was also meant to reduce risk. The riskiest element in any securitisation comes through overcollateralisation, which is where the bank retains an equity tranche of the bond which absorbs the first loss of any default. Under Basel I the equity tranche was treated like any other type of equity and was 100% weighted, therefore requiring just an 8% capital allocation. The Recourse Rule, like Basel 2, increased this to a one for one capital requirement, so for every dollar of equity tranche on the balance sheet there had to be a dollar of capital. This is effectively a 1250% weighting.

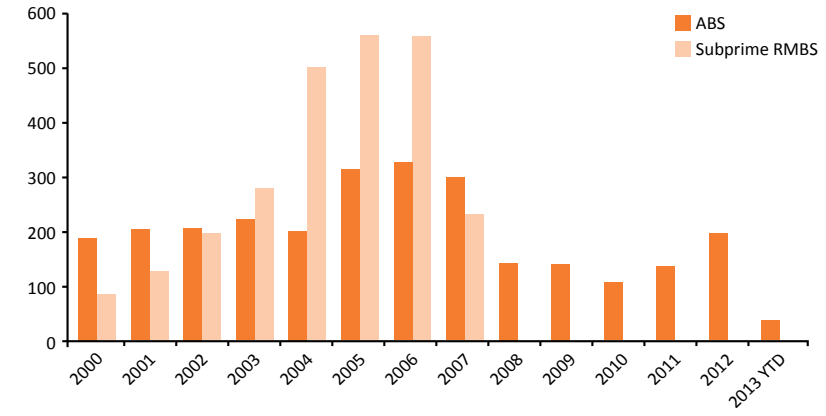
8 See Bank of England Financial Stability Report, November 2012.

9 Engineering the Financial Crisis, Systemic Risk and the Failure of Regulation, Jeffery Friedman and Wladimir Kraus.

10 The Recourse Rule was introduced by the FDIC, the Federal Reserve, the Office of Thrift Supervision and the Office of the Comptroller of the Currency and applied the Basel 2 ratings based approach to privately secured issued securitised assets to US commercial banks and "thrifts", or savings and loans.

11 http://www.federalreserve.gov/boarddocs/press/boardacts/2001/20011129/attachment.pdf

Figure 4: US ABS Issuance ($bn)



Source: JP Morgan

The tranches higher up the structure required less capital (see box for explanation) based on their ratings from the agencies. The Rule allocated a 200% risk weighting for tranches rated lower than B, 100% for BB or BBB, 50% for A and 20% for AA or AAA. The only difference with the initial Basel 2 proposals was that they proposed a dollar for dollar capital allocation for B-rated tranches rather than 200%. The effect of the Rule in the US (and Basel 2 in Europe) was to encourage banks to hold the higher rated tranches in preference to the equity or other lower rated tranches. It also encouraged them to hold the higher rated tranches in preference to business loans, which required 5 times as much capital as AAA rated securitised bonds or even normal mortgages which required 2.5 times as much capital.[12] Friedman and Kraus argue this is the primary explanation for the overconcentration of securitised mortgage risk on bank balance sheets at the time of the crisis. Indeed, annual issuance of asset backed securities more than tripled between 2000 and the peak in 2005 and 2006 (see Figure 4 above), and mortgage issuance rose more than sixfold (see Figure 6). Given the Recourse Rule came into effect in 2001 the timing would seemingly support such an assertion.

Interestingly, a similar phenomenon was observed with the issuance of Asset Backed Commercial Paper. This was something which was at least as prevalent in Europe where there was a marked leg higher in such issuance in 2005 when Basel 2 came into effect. This is particularly important for UK banks like HBOS and Northern Rock, which used commercial paper to help them fund the mortgage assets they held on their books. HBOS in particular was impacted by the implosion of the ABCP market in 2007 when it was forced to bring assets onto its balance sheet, which it had previously held on a Structured Investment Vehicle (or SIV).[13]

The assets in the SIVs were most often mortgage backed bonds, although they could include student loan or car loan backed bonds. The preference for mortgages stemmed from the fact that when a bank was originating them and therefore they were still on balance sheet mortgages had a capital weight of 50% under Basel I, and just 35% under Basel 2. Car and Student loans in contrast were 100% weighted until they had been packaged up and sold. So for most banks it paid to focus on mortgages.

12 Or in the case of Basel 2, 1.75 times as much as the risk weight was reduced to 35%.

13 Structured Investment Vehicles were a particularly extreme form of leverage for banks in the crisis as they were held off balance sheet and hence had little capital supporting them, but usually had some guaranteed credit facility from the sponsor bank. That meant when external liquidity dried up the sponsor bank effectively had to take the assets back onto its balance sheet.

Box 1: Securitisation explained

When a securitisation is carried out a bond is often divided into different tranches, which have different yields dependent on the risk. The equity tranche is normally the most risky and therefore has the highest yield because it absorbs the initial losses. That tranche might take the first 2% of all losses, as a result those holding the tranches above this would only see their investment affected if the losses exceeded 2%. Immediately above the equity tranche was normally a mezzanine tranche (i.e. in between equity and bond tranches) and then above that the different bond tranches. The AAA tranche was set so that the losses had to be quite substantial before those bonds were affected. Often the losses had to exceed 20–25% before this tranche was affected. The ratings agencies would normally set a "thickness" of loss absorption on the non-AAA rated tranches based on their models of historic defaults, so that they would meet the low level of likely default that would normally be associated with AAA rated risk.

There were a number of flaws with this approach for mortgage backed securities that became evident during the financial crisis. First and foremost the models used by the ratings agencies were too optimistic and put a low risk of house prices falling across the United States. In recent US history prior to the crisis, there had been house price declines in some regions but not across the US as a whole. The models therefore assumed that if you diversified regionally you reduced the probability of loss across a pool of mortgages. As soon as house prices started to fall nationally this source of diversification ceased to work.

Secondly this form of tranching was taken to a further level where the tranches of the mortgage backed securities were themselves tranched to create what are known as Collateralised Debt Obligations. The real problem with this operation was that it was typically the lower rated tranches that were retrenched. In theory if you took, for example, a BBB rated tranche of a mortgage bond and overcollateralised it enough you could turn it into a triple AAA rated instrument. However, in many of the mortgage backed securities the BBB rated tranche was too thin because of the assumptions made by the ratings agency about the level of default that was likely to be reached. If that BBB rated tranche got seriously damaged or worst wiped out by the losses, as happened in the crisis, it didn't matter how much you had overcollateralised the AAA CDO it also got wiped out or severely damaged.

Another feature of Basel 2 was the introduction of internal ratings based weightings for the larger banks. This enabled banks to calculate their own weights for the assets they carried on their balance sheets on the basis of their own assessment of the risk and potential loss from an asset. This was often based on their own experience of losses on certain types of asset.
To quote again from the Basel 2 document:

> *"A significant innovation of the revised Framework is the greater use of assessments of risk provided by banks' internal systems as inputs to capital calculations. In taking this step, the Committee is also putting forward a detailed set of minimum requirements designed to ensure the integrity of these internal risk assessments. It is not the Committee's intention to dictate the form or operational detail of banks' risk management policies and practices."*

Below is the formula used for example to calculate capital weightings for mortgages.

Residential mortgage exposure

The exposure related to residential mortgages can be calculated as this:

Correlation

$(R) = 0.15$

Capital requirement

$(K) = LGD \times N[(1 - R)^{-0.5} \times G(PD) + (R / (1 - R))^{0.5} \times G(0.999)]$
- PD x LGD

Risk-weighted assets

$RWA = K \times 12.5 \times EAD$

Where N(x) denotes the cumulative distribution function for a standard normal random variable (i.e. the probability that a normal random variable with mean zero and variance of one is less than or equal to x). G(z) denotes the inverse cumulative distribution function for a standard normal random variable (i.e. the value of x such that N(x) = z). The normal cumulative distribution function and the inverse of the normal cumulative distribution function are, for example, available in Excel as the functions NORMSDIST and NORMSINV. EAD is exposure at default. LGD is loss given default and PD is probability of default.

To cut through the mathematics, the amount of capital required is a function of the probability of a loan or asset defaulting and the loss should that default happen. The probability of default would likely be a function of the loan-to-value ratio, the multiple of the loan to the borrower's income, the type of job they held, whether the loan was fixed or variable, the type and location of property and so on. The banks would put this information into a model which would then produce the probabilities of default. This was then adjusted by assuming a normal distribution of outcomes (since things can always go wrong). Much depended on the banks modelling and their assumptions. Such models can go badly wrong if there are events which are markedly different from historic experience. These are often referred to as "fat tail" events or what Nicolas Taleb has referred to as Black Swans.[14]

The events surrounding the US housing market crash created such a fat tail event, because it produced outcomes which had not been modelled either by the banks or more importantly, given the dependence of Basel 2 on external ratings, the ratings agencies themselves. It is likely that the UK banks significantly underestimated the risk they were taking with Commercial Real Estate on the same basis because they underestimated the likely adverse shock from a downturn.

It is these internal weightings that the Bank of England has criticised of late. It ran an exercise where it asked a number of UK banks to run their own internal ratings based analysis to estimate capital requirements using a hypothetical portfolio of assets. As such, the differences in the capital required by the estimates were a function of the banks different modelling approaches rather than the assets in question. The FSA found that the variability of the probability of default estimates was very high, with the most prudent bank being 7 times more cautious than the most aggressive bank. Equally, loss given default estimates varied considerably, with the overall result being that the estimates of capital for the given portfolio varied by as much as a factor of three.

14 The Black Swan – Nicholas Taleb, 2007

Basel 2's efforts to allocate the capital more efficiently based on the risk of the portfolio depended heavily on both external weightings and these internal capital assessments. If those estimates of the likely risk of default were too low (as it subsequently proved to be) then the banks would find that the risk on their balance sheet was simply too high for the capital they held. That, in a nutshell, is what happened in the financial crisis. At least on the capital side.

Liquidity was the other big issue in the financial crisis. Basel 2 had little to say on liquidity and many banks found that reliance on wholesale funding became a major issue when confidence dried up. This prompted central banks to have to come in and provide banks with that liquidity. Northern Rock was perhaps the best example of what can happen when there is a run on a bank and it is perceived not to have enough liquidity. It was not alone and lack of liquidity was a major concern for all banks that came under pressure.

Basel 3: More capital, more liquidity and lower leverage

Basel 3 has tried to remedy these flaws with a number of changes. It has raised the amount of equity capital that is required from 2% to 3.5% now, rising to 4.5% by 2015. It has also added in a capital conservation buffer, which is extra capital that the banks are required to hold to give them a cushion before they hit the Basel 3 floor. That starts at 0.625% in 2016 rising to 2.5% by 2019. So in reality banks equity capital will rise from a minimum of 2% to 7%. Total capital required will rise from 8% to 10.5%. If you are a globally systemically important bank that requirement can rise further to 13%. Basel 3 is also introducing a leverage ratio of a maximum of 33 times, as a check on excess leverage through regulatory arbitrage. There are also new liquidity measures being brought in to ensure a minimum amount of liquidity to cover 30 days of outflows in a stressed environment and a stable funding measure to ensure that banks have enough stable funding to support their assets in times of stress.

> "Given that the UK changes come on top of the Basel amendments the UK is well on its way to ensuring its banks are truly gold plated when it comes to preventing a repeat of the last crisis"

The UK has gone further with its plans to ring-fence the retail parts of the banks from the investment bank elements. It has also increased the primary loss absorbing capital (PLAC) to 17% for the ring-fenced banks. It has introduced its own liquidity scheme too, which already demands around 50% more liquidity to be held than a fully implemented Basel 3 liquidity requirement. Given that the UK changes come on top of the Basel amendments the UK is well on its way to ensuring its banks are truly gold plated when it comes to preventing a repeat of the last crisis. That is all very well but what does not seem to have been considered is whether in doing so the regulations are acting as a lead weight on the economy by constraining the supply of credit.

2
What Went Wrong in the Financial Crisis?

There are lots of explanations of what went wrong in the Financial Crisis, with bankers getting the bulk of the blame. Although bankers undoubtedly did contribute much to the crisis (after all they took many of the decisions that went wrong) not all of the blame can be attributed to them. Governments certainly have to shoulder their share of the blame, be it the desire in the US of government (both Democrat and Republican) to push banks to lend to sub-prime borrowers or in the UK the advocacy of light touch regulation in conjunction with the establishment of the tri-partite system, which left multiple holes in the regulatory system. Regulators too, as we highlighted in our report on the Bank of England, have to accept their share of the burden. In the Bank of England's case it was related to the decision to put the inflation target ahead of financial stability and not to either understand the dangers the credit boom was generating or respond to the warning signs they did spot. Similar arguments could potentially be made for the Federal Reserve or the ECB. Obviously in the case of the UK, the Financial Services Authority made huge errors as it has admitted in its own assessment of its role in the Turner Report.[15] But perhaps the biggest culprit was not the individual regulators but the regulatory system they put their trust in, most notably the capital requirements coming out of Basel.

- It was the Basel regulations that made it attractive to create asset-backed securities such as sub prime bonds and for the banks to keep them on their balance sheet.
- The regulations fostered the reliance on ratings both internal and external, which did not allow for unexpected shocks to the financial system.
- The mark to market rules resulted in those losses being crystallised in capital losses and undermining banks when the eventual losses on some of the securities were much less severe.
- Finally it was the Basel regulations that led to a belief that the banking system was sound and well capitalised, when that was far from the case.

It is important to understand the real causes of the crisis so we can make sure the solutions being proposed are the right ones. Indeed, we would argue that some of the conclusions that government and regulators have drawn from the crisis are the wrong ones. In particular the debate in the UK about ring-fencing the "safe" retail banks from the "dangerous" casino banks bears no resemblance to the financial crisis at all. Most of the UK banks that went bust were retail banks such as

15 The Turner Review – A regulatory response to the global banking crisis March 2009.

Northern Rock, HBOS and Bradford & Bingley.[16] As for RBS, the big British victim of the financial crisis that was not purely a retail bank, it largely blew up primarily because of a combination of an ill timed and ill researched acquisition bringing with it lots of bad assets and a raft of poor lending decisions, mostly in what would normally be regarded as its traditional banking business.[17] We would argue that the only common feature amongst all the banks that blew up, whether in the UK or elsewhere, was that they took poor risk decisions. Interestingly, most of them met the Basel 2 capital requirements ratios at the time they were either rescued or failed.

