Future Risks and Fragilities for Financial Stability

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Edited by
David T. Llewellyn and Richard Reid

Introduction by:
Stefano Pagliari

Chapters by:
Clive Briault
Alistair Milne
Patricia Jackson
Vicky Pryce
David T. Llewellyn
Thorsten Beck
David Lascelles

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Editors: *David T. Llewellyn and Richard Reid*
Authors: *Stefano Pagliari, Clive Briault, Alistair Milne, Patricia Jackson, Vicky Pryce, David T. Llewellyn, Thorsten Beck, David Lascelles*

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List of Authors

Thorsten Beck
Professor of Economics and Chairman of the Board, European Banking Center, Tilburg University

Clive Briault
Senior Adviser on regulation at KPMG in London

Patricia Jackson
Partner, Ernst & Young LLP, London; Adjunct Professor, Imperial College, London and Centre for Economic Policy Research

David Lascelles
Senior Fellow of the Centre for the Study of Financial Innovation (CSFI)

David T. Llewellyn
Professor of Money and Banking, Loughborough University and the Vienna University of Economics and Business

Alistair Milne
Professor of Money and Banking, Loughborough University

Stefano Pagliari
Ph.D. candidate at the Balsillie School of International Affairs and Research Analyst at the International Centre for Financial Regulation (ICFR).

Vicky Pryce
Senior Managing Director at FTI Consulting and formerly Joint Head of the UK Government Economic Service

1. INTRODUCTION

Stefano Pagliari

Richard Reid, Director of Research at ICFR welcomed the speakers and participants at the conference held in Friends House, Euston Road, London and expressed his enthusiasm for the ICFR-SUERF partnership in organising this important event on the key issue of financial stability. Explaining the reason for the conference he suggested that the regulatory response to a crisis may have the effect of setting the parameters for the next. It is starting from this insight that this conference, organised jointly by the ICFR and SUERF, on "Future Risks and Fragilities for Financial Stability", explored what the next pressure points for financial stability might be, how these may arise from the response to the last financial crisis, and how the industry and the regulators can prepare for them.

In order to discuss this theme, the conference brought together a select group of academics, industry practitioners and policymakers to discuss a range of connected issues, mainly incentives and market discipline, regulation, competition and shadow banking, and size and structure of business models.

The paper presented by *Clive Briault* (Senior Adviser, KPMG), which appears as Chapter 2, discussed the role of incentive structures in driving the conduct of the financial sector in the run-up to the crisis. During this period, the financial sector frequently responded to incentives originating outside the financial sector itself, such as global imbalances, loose monetary policies, and loose fiscal policies, as well as tax incentives. These external incentives interacted with, and were magnified by, incentives internal to the financial system, such as the targeting of return on equity and a reliance on short-term remuneration packages. The crisis also demonstrated how the impact of these incentives within financial institutions can survive the combined scrutiny of management, internal control systems, internal audit, as well as the discipline imposed by financial markets, for a significant length of time. Briault discussed different approaches to strengthen those incentives faced by financial firms and their management that seemed to have gone missing ahead of the crisis, as well as ways to encourage firms to internalise their negative externalities. The final part of Briault's presentation discussed the regulatory response to the crisis and highlighted how there is significant scope for well-intended regulatory initiatives to generate perverse incentives. These are already visible in the reaction of banking institutions seeking to implement Basel III, but also in the conduct of regulators who may become excessively risk-averse in order to meet their statutory objective.

The second paper, appearing in this study in Chapter 3, presented by Professor *Alistair Milne* (Professor of Financial Economics, Loughborough University) sug-

gested a more hopeful view of the role that market discipline can play in promoting the safety and soundness of the financial sector. According to Milne, the failure of market discipline in the lead-up to the crisis could be attributed to the failure in making information available to investors in an appropriate form. Accounting returns cannot provide a complete view of the situation of firms as complex as major international banks, while the performance measures upon which investors rely to assess the performance of financial institutions, such as return on equity and related techniques of economic capital allocation, have proved to be inadequate.

Building upon this analysis, Milne discussed the need to supplement international accounting standards and existing performance measures with additional disclosures to allow investors to better understand the internal functioning of banks. More specifically, Milne advocated that move closer to an 'open-source' banking system, allowing investors to request, and to obtain on demand, complete information on bank exposures along any appropriate dimension so as to enable comparison to be made between different financial institutions. In order to achieve this objective, Milne endorsed the shift towards 'contingent reporting', expecting banks to be responsible for providing relevant information at reasonably short notice to either regulators or to investors, as well as the establishment of a private sector disclosure council to determine such contingent disclosures, and regular stress testing as demanded by the same investors.

Patricia Jackson (Ernst & Young LLP) discussed the implications that Basel III and other recent regulatory reforms have on the banks and the 'shadow banking' sector, and these appear as Chapter 4 of this Study. Jackson argued that the request for banks to increase the quantity and quality of equity capital against different activities will have deep behavioural impacts on the business models of banks, which are already meeting their new obligations by retreating from different lending activities. She argued that the costs of increasing capital so substantially had been underestimated by the authorities because of the focus on Modigliani Miller. The Modigliani Miller theorem did not really apply to banks because of the substantial asymmetry of information between a bank and an investor or counterparty on the risks being carried. To understand the true risk profile an investor has to understand the hedging, collateral taken, markets in which the bank operates and so on. The changes in bank capital (up to 100% increases for some banks) will change behaviour and it could take a very long time before institutional investors become fully convinced that the higher capital translates into a commensurate increase in safety. This is likely to mean that the cost of capital and the cost of funding do not fully adjust to the higher capital for many years. This will change the economics of various banking businesses leading to a withdrawal from some activities.

With banks capital constrained, hedge funds are already moving into lending activities alongside private equity firms, asset manager and lending between companies. Jackson raised the issue of the extent to which this expansion in financial intermediation occurring within the shadow banking sector is sustainable. If macroeconomic or regulatory changes led to a contraction in some lending channels, this shortfall in the shadow banking sector will not necessarily be met by an expansion in the balance sheet of banks, which will remain constrained by the newly-imposed capital and leverage ratios, as well as by the new stable funding liquidity ratio. This reduction in the provision of credit to the economy may negatively affect the real economy.

The proposal presented by Jackson to avoid this outcome is to regenerate the securitisation market around stricter rules, limited tranching much higher risk disclosure, rand standardised structures to prevent the failures that characterised these markets in the past. However, according to Jackson, measures to restart the securitisation markets are unlikely to succeed without the intervention of regulatory authorities, for instance by allowing financial institutions to count the new style securitisation as part of the liquidity pool under Basel III.

Vicky Pryce (FTI Consulting) discussed the issue of competition in the financial system, and the extent to which this will be affected by recent regulatory reforms, with her remarks appearing as Chapter 5 of this Study. Increasing competition within the financial sector was one of the explicit goals that informed the work of the UK's Independent Commission on Banking, which identified different measures to enhance the level of competition in the UK. According to Pryce the impact of these measures on the level of competition is uncertain and the level of competition within the UK banking sector may not change significantly over the next few years.

According to Pryce, the outcome is not necessarily a negative one. While the promotion of competition is generally associated with greater efficiency of markets, in the case of finance this objective needs to be weighed against other concerns such as ensuring the stability of vital functions, services and the protection of consumers. At the present moment, allowing existing financial institutions to recover may be a greater priority. Moreover, according to Pryce, both theory and empirical evidence remain ambiguous regarding the nature of the payoff between financial stability and competition, and some countries with heavily concentrated banking sectors have weathered the financial crisis better than other less concentrated countries. Indeed, the level of concentration in the financial sector should not be equated with the lack of competition, which still remains possible amongst a small number of incumbents.

The paper presented by Professor *David Llewellyn* (Loughborough University and the Vienna University of Economics and Business), which appears as Chap-

ter 6 explores the evolution of bank business models before and after the crisis. Indeed, a complex two-way causation exists between business models and regulatory policies where the change in business models over time is influenced by, and in turn influences, the content of regulatory policies. This is the 'endogeneity' problem. Regulatory policies such as the original Basel Agreement, together with other factors, contributed to an important evolution in bank business models, creating incentives for banks in the years before the crisis, including the movement of assets off their balance sheet, and an increasing reliance on securitisation and on credit risk shifting instruments, and a departure from the traditional business model where banks accept originated loans and accept the risk in their balance sheet. Some of the by-products of this change in business models, such as an over-reliance on wholesale funding and increased gearing into higher risk assets, have been closely associated with the origin of the financial crisis.

According to Llewellyn, the financial crisis has generated new pressures upon banks to further adjust their business models. The unique conditions in the markets generated by the financial crisis, as well as changes in the regulatory environment, have generated a massive tightening in credit conditions and a contraction in the inter-bank markets, and forced the European Central Bank (ECB) to become a semi-permanent financer of commercial banks in Europe. According to Llewellyn this model is unsustainable. Indeed, while it is still unclear how the adjustment process will take place, Llewellyn argues that the crisis will be transformational although banks are unlikely to converge on a single business model: diversity in business models will continue.

Other challenges for financial stability that may emerge from the crisis were discussed by a panel including *David Lascelles* (Centre for the Study of Financial Innovation), Emil Levendoğlu (HM Treasury) and *Thorsten Beck* (Tilburg University). In his discussion, a brief summary of which appears as Chapter 8, Beck pointed to the risks emerging from the growth in the size of the financial sector relative to the rest of the economy, arguing that there may be no additional benefit from the growth of financial lending after a certain level. According to Beck, regulatory policies should not be designed with the objective of avoiding bank failure, but rather of ensuring that bank failures do not create significant costs for the rest of the economy. He also pointed out that the relationship between competition and stability is not a linear one but depends on the regulatory framework in which banks operate. Finally, Beck discussed the benefits of cross-border banking, and argued that to preserve financial stability policymakers may be forced to choose between increasing the international coordination of regulatory policies and segmenting cross-border banking activities.

Emil Levendoğlu discussed the reforms being introduced to redesign the British regulatory architecture. Levendoğlu highlighted the importance, when develop-

ing new regulatory systems (such as the incoming macro-prudential framework) of policy-makers proceeding in a proportionate and evidence-led manner. A related issue to keep in mind is finding the right balance between generalised legislative provisions – which offer greater flexibility but less statutory detail – and more prescriptive and detailed legislation which appears to provide greater legal certainty up front, but carries the greater risk of regulatory inflexibility and ineffectiveness. This is an issue which is currently being considered during Parliamentary scrutiny of the Government's Financial Services Bill.

David Lascelles in his remarks discussed what the major sources of future risks are as perceived by the banking community, and his summarised comments appear in Chapter 7. While the macroeconomic environment and the Eurozone crisis are perceived as the major present risks, followed by the sovereign and consumer credit risk, regulation also continues to be perceived by banks as a high risk area given the costs it imposes and the competition issues it generates. However, this perception is not shared by market players outside of the banking community which continue have a more positive view of regulation.

In conclusion to the conference, *Michael Saunders* (Citigroup) spoke on the challenges for financial stability that are emerging in this phase from the overall economic outlook. The global economic outlook is currently threatened by the interaction of three different processes: the deleveraging taking place in the private sector, the deleveraging by the public sector, and the existing weaknesses in the banking system. Indeed, the extent of these challenges is clearly tied to the size of the credit boom before the crisis, a process whose origins can be found in the regulatory policies introduced over that period.

Given the major costs that credit boom/bust cycles pose in terms of bank recapitalisation costs, as lost jobs, business failures, and public spending, Saunders concludes that one of the major aims of economic and regulatory policies should be that of dampening credit cycles and of minimising the losses that result from them.

According to Saunders policymakers need to pay close attention to credit, housing and balance sheets during the boom. Sharp rises in debt and leverage are warning signs that should not be overlooked. Policy makers need to act to dampen this through monetary tools, as well as through the use of different macroprudential regulatory tools such as variable capital weights and LTV ratios, as well as through traditional monetary policy instruments. Saunders also called for ending the tax advantages of debt finance. However, these lessons have not been fully learnt yet. In his concluding remarks, Saunders called on policymakers to be more forceful in demanding banks to recognise their losses and recapitalise in a timely manner, while not allowing them to aggressively deleverage to meet capital targets.

The conference was concluded by *Barbara Ridpath*, Chief Executive of ICFR, and *Catherine Lubochinsky*, President of SUERF. They thanked the speakers, chairpersons and the participants for their contributions to a very interesting event. Catherine Lubochinsky expressed the hope that this successful joint venture between the two organisations would lead to further collaboration in the future.

2. Incentive Structures

Clive Briault

Thank you for asking me to talk about incentive structures at today's conference on future risks and fragilities for financial stability. This will not be an academic presentation, but rather a more practical set of observations on:

- some incentives that do seem to have driven behaviour;
- some incentives that have not worked so well;
- some incentives that have gone missing;
- some incentives that have emerged as the unintended consequences of regulatory and supervisory initiatives since the financial crisis; and
- some lessons for future risks and fragilities.

2.1. Which Incentives Have Worked?

I begin with some incentives that did drive behaviour ahead of the current crisis. I do so with one eye firmly on the lessons that need to be drawn for the future, rather than with the intention of providing an overly-long list of the causes of the financial crisis. I highlight these incentives in three main categories.

My first category here is the incentives that derive from macro-economic and tax policies[1]. One of the main lessons that we need to learn for future financial stability is that the financial sector responds – both directly and through its interactions with the rest of the economy – to incentives that are determined outside the financial sector itself. These include:

- global imbalances – in both stocks and flows;
- loose monetary policy (as some have argued was the case in the US, the UK and some eurozone countries during much of the 2000s decade);
- loose fiscal policy;
- tax incentives in many countries that favour the issuance of debt over raising equity capital – encouraging both banks and their borrowers to take on more debt and less equity than might be optimal; and
- tax incentives that encourage the purchase of residential property and the development of commercial real estate.

Second, once these external incentives begin to take hold through the under-pricing of risk and the creation of asset price bubbles, their impact can be magnified through incentives that operate within the financial system. These incentives encourage higher gearing and leverage to boost the return on equity. They encour-

[1] These are discussed in more detail in C. Briault (2009).

age high sales and high levels of trading that are rewarded in short-term remuneration packages that do not properly reflect long term risk-adjusted returns. And they mislead banks, investors and bank supervisors through the procyclical impact of both fair value accounting standards and internal model or ratings based capital adequacy calculations.

Third, the impact of these incentives can also be observed at a more micro level. These incentives can survive for a long time despite the combined scrutiny of management, internal control systems, internal audit and supervision. The stories abound, but some good examples are:

- the credit granting procedures of Anglo Irish Bank to property developers, where the bank prided itself on being to decide on whether to lend to a borrower much quicker than other Irish banks, and where credit officers were paid bonuses depending on how much they lent;
- the CEPR study[2] that found that US banks that securitised more of their sub-prime mortgage lending also had lower lending standards;
- the catalogue of perverse incentives described in the excellent report that UBS published in April 2008 to explain why it had been forced to write off $48billion against securitised US sub-prime mortgages and other similar exposures. These incentives included paying bonuses on 'day one' expected profits when triple-A rated mortgage backed securities were bought by the bank to be held on its own books; allowing risky trading areas to fund themselves for internal purposes at the rate that the UBS group could borrow short-term from other banks in the interbank market; and only stress-testing its portfolio of mortgage-backed securities up to the rate of loss predicted by value at risk models using historic data from a benign period of rising US house prices and strong economic growth;
- the paying of high bonuses or other rewards to the branch and call centre staff of many UK retail banks for the selling of payment protection insurance, even when the purchaser of this protection would be ineligible to claim against it because of their age or employment status.

