



**FSA**<sup>®</sup>

Financial Services Authority

# The Turner Review

A regulatory response to the  
global banking crisis

March 2009





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# Introduction



Over the last 18 months, and with increasing intensity over the last six, the world's financial system has gone through its greatest crisis for a least a century, indeed arguably the greatest crisis in the history of finance capitalism. Specific national banking crises in the past have been more severe – for instance, the collapse of the US banking system between 1929 and 1933. But what is unique about this crisis is that severe financial problems have emerged simultaneously in many different countries, and that its economic impact is being felt throughout the world as a result of the increased interconnectedness of the global economy.

This does not mean that the economic recession which many countries in the world now face will be anything like as bad as that of 1929-33. The crisis of the early 1930s was made worse by policy responses which can be – and are being – avoided today. But it is clear that however effective the policy response, the economic cost of the financial crisis will be very large. We therefore need to ask profound questions about what went wrong, whether past intellectual assumptions about the nature of financial risk were seriously mistaken, and what needs to be done to reduce the probability and the severity of future financial crises.

The Chancellor of the Exchequer asked me in October 2008 to review the causes of the current crisis, and to make recommendations on the changes in regulation and supervisory approach needed to create a more robust banking system for the future. This Review responds to that remit, focusing on the fundamental and long-term questions. It does not address the short-term challenge of macroeconomic management over the next few years, though it does comment on ways in which the transition path to new more stable arrangements must be managed in the light of that short-term challenge. And its focus is on banking and bank-like institutions, and not on other areas of the financial services industry. The FSA Discussion Paper which accompanies this review considers possible implications for other financial services.

It is organised in four chapters:

- 1** Chapter 1 describes what went wrong, and the extent to which the crisis challenges past intellectual assumptions about the self-correcting nature of financial markets.
- 2** Chapter 2 sets out changes to banking regulation and supervisory approaches where the principles of changes now required are already clear, and which the FSA plans to introduce and/or which it is proposing in international fora.
- 3** Chapter 3 describes a set of wider issues raised by the crisis, and a wider set of possible policy responses which deserve debate.
- 4** Chapter 4 summarises the recommendations, distinguishes between those which can be implemented by the FSA acting alone and those where we need to seek international agreement, and discusses the appropriate pace and process of implementation given the starting point of today's macroeconomic position.

A summary of the Chapter 2 recommendations, and of the Chapter 3 open issues, is set out on the following three pages overleaf. These are the actions required to create an effective banking system, better able to serve the needs of the businesses and households and less likely to be susceptible to financial instability. For completeness, the summary includes actions already implemented or in course of implementation (e.g. The FSA's Supervisory Enhancement Programme) as well as those where further action is now required.

Many of the most important next steps (for instance, those relating to the capital adequacy regime) will depend on the international agreement which Chapter 4 discusses. There is already considerable consensus within key international fora (for instance the Financial Stability Forum and the Basel Committee on Banking Supervision) on many of the principles which should govern the future regulatory regime. But there are different national points of view on precise implementation and phasing. It is therefore important to distinguish between the objectives of improved regulation and the specific ways in which objectives are achieved. Chapter 2 makes that distinction. It proposes some specific options to illustrate how objectives could be delivered; but it relates these to the underlying principles recognising that final international agreements may reflect these principles in different implementation options.

The Review is accompanied by an FSA Discussion Paper, which sets out in more detail the proposals made in Chapter 2.



## ACTIONS REQUIRED TO CREATE A STABLE AND EFFECTIVE BANKING SYSTEM

### Capital adequacy, accounting and liquidity

1. The quality and quantity of overall capital in the global banking system should be increased, resulting in minimum regulatory requirements significantly above existing Basel rules. The transition to future rules should be carefully phased given the importance of maintaining bank lending in the current macroeconomic climate.
2. Capital required against trading book activities should be increased significantly (e.g. several times) and a fundamental review of the market risk capital regime (e.g. reliance on VAR measures for regulatory purposes) should be launched.
3. Regulators should take immediate action to ensure that the implementation of the current Basel II capital regime does not create unnecessary procyclicality; this can be achieved by using ‘through the cycle’ rather than ‘point in time’ measures of probabilities of default.
4. A counter-cyclical capital adequacy regime should be introduced, with capital buffers which increase in economic upswings and decrease in recessions.
5. Published accounts should also include buffers which anticipate potential future losses, through, for instance, the creation of an ‘Economic Cycle Reserve’.
6. A maximum gross leverage ratio should be introduced as a backstop discipline against excessive growth in absolute balance sheet size.
7. Liquidity regulation and supervision should be recognised as of equal importance to capital regulation.
  - More intense and dedicated supervision of individual banks’ liquidity positions should be introduced, including the use of stress tests defined by regulators and covering system-wide risks.
  - Introduction of a ‘core funding ratio’ to ensure sustainable funding of balance sheet growth should be considered.

### Institutional and geographic coverage of regulation

8. Regulatory and supervisory coverage should follow the principle of economic substance not legal form.
9. Authorities should have the power to gather information on all significant unregulated financial institutions (e.g. hedge funds) to allow assessment of overall system-wide risks. Regulators should have the power to extend prudential regulation of capital and liquidity or impose other restrictions if any institution or group of institutions develops bank-like features that threaten financial stability and/or otherwise become systemically significant.
10. Offshore financial centres should be covered by global agreements on regulatory standards.

### Deposit insurance

11. Retail deposit insurance should be sufficiently generous to ensure that the vast majority of retail depositors are protected against the impact of bank failure (note: already implemented in the UK).
12. Clear communication should be put in place to ensure that retail depositors understand the extent of deposit insurance cover.

### UK Bank Resolution

13. A resolution regime which facilitates the orderly wind down of failed banks should be in place (already done via Banking Act 2009).

### Credit rating agencies

14. Credit rating agencies should be subject to registration and supervision to ensure good governance and management of conflicts of interest and to ensure that credit ratings are only applied to securities for which a consistent rating is possible.
15. Rating agencies and regulators should ensure that communication to investors about the appropriate use of ratings makes clear that they are designed to carry inference for credit risk, not liquidity or market price.
16. There should be a fundamental review of the use of structured finance ratings in the Basel II framework.

### Remuneration

17. Remuneration policies should be designed to avoid incentives for undue risk taking; risk management considerations should be closely integrated into remuneration decisions. This should be achieved through the development and enforcement of UK and global codes.

### Credit Default Swap (CDS) market infrastructure

18. Clearing and central counterparty systems should be developed to cover the standardised contracts which account for the majority of CDS trading.

### Macro-prudential analysis

19. Both the Bank of England and the FSA should be extensively and collaboratively involved in macro-prudential analysis and the identification of policy measures. Measures such as counter-cyclical capital and liquidity requirements should be used to offset these risks.
20. Institutions such as the IMF must have the resources and robust independence to do high quality macro-prudential analysis and if necessary to challenge conventional intellectual wisdoms and national policies.

