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Speech

The capital adequacy of banks: today's issues and what we have learned from the past

Speech given by

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Good morning and thank you for giving me this opportunity to speak on the subject of bank capital adequacy. I am going to focus on the design of the capital adequacy regime. I am going to draw out the failings of the old regime and why those failings were so critical, comment on the major progress made over recent years, and use all of this to draw out design questions that remain to be settled. In doing so, I will examine a set of key objectives of the regime: first, that it creates good incentives for the behaviour of regulated firms; second, that it is appropriately forward-looking – at the risks in the future; and third, that it encourages and requires appropriate transparency which fosters market discipline.

Covering the failings of previous regimes is not simply some academic exercise, it is crucial in understanding why regulators have taken the actions they have, and why there is still some work to be done.

The Basel capital adequacy regime dates back to the Basel Accord of 1988, which led to the introduction of what we now know as Basel I. This was an historic agreement, representing the first international initiative on bank capital standards. Basel I focussed mainly on the assessment of the quantity of credit risk, and had a (what now looks like) simple categorisation of assets on risk grounds into one of five categories, with risk weightings of 0%, 20%, 50%, 100% and finally a set of assets that were fully deducted from capital, the most risky sort. There was also a simple reporting framework for off balance sheet items which were factored into the risk-weighted asset framework. Basel I also set out for the first time an internationally agreed definition of the quality of qualifying capital for banks.

Basel I was simple, and I will return to the consequences of that later. The first amendment to Basel I came in 1996 and 1997 in the form of the so-called Market Risk Amendment. It was significant both in extending the Basel Accord to capture market risk, and in introducing two alternative approaches to the measurement of market risk, a standardised method and an internal models approach. The latter was the first appearance of the use of firms' own models in the capital framework.

Basel II was first published in June 2004, though it was not widely implemented prior to the outbreak of the financial crisis in 2007. It introduced the concept of "three pillars": Pillar I, minimum capital requirements; Pillar II, supervisory review which enabled additional capital to be required on a firm-by-firm basis; and Pillar III market discipline through greater transparency of information on the application of the capital regime to each bank. In doing so, Basel II extended the ability to use firms' own models to credit and counterparty credit risk. It also introduced the requirement to hold capital against operational risk. Basel II did not make major changes to the definition of capital, or the quality of capital, required to meet banks' risks.

One further point to note is that a leverage ratio was not a feature of Basel I or II. Some countries maintained leverage ratio requirements alongside the risk-based Basel regimes eg the US and Canada[1]

[1] Canada introduced the 'asset-to-capital' multiple in the early 1980s. The definition pre-crisis was defined as on and some off-balance sheet exposures as a ratio of total capital. Generally, this was set at the assets being no more than 20 times the total capital amount. However supervisory discretion could permit a higher multiple (up to 23 times) if the firm met certain conditions. In the US a minimum

(though importantly neither incorporated all off balance sheet items, something that the Basel III leverage ratio seeks to amend) but many, like the UK did not.

I want to turn now to looking at why the pre-financial crisis capital regime failed to provide the necessary protection to the financial system when the crisis hit. There are a number of reasons, which cover both the numerator and denominator of the capital ratio. In brief: the definition of capital set in Basel I included instruments that did not properly absorb losses; capital requirements were too low in relation to the underlying riskiness of assets, particularly for the trading book; and banks were able to move risk assets increasingly into the trading book. The finger is often pointed at Basel II for enabling all of this to happen, but the timeline suggests that the problems built up under the combined Basel I and Market Risk Amendment regime. That said, Basel II had its own flaws, and was not well implemented, points I will return to later.

But, first, I want to look more at the flaws of the pre-crisis regime, starting with the definition of capital. This was flawed from the outset in the late 1980s, both in the definition of eligible capital instruments and the approach taken to the adjustments which should ensure that accounting balance sheet items such as goodwill are not recognised in regulatory capital. A further issue in my view has been the treatment of provisions.