2.2. What Has Not Worked?

But not all incentives work well. Alistair Milne will talk next about market discipline, and I will be interested to hear what he has to say on this important subject. My own take on market discipline is that it turned out to have very little impact on behaviours in much of the financial sector ahead of the crisis. That is the conclusion I would draw from every chart that I have seen of share prices, credit default spreads, interbank lending rates, bond yields, credit ratings and the like,

[2] G. DELL'ARICCIA *et al.* (2008).

all of which show no signs of market concerns about banks and other financial institutions ahead of the summer of 2007, and in some cases not much concern until after the collapse of Lehman Brothers in September 2008. At best, the market seemed able only to make what turned out to be very small and not always reliable distinctions among individual banks through very small pricing differences around the generally highly complacent picture. The market therefore did as badly as central banks, regulators, the IMF and politicians in failing to predict the events of 2007 and 2008.

Of course it could be argued here that the market was reflecting the belief that governments would intervene to support failing financial institutions. But this is a flimsy argument – it does not explain why prices did not move against smaller, less systemic, financial institutions, or against financial institutions such as AIG, where the extent of official intervention surely came as a major surprise.

Similarly, despite the importance placed on transparency and disclosure by banks through 'Pillar 3' of the Basel 2 capital accord, I see little evidence that the market can use such information to make accurate judgements on the financial condition of banks.

What about other incentives on firms and their management? Some claim that limited liability (and a similar mechanism for shareholders because losses are limited at the zero bound for share prices) has both dulled the senses around the consequences of failure and encouraged risk-taking to exploit the unlimited upside possibilities. But it is not clear that limited liability has acted as a major incentive in practice, if only because ahead of the crisis there was very little recognition of even the possibility of the magnitude of losses that followed. Leverage and position-taking seemed to be driven much more by the widely and eagerly expected gains, rather than a calculated gambit on the asymmetry of gains and liability for losses. Nevertheless, this is not to say that the introduction of greater personal liability for losses would have no effect on behaviours.

Similarly, there seems little evidence that the prospect of supervisory or enforcement actions against firms or individuals has had much effect on behaviours. At best the jury is still out on whether even the higher levels of fines and the repeated refrain of 'credible deterrence' seen in recent years in the UK has stemmed the flow of poor standards of systems and controls, selling, advice or insider dealing.

2.3. Missing Incentives

Meanwhile, are there incentive structures that have simply gone missing? Certainly ahead of the financial crisis there were far too few remuneration policies within financial institutions that rewarded long-term and risk-adjusted profitabil-

ity; that took account of compliance and risk management records; and indeed that rewarded anything that could not be easily measured in terms of short-term profits and short-term sales figures. Even after the crisis and all the noise from politicians and regulators world-wide there is still far too much emphasis on rewarding what can be measured in narrow financial profit and loss terms, rather than any measures that are more closely related to compliance, good risk management, integrity and ethics.

Those who dislike the return on equity as an incentive tend to focus on return on assets as a better measure of performance[3]. But those of us with experience of customer treatment issues will worry here about the temptation to boost the return on assets by raising charges, reducing the quality of service to reduce costs, and cross-selling products that do not increase leverage – indeed the mis-selling of PPI might be a perfect example of what could go wrong if the return on assets became the new basis for performance-related incentives. There is also the more basic point here that attempts to maximise the return on assets might have a significant impact on the choice of assets that financial institutions would hold. So, again, the key missing incentive here seems to be something that links more closely with desired end-outcomes, not one that simply replaces one financial variable with another.

Another suggested missing incentive is to increase the liability faced by the shareholders, directors and/or managers of financial institutions that fail. This could take a purely financial guise, in terms of somehow finding a way to load some of the financial losses of failed institutions onto their former shareholders, directors and managers. In addition, or alternatively, this could take the form – as suggested by the FSA in its report on the failure of RBS[4] – that individuals with responsibility for such a failure could face a strict liability judgement of their guilt and thus an automatic consequence of disciplinary financial penalties and a ban from performing any future role in the financial services industry. This would certainly concentrate minds, although the practicalities would raise some difficult legal issues.

Some argue that establishing a more credible threat that large and systemically important financial institutions could be allowed to fail would have a positive impact on the incentives facing both the directors/managers of these institutions and the uninsured and unsecured senior creditors with most to lose from such a failure. This could be reinforced by the introduction of so-called 'bail-in' debt, which would identify in advance the specific categories of senior creditors who would be wiped out first (or, rather, first after shareholders and holders of subor-

3 A. HALDANE, "Control rights (and wrongs)", *Wincott Annual Memorial Lecture*, London, Westminster, October 2011.

4 "The failure of the Royal Bank of Scotland", *Financial Services Authority Board Report*, December 2011.

dinated debt) in order to prevent losses falling on taxpayers, even if the authorities did intervene to limit the systemic consequences of a failure. The question here is whether this would represent a genuine introduction of a powerful new incentive, or would just increase the price of uninsured and unsecured senior debt, thereby increasing the cost and reducing the volume of financial intermediation but without necessarily providing strong incentives for individual financial institutions to adopt significantly less risky strategies.

However, none of these 'missing' incentives go beyond reducing the probability of the failure of a financial institution. They do not provide a mechanism to internalise the negative externalities that are created by the failure of a systemically important financial institution, through the potential direct and indirect contagion effects of such a failure on other financial institutions and on the real economy.

In the early post-crisis days some of the official thinking did seem optimistic that this could be achieved through regulation and taxes – Pigouvian taxes for those who had remembered their economic theory – that incentivised financial institutions not to become too large; not to become too complex and interconnected; and not to dominate a market such that other firms would not be able to substitute quickly for the services and products that the failed institution had been providing.

But for whatever reason, no-one could work out how such Pigouvian taxes could be levied in practice to address the problem of negative externalities in the financial sector, so the focus shifted to more directly interventionist approaches. These include the frameworks being developed for the authorities to construct a 'resolution' plan for each major financial institution, under which it could fail and be resolved without generating significant negative externalities on the rest of the financial sector or more directly on the real economy. This might require individual financial institutions to change their structures, their business activities and their interconnectedness with other financial institutions until a sufficiently credible and effective resolution plan can be constructed for that institution.

Are there alternative ways of internalising the negative externalities? One idea would be to link this with the proposal to increase the potential liability on directors and managers, but with less emphasis on the punishment for failure and a more positive emphasis on the objectives of those running systemically important financial institutions. For example, Jonathan Macey and Maureen O'Hara[5] suggested a few years ago that the Boards of banks should have a statutory duty to take account of depositor interests and of the potential impact of the failure (or

[5] J. MACEY and M. O'HARA (2009).

other actions) of their bank on financial stability. It would be useful to revisit this idea, and to consider other possible incentive structures to internalise the potential for financial institutions to generate system-wide instability.

A final missing incentive here is the now discredited and much maligned (not least in the FSA's report on the failure of RBS) notion of a 'regulatory dividend' that could be offered to a financial institution that goes beyond mere compliance with regulatory requirements. I hesitate to resurrect such a notion, since 'regulatory dividend' was one of only four factors described as 'dangerous' in the FSA report (along with the Basel 2 prudential requirements, leverage and VaR models), and there should not be rewards for individuals and firms doing what they are supposed to be doing in any case. But it does seem to me that if a firm or its directors/management incur costs for going beyond the call of duty – particularly where by doing so they contribute positively to financial stability by recognising and reducing potential negative externalities – then there could and should be some reward to recognise and incentivise such behaviour.

2.4. Creating New Perverse Incentives

The next aspect of incentives I would like to touch on is the scope for well-intended regulatory initiatives to generate perverse incentives. Unfortunately we are seeing too many of these emerging under the current breadth and weight of a 'more of everything' approach to regulatory reform. For example:

- the Basel 3 proposals[6] for two new minimum liquidity ratios will lead to a scramble by banks to raise more retail deposits, the supply of which is notoriously price-inelastic in most countries. The result will be to increase the cost of such funding to the banks, and to make retail deposits less stable (because they will become more prone to move around between banks in search of higher interest rates), without having much effect on the amount of such deposits in the banking system as a whole. Similarly, the regulatory value placed on more than one year maturity bonds and other wholesale funding – for the purposes of liquidity management and to provide 'bail in' debt to be written down if a bank needs to be put into resolution – will drive up its cost and make it even less available to all but the major players in these markets;
- market and regulatory pressures on banks to meet now the higher minimum capital ratios supposedly being phased in by 2019 under Basel 3 and the European Capital Requirements Directive (CRD4) have incentivised another scramble by the banks, this time to sell assets and reduce the growth of their loan books in order to meet the required capital ratios without rais-

[6] BASEL COMMITTEE OF BANKING SUPERVISORS (2010).

ing new capital. The stress tested capital requirements currently being imposed by the European Banking Authority[7] – which demand that major European banks meet a minimum common equity capital ratio of 9% by mid-2012 – are a good example of this pressure for early adoption of higher capital ratios. Banks are not being given the time to build up their capital through lower dividends and lower bonus payments, and to maintain their lending to individual and corporates (including SMEs) at reasonable levels;

– the move to tougher, more intrusive, more challenging and more judgement-based supervision – in the UK and elsewhere[8] – has also incentivised supervisors to become very risk-averse, and indeed to 'just say no' rather than to exercise genuine judgement under a clearly defined risk appetite;

– similarly, there is a risk that the post-crisis mood will incentivise regulators to take a risk-averse approach to fulfilling their statutory objectives to deliver safety and soundness, financial stability and high standards of conduct. The risk here is that these incentives will lead to an imbalance between these regulatory objectives and the costs of regulation on the ability of the financial sector to contribute to economic growth and on the ability of consumers to make adequate provision for saving, investment and protection. As Alan Greenspan[9] observed more than ten years ago, he could deliver a safe banking system, by restricting US banks to holding only US Treasury bills as assets. But such banks would not be doing the economy or their shareholders any good.

2.5. Lessons for Future Risks and Fragilities

The purpose of this conference is to look forward. So I conclude with five suggestions.

First, we must not allow the narrow focus of the new macro-prudential bodies being established – such as the Financial Policy Committee here in the UK – on risks to financial stability that arise from *within* the financial sector to detract from the equally important risks that arise from *outside* the financial sector. In all the post-crisis outpourings from the G20, the Financial Stability Board, and the national authorities in the UK and elsewhere, I fail to detect much recognition of, let alone any initiatives to tackle, the incentives for financial instability that can be generated by monetary policy and tax policy in particular.

Second, while a lot of effort has been directed towards removing or reducing some of the pro-cyclical elements of the Basel 2 prudential requirements, many

7 EUROPEAN BANKING AUTHORITY (2011).
8 VINALS and FIECHTER (2010).
9 GREENSPAN (2001).

such elements still remain. And it remains doubtful whether a counter cyclical capital buffer, some as yet ill-defined macro-prudential tools and a tougher approach on remuneration policies, will be sufficient to reduce or mitigate the strong incentives for pro-cyclical behaviours.

Third, if market discipline remains a weak incentive, and if the introduction of enhanced 'liability' incentives would have only a limited impact when everyone is focusing on the upside gains and discounting the downside, then are we left with any other incentives to focus attention on prospective losses – as opposed to direct regulatory and other interventions to limit the actions of financial institutions?

Fourth, the discussion of incentives needs to be broadened beyond incentives to reduce the probability of failure to incentives to limit the negative externalities that would emerge in the event of the failure of a major financial institution. But can any incentives make significant inroads into this desired alignment of private and social interests? And if not, do we have to rely again on the generally unattractive prospect of regulatory and other interventions in an attempt to deliver such an alignment through restrictions on the size, structure and business activities of financial institutions? Is there value in exploring whether there is a 'third way' here, which builds on some approach to a private/public partnership and recognises more explicitly that neither the addition of new incentives designed to take the market to the right solution nor ever more intrusive regulation are the best ways of identifying and building a 'public' role for financial institutions? Can we base this on strategies, risk appetites and risk management that properly reflect social objectives and are rewarded accordingly?

Finally, let us not lose sight of the unintended consequences of regulation, especially during a period of massive regulatory change. If we give our regulators too much of an incentive to meet one-sided statutory objectives, without taking account of the wider costs to the economy and to users of financial services, then we run the risk of paying too high a price for safety. And we run the risk of achieving financial stability only in the limited sense of a financial system in which not much happens, rather than in the sense of providing the flows of credit to households, to SMEs and to other corporates, and all the other financial services on which economic growth depends.

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3. Supporting Market Discipline: The Case of a Bank Disclosure Council

Alistair Milne

Market discipline has a major potential role to play in promoting both the safety and soundness and the efficiency of the financial sector. This point of view is deeply embedded in both regulatory and academic thinking.

To give two examples, the Basel accords envisage market discipline as the 'third pillar' of effective regulation, working alongside the first pillar – capital and liquidity regulation – and the second pillar – management and supervisory review. There is a nice mechanical analogy: a stool with only two legs is unstable and cannot stand on its own; but with three strong legs it will stand without additional support. If this analogy holds then market discipline is essential to financial stability.

The second example, a perennial in policy debates for at least two decades, has been the potential role for contingent liabilities in promoting financial stability. So we have had, successively, proposals for subordinated debt (in the hope that the pricing of subordinated debt would be an effective warning signal of future risks); the idea of 'pre-commitment' in the setting of trading capital (with the idea that appropriate penalties – most obviously equity dilution – can make truth telling incentive compatible, and thus strengthen external discipline on firm behaviour); and most recently since the crisis various proposals for debt to equity conversion of contingent capital or debt bail-in that can be exercised prior to resolution (so ensuring that investors, not taxpayers, carry the financial costs of maintaining essential bank services).

This paper takes as a premise the view that market discipline has, indeed, a major potential role in promoting financial stability. It explores a simple practical issue: is the information available to investors – both equity and debt holders – sufficient and in an appropriate form to enable them to exert market discipline?

The conclusion reached here is no, they do not have the information they need in the form they need it; but the situation is not hopeless. Steps can be taken correct this situation, notably through the creation of a 'Bank Disclosure Council' to promote disclosure to investors.

3.1. The Role of Accounting

This issue, of whether the information available to investors is appropriate, is hardly new. It keeps re-surfacing in a number of contexts.

First most obviously it arises in connection with bank accounting statements. A fruitful exchange of views took place, at an Institute of Charted Accounts of England and Wales meeting last December, between Christian Laux of the Vienna University of Economics and Business and Andrew Haldane of the Bank of England. Both are available on the web and will be published in final form in *Accounting and Business Research*[1].

Laux puts forward a detailed and thoroughly researched assessment of the role of accounting in the global financial crisis. His views seem to be the intellectual consensus of the accounting profession, both of practitioners in industry and academics working on accounting issues. Accounting – especially the practice of valuing assets according to 'fair value' and where possible with reference to market prices – has been rather unfairly accused of causing the financial panic of 2007-2008. The charge is that the write-downs of assets, through the application of fair value accounting rules, overstated bank losses and this exacerbated the widespread liquidity problems. But the evidence does not suggest that the outcome would have been very much different under more lenient accounting rules; the most likely outcome would have been to simply delay the response of banks and regulators to the crisis and this would have led to the eventual losses being even worse than they actually were.

No-one has ever pretended that international accounting standards provide a *complete* view of the financial and business situation of a firm, certainly not of any firm as complicated as our major international banks. The solution therefore would appear to be not to tinker with accounting rules, but rather to supplement accounting statements with additional disclosures.