### FSA supervisory approach

21. The FSA should complete the implementation of its Supervisory Enhancement Program (SEP) which entails a major shift in its supervisory approach with:
  - Increase in resources devoted to high impact firms and in particular to large complex banks.
  - Focus on business models, strategies, risks and outcomes, rather than primarily on systems and processes.
  - Focus on technical skills as well as probity of approved persons.
  - Increased analysis of sectors and comparative analysis of firm performance.
  - Investment in specialist prudential skills.
  - More intensive information requirements on key risks (e.g. liquidity)
  - A focus on remuneration policies
22. The SEP changes should be further reinforced by
  - Development of capabilities in macro-prudential analysis
  - A major intensification of the role the FSA plays in bank balance sheet analysis and in the oversight of accounting judgements.

### Firm risk management and governance

23. The Walker Review should consider in particular:



- Whether changes in governance structure are required to increase the independence of risk management functions.
- The skill level and time commitment required for non-executive directors of large complex banks to perform effective oversight of risks and provide challenge to executive strategies.

#### Utility banking versus investment banking

24. New capital and liquidity requirements should be designed to constrain commercial banks' role in risky proprietary trading activities. A more formal and complete legal distinction of 'narrow banking' from market making activities is not feasible.

#### Global cross-border banks

25. International coordination of bank supervision should be enhanced by

- The establishment and effective operation of colleges of supervisors for the largest complex and cross-border financial institutions.
- The pre-emptive development of crisis coordination mechanisms and contingency plans between supervisors, central banks and finance ministries.

26. The FSA should be prepared more actively to use its powers to require strongly capitalised local subsidiaries, local liquidity and limits to firm activity, if needed to complement improved international coordination.

#### European cross-border banks

27. A new European institution should be created which will be an independent authority with regulatory powers, a standard setter and overseer in the area of supervision, and will be significantly involved in macro-prudential analysis. This body should replace the Lamfalussy Committees. Supervision of individual firms should continue to be performed at national level.

28. The untenable present arrangements in relation to cross-border branch pass-porting rights should be changed through some combination of:

- Increased national powers to require subsidiarisation or to limit retail deposit taking
- Reforms to European deposit insurance rules which ensure the existence of pre-funded resources to support deposits in the event of a bank failure.

#### Open questions for further debate

29. Should the UK introduce product regulation of mortgage market Loan-to-Value (LTV) or Loan-to-Income (LTI)?

30. Should financial regulators be willing to impose restrictions on the design or use of wholesale market products (e.g. CDS)?

31. Does effective macro-prudential policy require the use of tools other than the variation of counter-cyclical capital and liquidity requirements e.g.

- Through the cycle variation of LTV or LTI ratios.
- Regulation of collateral margins ('haircuts') in derivatives contracts and secured financing transactions?

32. Should decisions on for instance short selling recognise the dangers of market irrationality as well as market abuse?





# 1: What went wrong?

It is important to root decisions about the required regulatory response in a clear analysis of the causes of the crisis. This chapter presents that analysis in four sections:

- The global story: macro-imbalances meet financial innovation.
- The UK specific story: rapid credit growth, significant wholesale and overseas funding.
- Global finance without global government: fault lines in the regulation of cross-border banks.
- Fundamental theoretical issues: market efficiency and market rationality.

## 1.1. The global story: macro trends meet financial innovation

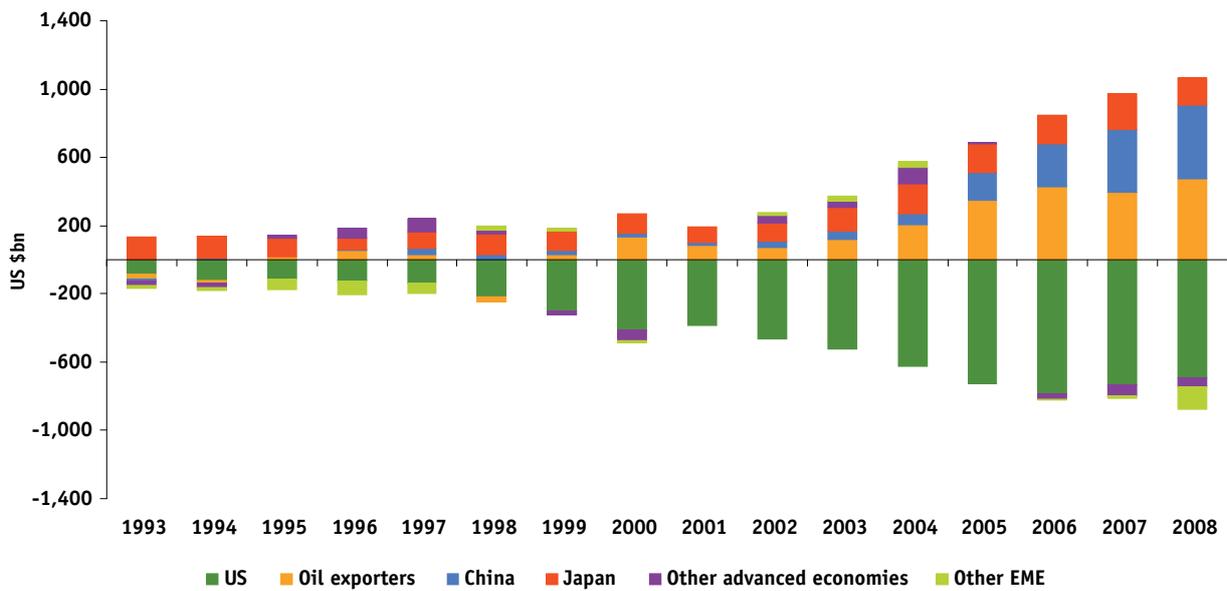
At the core of the crisis lay an interplay between macro-imbalances which had grown rapidly in the last ten years, and financial market developments and innovations which have been underway for about 30 years but which accelerated over the last ten to 15, partly under the stimulus of the macro-imbalances.

### Macro-imbalances

The last decade has seen an explosion of world macro-imbalances (Exhibit 1.1). Oil exporting countries, Japan, China, and some other east Asian emerging developing nations have accumulated large current account surpluses, while large current account deficits have emerged in the USA, but also in the UK, in Ireland, Spain and some other countries.