In our view, the financial crisis resulted from a combination of two key elements. First, a benign and extended credit cycle that led too many (bankers and regulators) to be too relaxed about possible downside risks. Second, a regulatory regime that underpriced risk and encouraged a build up of assets, which attracted low capital weightings. It is this combination which was so potent and allowed such a build up of risk. Pulling any one element out of it, like poor decision making by bankers because of the bonus culture or because the banks were too big to fail, as is often the case, is unlikely to lead to the right solutions.

When we look at the financial crisis we cannot consider the UK in isolation, since the crisis started in the US and many of the assets that UK banks owned that went sour were sourced in the US. So our analysis will look at the two in tandem.

The US housing market and capital arbitrage

In the US, three factors linked together to cause the financial crisis:

- An elongated credit cycle;
- a housing market bubble; and
- banks that over levered their balance sheets, primarily through asset backed securities.

The credit cycle really emerged out of the collapse of the equity market bubble in late 1999/2000. The response of the Federal Reserve was to cut interest rates dramatically to just 1% by 2003 and though rates rose from 2004 onwards, reaching 5.25% by the summer of 2006, they did so only gradually. Equally, bond yields (which are heavily linked to mortgage rates in the US) fell sharply following the equity crash and remained much lower than historically had been the case even when short rates rose.

These low interest rates combined with a general bias to increase mortgage availability to stimulate the US housing market. Until the end of the 1990s any family that wanted a mortgage that conformed with Fannie Mae's and Freddie Mac's conditions for repurchase (and therefore conversion into mortgage bonds) would have had to put down an initial payment of at least 20% of the house.[18] Slowly but surely though the role of the GSEs (Government Sponsored Enterprises) started to shift, initially with the Housing and Community Development Act of 1992, signed off by the first President Bush. That Act amended the charter of the GSEs to "…have an affirmative obligation to facilitate the financing of affordable housing for low- and moderate-income families".[19] The GSEs were required to meet "affordable housing goals" set by the Department of Housing and Urban Development. The initial annual goal for low-income and moderate-income purchases for each GSE was 30% of the total number of dwelling units financed by mortgage purchases and

16 Although it has to be noted that the failure of HBOS was down to both investments in mortgage backed securities, a traditional investment bank type operation, and poor lending decisions in the retail and corporate markets.

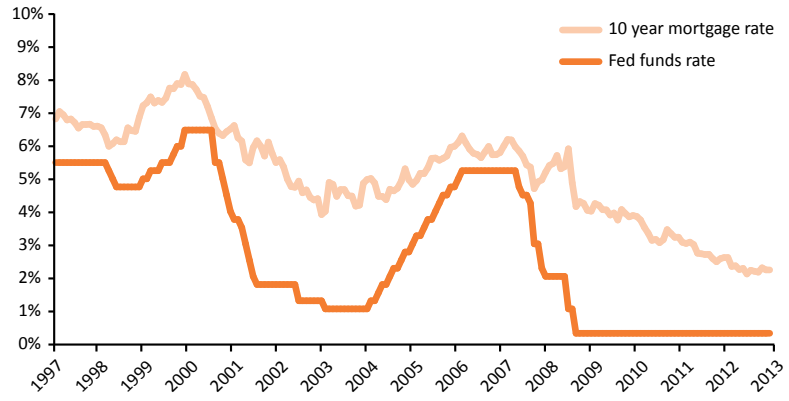
17 Although it has to be said there were sizeable losses on RBS' own trading book. On their own though they probably would not have brought the bank down.

18 Otherwise known as GSEs or Government Sponsored Enterprises. We use the terms interchangeably here although GSEs include more than just Fannie Mae and Freddie Mac, they were and are the main entities for aiding the financing of mortgages in the US.

19 http://www.law.cornell.edu/uscode/12/usc_sec_12_00004501----000-.html

increased to 55% by 2007.[20] The Clinton administration increased the pressure by targeting a homeownership percentage of 67.5% in 1995. As a result Fannie Mae and Freddie Mac were prompted to start to ease their conditions for repurchase. In 1997 Fannie Mae began to buy mortgages with a downpayment as low as 3%. When the Bush administration adopted the policy in 2001 conditions became even easier with mortgages purchased with no down payment made at all.

Figure 5: US interest rates



Source: Bloomberg

The reason that this is so important is that mortgages that were available for repurchase by Fannie Mae and Freddie Mac were considerably cheaper than those that were not, for the simple reason that the US banks originating the mortgages knew they had a guaranteed buyer. In addition to this move Fannie Mae and Freddie Mac began to buy Mortgage Backed Securities issued by the banks (known as Private Label Mortgage Backed Securities or PLMBS). In total they bought some $308bn of these securities.[21]

This undoubtedly added to both the demand for and credibility of this market but the banks themselves were starting to issue more and more of these PLMBS. The key, as we noted in the previous chapter, was to diversify and over-collateralise these PLMBS bonds so that they got the appropriate ratings from the ratings agencies. As soon as they did they became more attractive for banks and others to hold on their balance sheets because of the low capital weightings due to the Recourse Rule in the US and Basel 2 elsewhere.

Issuance of these bonds ballooned from the early 2000s and started to overtake GSE mortgage backed issuance. In 2003, GSE issuance was still dominant at some 76% of the $2.72tn of mortgage issuance that year. Most of the private label securities were of jumbo prime mortgages, which were mortgages that were too large to be bought by the GSE's but otherwise would qualify as good quality mortgages. By the end of 2004 though PLMBS issuance had jumped to some 46% of all mortgages and by 2005 and 2006 it had reached some 55% of the total (see Figure 6 below).[22] This private mortgage backed security issuance became more and more biased to sub-prime and Alt-A mortgages, where the underlying assets were of lower quality.[23]

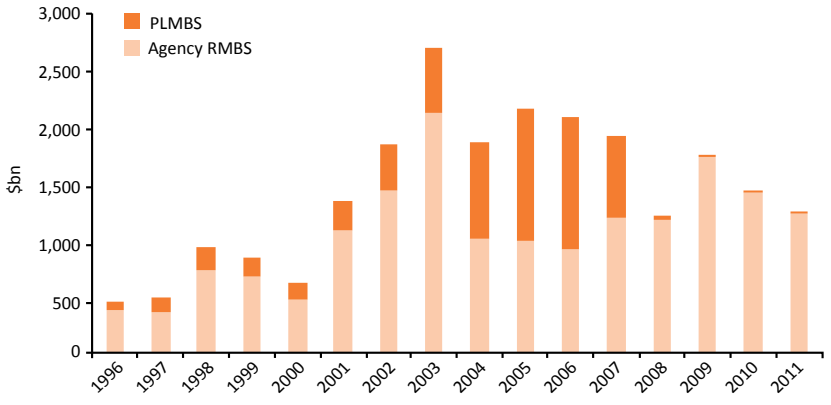
20 http://www.law.cornell.edu/uscode/12/usc_sec_12_00004562----000-.html

21 See Engineering the Financial Crisis – Jeffrey Friedman and Wladimir Kraus

22 See www.simfa.org

23 A sub-prime loan is normally a loan which is advanced to someone who has some form of credit impairment, be it missed payments or a lack of credit history. Alt-A loans are normally for borrowers who have higher credit ratings than sub-prime borrowers but where the loan falls below normal prime standards, due to lack of documentation, high loan-to-value ratio etc.

Figure 6: Mortgage Backed Security Issuance

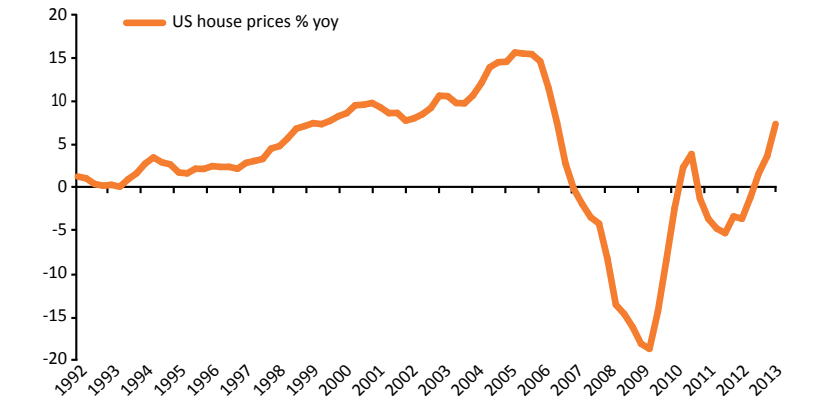


Source: Simfa

The US housing market eventually peaked with a home ownership rate of 69% in 2006, a rise of four percentage points in just 10 years. Towards the end of the period house prices rose rapidly particularly in some of the most rapidly expanding areas, like Florida, Las Vegas and parts of California. Nationally house price inflation peaked at just above 16% in late 2005.

The problem was that the areas with the fastest growing house prices also saw the most development and usually the largest proportion of lower quality loans. Underwriting standards for those loans were stretched in that loan-to-value ratios were raised and often little documentation was demanded to ensure that the borrower could meet the repayments. In this regard, bankers were definitely to blame as they should have been more, not less, cautious as the housing market boomed.

Figure 7: US house prices



Source: Bloomberg

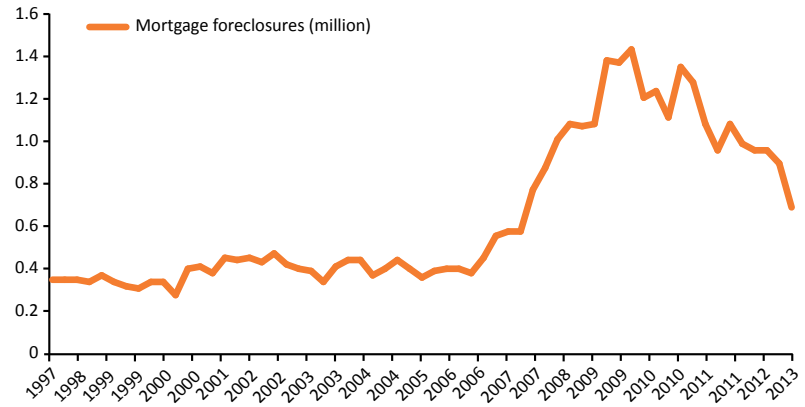
Many of these loans also had other unusual features, usually to make them more affordable. Indeed, bankers and mortgage brokers came up with products

that made mortgages appear more affordable with tragic consequences when things went wrong. The main product was known as a 'teaser mortgage', which started with a low interest rate but then would reset to a much higher rate after 2–3 years. The mortgage payment would usually rise by between 25% and 50%, even if interest rates remained unchanged.[24] The idea was to give the homeowner a start and if house prices rose they would be able to remortgage with more equity in their house and get a better deal. Of course, that only worked if house prices continued to go up.

When house prices started to fall many found that not only could they not remortgage but that the step up in interest rates made the mortgage unaffordable. Other mortgages similarly adjusted down the interest rate but only at the expense of adding the non paid interest to the mortgage. At some point the interest rate adjusted, which was then paid on the larger mortgage. Again the product only worked when house prices rose. The final twist was that in many cases the deposit that was required to meet the loan-to-value limits often came in the form of a second lien loan. This was a loan secured on the same property, which ranked behind the main mortgage. It was more expensive but again the hope was that when house prices rose the initial mortgage could be renegotiated to absorb the second lien loan. This meant that some sub prime and alt-A borrowers effectively had no equity in their home at all.

The combination of falling house prices and higher interest rates created the worst of all worlds for the new homeowners. They could not refinance nor could they afford the mortgage payments. With zero or even negative equity in the house they could not sell to get out of their predicament either. Moreover, in the US mortgages are usually non recourse, which means that if the borrower defaults the lender has no redress against the borrower, they can merely force the homeowner to sell the property (known as foreclosure) and at the last resort seize the property and sell it themselves. That happened in enormous numbers. Prior to the crisis annual foreclosures in the US totalled around 500,000, by 2007 this had reached 1.2 million, by 2008 it exceeded 3 million, eventually peaking at 3.9 million in 2011.[25]

Figure 8: US mortgage foreclosures



Source: Bloomberg

24 http://www.newyorkfed.org/research/staff_reports/sr318.pdf

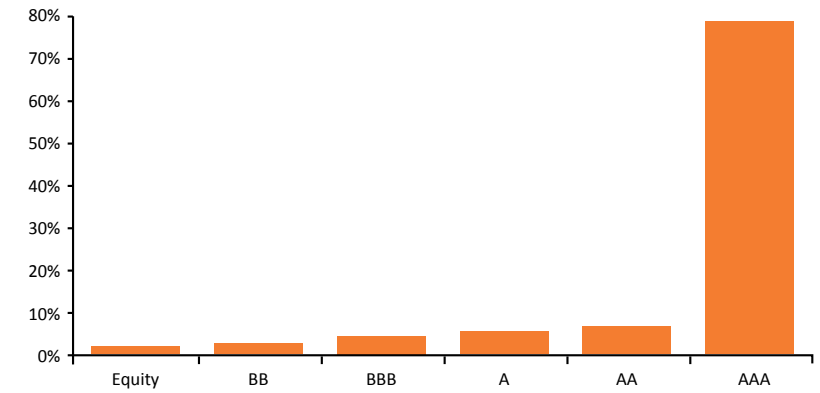
25 http://www.statisticbrain.com/home-foreclosure-statistics/

The result was catastrophic for the US housing market, which collapsed, with house price falling across the country. The worst falls were, of course, in the most bubble like regions, which had been the source most of the sub prime and Alt-A loans. The ratings agencies assumptions about regional diversification reducing the default probability fell apart. As foreclosures soared so the defaults on the PLMBS bonds started to soar. The value of such bonds began to fall, starting the cascade which triggered the financial crisis and the subsequent global recession.