Basel I allowed hybrid debt instruments to count as Tier 1 capital even though they had no principal loss absorbency mechanism on a going concern basis. They only absorbed losses after reserves (equity) were exhausted or in insolvency. It was possible to operate with no more than two per cent of risk-weighted assets in the form of equity. The fundamental problem with this arrangement was that these hybrid debt instruments often only absorbed losses when the bank entered either a formal resolution or insolvency process. It was more often the latter in many countries, including the UK, since there was no special resolution regime for banks (unlike today). But the insolvency procedure could not in fact be used because the essence of too big or important to fail was that large banks could not enter insolvency as the consequences were too damaging for customers, financial systems and economies more broadly.

There were other flaws in the construction of these capital instruments. They often included incentives to redeem which undermined their permanence. They were supposed to have full discretion not to pay coupons and not to be redeemed in the event of a shock to the bank's condition. But banks argued that the exercise of such discretion would create an adverse market reaction which would be disproportionate to the benefits, thus undermining the quality of the capital. More broadly, these so-called innovative instruments introduced complexity into banks' capital structures which resulted from the endeavour by banks to optimise across tax, accounting and prudential standards.

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leverage ratio was introduced in the early 1980s. Pre-crisis, the definition used was Tier 1 capital/on-balance sheet assets, as measured under US GAAP. Firms had to meet a 3% ratio if considered 'strong', and 4% otherwise.

The big lesson from this history is that a going concern capital instrument must unambiguously be able to absorb losses when the bank is a going concern. Apologies for stating the blindingly obvious, but history painfully demonstrates why it is important to state the obvious. Bringing the issue up to date, this is why there are clear benefits to banks if they issue contingent convertible capital instruments with a trigger point that is safely above the point at which there is likely to be a question mark as to whether the bank remains a going concern – in other words before it is too late. Also, holders of these instruments have to be very clear that they are at risk of conversion or write-down. We cannot have a situation where holders gamble on an assumption that the trigger will not be pulled – it will.

On the form and use of capital instruments, the Basel I Accord also allowed hybrid debt capital instruments to support the required deductions from the capital calculation, such as goodwill, expected losses (introduced later under Basel II with the internal models regime for credit risk) and investments in other banks' capital instruments. However, as a matter of fact, rather than reporting, any losses arising from these items hit common equity because it will absorb losses first in the going concern state, according to the hierarchy of the capital structure. As a result applying these deductions at the level of total capital, or Tier 1 capital, has the effect of overstating the core equity capital ratio. The Accord therefore incentivised wrongly the issuance of hybrid debt capital instruments to cover deductions. A further flaw was that deferred tax assets were not deducted from capital and minority interest assets were recognised in full. This, too, was a mistake. DTAs depend on future profitability (which is not assured) and minority interests are not fully transferable to absorb losses for a group.

Last on the capital side, there were problems starting in the original Basel Accord in relation to the treatment of provisions. Under the current international accounting standards provisions are based on incurred rather than expected losses. As a consequence, the bank capital framework de facto becomes a partial substitute means of achieving more forward-looking provisioning, through the internal models regime for credit risk which requires the deduction from capital of expected losses in excess of provisions. A forward-looking approach to provisioning based on expected losses would help move to a more appropriate position where the accounting standard requires a prudent valuation of banking book assets and the capital regime can focus on unexpected loss. I hope that implementation of the new accounting standard for provisioning, IFRS 9, is a step in this direction.