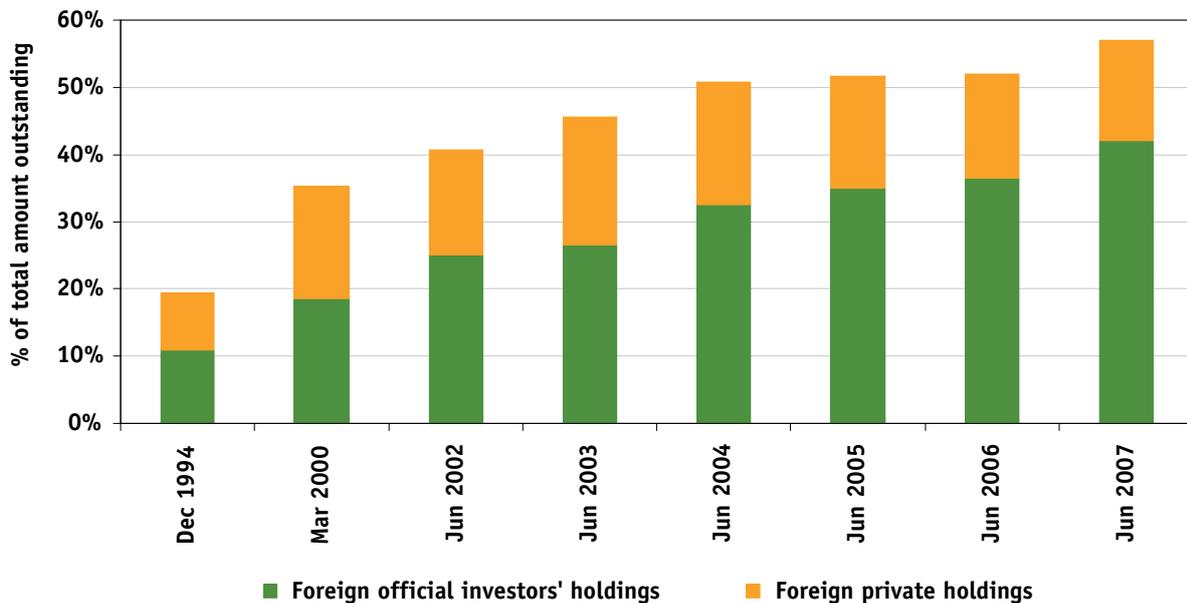
A key driver of those imbalances has been very high savings rates in countries like China; since these high savings exceed domestic investment, China and other countries must accumulate claims on the rest of the world. But since, in addition, China and several other surplus countries are committed to fixed or significantly managed exchange rates, these rising claims take the form of central bank reserves. These are typically invested not in a wide array of equity, property or fixed income assets – but almost exclusively in apparently risk-free or close to risk-free government bonds or government guaranteed bonds (Exhibit 1.2).

**Exhibit 1.1: Global current account balances**



Source: IMF, FSA calculations

**Exhibit 1.2: Foreign-ownership of marketable US Treasury bonds as percentage of total amounts outstanding**



Source: IMF, US Treasury

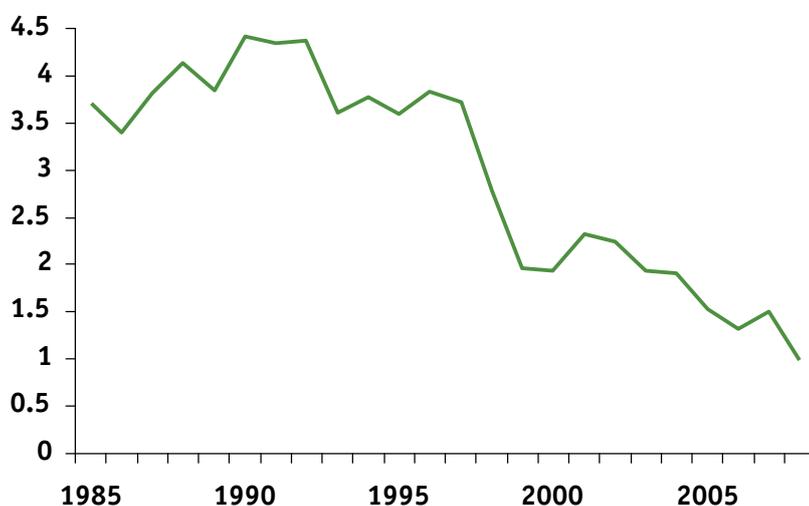


This in turn has driven a reduction in real risk-free rates of interest to historically low levels (Exhibit 1.3). In 1990 an investor could invest in the UK or the US in risk-free index-linked government bonds at a yield to maturity of over 3% real; for the last five years the yield has been less than 2% and at times as low as 1%.

These very low medium- and long-term real interest rates have in turn driven two effects:

- Firstly, they have helped drive rapid growth of credit extension in some developed countries, particularly in the US and the UK – and particularly but not exclusively for residential mortgages (Exhibit 1.4) – with this growth accompanied by a degradation of credit standards, and fuelling property price booms which for a time made those lower credit standards appear costless.

**Exhibit 1.3: UK real interest rates (20 year bonds, yield at May 25 or nearest week day)**



**Note:** For the years 1985, 86, 89, 90 and 91 no 20-year-yield is precisely available; the longest available yield (in range 16-19 years) is shown

Source: Bank of England Real Yield curve calculations

**Exhibit 1.4: Household debt as proportion of the GDP**



Source: ONS, Federal Reserve, Eurodata, Bureau of Economic Analysis, FSA calculations

- And secondly, they have driven among investors a ferocious search for yield – a desire among investors who wish to invest in bond-like instruments to gain as much as possible spread above the risk-free rate, to offset at least partially the declining risk-free rate. Twenty years ago a pension fund or insurance company selling annuities could invest at 3.5% real yield to maturity on an entirely risk-free basis; now it would be only 1.5%. So any products which appear to add 10, 20 or 30 basis points to that yield, without adding too much risk, have looked very attractive.

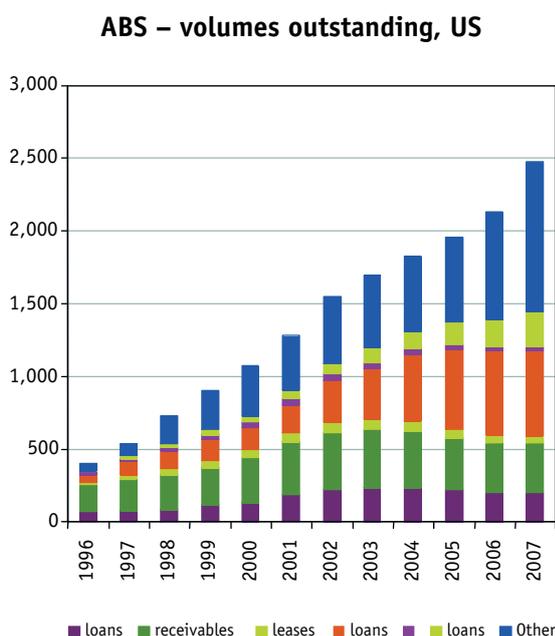
### Financial market innovation

The demand for yield uplift, stimulated by macro-imbalances, has been met by a wave of financial innovation, focused on the origination, packaging, trading and distribution of securitised credit instruments. Simple forms of securitised credit – corporate bonds – have existed for almost as long as modern banking. In the US, securitised credit has played a major role in mortgage lending since the creation of Fannie Mae in the 1930s and had been playing a steadily increasing role in the global financial system and in particular in the American financial system for a decade and a half before the mid-1990s. But from the mid-1990s the system entered explosive growth in both scale and complexity:

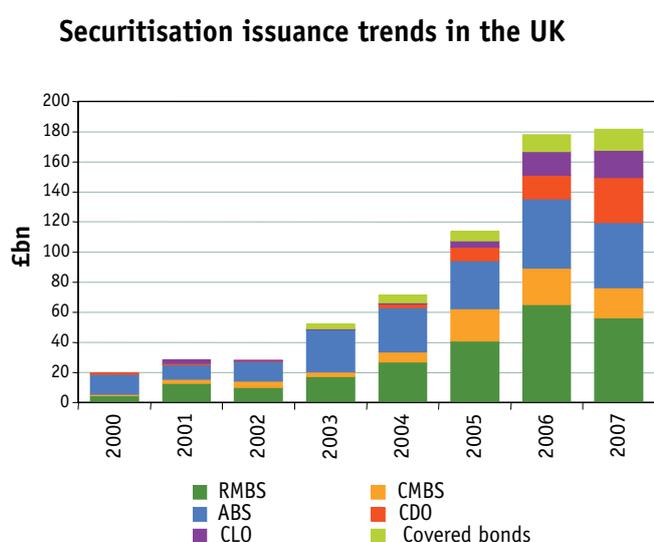
- with huge growth in the value of the total stock of credit securities (Exhibit 1.5);
- an explosion in the complexity of the securities sold, with the growth of the alphabet soup of structured credit products; and
- with the related explosion of the volume of credit derivatives, enabling investors and traders to hedge underlying credit exposures, or to create synthetic credit exposures (Exhibit 1.6).

This financial innovation sought to satisfy the demand for yield uplift. It was predicated on the belief that by slicing, structuring and hedging, it was possible to ‘create value’, offering investors combinations of risk, return, and liquidity which were more attractive than those available from the direct purchase of the underlying credit exposures. It resulted not only in massive growth in the importance of securitised credit, but also in a profound change in the nature of the securitised credit model.

**Exhibit 1.5: The growth of securitised credit**



Source: SIFMA



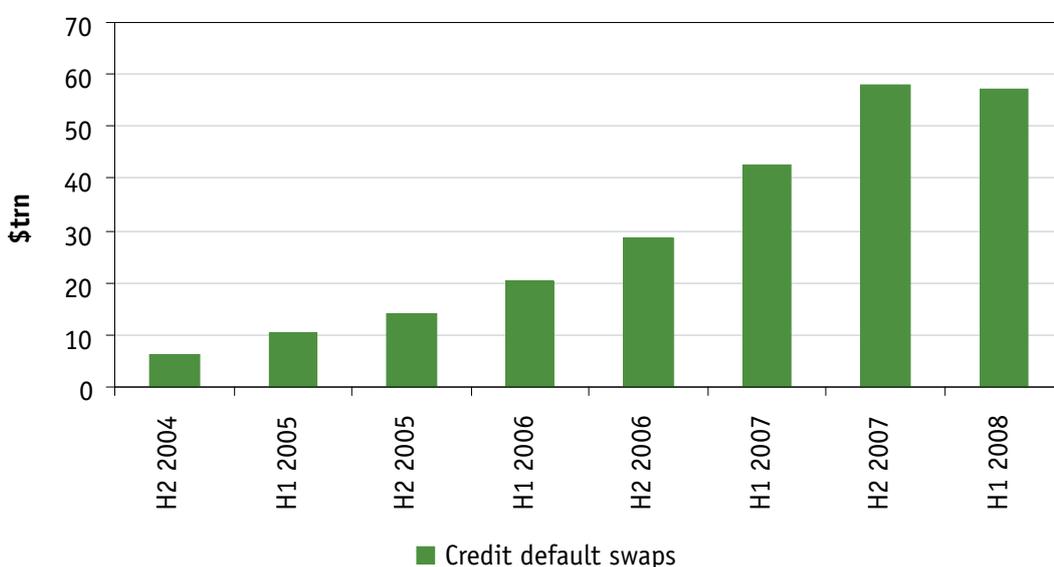
Source: Oliver Wyman



## Structured credit: initial proposition and subsequent evolution

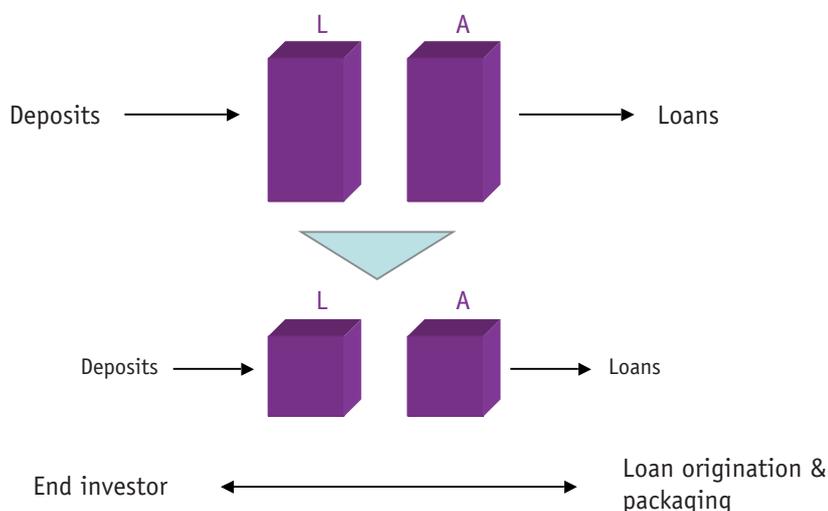
As securitisation grew in importance from the 1980s on, its development was lauded by many industry commentators as a means to reduce banking system risks and to cut the total costs of credit intermediation, with credit risk passed through to end investors, reducing the need for unnecessary and expensive bank capital<sup>1</sup> (Exhibit 1.7). Rather than, for instance, a regional bank in the US holding a dangerously undiversified holding of credit exposures in its own region, which created the danger of a self-reinforcing cycle between decline in a regional economy and decline in the capital capacity of regional banks, securitisation allowed loans to be packaged up and sold to a diversified set of end investors. Securitised credit intermediation would reduce risks for the whole banking system. Credit losses would be less likely to produce banking system failure.

### Exhibit 1.6: Growth in outstanding credit default swaps



Source: BIS Quarterly Review, December 2008

### Exhibit 1.7: Securitisation: the initial vision Taking risks off balance sheets



<sup>1</sup> See e.g. Lowell Bryan *Breaking up the bank* (1988) which describes how securitised credit technology will deliver 'better economics, better credit underwriting, better credit risk diversification'.

But when the crisis broke it became apparent that this diversification of risk holding had not actually been achieved. Instead most of the holdings of the securitised credit, and the vast majority of the losses which arose, were not in the books of end investors intending to hold the assets to maturity, but on the books of highly leveraged banks and bank-like institutions (Exhibit 1.8).

This reflected an evolution of the securitised credit model away from the initial descriptions. To an increasing extent, credit securitised and taken off one bank's balance sheet, was not simply sold through to an end investor, but:

- bought by the proprietary trading desk of another bank; and /or
- sold by the first bank but with part of the risk retained via the use of credit derivatives; and/or
- 'resecuritized' into increasingly complex and opaque instruments (e.g. CDOs and CDO-squareds); and/or
- used as collateral to raise short-term liquidity.