It was the desire of banks to hold these bonds and the losses on these bonds that drove the financial crisis more than anything. It is a case made very eloquently by Jeffrey Friedman and Wladimir Kraus in Engineering the Financial Crisis. Without the losses on these bonds we may still have had some kind of financial crisis but it would have been much less severe. All of the other elements pale into insignificance when set against this.

As we pointed out in the previous chapter banks had large incentive to own these bonds because of their low capital weighting. A bond rated AAA/AA only had to have a 20% capital weight, an A rated bond a 50% weight and a BBB/BB bond a 100% weight. In terms of actual capital that meant an AAA/AA rated bond had just 1.6% of capital set against it, an A rated bond 4% and a BBB/BB rated bond 8%. Losses on the bonds that exceeded this would wipe out the capital set against the bonds.

Figure 9: Tranche widths of a typical private label mortgage backed security



Source: New York Federal Reserve

The real problem was that the different tranches of the bonds did not contain different types of mortgage but different levels of subordination. If any of the mortgages defaulted the losses would be first attributed to the equity tranche (which was generally retained by the issuing bank). The "thickness" of this tranche was typically around 1.9%.[26] So only 1.9% of the value of mortgages in the pool would have to default for the equity tranche to be wiped out. Above this was the mezzanine tranche which itself would be split into different tranches, some more senior than others. The BB rated tranche would typically have a 2.6% width and the BBB tranche a 4.3% width. In other words if the

26 http://www.newyorkfed.org/research/staff_reports/sr318.pdf

losses from defaulted mortgages reached 8.8% then all tranches up to BBB would be wiped out. The single A tranche was typically 5.4% wide, so if the losses reached 14.2% that would be wiped out too. The AA tranche was 6.6% wide, leaving the AAA tranche 79.3% wide. So to hit the AAA tranche there would have to be a loss of 20.7%. Interestingly though to wipe out the capital a bank had set against the bond the loss for the BBB bond would have to reach less than 5%, for an A rated bond 9%, an AA rated bond 14.3% and an AAA rated bond barely more than 22%.

When the ratings agencies and the banks were designing these bonds the losses needed to get to the AAA segment seemed very unlikely. The problem was that the tranches below AAA were simply much too thin given what happened to the housing market and the quality of the assets included in the mortgage bonds. By early 2009 the default rate on Alt-A was approaching 25%. For sub-prime mortgages foreclosures plus repossessions were up to 24.4% for 2005, 24.9% for 2006 and 27.1% for 2007 originations according to Standard and Poors in March 2012. Given that all these vintages have between 14.5% and 17% of further mortgages 90 days or more in arrears it is easy to see why the sub prime mortgage backed securities fell so much.

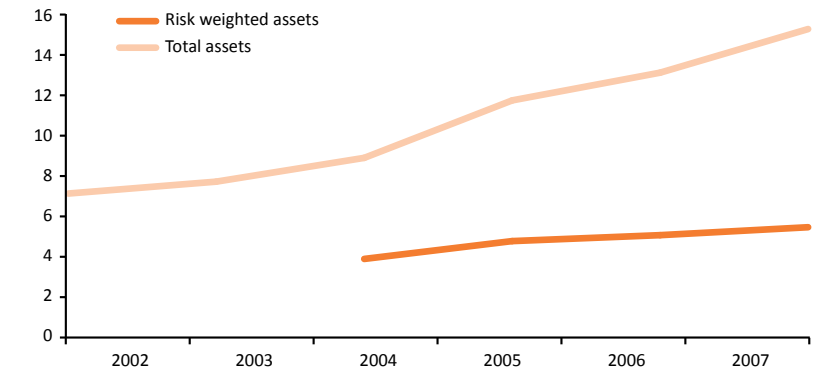
It was the losses on these bonds that caused the major problems for banks across the world. Estimates provided by Friedman and Kraus show that as the crisis began there were some $6.6tn mortgage bonds outstanding. The US commercial banks held some $1.3tn of these with overseas ownership coming to another $1.2tn. Interestingly of the $1.3tn owned by the US banks $852bn was in agency MBS (i.e. the GSEs), $383bn was in AAA tranches of private label MBS, $90bn in AAA tranches of CDOs but nothing in the mezzanine tranches of either PLMBS or CDOs.

Friedman and Kraus argue that this tends to weigh against the idea that banks were gambling because they knew they were too big to fail. They argued that if that was the case they would have been likely to buy the highest yielding and hence lowest quality assets, whereas in fact the bulk of their investments were in the safest mortgage backed securities with the lowest yield. Indeed, almost all of their investments were in AAA rated securities. It would suggest that it was the low capital weightings of these investments that made them attractive.

One of the questions most often asked by politicians and journalists alike is – why did the banks own so many of these securities? The answer appears to be because they appeared to be safe and offered an attractive capital adjusted return on equity. Friedman and Kraus go on to compare the portfolio holdings of the US commercial banks with other US investors and find that they were roughly three times as heavily weighted in those assets as the other investors. Those other investors were not governed by the Recourse Rule or Basel 2.

If their argument was correct then we would expect bank leverage as specified in Basel 2 to be broadly stable even though total assets rise. And this is exactly what we find. Archaya and Richardson looked at the assets held by banks from 2001 until 2007, their real assets doubled in this timeframe but their risk weighted assets barely increased at all (see Figure 10 below). The banks shifted to "safer" assets while maintaining their capital ratios, which is exactly what the regulations implied they should do.

Figure 10: Risk weighted and total assets for 10 large banks (€tn)



Source: IMF

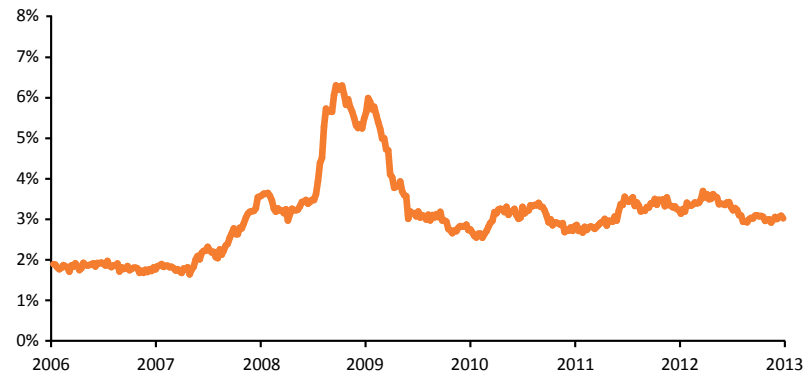
One other reason why banks might switch into lower risk weighted assets aside from any return on equity question is simply one of safety. Whether in the US, that was not governed by Basel 2, or in Europe that was, regulatory capital had a floor, normally around the 8% mark. If banks fell through this floor in the US they could be seized by the regulators, while in Europe they might either be breaching the law or risk regulatory intervention. Thus the capital floors are in fact hard floors, they are not readily available to absorb losses or allow for a rise in risk assets (this is something we will return to). So banks were encouraged to run capital buffers above the hard floors. One way to do this was to swap high intensity capital assets (such as SME loans or mortgages) for low intensity assets, such as asset backed securities. Swapping a 100% weighted asset for a 20% weighted asset swaps 8% of capital for 1.6% of capital.

The problem is that when these assets started to fall in value the banks started to take hits to their capital. Herein lies one more issue with Basel and US capital regulations: the use of mark to market accounting. The underlying assumption of accounting rules, which incorporate mark to market rules, is that the market price is a fair price. This stems from the view that markets are efficient and that the market price at any one point in time reflects all available information. While it may be true that the market price is the only price you can transact at, and then even this will likely to be dependent on the size of transaction you wish to carry out, it does not necessarily follow that this is the most accurate forecast of the future value of an asset. A market price may reflect many other factors, not least the balance of sellers versus buyers at that particular instant. Anyone who looks at the performance of equity markets, bond markets and housing markets knows that they frequently overshoot both to the downside and the upside.

Consider the credit markets just prior to the crisis. Credit spreads prior to the crisis were very low, seemingly implying a low risk of default. They then spiked dramatically as the crisis took hold only subsiding again once the central banks and governments had intervened to stabilise things. Figure 11 below shows the BAA spread over 10 year Treasuries in the US. The spread moved from around 150 basis points just before the crisis, to over 600 basis points at the peak of the panic,

post Lehman's failure, before settling back at around 300 basis points once central banks and governments had intervened to stabilise the crisis. Given that credit prices immediately prior to the crisis had no forecasting power for the crisis to come, why would we use the same credit prices to mark assets at the peak of the crisis? Yet this is exactly what happened.

Figure 11: BAA credit spread to 10 year treasuries



Source: Bloomberg, Policy Exchange calculations

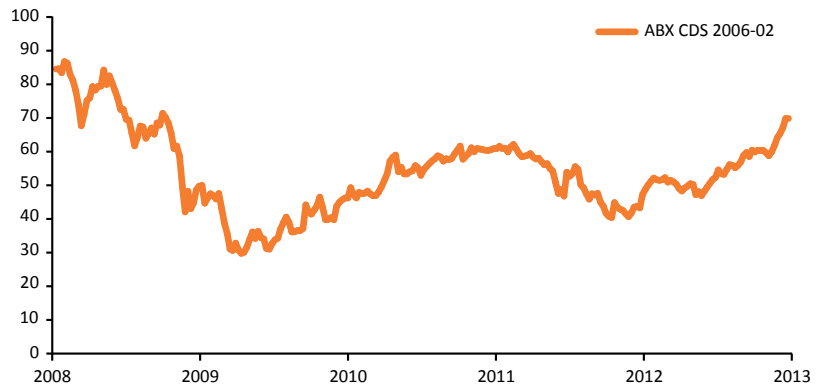
For the purposes of Basel 2 and the US regulatory regimes assets fell into two main categories. Those on the trading book which are generally marked to market on a daily basis, although they can be marked to model (the bank's best estimate) if market prices are shown not to be available. Assets held on the banking book (and therefore not generally for sale) do not normally have to be marked to market though as they are generally assumed to be held to maturity. The key difference was meant to be that if an asset could be sold at any moment you should value it at the price it could be sold at, whereas if you held it to maturity you could mark it at what you expected to get for the bond at maturity. However, if, as in the financial crisis they are impacted severely enough then the concept of value impairment comes into play, because the expected redemption price is impacted. If it is decided, normally by the bank's auditors, that the assets are "other than temporarily impaired" then the asset has to be marked down to the current market price. This markdown would have to be taken as a loss impacting on earnings and hence capital.

The IMF acknowledged this in its own assessment of the crisis in 2008:

> *While many view fair value as the best indicator of asset value at the time of measurement, taken on its own it may not be the best measure for making long-term, value-maximizing decisions. This arises because fair value reflects a single, point-in-time exit value for the sum of all the risks the market assigns to the asset, including credit and liquidity risks. If the market overreacts in its assessment of any risk component, then fair value will reflect this. Hence, the heavy discounting during the crisis of any asset containing securitized instruments produced fair values much lower than their underlying expected future cash flows would imply, even allowing for the possible impairment of sub-prime elements.*[27]

27 IMF Global Financial Stability Report, April 2008

Figure 12: Chart of ABX prices



Source: Bloomberg

As Friedman and Kraus point out not only were these prices likely to be inaccurate there was a further twist to the issue. Under FAS 157 the asset should be marked down to "the price that would be received to sell an asset or transfer a liability in an orderly transition between market participants at the measurement date".[28] If there were no actual prices then the asset should be marked down to the "observable" prices for similar assets. In the case of mortgage backed securities which became very illiquid in the summer of 2008, the comparable assets were the CDS (credit default swaps) on PLMBS. This CDS had been issued by banks as a way of insuring against mortgage backed securities defaulting. The problem was that the market for this type of CDS was also not particularly liquid by this time and as investors sought protection the price for the insurance fell dramatically. Indeed, the price for AAA protection fell 60% in the summer of 2008, see Figure 12 above.

The IMF reported that from Q2 2007 through to March 2008 US banks had to write down around $250bn of their $472bn worth of mortgage backed securities, a marked to market write down of more than half. With 4.3% of total bank assets in mortgage bonds this wiped out around 2.2% of US bank balance sheets. This, Friedman and Kraus calculate, would have reduced US bank lending capacity by some 22% of commercial bank assets or $2.5tn.

The spillover to Europe and the UK

The factor linking the US collapse to the subsequent European and UK collapse was that European banks also held a lot of these types of assets and were also forced to write them down. RBS, for example, had net mark to market adjustments (losses) of £5.34bn on its credit market exposures by the time of its interim statement of August 2008 a lot of which it inherited from its acquisition of ABN Amro.[29, 30] By the end of 2008 the losses had risen to £7.8bn. To give an idea of how much RBS increased its exposure to asset backed securities through the ABN AMRO acquisition, its half year results in 2007, the last prior to the acquisition, showed £31.3bn of debt securities, whereas in the 2008 annual report that had risen to £91.9bn on a net basis (after hedging) and £111.1bn on a gross basis. In other

28 Friedman and Kraus, p95

29 See 2008 Interim Results Presentation, 8th August 2008

30 In the 2008 Annual Report, RBS attributed more than 50% of these losses to ABN AMRO-originated portfolios.

words the ABN Amro acquisition and its aftermath saw a tripling of its exposure. In terms of the ratings of these assets again the bulk of them were AAA rated. Out of the £111bn, £93.9bn were AAA rated, £11.4bn were rated BBB- or above and £3.7bn were non investment grade.[31]

It is a similar story with HBOS as it had taken a lot of mortgage backed securities back on its balance sheet when it reabsorbed its SIV (Structured Investment Vehicle) called Grampian onto its balance sheet.[32] A look at the accounts from 2008 shows the damage this did. Although HBOS was allowed to transfer asset backed securities out of its trading book and onto the banking book, it still had to write these down. By September 30th 2008 HBOS had negative fair value adjustments to securities held on its banking book of some £3.8bn (up from £1.9bn on 30th June 2008). Like the US banks it had primarily invested in AAA rated tranches of these securities. Even as of September 30 2008, 88.3% of its asset backed portfolio was AAA rated, 6.4% AA rated and 2% A rated. The Alt-A portfolio was 75.3% AAA rated, 14.6% AA rated and 2.4% A rated. Nevertheless, the mark to market of that portfolio as of that date was 65%.[33] In other words the value of those bonds had dropped by 35%.