To quote from Laux *"It is important that disclosures allow investors to form their own expectations. This applies to disclosing the assumptions underlying the models as well as disclosure of individual exposures. Netting exposures is often not sufficient. For example, in the first quarter of 2007, Merrill Lynch reported a potential exposure of $15.2 billion to certain subprime investments, but revised this number to $46 billion three months later (Story 2010). Merrill Lynch thought that it protected itself against the difference through hedges and therefore did not report it; many of these hedges later failed. If it had reported the gross positions and the hedges separately, the market could have made its own judgment... The difference between disclosure and recognition may not always be of prime importance for informing investors, provided that they obtain the relevant information."*

[1] Preliminary versions of the papers are available as Laux (2012) and Haldane (2011). The quote here is taken from an earllier version of Laux (2012) which is no longer publically available.

Haldane places these issues in a broader historical and regulatory context. As he points out, whenever there is an uncomfortable message about the financial safety and soundness of firms, then doubts have often been expressed about the messenger, i.e. accounting valuations, especially when based on market prices. This has happened before in the US, both in the face of the banking problems of the 1930s and during the real estate crash of the early 1990s. As a further example I can add that the same complaints about fair value accounting arose with reference to US bank exposure to Latin America in the 1980s (for discussion and references see Chapter 3 of Milne (2009)).

Haldane is much more critical of current accounting rules than Laux, asserting the common view amongst regulators that financial reporting standards contributed to pro-cyclicality. He argues that in order to mitigate this pro-cyclicality accounting standards need to reflect the critical differences between banks and non-banks, in particular the uncertainties about asset valuations and the degree of maturity mismatch in bank balance sheet. He endorses the recent Financial Services Authority (2011) consultation paper, suggesting the introduction of valuation ranges to highlight valuation uncertainties in bank assets. This is similar to the 'confidence accounting' proposals put forward by Gifford and Mainelli (2009).

The position put forward here is somewhere between those of Laux and Haldane. It seems clear that accounting standards did contribute to pro-cyclicality in the years before the recent crisis (to give two less well known examples, banks could inflate their profits in securitisations by selling relatively small shares of the equity or mezzanine tranches of structured credit securities to third parties, valuing their retained holdings at this 'market price'; and it was possible to value trading book deals by discounting back hedged future cash flows to present values using a risk-free rate of interest, with no allowance for counterparty risk).

But Laux is surely correct that the key issue is information disclosure – i.e. Basel Pillar III – not accounting recognition. Provided investors have adequate information then we need not be too concerned about flaws in inevitably imperfect accounting standards. But there is a catch. If information is inadequate then accounting numbers with very low information content can have a substantial impact on beliefs and behaviour.

It is evident that many investors had doubts about the sustainability of the credit boom even in 2005 and 2006. They could not make much sense of the high levels and apparent stability of reported bank earnings. But because of lack of other information this gave investors a false sense of security, they underestimated exposure to structured credit risk and this in turn encouraged the boom.

3.2. Two Interpretations of the Crisis: Inadequate Disclosure and Systemic Risk Externalities

Investor information is also critical in relation to another even more critical aspect of regulation post-crisis, the extent to which we should focus regulator efforts on identifying and addressing systemic risk *externalities*.

This point is developed more fully in Milne (2012). That lecture points out (in similar vein to the Haldane speech of December) a crucial difference between banks and insurance companies and non-financial companies. To quote two key paragraphs:

> *"The measurement of success or failure in banks and other financial companies is much, much more difficult than in non-financial companies. The problem is there is no satisfactory accounting measure of current performance. Operating profits – revenue less costs of wages and raw materials – are reported in the same way as for other companies, but the revenues do not arrive at the time when sales are made. Instead revenues come in gradually in the months and years after the original contracts are made. So accounting returns do not give a clear indication of how a financial company is currently doing.*
>
> *Worse still it is easy to generate a temporary but unsustainable increase in accounting performance, through rapid growth in lending, trading or insurance underwriting. This means that banks and insurance companies must supplement their accounting systems with performance measurement systems that adjust for risk. These are essential tools for guiding management and employee decisions and for reporting to investors."*

The performance measures on which bank investors relied before the crisis – 'return on equity' and related techniques of 'economic capital allocation' – were entirely inadequate. The risk-adjustment largely depended on (misleading) regulatory measures of bank risk. Banks were strongly incentivised to report illusory improvements in performance by such stratagems as lowering capital charges through a shift of exposures from banking book to trading book (a major driver of the securitisation boom) and inflating their balance sheets through the use of unstable wholesale funding.

Thus it seems that inadequate disclosure and performance measurement was at the heart of the crisis. A separate issue is whether investors were being duped by clever and manipulative bank management who knew full well that they were taking on excessive risks, but hid these risks from the rest of the world; or whether bank managers were also fooled by inadequate disclosure and performance measurement, into thinking that high levels of bank earnings were sustainable. The truth here is probably that it was a bit of both.

Despite the plausibility of this view, that inadequate information was a key vulnerability before the crisis, it is not the mainstream view. The much more common interpretation, the one espoused by much of the regulatory community, is that of 'systemic risk externalities' i.e. that bank management, investors and regulators had a good understanding of the risks and performance of individual institutions taken in isolation; but that they failed to take into consideration the impact that individual bank decisions were having on the risk to the system as whole.

These are complementary explanations: both inadequate disclosure and systematic externalities can have played a role in the crisis. Still it can be argued that policy post-crisis has put too much stress on systemic risk externalities, and not enough to improving disclosure and performance measurement.

Policy to date has certainly done a lot to address systemic financial risk – through much more stringent capital and liquidity regulation; through the development of orderly resolution; through structural measures such as those recommended by the Vicker's Independent Commission on Banking in the UK or the passing of the so called Volcker rule in the Dodd-Frank act in the US; and also in the development of the new macroprudential policy function.

The authorities are making vigorous efforts to ensure that never again will the financial system be able to turn to the taxpayer for support. Going forward (periphery Europe perhaps excepted) investors not taxpayers are bearing the costs of risk i.e. we are turning to market discipline. It is tempting to declare 'job (nearly) done'.

But to think that the task is nearly complete is premature. As yet very little has been done to prepare investors for their new responsibilities. In particular they still have inadequate disclosure and performance measurement from banks. As a result market discipline – having been inadequate before the crisis because investors did not understand what banks were doing – now threatens to be an excessive discipline after the crisis. The likely consequence, without complementary action to improve disclosure and transparency, is therefore a sharp contraction of bank balance sheets.

3.3. The Way Forward

The remainder of this paper discusses how this challenge of improved disclosure and transparency can be met, first in general terms and then with some more specific policy suggestions.

The appropriate general direction of travel is towards what can be described as an 'open source' banking system. Banks should be held to strict standards for

recording of their positions with appropriate identifications, allowing and any external party – regulator, customer, investor – to request and obtain on demand a summary of that institutions exposures along any appropriate dimension. This is not something to be achieved overnight; but – beginning with current developments for the setting of standards for recording OTC derivative positions in trade repositories – there can be considerable movement in this direction over coming years. Eventually all bank positions, both trading book and banking book, should be continuously open to scrutiny (subject only to the usual requirements of customer confidentiality)

Ultimately any investor should be able to obtain information and rework bank books, so that they can make like for like comparisons, between institutions and between business lines in different institutions.

What about specific practical steps? Here are three:

First we need to shift to what has been called 'contingent reporting' – to both regulators and the investment community. We need much simpler and less burdensome reporting requirements. But at the same time we should expect management to take responsibility for providing relevant information at reasonably short notice to either regulators or to investors.

Such contingent reporting is already being explored here in the UK – it is likely to be the preferred approach to regulatory reporting when the new Prudential Regulation Authority is fully established as a Bank of England subsidiary (for example see the remarks of Mervyn King to a Joint Committee of the UK Houses of Parliament, where he stated *"Rather than burdening the banks with a massive data reporting requirement, we should make it clear to them, 'We think you ought to know the answers to the following questions, and from time to time we will want to know the data, too, but do not send it to us until we ask for it.'"* (King (2011)).

The same approach can be used on behalf of investors. What this needs is the establishment of an umbrella body – something that could be called The Bank Disclosure Council – representing all investors in UK bank equity and debt. Such a body, given powers to request standardised information from banks, can allow investors to adequately assess bank risk exposures and prospective performance.

Then second – once we have such a body representing investors views on disclosure and performance measurement – we can also require banks to publically report – annually – their own assessment of their exposures to major systemic risks: sovereign debt, real estate prices, and indicate how well placed they are to absorb such risks if they materialise. This is not an accounting but a disclosure requirement, and since the principal beneficiaries are investors the disclosures should be subject to standards set by the Bank Disclosure Council. To date such

stress testing is viewed as part of the regulatory domain; but this responsibility for the design and construction of such tests can, over time, be shifted to investors. This is incentive compatible because it is investors ultimately who will be bearing the costs of bank stress, under the new resolution arrangements.

Third and finally – this is discussed in more detail in Milne (2012) – we need more sensible performance measures than return on equity. Return on equity is woefully inappropriate measure for banks. It encourages banks to undercapitalise and therefore increase systemic risk; and to excessively contract their balance sheets when capital requirements are increased.

The obvious cure is to shift towards the more appropriate performance based on the same models routinely used by equity analysts, distinguishing systematic (beta or priced) risk and the risk of bank failure. A key point is that risk priced in financial markets and risk of bank safety and soundness are quite different things. When bank capital increases, the risk of bank failure is reduced, but the risk of bank assets – the systematic priced risk – is not changed at all. In fact investors are better off because their exposure to priced risk remains the same while their exposure to the costly bank distress is reduced. Yes bank shareholders have lost the benefit of the bank safety net, but if they want they can adjust their performance measures to factor this in as well. Milne (2012) – and some related academic work cited there – consider how this can be done in practice.

3.4. Conclusions

This paper has argued that market discipline failed, before the crisis, because of inadequate disclosure and performance measurement. This was not a problem with accounting statements per se – standard accounting statements can never provide a full picture of financial institution performance, but the lack of supplementary information that allowed investors to properly assess the risk exposures of banks. It is disclosure not recognition that matters.

We need to do a great deal of work yet to ensure that this information is available in a form that investor can use to make comparisons between institutions, and they have adequate and appropriate measures for summarising bank performance.

This paper envisages us moving eventually to 'open source' banking, where investors have complete information on bank exposures in a fully disaggregated form, broken down by standard identifiers, so that they can assemble any like for like comparison between institutions that they choose.

As for practical steps towards this long term goal, this paper makes three specific recommendations: a shift to contingent reporting for both regulatory and invest-

ment purposes; the establishment of a private sector Bank Disclosure Council, that will determine such contingent disclosures including regular tests of exposure to systemic financial risk; and finally encouragement (by regulators and this disclosure council) of better performance measures distinguishing the two quite distinct components of bank risk – priced systematic beta risk on the asset side of their balance sheet and risks of financial distress determined by choice of liability structures.

These are appropriate steps to ensure that market discipline does not lead to an unnecessary contraction of bank balance sheets as new more demanding regulatory measures are introduced over the next few years.

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4. Basel III and Shadow Banking

Patricia Jackson[1]

In the aftermath of the financial crisis, regulators and governments have agreed a substantial tightening in the prudential requirements for banks globally. The Basel Committee on Banking Supervision (BCBS), through Basel 2.5 and III, will require much larger equity buffers to be utilised to back exposures as well as new liquidity buffers (BCBS, 2010) and the Financial Stability Board (FSB) has agreed new even tighter requirements for global systemically important institutions. This new 'framework' will lead to a profound reshaping of the banking industry over at least a 10 year period but probably even longer because the new requirements are high enough to alter substantially the economics of different activities. There is, however, limited agreement about the size of the change and the likely effect on shadow banking (quasi banking activities carried out outside the banking system). This is to a large degree because there is little agreement about the costs of the regulatory changes and also what drives behaviour in the financial institutions. This paper seeks to analyse these various aspects and identifies a number of fallacies in the current thinking:

(1) that the Modigliani Miller theorem means that requiring higher capital charges of banks will not affect their costs;
(2) in particular an implicit assumption that the adjustment phase to the regulatory changes will be quite short enabling the cost of equity and funding to fall sufficiently;
(3) that shadow banking poses risks under only particular circumstances – maturity or liquidity transformation or exposure of banks, incomplete credit risk transfer and leverage.

4.1. Background

Following the crisis there have been a series of changes to bank capital under different Basel Accords. Basel 2.5 tightened trading book requirements, covering stress VaR (value at risk) and securitisations in particular. Basel III which, introduces higher quality bank capital (deducting items such as deferred tax assets, good will and different types of hybrid capital instrument), creates an increased focus on common equity and much higher capital buffers, a leverage ratio and liquidity requirements as well as yet higher trading book requirements for counterparty risk. The key features of the capital buffers are as follows:

[1] The views expressed are mine and do not necessarily reflect those of Ernst & Young. I thank the participants at the joint ICFR/ SUERF conference on "Future Risks and Fragilities for Financial Stability", and Urs Birchler in particular, for useful comments.

- The minimum common equity levels are to be increased from 2% to 4.5% (and this is after increased deductions from capital).
- A further 2.5% will need to be held in the capital conservation buffer – banks can dip into this layer in periods of stress but then face limitations on earnings distribution through dividend payments, share buy backs or discretionary bonuses.
- An additional countercyclical buffer of between 0% and 2.5% will be required according to national circumstances. This will be for overheating markets and will apply to all banks lending into that market. An example might be lending to UK housing in a protracted boom.
- These requirements will be supplemented by a non-risk based leverage ratio, which will run in parallel from 2013 to 2018 when it will be become a Pillar 1 requirement.

Over and above these buffers, globally systemically important banks (GSIBs) will have to maintain a further buffer (BCBS, 2011) of potentially up to 3.5% (currently it is set between 1% and 2.5%). Overall, major banks are looking at the need to increase the ratio of equity capital to risk weighted assets to around 12%, and some even higher, to maintain headroom over the sum of the regulatory buffers.

There is a long phase in period for the new buffers from 2013 to 2018 and non complying capital instruments will be phased out up to 2023. However, market expectations and regulatory requirements in some countries have pushed the industry to achieving the higher capital buffers much earlier. The timelines are set out below.

Industry costs are also being pushed higher by the liquidity rules which will also be phased in but again banks have already started to comply. The costs are created by the need for a high quality liquid assets buffer to enable a bank to meet stress liquidity outflows. This must be held in higher quality liquid instruments which are therefore lower yielding. The industry will also have to meet a stable funding ratio which will act as a restriction – without sufficient stable funding a bank will have to reduce longer term lending.

Overall it has been estimated by some private sector sources that the European banks need around Euro 1 trillion more capital just to meet Basel III without the inclusion of the extra requirement for systemically important banks.

Basel Capital Buffers, Leverage and Liquidity Requirements

Phase-in arrangements (shading indicates transition periods)
(All dates are as of 1 January).