In total, this created a complex chain of multiple relationships between multiple institutions (Exhibit 1.9), each performing a different small slice of the credit intermediation and maturity transformation process, and each with a leveraged balance sheet requiring a small slice of capital to support that function.

Some banks were truly doing 'originate and distribute', but the trading operations of other banks (and sometimes of the same bank) were doing 'acquire and arbitrage'.<sup>2</sup> The new model left most of the risk still somewhere on the balance sheets of banks and bank-like institutions but in a much more complex and less transparent fashion.

Five key features of this new model played a crucial role in increasing systemic risks, contributing to the credit boom in the upswing and exacerbating the self-reinforcing nature of the subsequent downswing:

- (i) The growth of the financial sector.
- (ii) Increasing leverage – in many forms.
- (iii) Changing forms of maturity transformation.
- (iv) A misplaced reliance on sophisticated maths.
- (v) Hard-wired procyclicality.

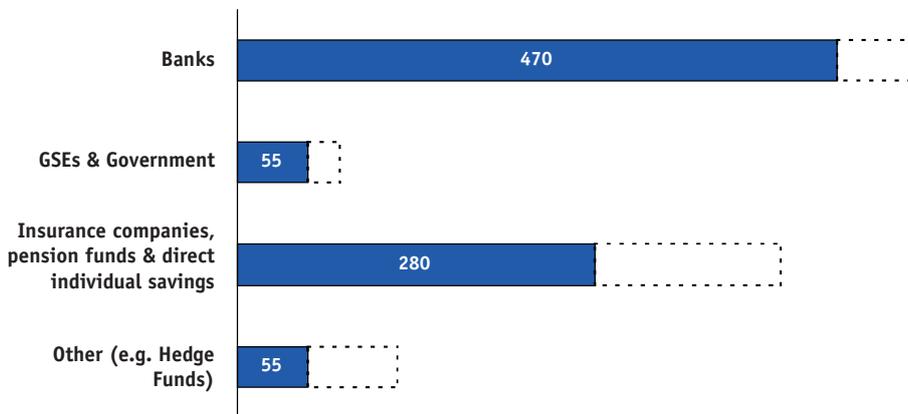
### 1.1 (i) The growth of the financial sector

The evolution of the securitised credit model was accompanied by a remarkable growth in the relative size of wholesale financial services within the overall economy, with activities internal to the banking system growing far more rapidly than end services to the real economy.

<sup>2</sup> However, even the banks which were largely doing 'originate and distribute' would often have to warehouse significant quantities on balance sheet before packaging and distributing, and could be left with liquidity strains and future potential losses if liquidity suddenly dried up (e.g. Northern Rock).