> "Just as the bankers put their trust in the regulatory regime under which they operated and its capital requirements, so did the regulators. The light touch approach meant the right questions were not asked even where the problems were spotted"

The UK banks were not alone, the German government had to come in to rescue Hypo Real Estate, Commerzbank, West LB and IKB. Many of the write-downs that led to the rescues stemmed from losses on mortgage-backed securities and other similar securities. Société Générale in France had more than 6bn euros of write-downs between the start of 2007 and Q4 2008, while Credit Agricole wrote down a similar amount through to August 2008.[34, 35] UBS was arguably the hardest hit of all European banks, writing down around $43bn to August 2008.[36]

The common thread amongst all of these banks was that they held large amounts of AAA rated asset backed securities. All of these write-downs were impacting on capital and therefore starting to hurt banks ability to lend. Indeed, between September of 2007 and August of 2008 bank lending fell 7%, "the fastest pace of credit contraction in 40 years".[37] All of this, of course, was before the failure of Lehmans. That added fuel to the fire and by the end of 2008 the IMF calculated that US banks had written off a staggering $510bn.

The problem, as in the US, was that the fall out in terms of losses on balance sheets and capital positions from writedowns in such asset backed securities triggered a financial shock that went through the economy more generally. Banks found they could no longer extend credit in the way they had before and that many of the lending decisions they had made were also of poor quality. For HBOS and RBS in particular their domestic lending became as much of a problem as the securities they held on their balance sheet. By 2008 RBS had exposure to Commercial Real Estate alone of a staggering £110bn. Stephen Hester and his team have now brought that down to £63bn. If we look at HBOS in 2008, while it lost £4bn on adjustments to the value of the securities it held, this was comfortably outweighed by the £7bn loss in its corporate division, mostly in

31 RBS 2008 Annual Report, Appendix 2.

32 Grampian held £9.5bn of Mortgage Backed Securities and £6bn of CDOs, which accounted for 56% of HBOS exposure to these assets at the end of 2007.

33 See HBOS Interim Management Statement 3 November 2008

34 www.bloomberg.com/apps/news?pid=newsarchive&sid=aEzLlr0_qPVg

35 www.guardian.co.uk/business/2008/aug/28/banking.france

36 www.nytimes.com/2008/08/13/business/worldbusiness/13ubs.html

37 Lachman 2008

property related exposure. It also took a £2.2bn provision that year in its retail division (predominantly mortgages). So for HBOS the loss in its "normal" bank was more than double that of its investment bank. This illustrates the flaw in the argument that separating retail from "casino" investment banking is likely to make banks safer.

It is almost certainly the case that the capital weightings that RBS and HBOS were applying against their commercial property portfolios were too low. It looked like good risk-reward business because it was secured lending. In practice it was not.

When the media and politicians refer to the investment bank sections of the UK banks being the cause of the problem they were right only in that it was where the problem started. It would have been much less of an issue if the banks had been prudent in the more traditional areas of their businesses. They were not though, with HBOS and RBS particularly guilty of poor lending decisions. It is entirely likely that these banks would have been in real trouble even without their holdings of asset backed securities, as the knock on effect of the credit crisis would have resulted in serious losses in the traditional banking business as well.

That though is a counterfactual that we cannot know. For the purposes of this document the key conclusion is that the financial crisis was a mix of poor regulation, which encouraged banks to take on more exposure to certain asset classes than they should have done, an underestimate of the risks, which led to underprovisioning capital against assets both asset backed and traditional and straight forward poor decision making by banks.

There was also some very weak regulatory oversight. Just as the bankers put their trust in the regulatory regime under which they operated and its capital requirements, so did the regulators. The light touch approach meant the right questions were not asked even where the problems were spotted. In the UK the Bank of England noted the wholesale funding gap but did nothing about it. The FSA knew RBS was running on thin capital when buying ABN Amro but did not object. And neither of them objected when RBS created a huge bank through the acquisition.[38]

38 See our report *Reform of the Bank of England*, December 2012 for more details.

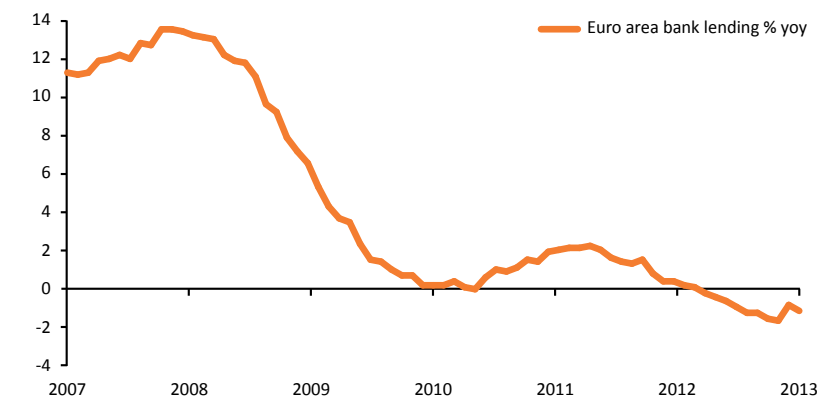
3
The Regulatory Response

Understanding what went wrong in the financial crisis is key to understanding what should be done to improve things. In the UK the focus has been on too big to fail, the failings of bankers, protecting the retail banks from the casino operations of the investment banks and ensuring that the banks have so much capital and liquidity that they cannot fail. Given the cost to the economy of the financial crisis and the public and political anger at bankers, the desire to ensure that it never happens again is completely understandable. However, those emotions should not cloud the judgement of those whose responsibility it is to design the new system.

Sadly, in the UK in particular, but also elsewhere, those emotions have left us with a system that may ensure our banks are safe but at the expense of the economy being able to grow. Any bank can be made safe if it is forced to be conservative enough, but that same bank will almost certainly be much more conservative in its lending too. After all there is a good reason that SME lending is required to be balanced by three times the capital of a mortgage or five times the capital of a strongly rated government bond, it is simply more risky. Our contention is that the Coalition government and its regulators have failed to realise this simple fact. When ministers demand to know why the banks are not lending more to small companies or mortgage borrowers with low deposits, it is not the banks they should be asking but the Chancellor, the Bank of England and the FSA. The latest effort by the Bank of England to force yet more capital onto the banks is likely to make banks still more cautious about lending. After all why seek to increase your balance sheet (and hence require more capital) if the regulator can shift the goalposts at a moment's notice.

The UK is not alone in this drive towards a bad solution. The European Banking Authority demanded that all European banks reach a tier one capital ratio of 9% by the middle of 2012. The idea, of course, was to make the banks safer. We believe, however, that this measure was largely responsible for the decline in bank lending across the euro area in 2012, which until it was introduced had actually been showing signs of recovery (see Figure 13 below). As one banker put it to us, every time the regulators tighten conditions for the banks, the banks have to tighten them for their customers and the economy weakens. The deterioration in the economy causes defaults and expected losses to rise, which in turn impacts on the banks models making them apportion more capital against riskier loans and hence making those loans less available. It is a vicious cycle.

Figure 13: Chart of European bank lending



Source: Bloomberg

To see why we believe this to be the case let us examine the regulatory response both internationally and in the UK. It is best to start with the Basel 3 reforms which are meant to address the weaknesses of Basel 2. The idea behind Basel 2 was to make the regulatory regime more responsive to the risks that the banks were running. Under Basel I the capital ratios were somewhat rigid so that an SME loan and a loan to a huge multinational attracted the same amount of capital, while all OECD government bonds were treated equally. So Basel 2 sought to become more sophisticated making the capital weight more dependent on the risk being run by the bank. Hence the introduction of credit ratings for judging bonds and internal ratings for the bigger banks to be able to judge the risk they were running against the probability of default and the losses expected give such a default.

Basel 2 failed in a number of ways and is best summarised by this statement from the Basel Committee itself:

> *"One of the main reasons the economic and financial crisis became so severe was that the banking sectors of many countries had built up excessive on- and off-balance sheet leverage. This was accompanied by a gradual erosion of the level and quality of the capital base. At the same time, many banks were holding insufficient liquidity buffers. The banking system therefore was not able to absorb the resulting systemic trading and credit losses nor could it cope with the re-intermediation of large off balance sheet exposures that had built up in the shadow banking system. The crisis was further amplified by a procyclical deleveraging process and by the interconnectedness of systemic institutions through an array of complex transactions."*[39]

That extra leverage was in part driven by the regulations of Basel 2, which encouraged the accumulation of highly rated and hence low capital weighted assets. As we highlighted in the previous chapter these were attractive to banks, as they sought the best trade off between capital weightings and returns on that capital. Given that both the ratings agencies and the banks underestimated the risk they were running, the capital they had allocated against supposedly better quality assets proved to be insufficient. That insufficiency was only really apparent

39 See Basel III: A global regulatory framework for more resilient banks and banking systems

in hindsight on the basis of Basel 2, as most banks (even those that went under) looked well capitalised by official regulatory measures (RBS was perhaps one of the few exceptions to this, but that was as much the fault of the FSA which allowed it to fund the ABN AMRO acquisition with debt).

As for the quality of the capital base, some capital did not prove to be loss absorbing (most notably senior debt) where regulators and banks were reluctant to enforce losses for fear of triggering further major disruption to markets. So banks had to either raise more equity capital to fill the gap or governments had to come in and bail them out. This situation was most severe in Ireland where, controversially, senior debtors were in effect bailed out by the Irish government. One of the major problems here was that the debt was often ranked pari passu (in other words of equal rank) with account holders. Since even in extreme circumstances regulators were averse to making depositors take losses it was felt bondholders had to be treated equally.[40]

When the system went into meltdown and prices of assets collapsed the mark to market write downs in these assets caused huge concerns about the state of the banking system. The wholesale market froze and banks faced severe shortages of liquidity. The freezing up of the banking system undoubtedly aggravated the situation and transmitted the shock in the US housing market to the global economy more generally.

Basel 3: Back to the drawing board

Basel 3 has sought to address this in a number of ways. Again to quote from the report:

> *"The Basel Committee is raising the resilience of the banking sector by strengthening the regulatory capital framework....The reforms raise both the quality and quantity of the regulatory capital base and enhance the risk coverage of the capital framework. They are underpinned by a leverage ratio that serves as a backstop to the risk-based capital measures, is intended to constrain the excess leverage in the banking system and provide an extra layer of protection against model risk and measurement error. Finally the Committee is introducing a number of macroprudential elements into the capital framework to help contain systemic risks arising from pro-cyclicality and from the interconnectedness of financial institutions."*

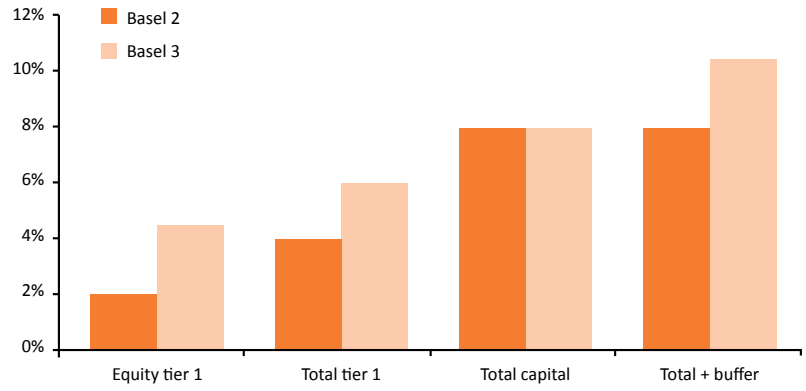
The Committee argued that "the crisis demonstrated that credit losses and write-downs come out of retained earnings, which is part of banks' tangible common equity base." Accordingly they decided that the "predominant form of Tier 1 capital must be common shares and retained earnings." The remainder of Tier 1 capital now has to be subordinated, with no maturity date or incentive to redeem. In other words the Basel Committee wanted to make Tier 1 capital properly loss absorbing.

Total required capital under Basel 2 and Basel 3 is nominally the same at 8% but a lot of the details have changed, including the fact that there is now an additional capital conservation buffer of 2.5% under Basel 3. Under Basel 2, Tier 1 capital had to be at least half of the total capital, of which equity capital had to be half of that, i.e. 2%. Under Basel 3 Tier 1 capital must be a minimum of 6.0% of risk weighted assets at all times, with Equity Tier 1 being a minimum of 4.5% of risk weighted assets. That Equity Tier 1 is basically retained earnings and issued shares.

40 In fact it is not entirely true that senior bonds were not loss absorbing since bonds were often bought back in the secondary market by banks at a discount

Additional Tier 1 capital has to be subordinate to depositors, general creditors and subordinated debt of the bank and it has to be perpetual, i.e. no maturity date. Previously under Basel 1 non-equity instruments could be included in Tier 1 provided they were junior to depositors, general creditors and subordinated debt of the bank, that they were permanent and callable by the bank only after 5 years. Many of these were hybrid instruments, which had what were known as step ups which incentivised the bank to call the debt. They could previously represent up to 15% of Tier 1 but are now to be phased out.