	2011	2012	2013	2014	2015	2016	2017	2018	2019
Leverage ratio	**Supervisory monitoring**		**Parallel run 1 January 2013 – 1 January 2017 Disclosure starts 1 January 2015**					**Migration to Pillar 1**	
Minimum common equity capital ratio			3.5%	4.0%	4.5%	4.5%	4.5%	4.5%	4.5%
Capital conservation buffer						0.625%	1.25%	1.875%	2.5%
Minimum common equity plus capital conservation buffer			3.5%	4.0%	4.5%	5.125%	5.75%	6.375%	7.0%
Phase in of deductions from CET1				20%	40%	60%	80%	100%	100%
Minimum Tier 1 capital			4.5%	5.5%	6.0%	6.0%	6.0%	6.0%	6.0%
Minimum total capital			8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%
Minimum total capital plus conservation buffer			8.0%	8.0%	8.0%	8.625%	9.25%	9.875%	10.5%
Capital instruments that no longer qualify as non-core Tier 1 or Tier 2 capital			Phased out over 10-year horizon beginning 2013						
Liquidity coverage ratio	Observation period begins				Introduce minimum standard				
Net stable funding ratio		Observation period begins						Introduce minimum standard	

4.2. Costs of Regulatory Change

Thinking in the official sector about the costs of Basel III, and therefore the likely effects, has been driven by a belief that the Modigliani and Miller theorem (1958) demonstrates that increases in equity capital are effectively costless (and therefore equity capital can rise to any level). Modigliani Miller argue that the expected yield on common stock will depend on leverage and as an organisation increases the level of equity capital backing the business the costs will fall, reflecting the greater safety in the organisation. This is because the expected yield of a stock is equal to the appropriate rate of return for the equity of that type of company plus a premium related to financial risk reflecting the debt to equity ratio. The paper assumes that a homogeneous group has been identified where the shares are perfect substitutes for each other – i.e. the shares are perfectly correlated. As leverage falls, the safety of debt increases and the cost of debt falls as well as the cost of equity. However, it is recognised that the tax deductibility of interest on debt does give an advantage over equity finance. Bank of England research (Financial Stability Report June 2011) demonstrates a statistically significant positive relationship between equity beta and leverage although there is a wide spread of results.

Kashyap, Stein and Hanson (2010), following Modigliani and Miller, estimate that in the long-run steady state (assuming banks use the higher equity to replace debt finance and that the only net difference in financing costs related to this shift is the tax advantage of debt) a 10 percentage point increase in equity capital will require loan rates to increase by only 24-45 basis points. Similarly, Miles, Yang and Marcheggiano (2011) using equity market returns for the period 1992-2010 estimate that a doubling in capital (halving leverage from 30 to 15 basis points) would require loan rates to increase by only 18 basis points.

The issue which needs to be considered is whether backward-looking results such as Miles *et al.* will hold going forward and how long the adjustment period to a long-run steady state might be. Here the issues start to become more complicated. Firstly, making regulatory capital a binding constraint is likely to affect behaviour. Under Basel I and Basel II the capital requirements were a backstop with almost all banks choosing to hold higher capital than the regulatory minimum. Going forward this switches round – regulatory requirements will be higher than the amount of capital a bank would choose to hold and this will affect behaviour. The change is radical – banks estimate that 30% – 100% or more equity capital may be required under Basel III (Ernst & Young, 2012).

Secondly, leverage is only one aspect of the riskiness of one bank relative to another – in that sense banks are not a homogeneous class as identified by Modigliani and Miller. The asset base of two banks, or one bank over time, can differ hugely. Even for a given asset profile, the amount and type of risk can differ

markedly depending on the profile of individual borrowers, types of collateral taken, amount of collateral, amount of hedging and so on.

The experience in the US of Basel I, which had limited risk differentiation (and was combined with the leverage constraint which had no risk differentiation), was that it affected behaviour even though it was not a binding constraint. The US authorities became convinced that it was so distorting behaviour (Jackson *et al.*, 1999) it was imperative that risk based requirements should be introduced through Basel II. In effect for the same Basel I ratio or leverage ratio banks over time had substantially increased the amount of risk being held. The Basel III buffers are based on the risk weighted assets (RWAs) calculated under Basel II and therefore are risk based (as the average riskiness of the portfolio rises capital requirements rise) but clearly industry-wide requirements cannot reflect every aspect of the risk profile of an individual firm. The Basel II capital curves used for the internal ratings based system assume all banks are diversified for example – i.e. risk concentrations are not recognised. Also there is considerable freedom regarding the approach with which the risk weights are calculated, given that banks in different countries are allowed to use point in time or through the cycle modelling for borrower PD (probability of default) which produces very different answers (Jackson 2011). The position, given Basel II, is much better than under the limited risk differentiation of Basel I but even so it may be difficult to see in all cases if a bank is responding to the higher capital required by increasing risk taking.

The determining factor behind the outcome across the industry is likely to be the view that equity holders, in particular institutional investors, take of the likely risk adjusted return on their investment. Currently the indications are that investors have not reduced expected returns to reflect lower expected risk going forward. A number of banks have announced that they have reduced target rate of return on equity (ROE) to 12%-15% but are facing pressure from institutional investors to increase targets. Some banks estimate that the cost of new capital is around 12% and a number of banks are finding it difficult to raise new capital.

Differing patterns of equity holding internationally may affect the outcome. In the UK, bank equity holdings are strongly concentrated in institutional hands and the Basel III increases in bank equity required will increase concentrations in holdings by funds overall, pushing up required returns by some fund managers to cover the extra risk. This is less so in the US where the preponderance of holdings is in the hands of individual investors.

Simons (Simons 2000) reports that one metric used to assess the riskiness of investment portfolios is VaR – which measures risk from the past price history of the securities being held. It measures the loss on the portfolio that will not be exceeded on say 5% of occasions based on the distribution of profit and loss the current

portfolio would have sustained on say daily periods in the past. Going forward, the VaR calculated for portfolios including bank shares will reflect both the volatility in bank share prices over the past 5 years and the increased concentration in holdings as equity in issue increases. Taking risk-adjusted performance in terms of a Sharpe ratio (Sharpe 1966), which can be expressed as the ratio (excess return over the benchmark)/(tracking error), where the tracking error is the risk calculated using the standard deviation of the portfolio returns relative to the chosen benchmark, portfolios with sizeable holdings of bank equity will fare poorly.

The question is how will risk-adjusted performance be viewed going forward given the higher capital employed in the industry and lower leverage? As far as returns are concerned, Modigliani Miller make the point that the market is likely to place very heavy weight on current and recent past earnings in forming expectations of future returns. In the current environment, the view taken of future returns will be depressed by uncertainty regarding the outcome for the real economy and the possibility of a sovereign debt crisis – despite the measures taken. This lack of clarity about returns will persist as long as the economic uncertainty continues.

The core question is how will institutional investors risk adjust the expectations of future returns? The past is not a guide to the risk because of the new constraints in terms of limits on leverage and higher capital to risk adjusted assets. But how long will it take for investors to be convinced that the industry is safer going forward? If institutional investors wait for the lower risk to be demonstrated, given the long cycles which affect banks and the relative rarity of international banking crises, they could remain uncertain about the effects of the Basel III changes on bank safety for a long period. This could delay, perhaps for many years, a full adjustment in the cost of capital. In effect, investors would be discounting possible future earnings more heavily to reflect the uncertainty.

The uncertainty could be fuelled by several new elements in the treatment of banks. The authorities are making clear in some countries that public funds will not be used to resolve future banking crises. This creates a break with the past. Also new bail-in arrangements are being considered which would affect shareholders.

Fundamentally though the issue is about the capacity that institutional investors have to assess how much risk is being taken by banks. Banks are far harder than industrial companies to assess because of the effect of hedging/collateral etc on their risk profile. Here there is a 'Catch 22'. If banks are pressed to deliver too high a return (because institutional investors have still to be convinced that they are safer), some may gear up by increasing risk taking. As set out above, the Basel II risk-based requirements help to prevent this but cannot capture all differentiation in risk profile across banks. Pillar II of Basel II, which is an overarching

risk assessment by a bank and the supervisors, attempts to fill the gap but it too is imperfect.

If some banks seem to be taking more risk, for example moving exposures from G10 to emerging markets, then (following Akerlof, 1970) the information asymmetries between banks and investors would mean that all banks would pay the price – borrowing costs and equity yields would remain high for the whole industry and this would not be transitional. It would continue while the information asymmetry remained in place unless another mechanism could be found to deal with the market imperfection. That mechanism would have to be substantially enhanced risk disclosure or some kind of guarantee which of course the authorities are trying to move away from. In theory credit ratings sift banks by riskiness but by and large investors are reducing reliance on external ratings and question their ability to identify all the risks.

All these factors mean that a full adjustment of risk adjusted return on capital and cost of new capital to the lower leverage levels could be very long indeed. This will alter the economics of different businesses. Pending full adjustment of risk adjusted expected returns, banks will probably have to make a four way adjustment of the business model. Returns to shareholders will have to fall to a degree (reflecting the lower risk – but not fully reflecting it while uncertainty remains), costs will have to be reduced, margins will have to be increased and activities changed. Banks will exit from some businesses and restructure others.

4.3. Changes in Banking Models

The changes in business models will have a different effect on different activities because the Basel 2.5 and Basel III requirements do not have an equal effect across all business units. Trading activities are hit relatively hard. Initial estimates were that regulatory capital on trading books increased as much as 3 times. However, banks are already adjusting and reducing the effects. A recent small survey carried out by Ernst & Young indicated that increased hedging of CVA was reducing the estimated increases substantially – although one question is whether to hedge the economics or the accounting effect. In some areas the requirements are therefore leading to risk reducing behaviour and this will increase going forward. Overall more collateral is likely to be taken to reduce counterparty exposures as well as earlier close out of derivatives contracts with positive values to achieve the same effect. There is a general expectation that banks will move away from proprietary trading and towards facilitating transactions. This will reduce exposures in the banks but could also affect the efficiency of markets. It will remove arbitragers from the market and, although some trading will move to non-bank players, this could affect the liquidity of some markets.

Although equity increases for banking books are less they are still substantial. Here too banks will seek more collateral but even so the economics of different businesses will be affected. Banks are already starting to withdraw from business lines and some banks are pulling out of certain countries.

With deleveraging needed, businesses such as wealth management which do not utilise the balance sheet start to look very attractive.

4.4. Shadow Banking

One question the authorities have been grappling with is will Basel III drive business into the shadow banking world and what would this do to systemic risk? The FSB has defined shadow banking as *"credit intermediation involving entities and activities outside the regular banking system"* (FSB, 2011) although some definitions of shadow banking include trading activity by hedge funds. The paper by the FSB working group cited above identifies the following as systemic risk factors if business does move to shadow banking:

- maturity transformation – funding longer term assets with shorter term liabilities;
- liquidity transformation – *e.g.* depth of markets for financial instruments;
- incomplete credit risk transfer – *e.g.* to off balance sheet vehicles but where risks could fall back on the bank;
- leverage.

This list is almost certainly not complete. One issue is sustainability. If a non-bank channel for lending develops and is substantial what happens if it collapses? Could the banks facing leverage ratios, net stable funding ratios and pressure on capital quickly take up the slack in lending? The answer is almost certainly no and this in turn could cause widespread pressure on the corporate sector and the real economy. This could be a system wide problem even though it did not manifest itself in a traditional run or pressure on the banks.

Current pressure on the banks (reflecting efforts to increase capital and deal with tight funding) is leading to deleveraging in the banking system and private equity companies, hedge funds, asset managers and insurers are moving into direct lending to corporates. Some market participants put volumes at hundreds of billions of dollars already. If this channel grows substantially (because the economics are fundamentally different in an unregulated non-bank model compared to a bank model) what would happen if it suddenly switched off?

A number of different types of shock could lead to the withdrawal of non-bank lenders from the market. Regulation could be tightened – the FSB does envisage extending the boundary of regulation further in some circumstances, for example,

if shadow banking seems to be becoming systemic. Currently non-bank lenders calculate capital need through economic capital models not regulatory capital. Expansion of the regulatory capital boundary would change the economics of the activity leading to the pursuit of different activities. A further factor could be rebalancing of shadow banking portfolios, if the securities markets have become far more buoyant, to reflect expected profitability of different activities. Alternatively, if a significant corporate to corporate lending channel develops (and that too is growing) then greater indebtedness of the sector as investment plans become more attractive could lead to this activity drying up.

Another trigger could be funding pressures – for example, if an idiosyncratic event affecting one or more non-banks led to uncertainty about the riskiness of the shadow banking sector as a whole, making new money costly or unavailable, lending would contract. The history of non-bank lending is fraught with difficulty. The secondary banks in the UK failed in the early 70s, savings and loans companies (S&Ls) in the US, which were funded by deposits and largely provided mortgages, failed in the 1980s (through poor interest rate risk management and then high yield activities such as the purchase of junk bonds), the non-bank banks in Japan which held significant property exposures failed in the early 90s and the retail mortgage brokers in the US played a core role originating loans for retail mortgage backed securities in the run up to the crisis. The common strand through the non-bank problems, was poor risk management and lending standards.

One theme in the official literature is that as long as the banking system can be insulated, the effects of failure of non-bank lenders could be contained. Higher capital charges and large exposure rules on bank lending to the shadow banking system have been proposed but this argument ignores the second and third round effects. If a large lending channel slowed down causing problems in the corporate sector, the banks would not be insulated because they too would have exposures to the same corporates. As the real economies weakened bank defaults would rise. Even if the effect was not overnight, as in a classic bank systemic run, system-wide damage could be sustained. Another theme in the official literature is that the non-bank lending channel cannot grow substantially unless it is bank funded. This too is not correct. Non-bank lenders can use bond finance and commercial paper which will become easier as the world economy starts to grow. They can also channel funds from large investors, sovereign wealth funds and corporates and institutions into non-bank lending.

This leaves the question, if a large channel of non-bank ending grew up could it disappear without a ripple? Here the various Basel III limits on the banks would make it difficult for them to step in. The parallel is with the securitisation market pre crisis which brought funding from a variety of sources into lending. The

banks are not able to provide funding for the necessary volume of lending currently with the securitisation market closed, requiring substantial funding support from the central banks. In effect the closure of the securitisation market requires a liquidity recycling function to be provided by the central banks. In future the constraints on the banks will reduce their capacity to substitute for non-bank lenders.

4.5. Way Forward

The authorities need to be cautious in putting too much reliance on the Modigliani Miller theorem when the full adjustment to lower required returns (to reflect lower risk) could be many decades long. This is particularly the case in an environment still recovering from the most severe banking crisis in 80 years and when a very strong message about no future bailouts of banks going forward is being given. However, the difficulty in assessing risks in banks is at the heart of the issue. This does mean the costs of Basel III and the GSIB buffers are likely to have been underestimated.

A priority should be a focus on building clear/comparable disclosure that will give investors more comfort that the banking system is safer – covering standard tables and standard definitions. But even so expected returns will take time to adjust not least because information asymmetries between banks and investors cannot completely be eradicated even by improved disclosure.

There also needs to be a safety valve to enable deleveraging in the banks by providing a long-term channel to move investor money into lending. Non-bank channels relying on hedge funds, for example, or corporate to corporate lending could be temporary – they could build up while investment choices are limited and fall away as markets become more buoyant.

The solution probably needs to be much greater official sector focus on a sustainable low risk securitisation model. The FSB working group paper (October 2011) suggests a review of securitisation activities and transparency as well as standardisation of securitisation products. IOSCO and the Basel Committee are also focussed on this. But much more urgency should be placed on the development of a new securitisation market, with new instruments, containing features making them less risky and more transparent – limited tranching, standard prospectuses, a summary of risk factors, transparency on risk in the pools, loans going through bank lending standards, cross market default data and clear disclosure. It will take a push equivalent to that provided by the central banks in the early days of the swap market which achieved standard contracts, netting agreements etc. As was the case then, a strong regulatory carrot needs to be offered. Allowance to include the simple, high quality, securities in the banks' new liquidity pools to be

held under Basel III and also allowance to use them as collateral in the central counterparties (CCPs) would provide such an incentive.

The advantage of an active and high quality securitisation market is that it would enable banks to deleverage to meet the higher capital requirements without damaging lending to sectors which cannot themselves tap the securities markets.