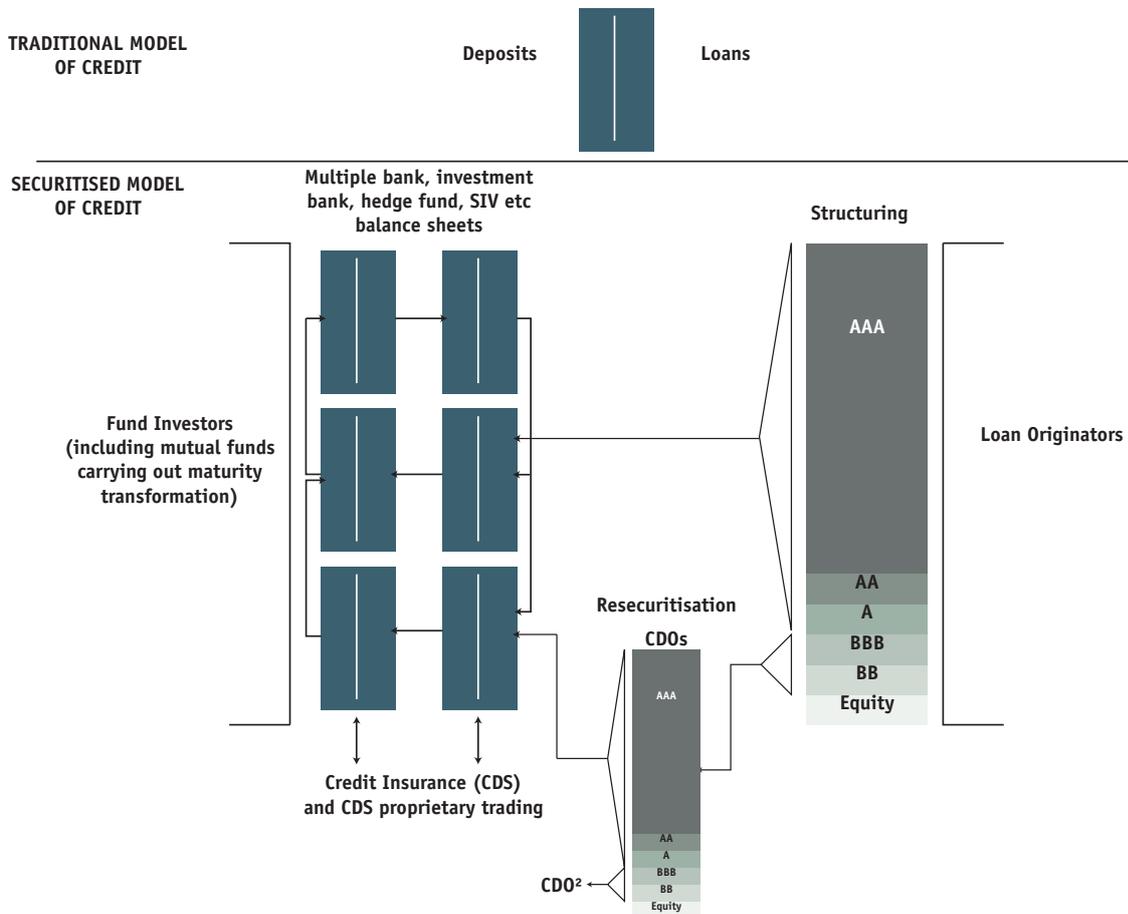


**Exhibit 1.8: Estimates of mark to market losses on US credit securities: at April 2008**



Source: IMF Global Financial Stability Report, October 2008

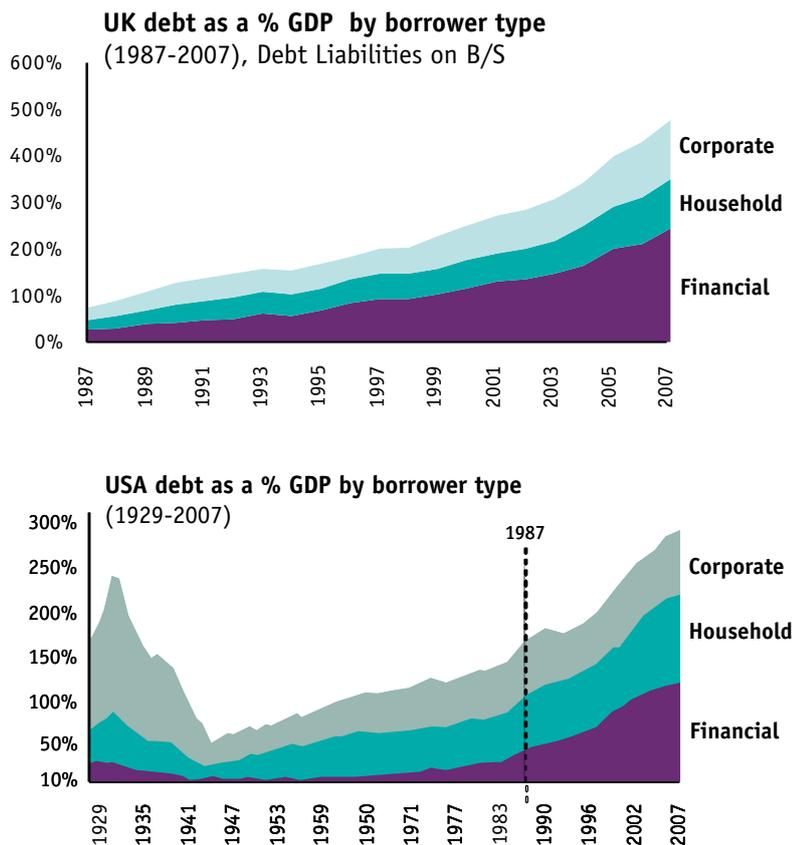
**Exhibit 1.9: Increasing complexity of securitised credit model**



- Looking at total debt claims across the economy, we see some growth of household debt as a % of GDP and a slightly smaller growth of corporate debt as a % of GDP, but what is striking is the extent to which the debt of financial companies has grown, both in the US and in the UK (Exhibit 1.10).
- On a consolidated basis – stripping out claims between financial institutions – financial sector assets and liabilities can only grow in line with non-financial sector liabilities and assets.
- What this disproportionate growth of financial sector debt represents therefore, is an explosion of claims *within* the financial system, between banks and investment banks and hedge funds, i.e. the multiplication of balance sheets involved in the credit intermediation process illustrated in Exhibit 1.9.

This growth of the relative size of the financial sector, and in particular of securitised credit activities, increased the potential impact of financial system instability on the real economy.<sup>3</sup> The reasons for its occurrence also raise fundamental theoretical issues about the efficiency of financial markets and the value of financial innovation, which are considered in 1.4 (v).

### Exhibit 1.10: The growth of the financial sector



Source: Oliver Wyman

<sup>3</sup> The huge size of intra-financial system claims also has relevance to the urgent issue of short-term macroeconomic management. The more that bank deleveraging takes the form of the stripping out of inter trader complexity, and the less it takes the form of deleveraging vis-a-vis the non-bank real economy, the less harmful its economic impact.

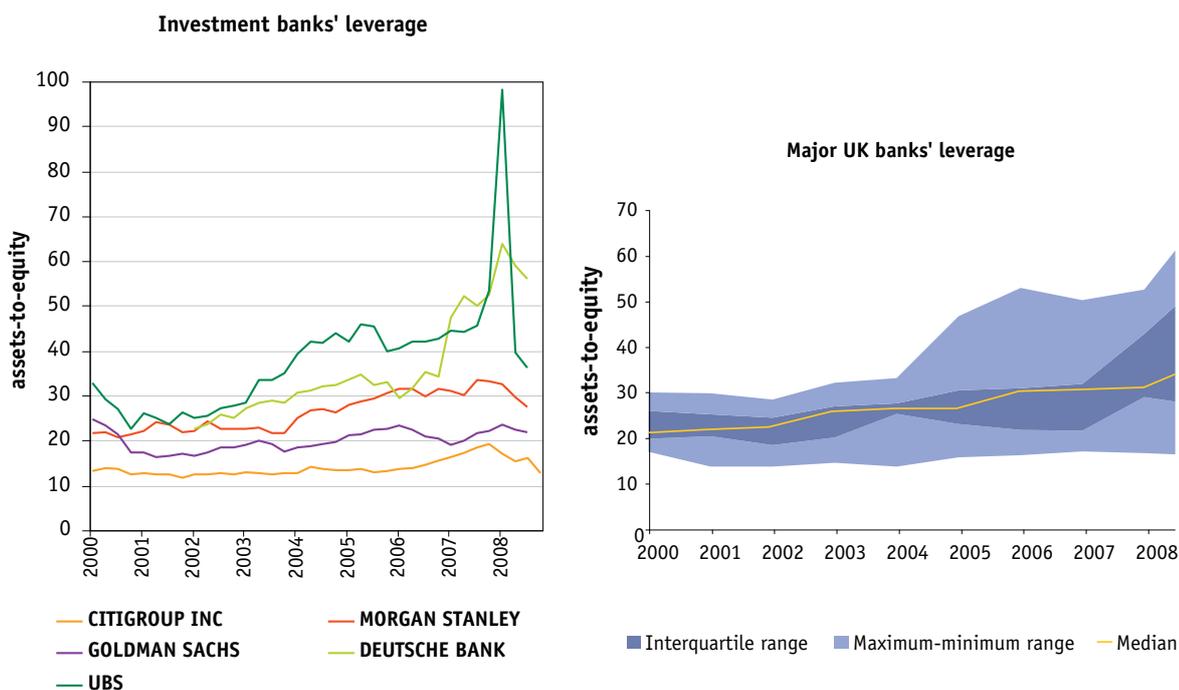


### 1.1 (ii) Increasing leverage – in several forms

This growing size of the financial sector was accompanied by an increase in total system leverage<sup>4</sup> which – considered in all its forms – played an important role in driving the boom and in creating vulnerabilities that have increased the severity of the crisis.

- From about 2003 onwards, there were significant increases in the measured on-balance sheet leverage of many commercial and investment banks, driven in some cases by dramatic increases in gross assets and derivative positions (Exhibit 1.11). This was despite the fact that ‘risk adjusted’ measures of leverage (e.g. weighted risk assets divided by tier one capital, or Value at Risk (VAR) relative to equity) showed no such rise. This divergence reflected the fact that capital requirements against trading books, where the asset growth was concentrated, were extremely light compared with those for banking books (Exhibit 1.12) and that VAR measures of the risk involved in taking proprietary trading positions, in general suggested that risk relative to the gross market value of positions had declined. It is clear in retrospect that the VAR measures of risk were faulty and that required trading book capital was inadequate (See Sections 1.1 (iv) 1.4 (iii) and 2.2 (ii) below).

**Exhibit 1.11**



Source: Bloomberg

Source: Bank of England

<sup>4</sup> The growing size of the financial sector did not in itself necessarily imply a rise in capital leverage (assets to capital). If an asset growth is accompanied by matching increases in capital resources, leverage remains stable. Over the last two decades, indeed, there has not been a general continuous increase in the measured on-balance sheet leverage of banks and investment banks. Total system leverage (included off-balance sheet and embedded leverage) was, however, almost certainly increasing over a longer period than the measured on balance sheet figures suggest.