Figure 14: Basel 2 vs 3



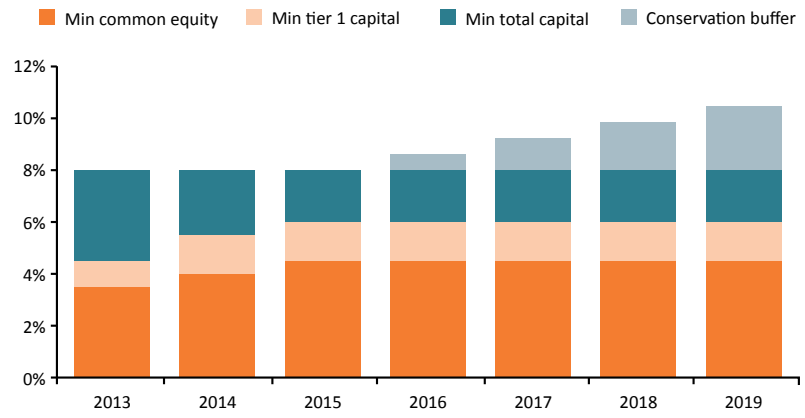
Source: BIS

Tier 2 capital has to be subordinated to depositors and general creditors of the bank, is not covered by a guarantee, has a minimum original maturity of 5 years and has no incentives to redeem. The key difference here with Basel 2 is that the debt has to be subordinated to depositors and general creditors. Regulators are clear that the debt would have to absorb losses in the event of failure. Interestingly Basel 3 states that Tier 2 capital is meant to be "gone concern" capital, in other words capital that would absorb losses if the bank ceased to operate as a going concern and would likely be forced into some kind of wind up or sale. However, one of the most popular sources of capital for banks in this Tier of capital has been contingent bonds. These bonds normally have a trigger at a certain level of capital (in the case of the Lloyds coco if its core Tier 1 capital drops below 5%) where they convert from being a bond to equity to reinforce Tier 1 capital. Clearly these bonds are meant to convert well before Tier 1 equity is wiped out, indeed in the case of Barclays even before Tier 1 equity would have breached Basel 3. These are therefore effectively going concern forms of Tier 2 equity, although they have implications for how banks might behave as the triggers are approached to which we will return later.

In addition to the strengthening of the Tier 1 and Tier 2 the Basel Committee is proposing to introduce a new capital conservation buffer. This extra capital is meant to be built up in the good times "to be drawn down in times of stress". The target is for this buffer to add a further 2.5% to capital, so that banks would eventually hold some 10.5% of capital against their risk weighted assets by 2019 (see Figure 15). Regulators will also have the ability to raise capital ratios

above these levels at times of "excess credit growth". This would in part enable regulators to try and dampen that excess credit growth but also provide more capital in the event of losses after that comes to an end.

Figure 15: Basel 3 phase in of capital



Source: BIS

Equally, global systemically important banks (i.e. those whose failure could severely damage the financial system) will be required to hold still more capital. Those banks, which the Basel Committee estimates there will be 29 of initially, will have to hold an additional amount of capital, currently set at up to 2.5%, but possibly as high as 3.5%. This additional capital is recommended by the Basel Committee to consist of Common Equity Tier 1 capital. This is also expected to be phased in by 2019. Four of the five major UK banks, RBS, HSBC, Barclays and Standard Chartered have been identified by the Financial Stability Board as Globally Systemic Financial Institutions, as has Banco Santander, whose UK subsidiary is now the UK's fifth largest domestic banking group.[41]

So for these institutions the minimum total capital requirements under the new Basel rules would be 11.5% for Santander and Standard Chartered, 12% for RBS, 12.5% for Barclays and 13% for HSBC.[42] That process starts this year with the Minimum Common Equity Capital Ratio rising to 3.5%, minimum Tier 1 Capital to 4.5%, with total capital at 8%. By the end of 2015 banks are meant to have the full 4.5% of Common Equity Capital and 6% Tier 1 Capital in place. Thereafter the capital buffers are steadily increased, so that total capital rises from 8% at the end of 2015 to 10.5% as of 1 January 2019. The capital for the Global Systemically Important Banks increases over the same period as the capital conservation buffer.

The bottom line is that for most banks they will have to hold 7% of equity capital (tier 1 equity plus the capital conservation buffer), up from 2%. They will have to hold 6% tier 1 equity, compared to 4%. And they will have to hold total capital of 10.5% up from 8%. Moreover, that capital is much more tightly defined, more loss absorbent and therefore in all likelihood more expensive. On top of that Global Systemically Important Banks have to hold up to a further 2.5% of capital. In reality this means equity capital for these banks having risen fourfold, a marked increase on what was previously in place.

41 Lloyds was originally identified as a G-SIB but was removed as of November 2012.

42 Although these Basel rules will be supplemented by further UK rules under the Financial Services Bill which we discuss below.

The leverage ratio

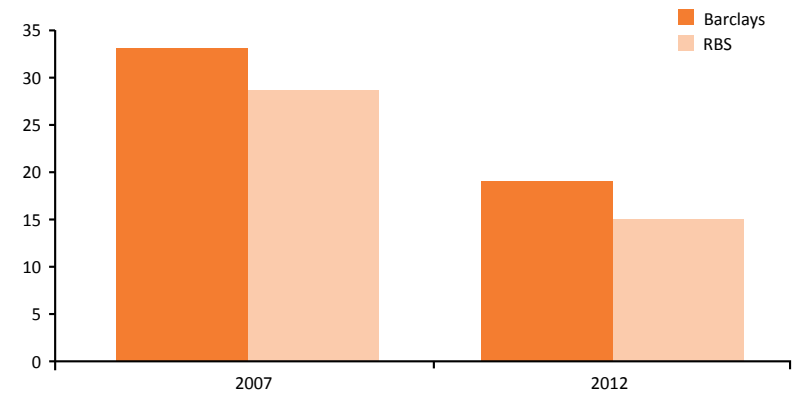
In addition, the Basel Committee wanted to address the issue of excess leverage and lack of liquidity both of which were major issues during the financial crisis. We have highlighted how the Basel 2 regime allowed banks to lever up on highly rated assets, while at the same time still showing strong capital ratios. The leverage ratio was introduced to "achieve the following objectives:

- constrain leverage in the banking sector, thus helping to mitigate the risk of the destabilising deleveraging process which can damage the financial system and the economy; and
- introduce additional safeguards against model risk and measurement error by supplementing the risk-based measure with a simple, transparent, independent measure of risk."[43]

The ratio is defined as being a minimum 3% Tier 1 ratio. That means Tier 1 capital must be at a minimum 3% of total bank exposure. That exposure includes all loans, repurchase agreements, derivatives and off balance sheet commitments (like undrawn credit lines or letters of credit).[44] Broadly this limits a bank to total assets of around double risk weighted assets, although obviously if a bank was holding excess Tier 1 capital those assets could be higher. The whole point of the leverage ratio though is to ensure that there are limits to how far Basel 3 capital rules can be used to lever up a balance sheet.

The Independent Commission on Banking in the UK originally wanted a leverage ratio of around 4%, or 25 times, but the Chancellor decided that he would abide by the Basel 3 criteria when the Bill was published. There are some, notably Sir Mervyn King, who would like the leverage ratio to be higher, but we feel the Chancellor has made the right decision on this front. In practice many banks will run much higher leverage ratios (or lower leverage multiples) than this. For example in the UK at the moment the leverage at RBS is over 15 times and Barclays 19 times, so well inside the caps. Yet these banks are felt by the Bank of England to be undercapitalised at those leverage ratios.

Figure 16: RBS and Barclays leverage ratios



Source: Company Accounts

43 Basel III: A global regulatory framework for more resilient banks and banking systems

44 A repurchase agreement is where money is effectively lent against an asset. The asset is repurchased from the lender at a lower price to reflect the cost of the financing. This is normally used against high quality assets as a cheaper measure of funding.

Liquidity

The other new element brought into Basel 3 is a requirement for banks to hold a minimum amount of liquidity known as the Liquidity Coverage Ratio.

> *"The LCR is intended to promote resilience to potential liquidity disruptions over a thirty day horizon. It will help ensure that the banks have sufficient unencumbered, high quality liquid assets to offset the net cash outflows it could encounter under an acute short term stress scenario. The scenario is built upon circumstances experienced in the global financial crisis that began in 2007 and entails both institution specific and systemic shocks."*[45]

The Basel Committee published its detailed proposals on the Liquidity Coverage Ratio (LCR) in January of this year.[46] It stated that the scenario for the LCR would be one "that would result in:

a) the run-off of a proportion of retail deposits;
b) a partial loss of unsecured wholesale funding capacity;
c) a partial loss of secured short term financing with certain collateral and counterparties;
d) additional contractual outflows that would result from a downgrade in the bank's public credit rating by up to and including three notches, including collateral posting requirements;
e) increases in market volatilities that impact the quality of collateral or potential future exposure of derivative positions and thus require larger collateral haircuts or additional collateral, or lead to other liquidity needs;
f) unscheduled draws on committed but unused credit and liquidity facilities that the bank has provided to its clients; and
g) the potential need for the bank to buy back debt or honour non-contractual obligations in the interest of mitigating reputational risk."

In summary, the stress scenario specified incorporates many of the shocks experienced during the crisis that started in 2007 into one significant stress scenario for which a bank would need sufficient liquidity on hand to survive for up to 30 calendar days."

The Basel Committee states that this stress test, and the liquidity it requires, is meant to be a minimum standard and that banks would be expected to hold more and conduct their own stress tests.

The way the ratio works is to divide the stock of high quality liquid assets (such as government bonds) by the total net cash outflows during the 30 days. That ratio has to be greater than or equal to 100%. The high quality liquid assets have to have the following characteristics. They should be low risk; easy to value; have a low correlation with risky assets; listed on a developed and recognised exchange; have an active and sizeable market (so they can be sold easily); have low volatility and flight to quality characteristics. Essentially the assets are meant to be ones that the banks can use in times of stress and probably would go up in value at that time of stress providing an additional cushion.

45 See Basel III: A global regulatory framework for more resilient banks and banking systems. December 2010

46 Basel III: The Liquidity Coverage Ratio and liquidity risk monitoring tools. January 2013

The high quality liquid assets are divided into three groups.

- Level 1 assets are essentially cash, central bank reserves, government or central bank assets with a 0% risk weight and home country government or central bank bonds with non 0% risk weights. These have to be a minimum of 60% of the high quality liquid assets.
- Level 2A are government or central bank assets with a risk weighting of 20%, corporate debt securities with long-term credit ratings of at least AA- (these must be non financial institution). Those assets are subject to a 15% haircut.[47]
- Level 2B assets such as mortgage backed securities that are rated as AA or higher can be included subject to a 25% haircut and various liquidity requirements. Corporate debt securities rated A+ to BBB- can be included subject to a 50% haircut. Large liquid home country equities can also be included subject to the same haircut.

These definitions of high quality liquid assets were broadened by the Basel Committee in response to requests from banks, with the big changes being to allow a greater use of RMBS, corporate bonds and equities. The banks had rightly pointed out that too large a dependence on government and central bank assets had risks in itself and that a broader collection of assets was likely to be safer. The liquidity standard is also to be phased in over a number of years starting with a minimum Liquidity Coverage Ratio of 60% on January 1 2015 rising to 100% by January 1 2019.

The UK decided not to wait for the Basel Committee recommendations and instead brought in its own minimum liquidity standards in 2009. The Individual Liquidity Adequacy Standards comprised an Individual Liquidity Adequacy Assessment (ILAA), a Supervisory Liquidity Review Process and the issuance of Individual Liquidity Guidance (ILG).[48] The idea was that the FSA would provide each firm with guidance about the quantity of a firm's liquid asset buffer and the firm's funding profile.

To calculate a firm's ILAA the FSA used an idiosyncratic liquidity stress, a market-wide liquidity stress and a combination of the two. The liquidity requirement was set using the combination of the two since this was deemed the one likely to lead to the largest liquidity outflow. Similar to the Basel calculations firms had to assume an inability to roll over wholesale funding, a sizeable retail outflow, increased withholding of payments by counterparties, a downgrading of its credit rating and so on. The stress test is assumed to be a two-week specific (i.e. to the bank) and market-wide stress, with the wider market stress continuing out to three months. In other words the regulators are trying to test a scenario where a firm comes under pressure initially with the banking market more generally continuing to remain stressed for up to three months afterwards. Firms have to hold enough liquid assets to cover the outflows under such a stressed scenario. The UK definition of what assets had to be held though was more restrictive than the Basel recommendations requiring firms to "maintain a stock of high-quality government bonds, central bank reserves and bonds issued by multilateral development banks."

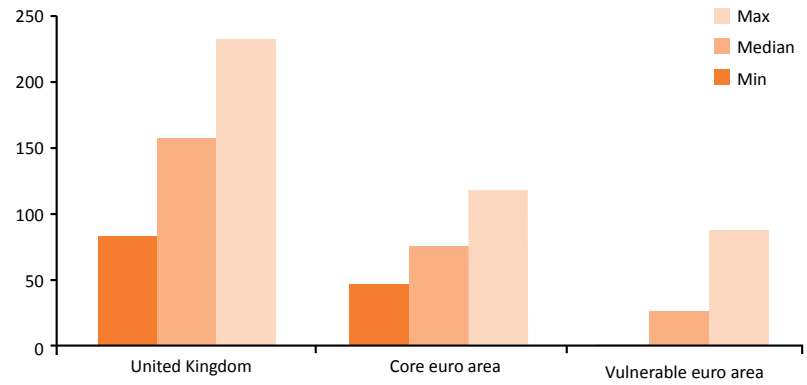
The introduction of the UK's liquidity standards has, not surprisingly, dramatically increased the amount of liquid assets the banks have had to hold.

47 A haircut is the reduction in the value of the asset that has to be applied in its calculation as a high quality liquid asset, i.e. if the asset has a notional value of £100, only £85 of it can be counted in the calculation of the high quality liquid assets. This haircut is normally applied to allow for the fact that the asset might have to be sold at a discount in times of stress.

48 www.fsa.gov.uk/pubs/policy/ps09_16.pdf

Barclays, for example, has increased its liquidity holdings from £19bn in 2007 to £150bn in 2012. Even within a balance sheet of around £1.6tn that is a big increase. While most of it is low risk weighted and therefore not particularly capital intensive, together with the fact that banks have been trying to get their leverage down this will undoubtedly have put some pressure on banks to reduce lending in other areas.