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5. Regulation and Competition in the Financial System

Vicky Pryce

The UK is implementing a set of reforms to UK financial services industries, including the recommendations of the Independent Commission on Banking (ICB) chaired by John Vickers, together with a set of other changes in supervisory institutions. The question is what will these changes do to competition in the industry? And, from a broader public policy perspective, will this matter?

5.1. Competition as a Policy Objective

I will begin by taking a step back to the broader policy context. When I was in Government, I co-chaired with John Fingleton of the OFT a group called the competition forum, which brought together economists and policy officials from a range of Whitehall Departments that were involved in, or affected by, competition policy decisions. In 2009, we took a paper from the OFT on the role of government interventions and how they affected competition, and a paper was subsequently published by the OFT as a guidance for policy makers[1].

The OFT guidance re-affirmed the importance of competition as an economic policy objective:

> *"At their most basic, markets are a mechanism for allocating resources. Well-regulated, competitive markets can maximise consumer welfare, and, by raising economic growth, also increase total welfare"*[2].

Other procedural changes reinforced this. For example, competition features in the guidance for Impact Assessments of proposals for new regulation[3].

However, there are other legitimate policy objectives, which may include:
- continuity and stability of vital functions and services;
- protection of vulnerable consumers;
- employment;
- distributional concerns;
- broader social or environmental effects.

1 Office of Fair Trading (2009).
2 *Op.cit.*, p. 1.
3 The latest version of the BIS Impact Assessment toolkit states that effects on competition must be considered, although there is no longer a requirement for an explicit test of whether competition is affected by a regulatory proposal.

Policy makers need to balance these against the objective of competitive markets, as they doing in re-designing the regulatory structure for the financial system. Changes to regulation can enhance competition – but they can also distort it. The OFT guidance reminds us that changes in regulation designed to increase competition can have positive as well as negative effects.

- The opening up of European aviation markets in the 1990s and the ending of bilateral agreements had the expected positive effects. It led to the entry of low cost carriers and more flights at lower prices. The lowest non-sale flight price fell by 66% on average between 1992 and 2002 while flight availability increased by 78%. There was no evidence of adverse effects, such as on safety – apart from to the economics rents enjoyed by employees of, or shareholders in, one of the incumbent flag carriers.
- In contrast, the opening up of the UK domestic retail electricity market in 1988-89 had some negative repercussions which required corrective action. There were subsequent concerns about doorstep selling, misleading information, switching without consent and the proliferation of tariffs. Regulators have had to take steps through self-regulation and licensing to provide more and simpler information to consumers. The parallels with some aspects of financial services are fairly obvious.

5.2. Will Regulation Increase Competition in the UK Financial System?

Turning now to the banking and financial system, we see that the proposals in the ICB report – to ring-fence retail banking operations and greater capital and other loss absorbing capacity requirements for banks-will raise the costs of doing business for the big banks. The ICB's own estimate is a cost of some £10 billion to the four major banks with the cost to other banks proportionately less. Other estimates of course put that cost at much higher than that and there will also be indirect costs such as knock-on effects on customers through higher interest rates, although the ICB claims these will be small. Effectively, there is a cost for society as a whole as we forgo certain opportunities [to borrow and consume or invest] in order to reduce the risk of future financial crises.

The ICB believes that its recommendations are *"aimed to create a more stable but also more competitive basis for UK banking in the longer term"*. Indeed it argues that the new capital requirements make the playing field more level for smaller new entrants by reducing the gap in regulatory requirements between large banks and small banks. However it is perfectly possible to argue that the proposals if implemented will reduce rather than increase competition as the higher cost of entry will in fact make it harder for new firms to enter the market. Another ques-

tion is what happens if the combination of changes to supervisory regulation and taxation causes one or more of the big UK banks to move offshore? They can of course still do business in the UK but will there be subtle and perhaps gradual changes to the way they approach the UK market.

As for the ICB recommendations designed to increase competition, they may have limited effect.

Although the FCA has been given an explicit duty to *"promote effective competition in the interests of the consumer"* the specific competition power still appears limited and the impact of this in practice is likely to depend on how well it works with the OFT.

In addition a lot of attention has focused on the Lloyds Banking Group divestment. It is very debatable if this is of sufficient scale to create a real competitor to the Big 4 in terms of another 'challenger bank'. Access to the payment mechanism and a branch network remain important barriers to entry and growth – Virgin Money's acquisition of Northern Rock is, presumably, in part because acquisition of the branch network is preferable to growing one from scratch.

The lack of customer switching has also been seen as evidence of a lack of competition but it is possible that it reflects brand loyalty, customer inertia and considerable effort by incumbents to retain customers. In this context, the proposals on switching are untested.

Putting these together, it is difficult to see how a Competition Commission review in 2015, should it happen, could come to wildly different views from the ICB – and indeed, how, short of ordering a break-up of the big banks, it could do anything more radical.

5.3. Is there a Trade-off between Financial Stability and Competition?

But if we conclude that the impact of intended regulation on competition, while uncertain, is not positive, does this matter? Other policy objectives are important and the last few years have been enough to ensure that financial stability is near the top of policy makers' minds.

The underlying question is whether [more] competition is good or bad for stability of the financial system? Unfortunately, this is one of those perennials in economics where the theory is ambiguous, with competing hypotheses. Furthermore, a recent review of the evidence by a CEPR team led by Thorsten Beck found similar ambiguity in the empirical evidence[4].

[4] BECK *et al.* (2010).

They and other authors have noted an important point in assessing the evidence – concentration is not the same as competition. It is possible to have fierce competition between a few large incumbents.

The CEPR team did note that the quality and effectiveness of the regulation of the financial system did influence how banks behave in competitive market conditions, so regulation – its design and its implementation – is important.

An illustration of these points can be found in a 2010 OECD Policy Round Table report. This compares the performance of the banking systems during the crisis in the UK, Australia and Canada. Compared to the UK, Australia and Canada weathered the financial crisis well – not a single institution failed or required a bail out in Canada. Yet their retail banking systems look very similar to the UK – with a few large banks accounting for the lion's share of customers. However, the difference is – either because of a lack of competition or because of stronger regulatory oversight – banks in Australia and Canada financed much more of their loans from retail deposits than UK banks did, and they indulged in less risky business lines[5].

5.4. Conclusions

Competition in the UK banking sector is unlikely to change greatly in the next few years – so we might all be debating the outcome of a future Competition Commission review in five years' time. This is not necessarily a bad thing. A few years stability while the industry adapts to changing regulatory requirements, and the economy recovers from the recession, might on balance be in the broader public interest at the current time.

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6. The Evolution of Bank Business Models: Pre- and Post-crisis

David T. Llewellyn

This paper offers reflections on the evolution of bank business models in the pre- and post-crisis period. In many respects, new business models became an integral part of the crisis scenario and to some extent changed the underlying economics of banking (Llewellyn 2010). The structure of the paper is as follows. Section 6.1. considers the evolution of business models since the early 1990s with four sub-periods identified. Section 6.2. outlines the basic tenets of the 'traditional model' of banking followed in Section 6.3. by a review of how business models changed in the period running up to the crisis. The post-crisis period is subdivided into two: the short term (section 6.4.) and medium term (section 6.5.). Section 6.6. concludes.

6.1. The Context of Business Models

Bank business models are not static and evolve over time and under the influence of a complex mix of exogenous and endogenous pressures. The more powerful of these pressures include: the structural evolution of the financial system and financial markets; the macro-economic environment in which banks and their customers operate; regulation; the competitive environment in banking markets; financial innovation, and the chosen business objectives of banks (*e.g.* asset growth, market share, ROE, etc.).

All of these featured as central aspects of the banking crisis (Llewellyn, 2010). With respect to regulation, it is evidently the case that detailed rules at the time did not prevent the crisis and, as argued elsewhere (Llewellyn, 2011), created incentives to change business models in a way that contributed to the crisis. The impact on business models of regulation, and the incentive structures it creates, can be seen in the Basel capital arrangements which created incentives for banks to, *inter alia,* move assets off the balance sheet, to increase their gearing levels, to securitise assets and create various forms of SIVs to facilitate this, and to make increasing use of credit risk-shifting instruments and derivatives. It is argued below that there is a two-way causation between regulation and bank business models: the *endogeneity problem* (Llewellyn, 2011).

6.1.1. Bank Business Models

The paper adopts a particular concept of 'business models' which might offend management science purists. It has five core components: (1) the range of business

undertaken (*e.g.* bank-assurance, securitisation and derivatives trading, etc.), (2) the banks' ultimate business objectives, (3) balance sheet management and in particular funding, gearing and liquidity strategies, (4) the way that the core intermediation business of banks is conducted (*e.g.* securitisation, use of credit risk-shifting instruments, etc.), and (5) the management of regulation and in particular how banks respond to regulation through, for instance, regulatory arbitrage. We find that all of these changed, in some cases radically, in the pre-crisis period. The concept of business models in this paper relates to the range of business undertaken, and how the core financial intermediation business is undertaken.

Although there can be no precision in identifying specific turning points in the evolution of bank business models, for purposes of exposition and analysis four sub-periods are identified: (1) the 'traditional' model of banking in the period from around 1990 to the early part of the 21st century, (2) the immediate pre-crisis period from around 2000 to 2008, (3) the years immediately following the crisis period, and (4) a medium-term post-crisis period. The dates for locating (3) and (4) are necessarily uncertain.

6.1.2. Context of Structural Change

Different business models do not emerge in a vacuum and the antecedents need to be considered. Several structural changes in the global financial system set the background to the emergence of new business models that preceded the crisis:

- a defining feature of the pre-crisis period was a sharp rise in the pace of financial innovation, and especially with respect to the emergence of credit derivatives designed to shift credit risk from loan originators (credit risk-shifting instruments);
- at the same time, there was a massive rise in the volume of trading in complex, and sometimes opaque, derivatives contracts, and in the amounts outstanding. The BIS estimates that the outstanding value of Credit Default Swap (CDS) contracts rose to over $60 trillion;
- an increasing 'financialisation' of economies (sharp growth in the value of financial assets and liabilities relative to GDP);
- a more market-centric structure of financial systems which implied a rise in the role of financial markets relative to institutions in the financial intermediation process. Furthermore, banks and markets became increasingly integrated (Boot and Thakor, 2009). One of the many implications of this trend was that losses incurred in markets could be translated into funding problems for banks. Furthermore, financial systems became more susceptible to shocks emanating in financial markets;
- an increase in inter-connectedness and resultant network externalities;
- so-called (and largely unregulated) 'shadow banks' (such as hedge funds and SIVs) emerged as major new players in the financial intermediation process

(Tett, 2008). In effect, a shadow banking system emerged. As argued in Turner (2012), however, there were close and inextricable links between banks and 'shadow banks';
- an increased globalisation of finance and financial markets. The impact of globalisation was particularly powerful in the propagation of the crisis: what started as a local mortgage problem in parts of the US was generalised to a wide range of asset classes, the interbank market, several countries, and to several different types of financial institution;
- a sharp rise in gearing and leverage both by banks (including intra-financial sector gearing) and households;
- a sharp fall in the holdings of liquid assets by banks and an increased reliance on wholesale markets for liquidity and funding requirements;
- higher degrees of maturity transformation by banks;
- diversification of banks into different business areas with the result that they became increasingly similar to each other. Thus, while individual institutions diversified (which could be regarded as making them less risky through the spreading of different risks), the result was a less diversified system.

The emergence of credit risk-shifting derivatives had several important properties with respect to: the underlying economics of banking, bank business models, the distribution of credit risks, the generation of credit, and the structure of financial intermediation in the financial system. They also produced a more market-centric financial system. In particular, instruments designed to shift credit risk produced new banking models (*originate and distribute*, for example) that changed in a fundamental way the underlying economics of banking and also made the system more crisis-prone (Llewellyn, 2010). We argue that such business models were central to the origin of the financial crisis. It is also evident that the implications of new models were not fully understood by credit originators, users or supervisors. The main focus is on credit risk-shifting instruments which enabled credit risk to be shifted, traded, insured, and taken by institutions without the need for them to make loans directly to borrowers. Although this proved to be crisis-prone, such credit risk-shifting instruments had the potential to enhance the efficiency in the financial system (Llewellyn, 2009a).

6.2. The Traditional Model

It is instructive to begin with a stylised review of the traditional model of the banking firm that was the dominant model for decades and formed the basis of standard text-book analyses of the banking firm (see Llewellyn, 1999 for a fuller discussion). In this traditional model, financial intermediation is the dominant business of banks which have information, risk analysis, and monitoring advantages which enable them to solve asymmetric information problems and hence

mitigate *adverse selection* and *moral hazard*. Banks accept deposits and utilise their comparative advantages to transform deposits into loans. In this model, the bank accepts the credit (default) risk, holds the asset on its own balance sheet, monitors its borrowing customers, and holds appropriate levels of capital to cover unexpected risk. It also effectively 'insures' its loans internally through the risk premia incorporated into the rate of interest on loans. This is described in the *traditional* model in table 1. In this process, the bank offers an integrated service in that it performs all the core functions in the financial intermediation process.

Table 1. Alternative Bank Models

	Traditional	Securisation	CDS
(1) Accept deposits	✓	(✓)	✓
(2) Originate loans	✓	✓	✓
(3) Utilise comparative advantage:			
– Information	✓	✓	✓
– Risk analysis	✓	✓	✓
– Monitoring	✓		
(4) Transform into loans	✓	✓	✓
(5) Accept risk	✓		
(6) Hold on balance sheet	✓		✓
(7) Capital Backing	✓		
(8) Insurance	Internal	Shift	Insure

Traditional: *Originate and hold*
Securisation: *Originate and sell*
CDS: *Originate and insure*

Furthermore, in this traditional model the bank is not able to shift credit risk to other agents because of its asymmetric information advantages: a potential buyer or insurer of bank loans might judge that, because of the bank's information advantage, there is an *adverse selection* and *moral hazard* problem in that the bank might select low-quality loans to pass on and, if it knew that it could pass on risk, it might be less careful in assessing the risk of new loans and would conduct less intensive monitoring of borrowers after loans have been made. For the same reason, the traditional view of the bank is that it is unable to externally insure its credit risks and instead applies a risk (insurance) premium on loans and holds capital as an internal insurance fund. The reason for this is that, given the uncertainties outlined above, an external insurer would reflect this uncertainty in excessive insurance premia charged to the bank which in turn would incorporate such premia in the interest rates charged on loans. Clearly, if these external premia are greater than the internal risk premium the bank would charge borrowers in the absence of external insurance, it would be more efficient for the bank to internally insure its loans. In this traditional view of the bank, credit risk can-

not be shifted or insured, there is no liquidity in bank loans, and banks are locked into their loan portfolios.

6.3. Pre-crisis Banking Model

As suggested at the outset, the emergence of new business models focussed on the range of business undertaken and the extent of diversification, and the way that core financial intermediation business was undertaken. Our central theme is that financial innovation, and the emergence of new banking models, were major factors in the emergence of the current crisis.

Banks developed new business models and moved away from the traditional model of originate-to-hold. The emergence of new business models focussed largely, though not entirely, on new credit risk-shifting instruments. Several trends in bank business models emerged in the years leading up to the crisis:

- banks increasingly diversified into more lines of business activity some of which had previously been inhibited by regulation;
- bank assets expanded at a substantially faster rate than that of retail deposits creating an ever-widening 'funding gap' (chart 2);
- the rise in bank loans substantially exceeded the rise in banks' risk-weighted assets held on the balance sheet;
- securitisation of loans became a central business strategy for many banks;
- investment and trading activity increased sharply, and the proportion of traded assets in the total balance sheet rose substantially in many cases;
- banks reduced their holdings of liquid assets as they developed greater access to wholesale funding markets;
- the extent of maturity transformation also increased sharply as increasing use was made of short-maturity money market funding sources;
- an increased dependency on wholesale and money market funding;
- a powerful trend emerged towards using credit derivatives as a means of supposedly shifting credit risk.