I now want to turn to the issues around risk-weighted assets in the capital framework. Basel I was a simple framework, as I described earlier. In my view, that was its strength and weakness. The strength was that it was quite easy (certainly by today's standards) to see the balance sheets even of the largest banks laid out and broken down by broad risk weights. The weaknesses were two-fold. First, it provided little insight into how firms measured and managed risk. As a supervisor in the late 1980s and early 1990s, I remember well meetings with firms which would start by the firm reminding that while they had filled in the risk weighted assets form faithfully, it bore no resemblance to how they assessed and managed risk in the business – what is often called "economic" as opposed to "regulatory" capital. In one sense, this should not matter if the

regulatory capital calculation provides a robust floor below which the "economic" capital should not fall. But it was unclear how we could know this was so, and the lack of line of sight into how the firm managed risk was disturbing. The second weakness is generic to simple systems which conflate different levels of inherent risk, namely that they tend to create incentives for banks to increase the average level of riskiness of their assets. And, one thing we now know, incentives are hugely important in the capital regime.

As I noted earlier, Basel II was not in place properly when the crisis broke, but the Market Risk Amendment was, and this introduced the use of banks' own so-called "internal" models. As an aside, my experience suggests that the contribution of Basel II to the crisis was far more that it diverted the attention and effort of regulators and the industry away from broader risk management and into the implementation of a new and more detailed approach to regulation. This was especially so for large banks seeking approval to use their internal models. Moreover, this process was not well done.

The Market Risk Amendment and Basel II dramatically increased the complexity of the capital framework, and whilst it intended to increase the scope of risk capture in the regulatory capital measure it ended up creating new opportunities for "optimising" regulatory capital. Even more difficult, the potential benefits – better differentiation and rank ordering of risk – were undermined by the problems of calibrating overall capital standards, and poor implementation in the rush to achieve compliance. Under Basel I and II, capital ratios were too low to sustain confidence in banks, and thus the system as a whole, through a severe stress, as the crisis sadly demonstrated. The minimum Tier I ratio was 4% of Risk Weighted Assets. And, crucially as the Tier I ratio included capital instruments with the flaws I described earlier, the core (equity) ratio could be as low as 2%. In the trading book, under the Market Risk Amendment, capital requirements could be less than 1% of trading book assets. To illustrate this last point, here is a quote from the FSA's report into the failure of RBS.

> "The capital regime was most deficient, moreover, in respect of the trading books of the banks, when required capital for many instruments was estimated using value-at-risk (VaR) approaches. The acquisition of ABN AMRO meant that RBS's trading book assets almost doubled between end-2006 and end-2007. The low risk weights assigned to trading assets suggested that only £2.3bn of core tier 1 capital was held to cover potential trading losses which might result from assets carried at around £470bn on the firm's balance sheet. In fact, in 2008, losses of £12.2bn arose in the credit trading area alone (a subset of total trading book assets). A regime which inadequately evaluated trading book risks was, therefore, fundamental to RBS's failure. This inadequacy was particularly significant for RBS, given that the purchase of ABN AMRO significantly increased RBS's trading book assets. RBS was allowed by the existing regulations massively to increase its trading risk exposure counterbalanced only by a small increase in capital buffers available to absorb loss."

The Basel Committee recognised that across internationally active banks, Basel II would likely lead to an overall reduction in the required capital compared with that required under Basel I and that the reduction in

required capital would be larger for banks adopting the more advanced modelling options for credit risk.[2] In other words, other things equal reported capital ratios would tend to be higher under Basel II than Basel I. Our own work suggests that Basel I would have required major UK banks to hold approximately £45bn more capital than Basel II against the credit and counterparty credit risks in their end-2013 balance sheets. This amounts to a decrease of about 25% under Basel II compared with Basel I.

Another way of looking at this is to examine the pattern of average risk weights. For a set of 17 major international banks (designated as G-SIBs)[3] average risk weights fell almost continuously from 70% in 1993 to below 40% in 2012. But this fall in average risk weights did not represent a systematic reduction in risk within the banking system. The level of capital was therefore wrong – too little capital was required, and the appearance of strong economic conditions before the crisis appears to have provided a justification for even lower capital, under Basel II.