Figure 17: Liquid Assets as a proportion of stressed outflows by banking sector (%)



Source: Bank of England

It is also interesting to note that the UK liquidity standards are, as we understand it, leading the UK banks to hold roughly 50% more liquidity than would be required under a fully implemented Basel 3 (i.e. what Basel would require in 2019!) and it is in much more restrictive instruments. While the UK authorities did announce some easing of liquidity requirements following the introduction of the Funding for Lending Scheme last summer, we believe that a move to converge UK and Basel 3 liquidity requirements would be one of the things the FSA/PRA could do to ease the pressure on UK banks and make it easier for them to lend. The chart above taken from Bank of England figures shows how much more liquidity the UK banks are holding than their Euro Area counterparts.

Stable funding

The final piece in the jigsaw as far as Basel 3 is concerned is the Net Stable Funding Ratio (NSFR). This "requires a minimum amount of stable sources of funding at a bank relative to the liquidity profiles of the assets, as well as the potential for contingent liquidity needs arising from off balance sheet commitments, over a one year horizon. The NSFR aims to limit over-reliance on short term wholesale funding during times of buoyant market liquidity and encourage better assessment of liquidity risk across all on- and off-balance sheet items." This type of measure is aimed at addressing the type of problems that toppled Northern Rock.

The Net Stable Funding Ratio sets as a minimum of 100% the amount of stable funding a bank has relative to its required amount of stable funding. The available funding is defined as "the total amount of a bank's;

a) capital
b) preferred stock with a maturity of equal to or greater than one year;
c) liabilities with an effective maturity of one year or greater;
d) that portion of non-maturity deposits and/or term deposits of less than one year that would be expected to stay with an institution for an extended period in an idiosyncratic stress event; and
e) the portion of wholesale funding with maturities of less than one year that is expected to stay with an institution for an extended period in an idiosyncratic stress event.

Liabilities caught in parts d) and e) are weighted according to how stable they are from 90% down to 50%.

The assets the bank holds are then similarly weighted, with cash and short dated assets with maturities of less than one year attracting a 0% weight. High quality government bonds and other similar instruments with a maturity of greater than one year have a 5% weight. Slightly less high quality government bonds and high quality corporates have a 20% weight. Various equities and corporate bonds have a 50% weight, mortgages qualifying for a capital weight of 35% or less have a 65% weight, retail and business loans of less than one year maturity have an 85% weight and everything else has a 100% weight.

The combination of the higher capital weightings, the various changes to the calculations of those weightings, the leverage ratio, the liquidity coverage requirement and the net stable funding requirement add up to a marked tightening of standards for banks in the post financial crisis world than before. It is clear that regulators have tried to learn from the crisis and the flaws in the previous system. They have also tried to reduce the scope for regulatory arbitrage and the FSA in the UK, with others, has also tightened up on the internal risk models of banks.

> “No one seems to be asking whether it is compatible for the banks to increase their capital, reduce their leverage, increase their stock of liquid assets, obtain more stable sources of funding and still be able to extend credit to the economy”

All of this seems very sensible in that in the long run it will likely make the banks safer. The one, crucial, question that does not seem to have been asked by the authorities is what effect this will have in the short run as it is implemented. In particular no one seems to be asking whether it is compatible for the banks to increase their capital, reduce their leverage, increase their stock of liquid assets, obtain more stable sources of funding and still be able to extend credit to the economy. In our discussions in researching this document we did not find anyone who would oppose the principle of raising capital ratios from their Basel 2 levels. Equally most accepted that they needed to hold more liquidity and have less reliance on wholesale lending. Indeed, each single element of the reform of the regulatory process seems sensible in its own right but together we believe they represent an overkill that will continue to restrict credit supply to the economy if applied too quickly and without enough flexibility. Sadly this is what regulators, particularly in the UK, are doing. We will return to this in more detail in the next chapter.

Before we do so though we want to consider two more regulatory measures that are peculiar to the UK and further aggravate the situation. These are the decision to ring-fence the retail and non-retail operations of the UK banks and the Financial Policy Committee's decision to impose minimum weightings on various areas of internal bank capital estimates.

Ringfencing the UK banks

The Chancellor asked John Vickers to head the Independent Commission on Banking (ICB) to investigate the lessons to be learned from the UK banking crisis and suggest solutions that would promote "stability and competition through structural and related non-structural measures". The ICB issued its final report in September 2011, and recommended a dual approach: ring-fencing of vital banking services and increasing banks' loss absorbency. The government has introduced legislation in the form of the Financial Services (Banking Reform) Bill to implement these recommendations. In the aftermath of the Libor scandal the Chancellor then set up a Commission on Banking Standards under Andrew Tyrie MP.[49] That Commission has recommended electrifying the ring-fence, so that any bank found to have tried to circumvent the ring-fence would risk its ring-fenced and non ring-fenced parts being forcibly split up.

We believe the substance of these suggested reforms to be ill thought out, to be poor solutions to the problems of the financial crisis and likely to hamper further the provision of credit to the UK economy. We understand the politics of the Chancellor's decision to implement the reforms but we suspect he and future Chancellors will come to regret the decision to go along with the recommendations of these independent commissions.

The Banking Reform Bill sets out three areas of legislative change introducing ring-fencing of vital banking services, depositor preference (over bond holders) and a framework for implementing Primary Loss Absorbency Capacity (PLAC). The latter sets a higher threshold than Basel 3 for loss absorbency of bank capital.

The aim of ring fencing is:

> *"to insulate banking services critical to individuals and small and medium sized enterprises (SMEs) from shocks elsewhere in the financial system, and to make it easier to ensure continuous provision of these services. It does so by protecting those services from contagion from the wider financial system, including risks arising in the rest of the banking group, and, in the event of a failure of any part of the group, making it easier to resolve in an orderly manner, without putting taxpayers funds at risk. The policy will be achieved by 'ring-fencing' – introducing structural separation between services for individuals and SMEs, and wholesale and banking services."*[50]

The Bill allows the Treasury to set the scope of the ring-fencing policy, "that is which activities are to be undertaken within ring-fenced banks, and which are to be prohibited or excluded and to whom ring-fencing applies." The key activities which are to be included as core activities and hence remain inside the ring-fence are accepting deposits from individuals and SMEs. Only ring-fenced banks and those exempt from ring-fencing will be allowed to take

49 www.parliament.uk/bankingstandards

50 HM Treasury – Sound banking: delivering reform October 2012

such deposits.[51] Larger corporates and high net worth individuals will be able to place deposits outside the ring-fence. Also included inside the ring-fence in the draft bill are "facilities for withdrawing money or making payments from such an account" and "overdraft facilities in connection with such an account."

In terms of activities which have to take place outside of the ring-fence the Bill states that "dealing in investments as a principal is an excluded activity. This would exclude most of the derivatives and trading activities currently undertaken by wholesale and investment banks." Nevertheless the government's Bill recognises that banks need to manage their risks and to do so often use derivative instruments and gives the Treasury the power to grant the ring-fenced banks the ability to use such measures. Indeed, there has been much debate about what exactly ring-fenced banks would need to be able to offer to conduct normal services that retail and SME customers might need. For example the ability to carry out interest rate swaps is crucial for banks to be able to offer fixed rate mortgages or fixed rate SME loans. Notwithstanding the recent furore over such contracts being offered to SMEs they are an essential part of managing a company's interest rate risk. Similarly basic foreign exchange transactions would likely need to be available inside the ring-fence.

Under secondary legislation, made under the Bill, restrictions are expected to be imposed on ring-fenced banks' exposure to financial institutions and may also restrict its geographic scope.

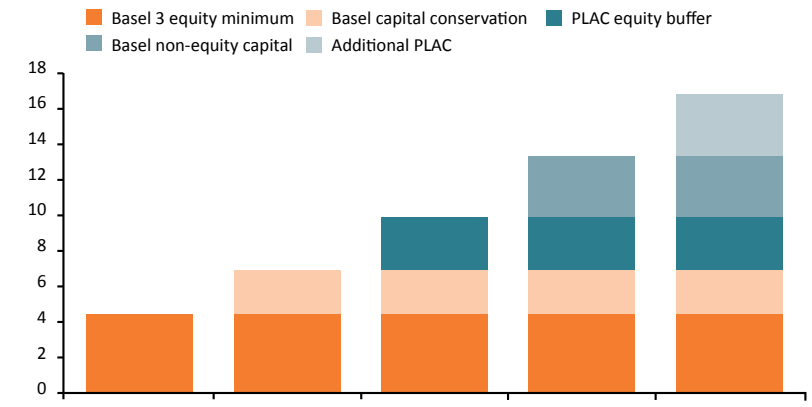
The legislation also requires the regulator (in this case the PRA) to ensure that the ring-fenced bank is able to act independently of the rest of the group whilst carrying out its business. It does so by ensuring that the ring-fenced bank operates on a third party basis with the rest of the group (in other words in the same way it would with another bank). The Bill also suggests there will be limits on intra-group exposure, that is exposure to the non ring-fenced part of the group. The idea is to force the ring-fenced bank to diversify its risk away from other parts of the group.

The government's Bill has two more key elements to it. First it makes depositor preference explicit. This states that "*all deposits which are eligible for compensation under the FSCS (insured deposits) will be made preferential debts, so that, in the event of the insolvency of a bank, they will rank ahead of the claims of other unsecured creditors….Preferring insured deposits will also mean remaining unsecured creditors would be exposed to greater losses in the event of bank failure, and so should be more alive to the need to monitor and manage risk associated with their investment decisions*." This is understandable, and similar to the recommendations of Basel 3, given all of the issues with senior debt holders being ranked pari passu with deposit holders, although it will, of course, raise the cost of debt funding for banks.

Turning to the framework for Primary Loss Absorbing Capacity (PLAC), the government agreed with the ICB that UK ring-fenced banks should hold PLAC of up to 17% of risk weighted assets. The Bill already insists on an additional 3% of equity capital beyond the Basel 3 minimum requirements for large ring-fenced banks. That would take their equity capital up to 10%. The PLAC will consist of regulatory capital (including the additional equity capital) and subordinated and senior unsecured debt with at least 12 months remaining and which "the resolution authorities are confident could be bailed in".

51 Smaller banks, with a suggested threshold of £25billion of deposits.

Figure 18: How primary loss absorbing capital is built up (%)



Source: HM Treasury

Under Basel 3 total capital including the capital conservation buffers reaches 10.5%. If you are a Global Systemically Important Bank (G-SIB) at the moment you can have a maximum of an additional 2.5% of capital placed on top of this, taking you to 13%. The UK proposals are for the 3% risk buffer or the G-SIB buffer to be added to the 7% of equity capital, whichever is the greater. So for the "large" ring-fenced UK banks the legislation seems to imply that they will have to hold a minimum of 13.5%, plus a 3.5% additional PLAC component, thus adding up to 17%. Thus for the ring-fenced banks they potentially have to have 4% extra capital on top of that required by Basel 3 (how this is built up is shown in Figure 18). That is a lot of extra capital. We should also bear in mind that if you are a provider of capital to such banks you are going to be effectively providing capital to two banks. Capital for the ring-fenced bank and capital for the non ring-fenced bank. While you might argue that in the ring-fenced bank you are safer, because it is a safer bank, and that capital should therefore be cheaper, that is not necessarily the case. For in a ring-fenced bank you stand behind the depositors whereas in a non ring-fenced bank with no guaranteed depositors you potentially stand a better chance of getting your money back. Similarly if you are an equity investor the very high levels of capital that are going to be required and the restrictions on what you can do as a bank is likely to mean a lower return on that capital. As an investor you are likely to make an adjustment to the price at which you will provide that capital.

In its impact assessment the government estimates the costs to the banks of the measures in the Bill to be £2–£5bn for the banks and an indirect cost of around 0.04%–0.1% of GDP.[52] The cost to the taxpayer in terms of lost revenue is put at £150m–£400m. It also assumes some cost to savers and lenders through the passing on of changes in interest rates. We suspect these estimates are likely to be far too small. First and foremost it does not take into account any reduction in lending capacity to the economy. As we have highlighted time and again in this document the biggest impact of higher capital and liquidity requirements is a reduced lending capacity for the economy. This is missed time and again in impact assessments. They almost all tend to focus on the increased cost to the banks of

52 Sound banking: delivering reform. Section B Impact Assessment. HM Treasury. October 2012

higher capital requirements and how this is passed on in terms of higher spreads and hence interest rates.[53]

As for the cost to the banks of the higher capital requirements, we suspect that too is an underestimate. After all when Barclays issued its contingent capital notes it did so with a coupon of 7.625%[54] in November of last year. For every £5bn of extra capital that is an extra £381.25m of interest cost.[55] Equity capital is still more expensive. RBS currently has around £38bn of equity tier one capital on Basel 3 definitions, which equates to a capital ratio of around 7.7% While it is difficult to say at this point in time exactly how much more capital RBS would have to raise because it is not clear what part of the bank would sit inside the ring-fence and what outside, it is not unreasonable to think that this equity capital ratio might have to rise to around 10% for the group. That would imply something in the region of an extra £14bn of capital. If we assume a weighted cost of capital (equity and debt) of around 10%, that is an annual extra cost of £1.4bn alone for RBS.

The impact assessment argues that it is worth it because the reforms would reduce the probability of further crisis by 10% and the severity of future crises by 15%. The benefit of those reductions are estimated to be close to 0.5% of GDP pa.

Raising the capital ratios and primary loss absorbing capital does reduce the chances of a future crisis but we would argue at the expense of growth in the interim. We are unconvinced that ring-fencing would reduce the risk of bank crises. Retail banks have gone bust just as often as investment banks. Northern Rock was a retail bank, as was Bradford and Bingley. HBOS was largely a retail bank in the terms set out here. Its investments in mortgage backed securities were undoubtedly a deviation from that model but much of its major losses since the crisis have come from its corporate lending book, particularly commercial property. That was simply bad lending decisions and bad risk management, nothing that a ring-fence will really sort out. Even RBS was not a classic case of a bank being brought down by its investment banking arm. It was brought down by an appalling merger, which should never have been allowed to happen, which was financed (with the acquiescence of the FSA) by debt and not equity, coupled again with some very poor lending decisions.