Over-arching all of this was a clear shift in overall business strategy towards a focus on the rate of return on equity (Llewellyn, 2007).

As noted by Borio. *"the two most salient idiosyncratic aspects of the current turmoil are the role of structured credit products and that of the O&D (originate and distribute) business model"* (Borio, 2008). The Bank of England also noted that, on the basis of increased gearing, banks expanded into higher-risk assets whose underlying value, quality and liquidity were unknown (Bank of England, 2008). The use of securitisation and credit derivatives were themselves vehicles for an excessive expansion of bank lending.

As part of this overall strategy, banks substantially increased their leverage prior to the onset of the crisis. Banks became extremely profitable though, as noted by Alessandri and Haldane, 2009), this was because of excess gearing and risk-taking. In its *Financial Stability Report*, the IMF noted *"a collective failure to appreciate the extent of the leverage taken on by a wide range of institutions and the associated risks of a disorderly unwinding."* In addition, there was an increasing volume of trading in credit risks in a situation where it had become evident that the risks in such trading were not always clearly understood.

A central theme is that, in some important respects, financial innovation (and most especially the emergence of credit derivatives) changed the underlying economics of banking. For illustrative purposes, a distinction is made in table 1 between the *traditional model* of the bank (originate and hold), the *securitisation variant* (originate and sell), and the use of *credit default swaps* (originate, hold and externally insure).

As already noted, many aspects of the traditional model came to be questioned. In the securitisation model in table 1, the process of securitisation (including via CDOs) meant that banks were able to sell loans (which the traditional model denies) and hence did not hold the loan asset on their own balance sheets, did not absorb the credit risk, and hence did not need to hold capital against credit risk. However, this depended upon precisely how the securitisation was conducted and most especially whether the SPV was truly bankruptcy-remote from the bank and *vice versa*.

The CDS model was similar to the securitisation model except that, while the credit risk was passed to the protection seller, the asset remained on the balance sheet of the originating bank. In this model there was explicit external insurance of bank loans which, in the traditional model, was judged to be uneconomic compared with internal insurance.

The two simplified examples of financial innovation in table 1 related to credit risk illustrate that the traditional model of the banking firm came to be modified. In particular, these examples of financial innovation meant that banks were no longer required to perform all the functions in the bank intermediation business. Furthermore, banks were also able to outsource some of their other activities such as loan administration, credit assessment through credit scoring models of other banks, etc. This further challenged the traditional view of the integrated bank. Banking was no longer a totally integrated process whereby banks conduct all the functions in the loan process. Credit risk transfer facilities and instruments changed the relationship between borrowers and lenders and created different incentive structures than those contained in the traditional model of the banking firm.

As a result of all this, banks in effect came to act as brokers in credit risk between ultimate borrowers and those who either purchased asset-backed securities or who offered CDS insurance, rather than their traditional role as market-makers in credit risk.

Our theme is that a major contributory cause of the banking crisis was that banks changed their business model in a fundamental way: banks stopped behaving like banks! It is interesting to note that in three countries which escaped the crisis largely unscathed (Canada, Australia, and South Africa), banks stuck to the traditional model and remained conservative institutions with comparatively little use of securitisation and credit derivatives. Furthermore, a recent study by the Centre for European Policy Studies (Ayadi *et al.*, 2010) finds that cooperative banks in Europe were also considerably less affected by the crisis than many other banks in Europe largely because they maintained the traditional business model of banking. Similarly, in the UK mutual building societies were also less affected by the crisis though some did get into difficulty and needed to be supported (Llewellyn, 2009). Interestingly, those building societies that needed support were those which deviated most from the traditional business model. Furthermore, the two banks that failed completely (Northern Rock and Bradford & Bingley) were both former mutual building societies that had converted to bank status largely in order to change their business model.

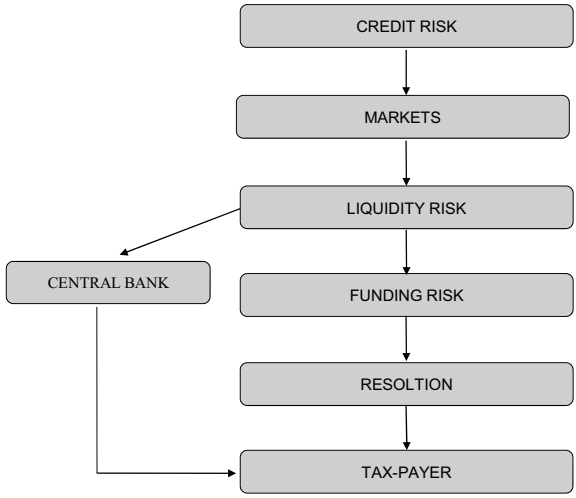
6.3.1. Risks in New Business Models

The nature of risks also changed in the process of developing new business models. Securitisation and other credit derivatives are designed to shift credit risk and, for some years, they did so successfully. However, they also changed the nature of risks and, in particular, transformed credit risk firstly into liquidity risk (buyers of the securities issued to purchase securitised assets from banks being unable to trade them), then into a funding risk (the securitising banks being unable to either sell assets at other than fire-sale prices or roll-over maturing debt), and ultimately into a solvency risk. The last-mentioned arose because banks were unable to sell assets in order to continue funding their securitisation programmes. A vicious cycle can easily arise in such circumstances: a bank which has engaged in substantial maturity transformation encounters funding difficulty (inability to roll over maturing debt) which it seeks to alleviate by selling assets which in turn depresses asset prices which can undermine the solvency of the bank. This problem becomes acute when all banks simultaneously attempt the same strategy of selling assets to replenish liquidity: herein lies the *fallacy of composition* whereby what may be rational for an individual bank acting alone ceases to be so when all banks adopt the same strategy.

In the case of Northern Rock (which developed securitisation as a central component of its business strategy, (Llewellyn, 2008)), an initial shifting of *credit risk* through securitisation exposed the bank to a *liquidity risk* that it (or its securitising Special Purpose Vehicle) would not be able to 'roll-over' in the wholesale markets its maturing short-term borrowings that were used to fund the acquisition of long-term mortgages. This liquidity risk in turn was quickly transformed into a structural *funding* risk (as alternative sources of funding became unavailable) which was ultimately transformed into a *solvency* risk. The Bank of England has described the sequence in chart 1.

The financial crisis revealed two major implications of credit risk-shifting instruments: (1) in many cases credit risk was not in practice shifted as much as banks thought would be the case, and (2) even when risk was shifted this was sometimes at the cost of increasing market, liquidity, funding and ultimately solvency risk. In effect, credit risk that was initially shifted may involuntarily come back on to the balance sheet of the originating bank. There were several reasons for this. Firstly, some banks' SIVs were unable to continue issuing asset-backed commercial paper to finance the purchase of loans from initiating banks. Secondly, loans that were planned to be securitised proved to be 'non-securitisable' because of funding constraints. Thirdly, originating banks were called upon to honour agreed lines of credit to SIVs. Fourthly, a bank might be induced to take back securitised assets in order to alleviate a potential reputation risk.

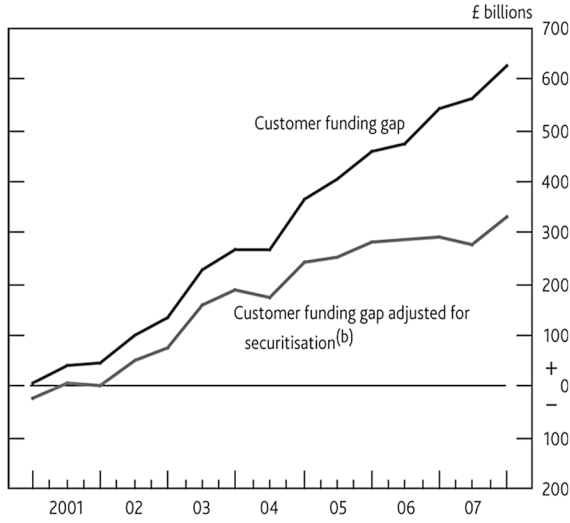
Chart 1. Risk Transformation



The use of credit-risk-shifting instruments exposed banks to low-probability-high-impact risks in that the reliance on short-term wholesale market funding to

finance long-term mortgages meant that some banks became structurally dependent on a limited number of wholesale markets for their funding. It was always judged that the simultaneous drying up of all these markets would be extremely unlikely as it had seldom, if ever, happened before. Equally, however, it would be very serious if it were to occur. In the event, this is precisely what did happen. Banks ignored the low-probability-high-impact risk of liquidity drying up in all markets simultaneously. Such risks equally applied to institutions and investors who issued short-term commercial paper in order to acquire asset-backed securities of various kinds.

Chart 2. Major UK banks' customer funding gap (a)



Sources: Dealogic, published accounts and Bank calculations.

(a) Data exclude Nationwide.

(b) Customer funding gap less securitised debt. Where not available, stocks of securitisations are estimated from issuance data.

Problems were compounded in the case of many derivative instruments by the fact that they became difficult to price not the least because the risk characteristics were opaque and complex. When secondary markets dried up in these instruments after the summer of 2007, prices became unavailable. This forced holders (banks) to attempt to value their holdings of derivative instruments on the basis of models which were found to be fundamentally flawed in two respects: they were based on an insufficiently long observation period from which to calculate probabilities, and they did not take into sufficient account the tail-risk that the risks attached to many of the assets within CDOs were themselves highly correlated. Thus what were thought to be diversified instruments turned out to be highly concentrated.

In essence, therefore, financial innovation (most especially credit-risk shifting instruments) had both *risk-shifting* and *risk-changing* properties.

6.3.2. Incentive Structures

Linked to new business models were internal incentive structures and reward structures which can be regarded as part of a bank's business model. Kashyap *et al.* (2008) give particular emphasis to the potentially perverse incentive structures in securitisation models.

Several dimensions to bank incentive structures were relevant in the crisis: the extent to which reward structures were based on the volume of business undertaken; the extent to which the risk characteristics of decisions were incorporated (or not so) into management reward structures; the nature of internal control systems within banks; internal monitoring of the decision-making of loan officers; the nature of profit-sharing schemes, and whether or not decision-makers also shared in losses. In many cases rewards were asymmetric as substantial bonuses were paid in the event of high short-term profitability, while losses were not equally reflected in reward structures. Reward systems based on short-term profits and front-loaded payoffs proved to be hazardous as they induced managers to pay less attention to the longer-term risk characteristics of their decisions. High staff turnover, and the speed with which officers moved within the bank, also created incentives for excessive risk-taking. A similar effect could arise through the herd-behaviour that is common in banking. The incentive structures favouring 'short-termism' is epitomised in the now infamous statement of the Chairman of Citi (Chuck Prince): *"As long as the music is playing, you've got to get up and dance. We're still dancing"*.

Overall, the evidence suggests that reward structures within banks (which often focus on short-term profitability) produced a bias to excessive risk taking. In particular, UBS (2008) identified systemic deficiencies in its compensation policy as a contributory factor in the substantial write-downs it suffered at the height of the crisis. It emerged that at UBS triple-A rated mortgage-backed securities were charged a very low internal cost of capital. Traders holding such securities were allowed to count any spread in excess of this low hurdle rate as income which in turn determined their bonuses. If the internal cost of capital is under-priced, and bonuses are paid on any excess return over this low cost of capital, there is an inevitable tendency for traders to take excessive risk.

6.3.3. Excess Financialisation

The collective action of banks adopting new business models produced what might be termed 'excess financialisation' of economies. This was seen in various

dimensions: the increasing role of banks in the financial intermediation process; a sharp rise in the assets of the banking system relative to GDP; the rapid growth and overall size of the financial system in the economy; the burgeoning leverage of banks (as measured by their gearing ratios), the sharp rise in overall debt-GDP ratios in the economy; the degree of intra-sector leverage (the extent to which leverage increased within the financial sector as financial institutions became increasingly exposed to other financial institutions); the frenetic pace of financial innovation; the sharp rise in trading volumes of banks; the market capitalisation of banks relative to overall market capitalisation of stock market companies (Van Weseveen, 2008), and the share of total profits in the economy accounted for by banks.

In the UK, banking sector assets as a proportion of GDP rose from 40 percent in 1960 to 220 percent in 1990 and to 540 percent in 2008. Although this ratio tends to rise in all countries as national income rises, our theme is that these measures of 'financialisation' became excessive and unsustainable. Similarly, for the ten largest US banks, total assets doubled in the period mid-2004 to mid-2007 while the sum of risk-weighted assets (against which capital needed to be held) rose by only 20 percent. Furthermore, the loan-to-assets ratio of these banks declined from 52 percent in 1997 to less than 40 percent, while the investment-to-asset ratio rose from 32 percent in 1998 to 54 percent by 2008. At the same time, the deposit-to-asset ratio declined from 45 percent in 1998 to 36 percent in 2008.

The unsustainable 'excess financialisation' that emerged from new bank business models that occurred in the decade before the onset of the crisis was largely associated with underlying factors which were themselves unsustainable (Llewellyn, 2010). The growth of securitisation, structured investment vehicles (SIVs), and the use of credit risk-shifting instruments, had the effect of inducing an "over expansion" of banking business and unrealistic perceptions of risk. Combined, these created conditions for banking activity to become excessive which the supervisory process did little to constrain even though supervisory agencies in several countries (in various *Financial Stability Reports*) expressed public concern about many of the trends that culminated in the crisis.

Several factors lay behind the increasing role of banking and 'excess financialisation' in the years leading up to the crisis:

- Excess gearing, and an under-capitalisation, meant that banks could expand at a faster rate, and to a higher level, compared with the position had they maintained a level of capital commensurate with their risks. Overall, banks became highly leveraged with a rise in assets on the balance sheet relative to total capital, (Alessandri and Haldane, 2009, and Wehinger, 2008). Although banks appeared to be well-capitalised, this was largely because

they were under-estimating risks and holding assets off balance sheet without capital backing even though there was often a contingent liability attached.

- The macro-economic environment, and the collective euphoria of the pre-crisis years, meant that risks were systematically under-estimated and also under-priced. This increased both the demand for loans and the willingness of banks to meet that demand. The sharp rise in the size of bank balance sheets was compounded by a persistent under-estimation and under-pricing of risk. Several supervisory agencies and others (including the Bank of England (2006 and 2007), IMF and the Bank for International Settlements) gave frequent warnings that risks were being systematically under-priced.
- The collective euphoria, and the high profitability of banks at the time, meant that the cost of capital was artificially low because it did not reflect the true risks that banks were incurring. This amounted to an effective subsidy to banks.
- The perceived safety-net for banks (government support, etc) also had the effect of lowering the cost of funding for banks.
- For various reasons, including the nature of the competitive environment at the time, banks adopted more short-termist strategies to maximise the rate of return on equity. In truth, profitability was enhanced not by superior banking performance, but by banks raising their risk threshold and moving up the risk ladder. As already noted, internal reward and bonus structures created a bias towards short-termism and also to excess risk taking.
- The universal optimism generated by the dominant economic ideology of the time (the rational expectations and efficient-markets hypotheses), meant that rating agencies, central banks, governments, supervisors and many other agents, were not inclined to challenge the strategies and business operations of banks.