What I have described was the application of the Pillar I element of the Basel regime, namely the minimum capital requirements on the common approach. As I noted earlier, Basel II introduced the three pillar approach, with the second pillar enabling supervisors to set additional capital requirements on a firm specific basis. The second pillar was however not consistently or rigorously applied prior to the response to the financial crisis. In 2008, the major UK banks had a Pillar II capital requirement £22bn (equivalent to 10% of then Pillar I capital requirement). In summary, the system was flawed both in terms of the definition of capital – the quality – and the quantity required to be held.

The first step in response to the financial crisis was agreement in July 2009 to significantly increase capital requirements against market risk via the so-called Basel II.5 package – addressing the widely recognised undercapitalisation of risk in banks' trading operations. Building on that improvement the next step, was the agreement on, and now introduction of, Basel III. The new standard was very much a response to the financial crisis, the first reform of the Accord to be backed by a remit from world leaders to effect real change on the global scale. It built on a number of more immediate domestic responses, including in the UK the FSA's so-called 4-6-8 approach. The new standard requires more and better quality capital, and is a step change in capital adequacy.

For the largest UK banks, and taking into account all of the changes brought in by Basel III, there is a seven-fold increase in the amount of Core Tier I capital, the highest quality of capital that must have the characteristics of equity which major banks are expected to hold. Under the Basel II regime, the Pillar I minimum requirement was £38bn of this highest quality capital for the largest five UK Banks. Compared to this, taking both capital minima and capital buffers together when Basel III is fully implemented the figure will

[2] http://www.bis.org/press/p060524.htm

[3] Data Source: The Banker and Bank of England calculations. Sample comprises: Deutsche Bank, HSBC, BNP Paribas, Barclays, Citigroup, UBS, BAML, BONY, Commerzbank, ING, JPM, LBG, RBS, Santander, State Street, UniCredit, Wells Fargo.

be £271bn[4], as measured in September 2013 (ie on a like-for-like basis in terms of the point in time). Breaking down this increase of £233bn in Core Tier I capital, the largest part (£80bn) is accounted for by the change in the definition of capital resources, a further £61bn relates to raising the minimum requirement from 2% to 4.5% of risk weighted assets (and changes to the risk weights), £55bn to the Basel III Capital Conservation Buffer, and £37bn to the Basel III Globally Significant Banks Buffer.

The changes that we have seen include action under both Pillars I and II of the Basel framework. The numbers I gave for minimum capital requirements (the change from £38bn to £271bn) represent Pillar I. I mentioned earlier that Pillar II was not consistently or rigorously applied before the crisis. Between 2008 and today the Pillar IIA capital requirements for the major UK banks have risen from £22bn to £53bn. This increase in capital required is additional to the impact of Basel III and the resulting increase in core capital requirements of around 7 times I set out above. The PRA's approach to supervision emphasises the use of judgement on a forward-looking basis, and the use of Pillar II is evidence of that.

A further important element of the new framework of supervision is so-called Asset Quality Reviews (AQRs), undertaken either by or at the request of supervisors like the PRA. AQRs are designed to assess the more structural features of loan books as well as their performance, including whether forbearance is being applied by the lender. The granularity with which AQRs are undertaken can vary with their purpose, but there is always a fairly high level of intensity in terms of the closeness of the inspection. In the best of all worlds, supervisory initiated AQRs should not reveal anything that isn't already known. I will just say that experience shows that we are not there yet.

Basel III requires more and better quality capital in banks. The good news is that since the crisis broke, banks in the UK and elsewhere have made significant progress in rebuilding capital. Evidence to support this is that at its last meeting in June, the Bank's Financial Policy Committee decided to close its recommendation of March last year that the largest UK banks and building societies should meet a minimum 7% Common Equity Tier One ratio on the so-called end-point (ie full implementation) basis set out in the EU rules to implement Basel III, after taking into account adjustments for expected loss on more vulnerable loan portfolios, the impact of future conduct of business costs, and prudent use of risk weights. Since then the actions taken by a number of major UK banks and building societies have put them on course or ahead of the planned actions to meet the FPC's test. In a few cases, there are more actions to be undertaken in their plans, but overall this is a welcome story of action taken to strengthen capital positions.