The UK's rules on ring-fencing are particularly draconian and despite the Treasury paper referencing the Liikanen Report as suggesting similar measures elsewhere in Europe, the fact is that the EU Commission is proposing much less in the way of ring-fencing than the UK legislation. It seems likely that France and Germany will allow universal banks to separate out only proprietary trading operations, similar to the Volcker Rule that has been implemented in the US.[56] In short UK banks will be unique in Europe in having to split their operations completely. Interestingly Michel Barnier, the European Commissioner in charge of regulatory reform, said "I don't want to penalise the work of banks when they work for the benefit of the economy and industry." Mr Barnier also said he was keen "to move on as soon as possible from the agenda of reactive repair to a proactive agenda".[57]

We believe the UK is still in reactive repair mode, hence the recent comments out of the FSA and the Chancellor about wanting RBS to become more of a UK based bank. It is also reflected in the Bank of England's and FSA's drive to force the banks to raise additional capital. Anyone can make an individual bank safe

53 See for example Optimal Bank Capital by David Miles. Jing Yang and Gilberto Marcheggiano. Bank of England External MPC Unit Discussion Paper No.31

54 See Financial Times, November 22nd, Barclays bond a key test for cocos market

55 Although this is a pre-tax figure as the bank is likely to be able to deduct the interest cost from its profits. Not that this is particularly good news for HMRC.

56 See Financial Times, February 3rd, 2013. Stand by Liikanen.

57 See Financial Times, January 29th, 2013. Brussels softens line on bank ring-fences.

by forcing more capital and a more conservative approach on it. That may even be right for an individual bank. We must though recognise the risks of such an approach and the Chancellor and the Governor of the Bank of England and his senior officials should be asking themselves why bank lending has been shrinking in the UK economy. It is in part because of the measures they have been implementing. This current Bill is about to make things worse not better.

The Financial Policy Committee and tightening capital requirements

The desire to make the banks ever safer is no better illustrated than in the pronouncements of the Financial Policy Committee last November, when it decided that the banks were likely underprovisioned against the risks they were running on their balance sheets and asked the FSA to carry out an enquiry. The results of that operation are due to be decided by the FPC on March 19th and it is widely anticipated that a number of banks, but particularly RBS and Lloyds, will be asked to raise new capital.

At its November meeting the Financial Policy Committee recommended that the FSA

> *"takes action to ensure that the capital of UK banks and building societies reflects a proper valuation of their assets, a realistic assessment of future conduct costs and prudent calculation of risk weights. Where such action reveals that capital buffers need to be strengthened to absorb losses and sustain credit availability in the event of stress, the FSA should ensure that the firms either raise capital or take steps to restructure their business and balance sheets in ways that do not undermine lending to the real economy."*

The FPC's rationale for this was threefold. First, it thought the banks might be understating expected losses in areas of their loan portfolio. It noted material differences between the banks in the current provisioning coverage ratios for certain loan categories. The FPC was particularly worried about the provisions for real estate loans in the euro area and commercial property loans. It also thought some trading positions might be optimistically valued. Bearing in mind that the markets were in a much more stressed position at the time the FPC was compiling this information than they are now this is perhaps not surprising. However, as we have pointed out before, this is a flaw of the mark to market procedures used by regulators, since the valuations at the time of the analysis might not be representative of the likely eventual outcome.

> "The banks are already being made to carry more capital, more liquidity, safer sources of funding and less leverage. The UK banks as they stand today are much less dangerous than they were in 2008/9"

Second the FPC thought the banks might have underprovisioned for conduct redress. By this it means PPI, libor fixing and interest rate swap mis-selling. The banks provisioned for this again in the recent round of results, with RBS adding £450m, Lloyds £1.4bn and Barclays £600m for PPI alone.

Third, the FPC was concerned that "capital positions could be overstated because of aggressive application of risk weights. This primarily related to the

latitude banks had to determine the risk weights to apply to assets based on their internal ratings based models." In simulations the FSA ran using model portfolios the banks came up with markedly different capital requirements. Indeed, the most prudent bank's calculations came up with a capital requirement more than twice the most aggressive bank.

The FPC concluded that together the three sources of capital overstatement would "imply that the major UK banks' capital buffers were not as great as regulatory capital ratios suggested. This was important as these buffers were meant to cushion losses and maintain the supply of credit in the event of a stress scenario." Interestingly the FPC noted that the likelihood of stress scenarios materialising in the near term had fallen, but said it wanted banks to maintain buffers "to cushion severe but plausible stress scenarios" and these "would need to be restored if they were diminished by correcting for any overstatement of headline capital ratios."

The FPC's concerns on each point are potentially legitimate. It may well be that the banks provisions are too low in certain areas. It has highlighted that the current accounting conventions mean a bank only has to provision against a loan when there is "evidence that current or imminent impairment will reduce the present value of loans. As such banks have limited ability to fully provision for expected losses. By delaying recognition of losses, the incurred loss approach can lead to an overstatement of asset values".[58] The FPC come up with an estimated £13.8bn shortfall on this basis. However, as the Citigroup banking team point out such expected losses are already deducted under Basel 3 calculations and estimate that up to 80% of this may already be in the banks' Basel 3 weightings.[59] In the Financial Stability Report the Bank also highlighted that UK bank provisions against their forborne retail loans looked low compared to other loans and the provisions against some Eurozone assets looked low compared to local banks.

It is certainly true that the losses for conduct redress have been marked, particularly PPI where provisions have now reached a staggering £14bn. Indeed, Lloyds in their latest provision argued that they felt they had now fully provided for PPI. It is also the case that the banks have been provisioning for both areas as time has gone on, out of their underlying profits. The good news on this front is that it is improving particularly for RBS and Lloyds, with RBS reporting that its core underlying profit reaching £6.5bn in 2012 and Lloyds £6.15bn. So there is an argument to let the banks continue to provision as they see appropriate and if they need to increase those provisions to continue to do so out of ongoing core profits.

As for the adjustments of capital weightings based on internal models the FPC's and FSA's arguments are that some of the weightings are implausibly low. A mortgage under Basel 3 has a notional capital weighting of 35%, however the internal ratings based models of some of the banks have produced much lower weightings for some types of mortgage. Typically these will be ones with low loan to valuation ratios, combined with another positive factor such as a high quality borrower. Weightings on some of these mortgages can even fall below 10%, which means that for a £100,000 mortgage the amount of tier 1 capital backing that mortgage could be less than £1,000 (assuming a targeted tier 1 capital ratio of 10%). The FPC and FSA argue that there should potentially be limits as to how low these capital weightings should fall. However, for mortgages that do attract

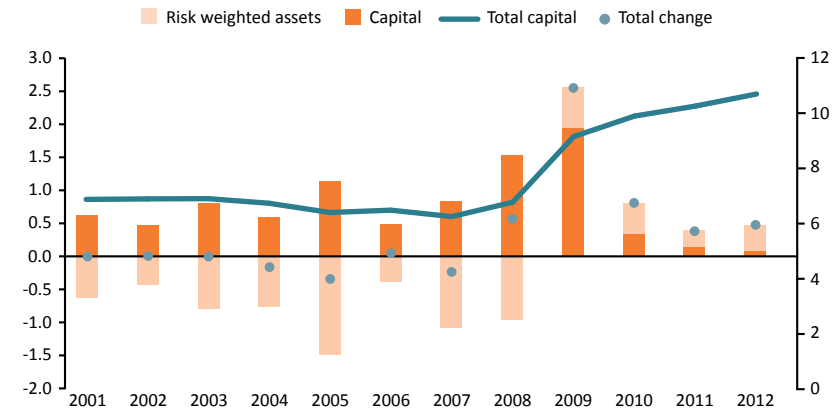
58 See page 19 of the November 2012 Financial Stability Report

59 How bad are the UK banks? Ronit Ghose and Andrew Coombs, Citigroup European Banks Team December 2012

such low weights, it is realistic to think that the chances of a bank losing money on those mortgages is also very low.

On its own each of the FPC's reasons for arguing that the banks may be undercapitalised might make sense, although we feel that the banks could and probably have argued that their own calculations are reasonable. That, however, misses the real point. The banks are already being made to carry more capital, more liquidity, safer sources of funding and less leverage. The UK banks as they stand today are much less dangerous than they were in 2008/9. Indeed, the chart below from the Bank's November Financial Stability Report shows how capital ratios have continued to rise.

Figure 19: UK banks capital ratios



Source: Bank of England

Let's consider Lloyds and RBS in particular. By 2012, Lloyds had reduced its non core assets from £236bn at the end of 2009 to £98bn, its loan to deposit ratio had fallen from 169% to 121% and its core tier 1 ratio had risen to 8.1% to 12%. Indeed, it now has a fully loaded CRD IV (Europe's version of Basel 3) of 8.1%. Lloyds also calculates that it now has the 17% of primary loss absorbing capital that the Banking Reform Bill will require. For RBS it has reduced its non core assets from £258bn in 2008 to £57bn by end 2012, its loan to deposit ratio had fallen from 154% at its worst to 100% by the end of last year, its leverage ratio had dropped from a peak of 28.7 times to 15 times and its core tier 1 capital had risen from 4% in 2008 to 10.3% now. RBS's funded balance sheet was down to less than £900bn from a peak of £1.6tn. Its fully loaded CRD IV equity tier one ratio is now 7.7%.[60]

In other words these banks are much much safer than they were during the crisis, while the economic backdrop, though still difficult, has stabilised. And yet the FPC seemed determined to force more capital upon them. One of the key recommendations of Basel 3 was to reduce the pro-cyclicality of capital requirements, in other words to force more capital on banks in good times so they had enough when times turned bad. The FPC seems determined to force more capital on the banks when they are still recovering. To do so is not costless. Should RBS, for example, have to raise the £5bn of capital that has been mooted

60 Interestingly the Financial Times reported on 15th March 2013 that the FSA had found a much smaller hole than the FPC expected because it "thinks much of the shortfall in covered in other ways."

by a number of analysts, then it is likely to do so via a contingent bond because the government has already said that it will not inject any more equity capital into the banks. The coupon on such a bond is likely to be at least 8% (given that Barclays issued its bond at 7.625%), which would mean an additional annual cost of £400m. That is to fund the current balance sheet, not to fund new lending.

What will the banks do in response to being asked to raise more capital? In all likelihood they will be even more cautious about high capital intensive lending, which means things like high LTV mortgages and unsecured SME lending. When Paul Tucker, Deputy Governor of the Bank of England, says that he is worried that "our current battery of credit policies might not be reaching as far into the SME sector as they might"[61] he should take a long hard look at the FPC's policy on capital requirements for the banks.

Indeed it is our view that this latest move by the Bank of England is likely to hamper the improvement in conditions produced by the Funding for Lending Scheme. Under that scheme it was proposed that any extra capital a bank had to commit to net new lending under the scheme would be offset by a reduction in its buffer. By making the changes that the FPC is recommending the Bank of England and the FSA is about to tell the banks that their buffers are insufficient and need bolstering further. In other words it does not think the banks have sufficient buffers, which they can run down. Which message are the banks expected to believe?

61 http://www.mortgagesolutions.co.uk/mortgage-solutions/news/2250793/boe-floats-extending-funding-for-lending-to-nonbanks

4
The Lead Weight – Less Credit Growth

The reaction of regulators, politicians and the public both in the UK and around the world to the financial crash has been understandable. The crisis was so horrific in terms of the damage it has done to our economies and financial systems and so costly in terms of bailouts and higher fiscal deficits that it must never be allowed to happen again. We completely understand and agree with that response. Our concern is twofold. First, we do not necessarily believe that the authorities have understood correctly what caused the crisis, with the result that some of the measures they are suggesting are not the right ones because they do not address the real problems. Second, and more importantly, the desire to ensure that the crisis can never happen again and therefore to make our banks and financial institutions as safe as possible has resulted in a regime that is actually hampering the recovery from the financial crisis. In doing so it is costing still more in terms of foregone growth, higher fiscal deficits and higher unemployment. No one seems to be asking whether we have got the balance right.

In any discussion of what we should do with the banks, the starting point of any politician, regulator or journalist is to discuss what the banks did wrong last time. The banks have not helped themselves with the issues over PPI, swap mis-selling and Libor manipulation. Bankers undoubtedly made huge mistakes, and their desire to earn large bonuses was certainly a part of that, but it was not the whole story. Nor do we believe that it was really a problem of banks being reckless because they were too big to fail. As Friedman and Kraus point out, if the banks really were out to maximise profits with no regard to risk then they would have been holding not the AAA rated securities that did so much damage but the higher yielding lower rated paper. Equally it was not the investment banking operations that did the real damage in most cases. The AAA rated paper was often held on the banking book and the lending into the commercial property sector in the UK that went so horribly wrong was traditional lending and had nothing to do with proprietary trading, which is the one bit of the bank that is definitely going to be outside the ring-fence.

As we have discussed earlier in this document the root cause of the financial crisis was a regulatory regime that, through its low allocation of capital to highly rated securities, encouraged banks to not only issue those securities but also hold them on their own balance sheet. It encouraged a reliance on rating agencies at the expense of credit analysis. It also favoured secured lending, where bankers and regulators alike did not look hard enough at the underlying asset. It also said little

or nothing about liquidity and funding, so that when the financial markets dried up so did the ability of banks to fund themselves. Overall, it was a regulatory regime that was too much of a box ticking exercise, with the regulators relying on the numbers the system produced rather than assessing the risks that were being run.

Much of what has been done to make changes through Basel 3 is sensible and does alter the balance of the regulatory regime in the right direction. Banks are required to hold more equity capital, have lower leverage, hold more liquidity and have more stable funding. Banks are being forced to not merely trust the judgements of the rating agencies but make their own judgements on the assets they hold. We do not agree with the views of the likes of Andrew Haldane of the Bank of England who has argued that Basel 3 is too complex and therefore we should have fewer simpler rules on capital and total borrowing.[62] Basel I as Mark Carney had pointed out was too simplistic and a return to simple ratios might have adverse consequences too.[63] Indeed, the problem with Basel 2 arguably was that it was too simplistic in allocating low weightings to anything given a high credit rating by the rating agencies.