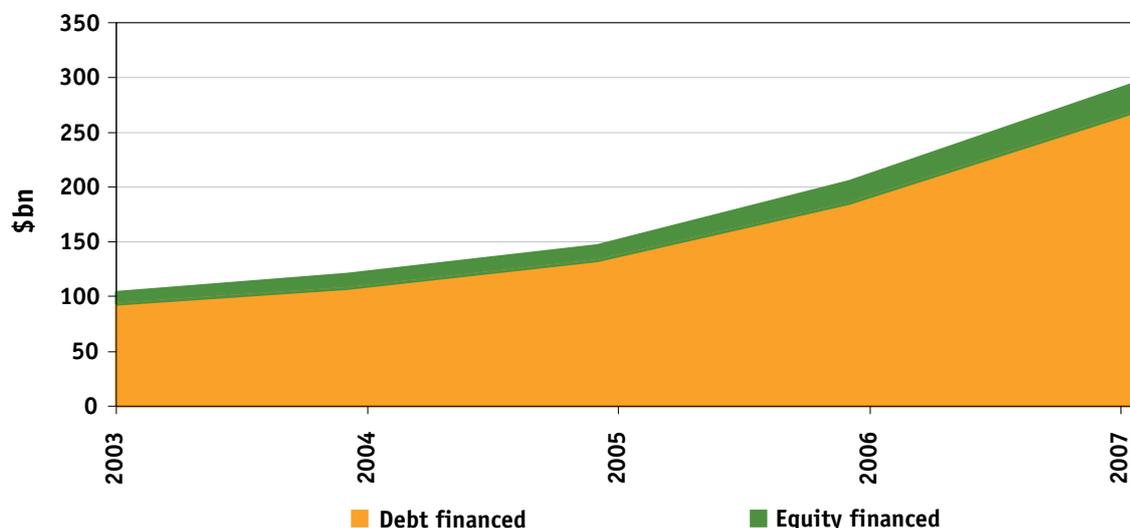
**Exhibit 1.12: Trading book assets & capital 2007: examples**

	Market risk capital requirement as % trading assets	Trading assets as % of total assets	Trading / market risk capital as % total capital requirements
Bank 1	0.4%	34%	11%
Bank 2	0.4%	28%	7%
Bank 3	0.1%	57%	4%
Bank 4	1.1%	27%	7%

Source: BIS Estimates from Bank Annual Reports

- In addition, however, the years running up to the crisis saw the rapid growth of off-balance sheet vehicles – structured investment vehicles (SIVs) and conduits – which were highly leveraged but which were not included in standard measures of either gross or risk adjusted leverage (Exhibit 1.13) At the individual bank level, the classification of these as off-balance sheet proved inaccurate as a reflection of the true economic risk, with liquidity provision commitments and reputational concerns requiring many banks to take the assets back on balance sheet as the crisis grew, driving a significant one-off increase in measured leverage. But even if this had not been the case, the contribution of SIVs and conduits to total system leverage (combined with their maturity transformation characteristics considered in subsection (iii) below) would still have increased total system vulnerability.
- Finally, the financial innovations of structured credit resulted in the creation of products – e.g. the lower credit tranches of CDOs or even more so of CDO-squareds – which had very high and imperfectly understood embedded leverage, creating positions in the trading books of banks which were hugely vulnerable to shifts in confidence and liquidity.

**Exhibit 1.13: Growth of SIVs: total assets**



Source: Standard & Poor's



### 1.1 (iii) Changing forms of maturity transformation: the growth of ‘shadow banking’

The increasing complexity of securitised credit, increasing scale of banking and investment banking activities, and increases in total system leverage, were accompanied by changes in the pattern of maturity transformation which created huge and inadequately appreciated risks.

One of the key functions of the banking system is maturity transformation, holding longer term assets than liabilities and thus enabling the non-bank sector to hold shorter term assets than liabilities. This absorbs the risks arising from uncertainties in the cash flows of households and corporates, and results in a term structure of interest rates more favourable to long-term capital investment than would pertain if banks did not perform maturity transformation.

It is a crucial function delivering major social and economic value, but it creates risk. If everybody wanted their money back on the contractual date, no bank could repay them all. To manage this risk a complex and interrelated set of risk management devices have been developed – liquidity policies to measure and limit the extent of maturity transformation, insurance via committed lines from other banks, and ‘lender of last resort’ facilities provided by central banks.

But one of the striking developments of the last several decades has been that a growing proportion of aggregate maturity transformation has been occurring not on the banking books of regulated banks with central bank access, but in other forms of ‘shadow banking’:

- SIVs and conduits have performed large-scale maturity transformation between short-term promises to noteholders and much longer term instruments held on the asset side.
- Investment banks increasingly funded holdings of long-term to maturity assets with much shorter term liabilities: the value of outstanding Repurchase Agreements (repos) tripled between 2001 and 2007, with particularly rapid growth of overnight repos.
- And, particularly in the US, mutual funds increasingly performed a bank-like form of maturity transformation. They have held long-term credit assets against liabilities to investors which promise immediate redemption. And in many cases they have made implicit or explicit promises not to ‘break the buck’ i.e. not to allow capital value to fall below the initial investment value. As a result, their behaviour in a liquidity crisis – selling assets rapidly to meet redemptions – has become bank like in nature, contributing to systemic liquidity strains.

It is therefore highly likely that the aggregate maturity transformation being performed by the financial system in total increased substantially over the last two decades.<sup>5</sup> And it is certainly the case that a wide range of institutions – both banks and near banks – developed an increasing reliance on ‘liquidity through marketability’, believing it safe to hold long term to maturity assets funded by short-term liabilities on the grounds that the assets could be sold rapidly in liquid markets if needed. This assumption was valid at the level of firms individually in non-crisis conditions, but became rapidly invalid in mid 2007, as many firms attempted simultaneous liquidation of positions.

The appropriate measurement and management of liquidity risk is therefore essential and must reflect its inherently system-wide character. It is addressed in Section 2.2.

<sup>5</sup> The aggregate maturity transformation achieved by the financial system could be calculated if we could produce a consolidated financial system balance sheet (stripping out all intra financial system assets and liabilities) and observe the maturity mismatch between the consolidated assets and liabilities. This is an impossibly difficult task. The large increase in long-term mortgage debts, however, makes it almost certain that a large increase in aggregate maturity transformation has occurred: only if this increase had been matched by an increase in long-term assets held by the nonfinancial sector (e.g. individual holdings of long-term bonds) could this growth in long-term non-financial sector have failed to imply an increase in aggregate maturity transformation. Analysis as best possible of aggregate maturity transformation trends should be a key element of macro-prudential analysis (see Section 2.6).

### 1.1 (iv) Misplaced reliance on sophisticated maths

The increasing scale and complexity of the securitised credit market was obvious to individual participants, to regulators and to academic observers. But the predominant assumption was that increased complexity had been matched by the evolution of mathematically sophisticated and effective techniques for measuring and managing the resulting risks. Central to many of the techniques was the concept of Value-at-Risk (VAR), enabling inferences about forward-looking risk to be drawn from the observation of past patterns of price movement. This technique, developed in the early 1990s, was not only accepted as standard across the industry, but adopted by regulators as the basis for calculating trading risk and required capital, (being incorporated for instance within the European Capital Adequacy Directive).