Each of these factors, both individually but most especially when combined, created sufficient conditions for an over-expansion of banking activity, and an artificially enhanced role of banks. As might have been put by Sherlock Holmes: *"It is elementary Dear Watson: if any industry is 'subsidised' or under-prices its product, it will grow too fast and become too big and to a level that becomes unsustainable without the subsidy!"*

Our general theme is that new business models generated an increased 'financialisation' of the economy. The argument is that this became excessive and unsustainable because it was based on factors that were themselves 'artificial' and unsustainable. In particular, the banking sector became excessively large and

based on various forms of internal and external 'subsidies' that could not be sustained in the long run. In this regard, banks expanded beyond their marginal economic and social value. Although banking seemed to be extremely profitable in the years prior to the crisis, this was misleading as such seemingly excess returns were based on various unsustainable 'subsidies' and an under-estimation and under-pricing of risk.

6.3.4. Diversity of Business Models[1]

Although new business models emerged that focused largely, though not entirely, on credit risk-shifting instruments and short-term wholesale funding, business models were not homogenous between banks and diversity remained. A recent CEPS report (Ayadi *et al.*, 2011) offers an empirical study of business models and their implications for risk characteristics, business performance, and efficiency. A sample of 26 European banks (representing around 55 percent of EU bank assets) was analysed covering the period 2006-09. A cluster analysis sorted the banks into three categories: what were termed *Retail Banks* (engaging in retail banking activities with limited investment exposures), *Wholesale Banks* (extensive trading and derivatives transactions), and *Investment Banks* (active in wholesale and interbank markets). The general conclusions are summarised as follows:

- Retail banks tended to be less risky (high Z scores), held more liquidity and made less use of credit risk-shifting instruments.
- Investment banks were the most highly leveraged with heavy trading activity.
- Market-based measures of risk in the period before the crisis (*e.g.* CDS spreads) seemed not to reflect differences in risk.
- A positive relationship emerged between the use of derivatives and low RWA suggesting that they were used to reduce the capital charge without lowering risk. RWA was found not to be a good measure of riskiness.
- Wholesale banks were the most risky (mainly German Landesbanks).

The findings show that those banks that kept their focus predominantly on retail business proved more resilient to the crisis, thanks to relatively lower leverage and higher loss-absorbency capital, and maintained their levels of lending to the real economy. Most importantly they were less likely to receive government support. Banks that relied excessively on leverage and other short-term funding, and engaged in risk-shifting activities without retaining a portion of the risks on their books, were the worst performers during the crisis and the most likely to need

[1] This sub-section draws heavily on a draft by Rym Ayadi based on Ayadi *et al.* (2011).

government support. The study singled out this latter group of banks in the category of the 'wholesale banking' model. The analysis also emphasised the 'investment banking' category, in which the banks were also highly leveraged and heavily engaged in trading and repos markets as being badly hit by the crisis. These investment and wholesale banks were more likely to use derivatives to lower their risk-weighted assets, a key concept in measuring the Basel II regulatory capital. A more acute concern, which was highlighted in the research, arises from the shifting from one business model to another. ABN Amro, for example, switched from being a predominantly retail bank to an investment bank and then to a wholesale bank in less than three years.

The results provide some justification to the recent popularised view that the retail banking model is safer than others. Despite their commercial orientation and their size, these banks were safer than their peers and performed relatively well before, during and after the crisis. The findings also point to some weaknesses in the institutions in the investment banking model, which tend to rely on less stable funding sources, engage heavily in trading activities and maintain a very low share of loss-absorbing capital (i.e. common tangible capital) compared to the other two models despite comparable Tier-1 ratios. In turn, the wholesale banking group appears to be the most risky, possibly arising from a lower share of liquid assets and a greater use of more volatile interbank funding. In this sense, capital requirements that focus on more loss-absorbing capital, especially in the definition of leverage ratios, and on the use of more traditional forms of funding and liquidity management (such as the net stable funding ratio) could be useful in reducing inherent risks in banking.

The fact that most of the banks in the sample, including nearly half of the retail banks, have received government support in one form or another is likely to invite moral hazard problems. Indeed, although various measures point to differing underlying risks, the market's pricing of default probabilities (via CDS spreads) were virtually identical on average for the three business models. This implies that market participants saw no reason to distinguish between the inherent risks of different business models, possibly in anticipation of the eventual government support that the sampled banks would receive. These findings call for a serious investigation into the use of additional capital charges for 'systemically important financial institutions' or SIFIs. Implementing a Financial Stability Contribution (FSC), as proposed by the IMF (2010) and partly supported by the European Commission (COM(2010) 254), to internalise the cost of crises and facilitate crisis management in the EU may also address the risks arising from 'too-big-to-fail' institutions. Above all, greater focus needs to be given to various measures in Resolution arrangements to lower the cost of bank failures so that banks can more readily be allowed to fail.

A heavy reliance on risk-adjusted capital requirements may be misguided since the risk-weights appear to be unrelated, and even inversely linked, to underlying risks. Although the results of the study have to be interpreted with care, there is concern that certain banks may use their specialisation in trading activities to offload some of the riskier portions of their assets from their balance sheets without actually reducing their inherent risks. This gives additional justification for the use of simple rules, such as the proposed leverage ratio as called for under the Basel III framework[2].

6.4. Post-crisis Pressures on European Banking

This and the next section consider business model scenarios in the post-crisis era in a short- and medium-term perspective. The starting point is that European banks face an unprecedented combination of pressures in four key dimensions:

(1) *Balance sheet pressures* focussed on capital, liquidity and funding. Across the euro area, banks face massive re-financing requirements this year at a time when conditions in the inter-bank and wholesale markets have been difficult. However, immediate funding pressures have been eased substantially by the ECB's innovative large-scale programme of three-year loans (and the easing of collateral requirements) designed to avoid a further serious credit crunch in the euro zone. In December 2011 and February 2012, the ECB made low interest rate and long-maturity loans to euro zone banks of over € 1 trillion. These loans are at a lower interest rate, in larger amounts, and for longer maturities than are available in the market. The point, however, is that welcome as the ECB's initiative is, it remains a palliative, and cannot become a permanent feature of European banking models.

(2) *The macro economy* in many euro area countries remains weak and the forecast for the short-term outlook is at best anaemic. Herein lies the potential for a serious negative-feed-back-loop (NFBL): weak bank lending impeding the possibility of economic revival, and weakness in the economy impairing the balance sheet position of banks through higher loan-loss experience. As a point of perspective, the December 2011 euro area Bank Lending Survey reported that 35 percent of banks reported a tightening in their lending conditions and lending interest rates rose in 2011(4).

(3) *Market pressures* with a combination of uncertainty about the position and even durability of the euro, substantial bank exposure to sovereign debt (most especially with respect to Greece, Spain, and Portugal), weakness in

[2] An alternative would be to oblige banks to hold much more capital than is currently required. Indeed, a recent study has found that the socially 'optimal' capital requirement would be around 20% of the RWA (Miles *et al.*, 2011).

the supply of new equity to banks, and a rise in the cost of capital with suppliers of capital factoring in higher risk premia. Although banks across Europe are under capital pressure, few have been able to issue new equity capital on any significant scale.

(4) *Regulatory pressures* in the context of one of the greatest-ever intensifications of the regulatory regime focussed on capital and liquidity requirements. These could prove to be massively pro-cyclical and weaken the traditional financial intermediation role of banks at a time when European economies most need it.

Each one of these pressures could be formidable and present banks and their regulators with formidable challenges. The point, however, is that it is the *combination* of pressures that potentially creates a precarious position both for banks and the economies of Europe.

6.4.1. Ominous Parallels: End 2011

A further perspective is that at the end of 2011 close and ominous parallels emerged between market conditions and those that emerged in 2008 most especially with regard to price, maturity, and availability conditions in the inter-bank market. Important suppliers of dollar funds in the European market (US Money Market Funds) reduced exposure to European banks to their lowest level since 2008. As in 2008, banks were heavily reliant on wholesale and short-term funding markets with difficult availability in the 3-12 month maturity range. Again as in 2008, and partly because of enhanced counter-party risk, banks were hoarding liquidity rather than making it readily available in the inter-bank market. Similarities also emerged in several market prices: OIS spreads paid by banks, CDS prices, tiering of inter-bank interest rates, a wide range of bond market spreads, and increased volatility of bank bond prices. Financial market liquidity indicators also deteriorated. These can be seen in various charts in the December issue of the ECB's *Financial Stability Review.*

There was also a parallel in the stock market valuation of banks between end-2011 conditions and those in 2008. In particular, bank equity prices were weak with a wide differential between the market and book values of banks. This normally suggests market doubts about the true value of bank assets, scepticism about future earnings prospects, and a higher uncertainty discount as investors find it difficult to assess the true value of banks in current conditions. In line with this uncertainty, stock market prices of bank shares became volatile both absolutely and in relation to the market generally.

Whilst there were many parallels with the position in 2008, in some respects the combination was yet more hazardous: the general macro economic outlook was

weaker, fiscal positions had weakened considerably in part due to government bail-out and support operations for banks, and the combination of the euro and sovereign debt crises had become more stark.

At the end of 2011 banks across the euro area were finding it increasingly difficult (if possible at all) to raise unsecured funds in the bond markets and the cost of funding had risen to 2008 levels. Faced with enormous re-financing requirements in prospect in the first quarter of 2012, banks might have been required to sell assets on a substantial scale which, had such sales had a large impact on asset prices, could have transformed a financing into a solvency crisis for some banks.

6.4.2. ECB Intervention

It was at this stage that the ECB intervened on a massive scale with its new financing facility (LTRO). The balance sheet of the ECB expanded sharply. The intervention eased the immediate funding pressure on banks, removed the immediate need for substantial asset sales, bought time for banks to adjust and for countries to adopt structural reforms, and also allowed banks to meet margin calls on derivatives trading if, and when, required to do so.

All this represented a new business model not only for banks (relying on the central bank for funding rather than the interbank market) but also for the ECB as it was providing semi-permanent funding for commercial banks which is not the traditional role of a central bank. In effect, it took over bank financing from the interbank market. There are several implications and reservations attached to this new business model for banks and the ECB:

- ECB intervention in itself has not changed the underlying position of banks that existed at the end of 2011.
- Whilst it buys time (three years), the question arises as to whether funding conditions will improve over this period and by the time that repayments need to be made. There is, therefore, an exit problem to consider and whether the interbank market will take over the funding operations of the ECB.
- It implies the ECB absorbing credit risk.
- Somewhat perversely, access to ECB funding might weaken banks' access to (and raise the cost of) private funding markets to the extent that the best quality collateral has already been pledged to the ECB. Thus, whilst for private investors the probability of default of banks may have decreased, the loss-given-default has increased because of the lower availability of high-quality collateral.
- Given the low cost of ECB funding (1 percent) there is an arbitrage incentive for banks to buy peripheral sovereign debt. Whilst the ECB is not allowed

to lend directly to governments, it is able to lend to banks that in turn purchase sovereign debt.

- There is a danger than banks develop business models on the assumption of ECB funding which, in time, might be difficult to extricate from.

In some respects (due largely to intervention by the ECB), there has been some recent easing in the conditions faced by European banks: bank stock market prices have risen; what could have been serious re-financing problems for banks this year has been alleviated by a new loan facility offered by the ECB, and the European Banking Authority (EBA) has indicated that most banks are on track in raising their capital ratios. The problem, however, is that palliatives and respites that buy time are not sustainable alternatives to structural adjustments to underlying problems.

6.4.3. Strategic Options for Banks

Banks that are capital constrained (for instance, when required by regulators to raise equity-asset ratios) have four broad strategic options within their business models. The first obvious route is to inject more private equity capital either by capital issues or through retained profits although the latter can be a slow process when profitability is also under pressure. A second broad option is to make various balance sheet adjustments: limiting loans and credit, selling assets or parts of the business, and technical balance sheet adjustments that have the effect of raising the equity ratio (such as buying back debt that is trading at a discount and, where possible, re-calculating risk weights attached to some balance sheet items).

The first of these strategic option satisfies the requirement to raise the equity-asset (E/A) ratio by raising the numerator while the second operates through lowering the denominator. There is a crucial difference between the two as argued below.

A third possibility is through securitisation whereby banks generate loans though do not hold them on the balance sheet (and hence avoid a full capital charge) but sell loan packages to investors who fund the purchase through issues of securities. In order to avoid some of the problems in securitisation that surfaced during the crisis, it would need to be done in a different way, not the least through initiating banks keeping some of the risk themselves. A fourth option (such as was the case with RBS), is for governments to inject capital which amounts to a bail-out of troubled banks. However, the problem is that in some countries with troubled banks, governments are not in a position to do this because they themselves have reached the limit of debt-issuing capacity.

6.4.4. Conflict of Objectives

There are two immediate objectives: to sustain a stable banking system, and to ensure that banks are able to support growth and a revival of the European economies through their lending most especially to the corporate sectors. A conflict between the two objectives can arise when the former requires a rise in equity capital ratios while the latter requires an expansion of bank lending. Of course, this apparent conflict can be removed simply by banks injecting more equity capital. However, in current conditions this is both difficult (in some cases impossible) and expensive. In which case, banks are responding to the need to build up equity ratios by de-leveraging which is precisely the opposite of what is needed if banks are to support the economy. In fact, bank lending in many EU countries has been falling for some time. A way out of this potentially serious NFBL needs to be found. In extremis, this could be achieved through a temporary injection of state capital coupled with strong conditionality provisions.

6.5. The Crisis as Transformational

Having considered business models prior to the crisis and the immediate aftermath, this section consider possible post-crisis scenarios in the medium term. The central theme is that the crisis will prove to be transformational in several dimensions and three in particular: (1) the size of the banking industry, (2) bank business models, and (3) the cost of bank services.

Post-crisis business models are likely to be dominated by three pressures: the unwinding of pre-crisis unsustainable business models and practices, the specific lessons of the crisis, and a substantially more demanding regulatory environment.

6.5.1. Size and Cost of the Banking Industry

As many of the trends that supported the 'excess financialisation' and growth of banks were unsustainable, their removal is likely to have the reverse impact towards a more sustainable system and set of business models. As a result, banks may become less significant in the financial intermediation business than in the past. A member of the Bank of England's Monetary Policy Committee takes a similar view arguing that it is likely, and probably desirable, that *"banks will become less significant intermediaries in channelling savings from households to companies and other households,"* (Miles, 2009). In particular, there is likely to be slower growth in bank balance sheets, bank business will decline as a share of GDP, they are likely to be less profitable than in the period running up to the crisis, and bank services are likely to become more expensive. The IMF has also argued:

> *"immediate, short-run policies and actions taken need to be consistent with the long-run vision of a viable financial system… and that the viable financial sector of the future will be less leveraged and therefore smaller relative to the rest of the economy."* (IMF, 2009)

Several factors work in this direction. Banks are likely to become more realistic about risks and their pricing and reverse the earlier under-pricing of risk. In addition, in the short run at least, they are likely to become more risk averse. The requirement to operate with significantly higher capital ratios and lower gearing will also limit the role of banks compared with the years prior to the onset of the crisis. This is likely to be reinforced by banks facing a higher cost of equity capital. Regulatory costs more generally (including the requirement to hold more liquidity on the balance sheet) will also rise. It is also likely that internal reward and bonus structures will change to remove the bias towards excess risk-taking. Furthermore, banks will receive less comfort from being 'too-big-to-fail' for two reasons: under new intervention arrangements (such as, in the UK, the *Special Resolution Regime* recently introduced as a result of the crisis) banks may be closed before they become insolvent, and penalties (including tax) could be imposed on banks with access to safety nets. The latter could take the form of what amounts to *ex ante* insurance premia to be paid by banks to pay for rescues that might be needed in the future and in order to minimise the potential burden on the tax-payer. Hitherto, the tax-payer has effectively acted as an 'insurer of last resort' but without extracting *ex ante* premiums.