I do however accept that there remains a perception in some quarters that higher capital standards are bad for lending and thus for a sustained economic recovery. I agree with those who argue that banks have a lot more to do to demonstrate that they support lending to small businesses. Interestingly, in recent weeks the messages I have seen from the Bank of England's regional agents suggest that the supply of loans on offer

[4] Bank calculations based on supervisory data.

has increased, but businesses are understandably cautious on the take up. Looking at the broader picture, the post-crisis adjustment of the capital adequacy standard is a welcome and necessary correction of the excessively lax underwriting and pricing of risk which caused the build up of fragility in the banking system and led to the crisis. I do not however accept the view that raising capital standards damages lending. There are few, if any, banks that have been weakened as a result of raising capital.

Analysis by the Bank for International Settlements indicates that in the post crisis period banks with higher capital ratios have experienced higher asset and loan growth[5]. Other work by the BIS also shows a positive relationship between bank capitalisation and lending growth, and that the impact of higher capital levels on lending may be especially significant during a stress period[6]. IMF analysis indicates that banks with stronger core capital are less likely to reduce certain types of lending when impacted by an adverse funding shock[7]. And our own analysis indicates that banks with larger capital buffers tend to reduce lending less when faced with an increase in capital requirements. These banks are less likely to cut lending aggressively in response to a shock[8].

These empirical results are intuitive and accord with our supervisory experience, namely that a weakly capitalised bank is not in a position to expand its lending. Higher quality capital and larger capital buffers are critical to bank resilience – delivering a more stable system both through lower sensitivity of lending behaviour to shocks and reducing the probability of failure and with it the risk of dramatic shifts in lending behaviour.

The capital adequacy framework has made much needed progress in recent years. The framework is now being designed to be fit for purpose both for the micro-prudential purpose of each firm's safety and soundness, and for the macro-prudential purposes of addressing the risk certain major firms individually present to financial stability and the risk that imbalances building up in the sector as a whole, or part of it, may threaten financial stability. The key elements of the framework are:

- first, a common definition of capital resources focussed on genuine loss absorbency in a going concern - Common Equity Tier 1. In doing so, we must define robustly the boundary between going and gone concern loss absorbency ;
- second, a framework for capital which comprises minimum capital requirements and capital buffers, with the buffers varying in size depending on a bank's size and the nature of its activity and risk, and varying through the cycle;
- third, using a combination of different approaches to assessing capital adequacy – risk-based approaches, stress tests, and a leverage ratio;

[5] http://www.bis.org/publ/qtrpdf/r_qt1309e.prf
[6] http://www.bis.org/publ/work357.htm
[7] https://www.imf.org/external/pubs/ft/wp/2013/wp13102.pdf
[8] http://www.bankofengland.co.uk/research/Documents/workingpapers/2014/wp486.pdf

- fourth, within the risk-based approach, striking a balance which recognises the potential benefits of firms' internal models while guarding against their weaknesses and the incentive problems they create.

A major principle of the new framework is that there is no single "right" approach to assessing capital adequacy. The very important role that is now given to stress tests illustrates the point. This year the PRA and FPC are running their first concurrent stress tests for the major UK banks, building on the past development by the FSA and then PRA of sequential firm-by-firm stress tests. This is a key device to examine and mitigate tail risks, and like all good forecasting exercises, the stress test is designed to probe important issues rather than just provide a single answer.

A second key principle of capital adequacy is that establishing the boundary between the going and gone concern (or resolution) regimes for loss absorbency is important. This is one reason why the work on resolution and gone concern loss absorbency is so important. Put simply, if we don't convincingly deal with the too big to fail problem, the boundary between going and gone concerns will need to be re-set, and the former will need to be strengthened. This should not be necessary with a good outcome on the gone concern side. For me, the issue of gone-concern loss absorbency is the key outstanding one on the current agenda.