Where we think the process is wrong though is that everything is about making banks safer, without recognising the risks that this creates. Anyone can design a safe bank, but does a collection of safe banks make a safe financial system? A financial system that cannot provide the credit to allow an economy to grow is not a safe financial system. As one banker put it to us, if the system causes the economy to be weaker then more of the loans are going to go bad, meaning the expected losses and probability of default elements of a banks internal models will rise, requiring more capital and less lending. In addition any losses will weaken the banks capital position still further. In other words making a system so safe that it cannot extend credit to the economy can actually weaken the system.

We believe this is exactly what has been happening in the UK. By trying to make the banks safe the Bank of England and the FSA have been cutting off the supply of credit to the economy. Below we show a chart of let lending to non-financial private companies. It has been falling by £10bn or more a year since the financial crisis, a total decline of some £57bn. If there was one piece of evidence that the Bank of England or anyone else needed that the current programme is not working it is this. Attempts to increase the supply of credit into the system like the Funding for Lending Scheme help at the margin because they lower the cost of funding for the banks and give them more certainty of that funding. The decision by the FPC to allow banks to run down liquidity in response to this has also helped. Yet it should be no surprise that the bulk of any extra lending has gone into the mortgage market, because it is capital efficient lending. We find it puzzling when we hear ministers or worse Bank of England officials complaining about the lack of lending to SMEs. It is their own policies that are causing it.

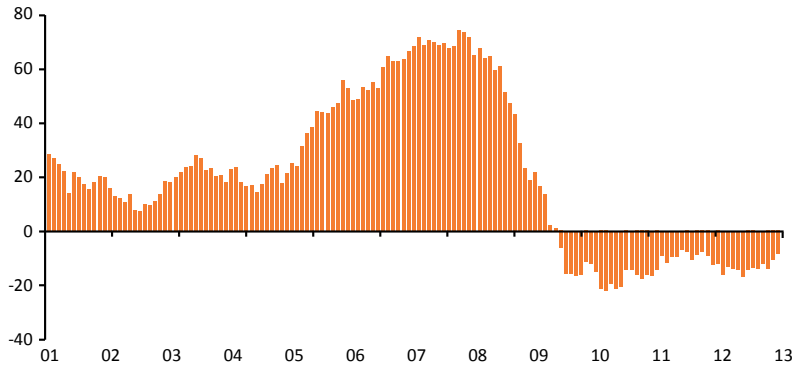
Sir Mervyn King and others at the Bank appear to hold the belief that if only the banks had more capital they would lend more. As we showed in the previous chapter the banks have been increasing their capital ratios, improving their funding, lowering their leverage and raising their liquidity. So they are in a better position to lend. But what does the Bank do? It tells them they are overstating

62 Financial Times, August 31 2012, Haldane calls for rethink of Basel III

63 http://www.telegraph.co.uk/finance/economics/9705748/Carney-attack-on-Haldane-hints-at-Bank-of-England-rift.html

their true capital position and therefore they need to raise new capital. That capital is not to support new lending, it is merely to support the existing balance sheet. As we have noted above that capital will come at a cost, which will eat into profits. The net result is likely to be less new lending not more.

Figure 20: Lending to non-financial private corporations (12 month cumulative £bn)



Source: Bank of England

Basel 3 talks a lot about pro-cyclicality and we believe that is one area where it is absolutely right. Being pro-cyclical is demanding the banks hold less capital when an economy is recovering and needs the banks to lend and more capital when things are good, so that banks have a capital cushion when and if things go bad. But the Bank and other regulators around the world are demanding the banks hold more capital. Jamie Dimon, CEO of JP Morgan, complained recently that banks had more capital than they could use.[64] He was quoted as saying "I don't think it is just JP Morgan. I think all banks will have too much capital in two and a half years. And they're not going to know what to do with it." We could not agree more.

The answer is for regulators to be more flexible in their approach. In particular we dislike the hard floors of Basel 3. We believe that the buffer zone should go in both directions and the real restrictions on dividends and bonuses could and should apply immediately only if you breach the current minimums. Capital is there to absorb losses but the regulators seem to be taking the view that they want the banks in all circumstances to exceed those floors. Hence the FPC's comments about the banks needing to reinforce their buffers, so they would have sufficient capital in the case of a stressed scenario occurring.

Our view is that regulators should tell the banks right now that they can use their capital buffers to increase lending. Under Basel 3 (and CRD IV), the minimum common equity Tier 1 capital that a bank should hold in 2013 is 3.5%, rising to 4.5% by 2015, with tier 1 capital set at 4.5% currently rising to 6% in 2015. Barclays currently has a common equity tier 1 capital ratio of 8.2% under this definition, Lloyds 8.1% and RBS 7.7%. Moreover, these are the fully loaded versions, which means they do not allow for the transition under Basel 3 (CRD IV). Barclays capital under the transitional ratio is 10.6%. Even allowing for the

64 http://www.bloomberg.com/news/2013-02-26/dimon-says-banks-to-have-more-capital-than-they-know-how-to-use.html

fact that the Bank of England and FSA are going to force further adjustments in the calculations, it is likely they will be well above the Basel 3 and CRD IV minimums. The capital conservation buffers are not even supposed to be starting until 2016 and not be fully implemented until 2019. So rather than forcing yet more capital on to the banks the FPC and FSA should in our opinion be telling the banks to lend more and run down their capital ratios if they needed to. That appeared to be the intention of the Funding for Lending Scheme, at least until the decision by the FPC to force banks to reinforce their buffers. It is time for the authorities to make it clear to the banks that they should be lending and that the regulators will support them in this. In so doing we think the regulators will also lift some of the market pressure on banks to meet the capital ratios early. We believe it would be sensible for other regulators to do the same in other countries.

The FSA has admitted that capital ratios are a barrier to lending by lowering the minimum amount of capital for new entrant banks to 4.5%, with 7% eventually being targeted after three years. The smaller banks are handicapped to a certain extent by having to use the full Basel capital ratios, rather than those calculated by the internal models. Nevertheless, this is the first admission we have had from the FSA that lower capital requirements might be a good idea. Now we need to see that attitude applied to the bigger banks.

As for liquidity, the UK regulators have a potentially easy win by allowing UK banks to move to fully loaded Basel 3 ratios right now. We understand that would release as much as a third of the current liquidity the banks hold. And as far as funding is concerned the Bank of England and the Treasury should make it clear that the Funding for Lending Scheme will remain in place until there is a clear economic recovery. Indeed the most obvious thing for the regulators to do is to allow the lending under this scheme to run down the capital ratios. Investors in the banks would likely feel more comfortable with the banks eating into their capital if it was part of an official scheme where the funding was likely to remain in place.

In the longer term we believe there should be a rethink on the capital requirements and in particular on the hardness of the floors. While we have some issues with how much capital the banks are eventually being asked to hold, our biggest issue is the fact that the banks will need to hold capital above the floors, otherwise they will risk dividends or compensation being restricted. In reality that means banks will end up holding more than the 10.5% total capital for smaller banks, 11–13% capital for the bigger banks and 17% primary loss absorbing capital for the UK ring-fenced banks.

The issuance of contingent bonds is another reason why banks will end up holding excess capital. The Barclays bond for example becomes worthless to bond holders should its tier one equity capital drop below 7%, with the result that the equity capital of the bank is reinforced. Barclays will undoubtedly try to keep its capital well above that level as it would not want the opprobrium that triggering the conversion would bring. Co-contingent bonds were originally meant to be gone concern capital (i.e. after the bank has failed), they have become going concern capital and one that forces a bank to hold more capital. Some might argue that is a good thing, we are less convinced.

In an ideal world we would like the Chancellor to drop the plan to ring-fence the banks. Ring-fencing will be costly and likely further hamper the provision

of credit to the economy. We understand that it is politically impossible to undo this measure now. However, the Chancellor should allow the ring-fence to be as flexible as possible and he should ensure that the high requirements for capital at the ring-fenced banks are also made more flexible. If the large banks end up holding in excess of 17% of PLAC then we suspect it will be a major drag on credit provision.

In short if we want a recovery in our economy we need to stop focusing on punishing banks for the past mistakes and making them ever safer. It might make some people feel good but it really is self destructive. Instead, we need to encourage them to do what they were designed for – supplying credit to the economy.

5 Conclusion

The desire to make the banking system safer after the Financial Crisis is completely understandable. The argument of this document though is that such a decision is not without its costs. After the failure of the regulatory system in the crisis, the inclination of every regulator and central banker is to err on the side of caution. The problem is that if every single decision is made with that mindset we can end up with a system that is safe but producing a substantial drag on the recovery from the crisis.

Lending to the non-financial corporate sector has fallen by more than £10bn a year since 2009 (and £57bn from its peak) as banks have de-levered and built up their capital. We believe this has been a major factor in the poor growth of the UK economy over that time. Unless we recognise that the system needs to be more flexible credit will remain constrained and a true recovery will remain elusive.

This paper argues for a rethink and makes four key recommendations.

Recommendation 1

First, and foremost, it argues that the authorities, particularly the Bank of England through its Financial Policy Committee and the Prudential Regulatory Authority, recognise that the drive to higher capital requirements has adverse consequences. Given that the chances right now of another financial crash (outside a Eurozone collapse) are quite slim, we would argue that it makes sense to give the banks some flexibility on their capital, particularly if this was linked into higher lending. There were hints of this at the time of the introduction of the FLS but we would like a stronger statement of intent. Indeed, the capital raise that the Bank of England is likely to force on the banks would be much more effective if they were told they could use the extra capital to lend. The Bank should also say that unless there is a dramatic change in circumstances that the adjustment in capital will be final.

Recommendation 2

Second, we would like the UK authorities to lobby the Basel Committee (and the EU who implement it via CRD IV) to make a temporary breach of capital requirements less onerous. Under Basel III the banks are going to be required to build a capital buffer over and above the minimum 8% of 2.5%, taking total minimum capital required to 10.5%. If they start to eat into that then their ability to distribute earnings (via dividends or bonuses) becomes ever more restricted. Basel 3 intended that banks would fall into this buffer from time to time and that it should not become a floor. We are concerned this is exactly what is happening

and that regulators need to change their stance. We believe that the whole system should be more flexible particularly in the run up to full implementation of Basel 3. We would like the UK government and the Bank of England to push for a much bigger buffer zone, but one that would straddle the Basel 3 minimum, rather than just sit on top of it. Banks would be allowed to use capital for what it was originally meant for – to fund more lending or for loss absorption. We would like to see the banks be given time to rebuild their buffers if they dropped below the upper threshold, without penalty. Only if they failed to rebuild the buffer in a given period of time would they face penalties restricting payouts. We would also allow banks to dip below their Basel 3 minimum in times of extremis without the threat of losing control of the bank, but subject to an agreed plan being put in place to rebuild the capital. This would make the capital buffer much more flexible, which given it is much higher now would be logical.

Recommendation 3

Third, we would suggest a change to liquidity requirements. Current UK liquidity requirements mean that banks have to hold around 50% more liquidity and in more restrictive instruments than in fully implemented Basel 3. We would like to see the FSA and Bank of England allow the UK banks to move to fully implemented Basel 3 immediately. This would release a lot of liquidity that could be put into alternative assets.

Recommendation 4

Fourth, on the ring-fence, far from electrify it we would like to see it made more flexible. The UK is the only European country that looks set to put in place a fully-fledged ring-fence. We believe the measure is excessive, likely to damage the competitiveness of the UK banking industry and prove restrictive in terms of credit supplied to the UK economy. In an ideal world we would like the idea of a ring-fence to be abandoned and replaced with good regulation but we realise that is politically impossible. If we are to provide a millstone around the neck of UK banking and credit creation it should be made as light as possible.

The shock of the financial crisis has led decision makers across the West to declare 'never again' and the desire to make the banks 'safe' is an important part of this. In that regard the changes made by Basel 3 and the government's bill on banking to ensure the banks have more capital, more liquidity and less risk are ones that move in the right direction. Yet all of the debate about what to do with the banks is focused almost exclusively on safety. There is no debate on whether, by making the banks ever safer, we are actually preventing a recovery from the last financial crisis. In our view that is exactly what is happening.

Whereas under Basel 2 banks could hold core equity capital of as little as 2%, under Basel 3 they are now expected to hold 7% of core equity capital. Total capital required to be held rises from 8% to between 10.5% and 13% depending on the size of the bank. The UK has gone further still with a ring-fenced bank expected to hold some 17% of primary loss absorbing capital, more than double the requirement under Basel 2. Simply put, for every £100 of lending to an SME a ring-fenced UK bank will now have to commit £17 of capital instead of £8.

Banks can raise capital ratios in three ways. They can raise capital in the market, they can retain profits or they can shrink the balance sheet. With investors reluctant to provide capital and profitability weak, much of the burden has fallen on balance sheet reduction and with it reduced lending. In addition regulators are seeking to ensure the banks hold much more liquidity and have more secure forms of funding. While sensible, these too reduce the scope for lending.

Some delevering was undoubtedly necessary but the crisis was now more than four years ago and lending is still shrinking. Despite all the efforts of the Bank of England to boost money growth through Quantitative Easing, this lack of credit growth has meant that money supply has been falling. It is no wonder that the economy is struggling to grow.

The banks are now much safer than they were, with leverage in banks like RBS and Barclays down by around 40%, while capital ratios have doubled. Yet the regulators, led by the Bank of England, are demanding the banks hold more capital to be safer still. Measures like Funding for Lending will continue to struggle until the regulators allow the banks to use the capital they have built up to support new lending.

In this report we argue that the pendulum has swung too far n the direction of safety. We believe banks need to be encouraged to lend by easier regulation. Then, and only then, will we see a real recovery in the economy.

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