For all these reasons, the cost of bank services is also likely to rise with the prospect that intermediation margins (the difference between lending interest rates and the rate of interest on deposits) widen. If anything, and because there will be a strong demand for retail deposits as banks shift away from wholesale funding, the widening of margins is likely to take place more in terms of lending rates than deposit rates.

These trends are likely to produce two outcomes: less credit generation in total, and some displacement of credit from banks to other routes: a process of *disintermediation*. If banks become more constrained in the post-crisis environment, a key issue is who will provide the credit previously generated in the banking sector. Displacement could occur, for instance, through a re-activation of securitisation, non-finance companies such as supermarket banks, and the capital market as bond financing displaces bank financing. Siemens has announced that it is to establish its own bank in order to reduce reliance on bank financing and to give it access to deposit facilities at the central bank.

6.5.2. Future Business Models

Bank business models are also likely to change as a result of the trauma of the banking crisis. This could involve a reversion to the more traditional model of 'originate to hold' implying originating loans, holding the assets on the balance sheet, monitoring borrowers, and holding capital against the credit risk with internal insurance displacing external insurance instruments such as CDSs.

The change in the nature of bank business models is also likely to include less reliance on more volatile wholesale funding sources and greater reliance on traditional retail deposits. This will be accentuated by the withdrawal of official exceptional funding and liquidity support. Holdings of liquid assets will also be higher than in the immediate past.

Regulation (and the requirement to create 'living wills') is likely to induce banks to create less complex business structures, and higher regulatory capital requirements on banks' trading book may limit the extent of this business.

A key issue centres on the future role of securitisation in bank business models. There is an economic imperative to resurrect the securitisation market. Citigroup estimates that in 2008 securitisation supplied between 30 and 75 percent of credit in different sectors. While a proportion of this total credit might have been excessive, if securitisation were to remain dormant, a serious credit crunch could emerge as, for reasons outlined, banks are unlikely to be able to hold the loans shifted from the securitisation sector on their own balance sheets.

Notwithstanding the problems that emerged with securitisation, and the fact that very little has been undertaken since the onset of the crisis, it remains a viable model and needs to be a major technique in the financial system. This is most especially the case if, as has been argued, banks will face more balance sheet constraints than in the past. There are systemic advantages to securitisation. The skill lies in developing the securitisation model while avoiding some of the pitfalls. This could include, for instance, greater transparency, a requirement for banks to keep some of the credit risk on their own balance sheets, and techniques that are less complex than in the past.

6.6. Assessment

The European banking industry has reached something of a turning point where major regulatory changes will impact the size, growth, future business models and the structure of the financial system as a whole. The evolution of European banking and its business models over the coming years is likely to be dominated by the legacy of the crisis and the regulatory and supervisory responses to it.

Two dimensions to bank business models were identified at the outset: the range of business lines and the way the traditional financial intermediation role is conducted. A key issue with respect to the latter is whether, and to what extent, banks will revert to what has been termed the 'traditional' model. Two issues emerge with respect to the former: the range of business lines adopted by banks, and the extent to which different business lines are to be conducted within differentiated business structures. A key dimension recommended by the Vickers report (Independent Commission on Banking, 2011), and currently being studied by the EU Commission, is the extent to which different business activities are to be 'ring-fenced' and in particular whether core business is to be ring-fenced from other activities such as investment banking and securities trading. Regulatory decisions made in this area will have significant implications for future bank business models.

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7. Banking Banana Skins – Brief Remarks

David Lascelles

The latest Banking Banana Skins survey (February 2012) showed that the greatest concern in the banking sector at the moment is the state of the global economy: if it does not recover the effects could be severe: large loan losses, especially in the sovereign risk sector (eurozone in particular, a global concern stretching from New Zealand to Canada), and household debt (credit cards, mortgages). The underlying fear is that there could still be bank failures – only this time governments will be less well placed to bail them out.

There are also institutional concerns: is bank management equipped to deal with risk, will regulation be robust enough to prevent failure, is there enough capital/liquidity to help banks through? These are concerns rather than predictions, of course, but they help explain why banks are reluctant to lend, and why the recovery may be slow.

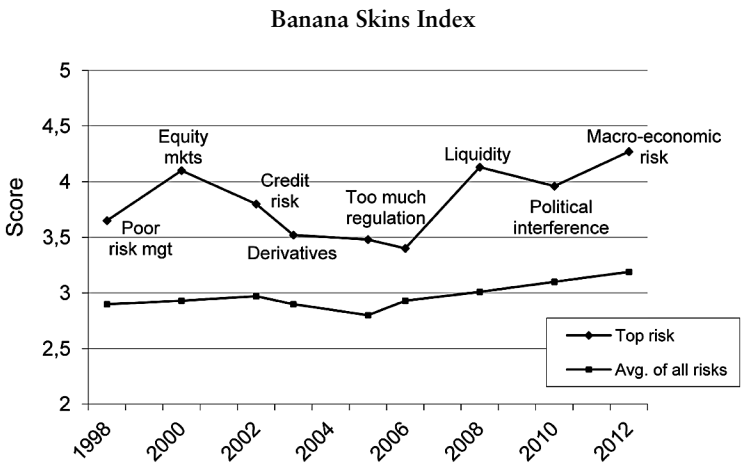
The latest TOP TEN Banana Skins are:

Banking Banana Skins 2012 (2010 ranking in brackets)

1	Macro-economic risk (4)
2	Credit risk (2)
3	Liquidity (5)
4	Capital availability (6)
5	Political interference (1)
6	Regulation (3)
7	Profitability (-)
8	Derivatives (7)
9	Corporate governance (12)
10	Quality of risk management (8)

Source: Banking Banana Skins 2012 CSFI.

Also interesting is the latest Banana Skins Index which measures the level of anxiety in the markets (see p. 70).



Source: Banking Banana Skins 2012 CSFI.

The bottom line plots the average score given to all risks each year. It shows anxiety rising in the late 1990s in the run-up to the dotcom crisis of the early 2000s, followed by an easing as the world moved into the 'good times' of the mid-naughties. Interesting is the sharp uptick in 2006, reflecting, we now believe, the early signs of concern about asset quality which exploded with the sub-prime crisis of 2007, followed by Lehman 2008. I believe this is a useful leading indicator of market sentiment that no one else measures. If it is correct, it tells us that anxiety is currently at its highest level since we started the series in 1998.

However the Banana Skins series also tells us that there is persistent concern about the harmful effects of excessive regulation, even among non-banking respondents (*e.g.* consultants, analysts, professional observers). Even though public opinion and political expediency are currently demanding a regulatory crackdown, we should be aware that any regulatory reaction to a particular situation contains the seeds of the next banking crisis. This is to say that new regulations will encourage banks to find ways round the new rules and to take on new risks to sustain return on capital. One of the best quotes in the survey was, I think:

> *"The risk of increasing capital to a level which stops banks paying an adequate return to equity investors is huge and avoidable. When the history of the 2020 banking crisis is written, Basel 3 capital requirements will be seen as the main cause."*

8. Concluding Observations

Thorsten Beck

I would like to make short remarks in four areas that were mentioned during today's excellent conference. Specifically, I would like to comment on the relationship between finance and growth and how the profession's view on this has developed over the past years. Then, I will turn my attention to bank failure and the reform of the resolution framework that has become urgent after the 2007/8 crisis and in light of the current bank fragility in Europe. Next, I will comment on the relationship between bank competition, regulation and stability. Finally, I will speak on the issue of cross-border banking in Europe.

First, let me talk briefly about the area of finance and growth. In my opinion, we have to rethink what the proper role of the financial sector in the economy is and how we gauge its contribution. Academics have traditionally focused on the *facilitating role* of the financial sector, which consists of mobilizing funds for investment and contributing to an efficient allocation of capital in general. In doing so the financial sector supports capital formation and productivity growth, and ultimately economic growth. Policy makers – especially before the crisis and more in some European countries than others – have often focused on financial services as a *growth sector in itself*. This view towards the financial sector sees it more or less as an export sector, i.e. one that seeks to build a – often – nationally centered financial center stronghold by building on relative comparative advantages, such as skill base, favorable regulatory policies, subsidies, etc. While there is strong evidence for the facilitating role of finance, there is less evidence for growth benefits from building a financial center[1]. But the recent crisis has certainly taught us the risks of such a financial center approach, which brings with it high contingent taxpayer liabilities that in a crisis turn into real taxpayer costs and that turn a banking crisis more easily into a deep recession and potentially into a sovereign debt crisis.

Refocusing our attention on the facilitating role of finance might be therefore useful. Cross-country comparisons have shown that countries with higher levels of Private Credit to GDP grow faster, but the same line of research has shown that there is a non-linearity in this positive relationship and that it might even turn negative at very high levels, consistent with other evidence that finds that rapid

[1] Some of these thoughts were first spelled out in joint work with Arnoud Boot and Hans Degryse. See Beck, Degryse and Kneer (2012) for some initial evidence.

credit growth is a good crisis predictor[2]. Why is the relationship non-linear? Why does the marginal contribution of financial deepening decrease at high levels? One answer might lie in who gets credit. In recent work with several co-authors, I have shown that the relationship between financial intermediation and real economic growth goes through lending to enterprises, but not necessarily through lending to households[3]. This does not imply that lending to households should be considered a social bad, rather that we cannot expect financial deepening based on extending loans to households (mostly mortgages) leading to higher growth rates.

Second, I would like to make some remarks on bank resolution. We do not really care about failing banks per se, but we care about the external costs that they impose on the rest of financial system and the economy at large. These external costs arise from the (i) domino effect, i.e. close interlinkages between banks so that the failure of one institution can easily result in the failure of other institutions in spite of sound fundamentals in these other banks, (ii) contagion effects through the spread of retail and wholesale runs and contagion through fire-sales on asset markets, and (iii) effects on the real economy through the loss of lending relationships. In countries with larger banking sectors, these external costs also tend to be higher. These costs are external to the banks as they are not taken into account by risk decision takers in financial institutions. The challenge is therefore not to reduce the risk of bank failure to zero, but rather to minimize the external costs that arise from bank failure. This would involve a bank resolution framework that minimizes these external costs while still imposing losses on some of the failing banks' stakeholders according to their seniority. Purchase and assumption models, bridge bank models or tailored solutions, such as through living wills that identify the parts of the banks critical to the rest of the financial system and the real economy, can achieve these two objectives to a large extent and can significantly improve on the ad-hoc interventions undertaken in the previous crisis, which involved either bail-out or liquidation.

By constructing a bank resolution framework that forces risk decision takers to internalize these external costs to a larger extent, we also reduce the safety net subsidy that can partly explain why the financial system has grown so large in spite of decreasing if not negative marginal social returns to further financial deepening as discussed above.

[2] For a summary of the finance and growth literature see Levine (2005) and Beck (2012). For more recent evidence a possibly negative impact of finance on growth at very high levels of Private Credit to GDP, see Arcand, Berkes and Panizza (2011).

[3] See Beck *et al.* (2012).

Third, I would like to comment on the relationships between bank competition, stability and regulation. First of all, on the question whether regulation impedes or fosters competition. I seriously think this is the wrong question and should be rephrased as: what kind of regulation impedes or fosters competition? Regulation aiming at more transparency vis-à-vis clients can foster competition as can regulation forcing financial institutions to share credit information through a credit registry. Regulation introducing interest rate ceilings or floors or preventing new entrants into the financial system rather undermines competition. In this context it is also important to not confuse the costs of regulatory burden for the banks with the social costs of such regulations. To link to the previous topic of bank resolution, living wills certainly impose a high regulatory burden on banks, but these private costs might be more than outweighed by the social benefit of lower external costs of bank failures.

Let me in this context also comment on the relationship between bank competition and stability, a debate which the literature has not really settled yet. This ambiguity might be related to the different measures of competition and stability that researchers have focused on or, as two co-authors and I show in recent work, to cross-country differences in regulation and market structure[4]. Specifically, we document a large cross-country heterogeneity in the relationship between bank competition and stability, ranging from positive to negative and with different degrees of intensity. We show that an increase in competition will have a larger impact on banks' risk taking incentives and thus fragility in countries with stricter activity restrictions, more herding in revenue structure, more generous deposit insurance schemes and more effective systems of credit information sharing. Policy makers thus have to take into account the regulatory framework and market structure that banks operate in when assessing the impact of competition on fragility. Even more importantly, the regulatory framework and the risk-taking incentives it sets for banks might be more important for the objective of reducing fragility than attempts at 'fine-tuning' competition or market structure.

Finally, I would like to comment on cross-border banking. Large cross-border banks have been the face of the recent crisis (*e.g.* RBS in the UK, ABN-AMRO-Fortis in the Netherlands). Beyond the argument that they were not necessarily the cause of the crisis, but rather part of a larger transformation of financial systems across Europe and the developed and emerging world in the early 2000s, there are clear benefits of cross-border banking for the real economy[5]. The main stability benefits stem from diversification gains; take the example of Spain; in spite of its Spanish housing crisis, Spain's large banks remain relatively solid, given the profitability of their Latin American subsidiaries. Similarly, foreign

[4] See Beck, de Jonghe and Schepens (2011).
[5] For the following, see Allen *et al.* (2011).

banks can help reduce funding risks for domestic firms if domestic banks run into problems. However, the costs might outweigh the diversification benefits if outward or inward bank investment is too concentrated. Several Central and Eastern European countries are highly dependent on a few West European banks and the Nordic and Baltic region are relatively interwoven without much diversification[6]. Critically, cross-border banking raises regulatory concerns. National regulators are biased when deciding whether or not to intervene in a bank with activities outside its regulatory perimeter. This could also be seen in the recent crisis, where banks with higher share of cross-border assets and deposits were intervened relatively late, while banks with higher foreign equity shares were intervened relatively early (Beck, Todorov and Wagner, 2012). A move towards supra-national regulation of cross-border banks is therefore called for to internalize these distortions in national supervisors' incentives. This can also be seen in the broader context of a trilemma of financial integration (Schoenmaker, 2011) that states that financial integration, financial stability and national sovereignty in bank regulation cannot be achieved simultaneously and one of the three has to give. Presuming that one wants to maintain financial stability, the options are hence either a move towards national banking systems, with stand-alone, fire-walled subsidiaries or a move towards supra-national supervision. This would call for a pan-European bank regulator for large cross-border banks only, with the necessary supervisory, intervention and resolution powers and the necessary firing powers, provided either through a deposit insurance scheme and/or back-stop funding from the European Union. As second-best solution, but also complementary to the above suggested solution, living wills with ex-ante burden sharing agreements between countries can be a step into the direction of overcoming national biases in supervision of cross-border banking.

As you can see, the four topics I touched upon are all linked. Financial intermediation is important for real sector growth and competition in the financial sector can increase these growth benefits. Competition with the 'wrong' regulatory framework and in the 'wrong' market structure, however, can increase fragility. One important way to harness financial institutions and markets is through a proper bank resolution framework that forces risk decision takers in banks to internalize the external costs coming from their potential failure. This is even more important in the case of cross-border banks. Safeguarding the Single European Banking Market with a strong and resourceful bank resolution framework for large cross-border banks is also critical to reap the benefits from financial integration.

[6] See Schoenmaker and Wagner (2011) for a discussion and evidence.

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