The idea that there is no single right measure of the capital a bank requires is gaining ground. Each approach – risk-based, stress tests, leverage ratio – has its strengths and weaknesses. For me, there are a number of governing principles. First, supervision is about assessing and mitigating risks. That is the core of our job. We therefore naturally think in risk-based terms. That said, the leverage ratio is a very useful complement, which is why the PRA has moved to using a baseline leverage ratio more rapidly than the international standard requires. It is a very useful check and balance and it should prompt searching questions about the danger of model errors in more complex capital assessments. It is not a substitute for a risk-based approach, but it is a very good complement. The FPC will shortly be consulting on the scope and form of its application, and that will be a welcome debate.

Getting the incentives right for banks in terms of the capital adequacy regime is hugely important. The leverage ratio is simple and that is its appeal, but on its own it could encourage banks to take more risk per unit of assets. In contrast, internal models and stress tests are complicated, and therefore carry the risk of opacity and model error. There is now a growing debate on the use of models and stress tests. In many respects, the debate has common ground, since models are intrinsic to stress tests. My view is that this is not a debate about whether or not supervisors should use models. That question was answered a long time ago in the reasoning for the switch away from Basel I. The design and implementation of Basel II was not done well, and a substantial charge has been required. A major lesson is that to use models and stress tests effectively requires intensive development and maintenance by firms and a highly skilled body of supervisors and a regime where judgement can be used. It also requires the supervisor to have a credible capacity to

withdraw the permission given to a firm to use a particular model if the model is considered to be inadequate or the firm has not demonstrated the capacity to use it safely. In another case, the supervisor could withdraw permission for whole types of models, as the FSA/PRA did for the commercial property models of UK Banks by requiring a substitute "simple slotting approach" to be used – which is still a model, but a very simple one.

Then I think the debate becomes more around whether the relevant risks can be modelled, how easy it is for supervisors and firms to observe the performance of models, and the ability of supervisors to police the performance of models. None of this is easy. There is also a very good question around whether supervisors should supplement the use of firms' models by developing their own models. In the US, the Federal Reserve has gone down this road, and in doing so advanced their use of stress testing. So far, we have gone down the road of pushing banks to improve their models, and to be more realistic about what the models can and cannot do. My guess is that we may eventually end up with greater international convergence of supervisory approaches on the use of models, and that would be a good thing in terms of more efficient supervision and use of our scarce resources. But I would note that today I have an open mind as to where that convergence will lead to in terms of the capital adequacy regime.

Much of this speech has been about the incentives in the regime of capital adequacy for banks. I want to end with a few words on transparency. Quite simply, there will in my view be more of it in the future. When I started in supervision in the late 1980s, we prohibited banks from disclosing their Basel I capital ratios, and we got exercised when they did nonetheless declare their ratios. That was a relatively simple regime. The Basel III regime is undoubtedly more complex and it is not about the single capital ratio. Capital requirements and buffers will vary between firms and over time, for good reasons. Banks and investors do complain about the lack of clarity about their future requirements in this regime. But that precision is not realistic. Within defined parameters the regime is designed so that buffers adjust in relation to risk and the impact of firm failure. Counter cyclical buffers can be varied over time depending on conditions, and banks can move between GSIB buffers as they change size and structure. Likewise, supervisory work, including stress testing, can lead our judgement about appropriate buffers to change. The regime is built this way deliberately to include a greater element of judgement by supervisors. My view is that this will inevitably lead to more transparency and disclosure, which is fine and to be encouraged providing it can deliver useful guidance. That means we have to work hard to deliver as much clarity as is possible in an uncertain world.

And finally, we know that there is change on many fronts, the scale of which may only be exceeded by the scale of the crisis to which it is a response. As supervisors we are on the look out for unintended consequences of this change, and we will assess and refine our approach as needed. Thank you.