There are, however, fundamental questions about the validity of VAR as a measure of risk (see Section 1.4 (ii) below). And the use of VAR measures based on relatively short periods of historical observation (e.g. 12 months) introduced dangerous procyclicality into the assessment of trading book risk for the reasons set out in Box 1A (deficiencies of VAR).

The very complexity of the mathematics used to measure and manage risk, moreover, made it increasingly difficult for top management and boards to assess and exercise judgement over the risks being taken. Mathematical sophistication ended up not containing risk, but providing false assurance that other *prima facie* indicators of increasing risk (e.g. rapid credit extension and balance sheet growth) could be safely ignored.

### 1.1 (v) Hard-wired procyclicality: ratings, triggers, margins and haircuts

The use of VAR to measure risk and to guide trading strategies was, however, only one factor among many which created the dangers of strongly procyclical market interactions. More generally the shift to an increasingly securitised form of credit intermediation and the increased complexity of securitised credit relied upon market practices which, while rational from the point of view of individual participants, increased the extent to which procyclicality was hard-wired into the system. In particular:

- More securitisation meant that a greater proportion of credit assets were held by investors seeking reassurance from credit ratings, and thus increased the potential aggregate effects of forced selling by institutions using predefined investment rules based on ratings (e.g. only hold bonds with rating A or above). In addition, the increasing complexity of securitised credit required that credit rating techniques were applied to new varieties of structured security, where no historic record existed. These ratings proved highly imperfect predictors of risk and were subject to rapid rating downgrades once the crisis broke (see Section 2.5 (i)).
- Market value or rating-based triggers, meanwhile, were increasingly used in an attempt to improve investor/creditor protection. Senior notes of SIVs, for instance, were often awarded high credit ratings on the basis of the protection that if the asset value fell below defined triggers, the SIV would be wound up before senior noteholders were at risk. At the system level, however, this resulted in attempted simultaneous asset sales by multiple SIVs, and the rapid disappearance of liquidity (both for asset sales and for new funding) as market value limits were triggered and ratings were cut.
- Arrangements which related the level of collateral posted in derivative contracts to the credit ratings of counterparties also had a significant procyclical effect. Credit default swaps (CDS) and other OTC derivative contracts entered into by AIG, for instance, required it to post more collateral if its own credit rating fell. When this occurred in September 2008, a downward spiral of increased liquidity stress and falling perceived credit worthiness rapidly ensued.

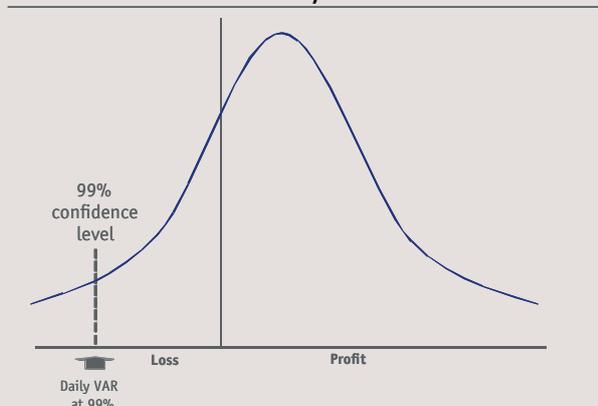


## BOX 1A: DEFICIENCIES IN VAR BASED ESTIMATES OF RISK

### Basic concept

- Observe over a past period (e.g. last year) the distribution of profits / loss resulting over a defined time period (e.g. day, 10 days) from a given gross position.
- Hold capital sufficient to cover some multiple of this 'Value at Risk'.

### Frequency distribution of observed daily trading Profit/Loss

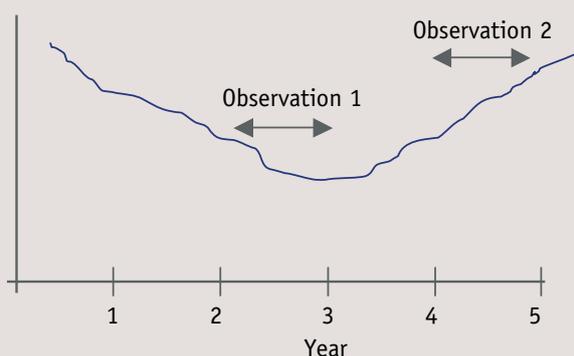


### Procyclicality

Short-term observation periods (e.g. one year) can result in significant procyclicality.

- Observation 1 reflects low volatility and thus low apparent risk; capital is attracted to position taking, reinforcing market liquidity
- Observation 2 reflects high volatility following fall in confidence; liquidity dries up, exacerbating increase in volatility

### Volatility in specific market (see exhibit 1.17 for real example)



### Failure to capture fat-tail risks

- Short-term observation periods plus assumption of normal distribution can lead to large underestimation of probability of extreme loss events.

### Failure to capture systemic risk

- Methodology assumes each institution is individual agent whose actions do not themselves affect the market.
- Interconnected market events ('network externalities') can produce self-reinforcing cycles which models do not capture.
- Systemic risk may be highest when measured risk is lowest, since low measured risk encourages behaviour which creates increased systemic risks.

- Finally haircuts on secured financing transactions (including central bank operations to provide liquidity) and initial margins on OTC derivatives, have typically been based on estimates of risk derived from a combination of ratings and VAR-based measures of price volatility. These vary in a procyclical fashion, making it easier to secure finance when risks are perceived as low, and thus potentially driving further speculation which itself reduces derived measures of risk. In the downswing conversely, these arrangements can dramatically increase the cost of secured finance, reinforcing illiquidity, depressing asset values and increasing the price for risk absorption. Exhibit 1.14 illustrates the significant increase in typical haircuts or initial margins required in August 2008 compared with April 2007.<sup>6</sup>

### Exhibit 1.14

**Typical haircut or initial margin**  
In per cent

	April 2007	August 2008
US Treasuries	0.25	3
Investment grade bonds	0–3	8–12
High-yield bonds	10–15	25–40
Investment grade corporate CDS	1	5
Senior leveraged loans	10–12	15–20
Mezzanine leveraged loans	18–25	35+
ABS CDOs		
AAA	2–4	95 <sup>1</sup>
AA	4–7	95 <sup>1</sup>
A	8–15	95 <sup>1</sup>
BBB	10–20	95 <sup>1</sup>
Equity	50	100 <sup>1</sup>
AAA CLO	4	10–20
Prime MBS	2–4	10–20
ABS	3–5	50–60

ABS = asset-backed security; CDO = collateralised debt obligation; CDS = credit default swap; CLO = collateralised loan obligation; MBS = mortgage-backed security; RMBS = residential mortgage-backed security. <sup>1</sup> Theoretical haircuts as CDOs are no longer accepted as collateral.

Source: IMF

<sup>6</sup> Note that haircuts required in derivatives contracts and secured financing transactions define the extent of leverage in bedded-in contracts rather than present at the institutional level.



## Self-reinforcing irrational exuberance followed by confidence collapse

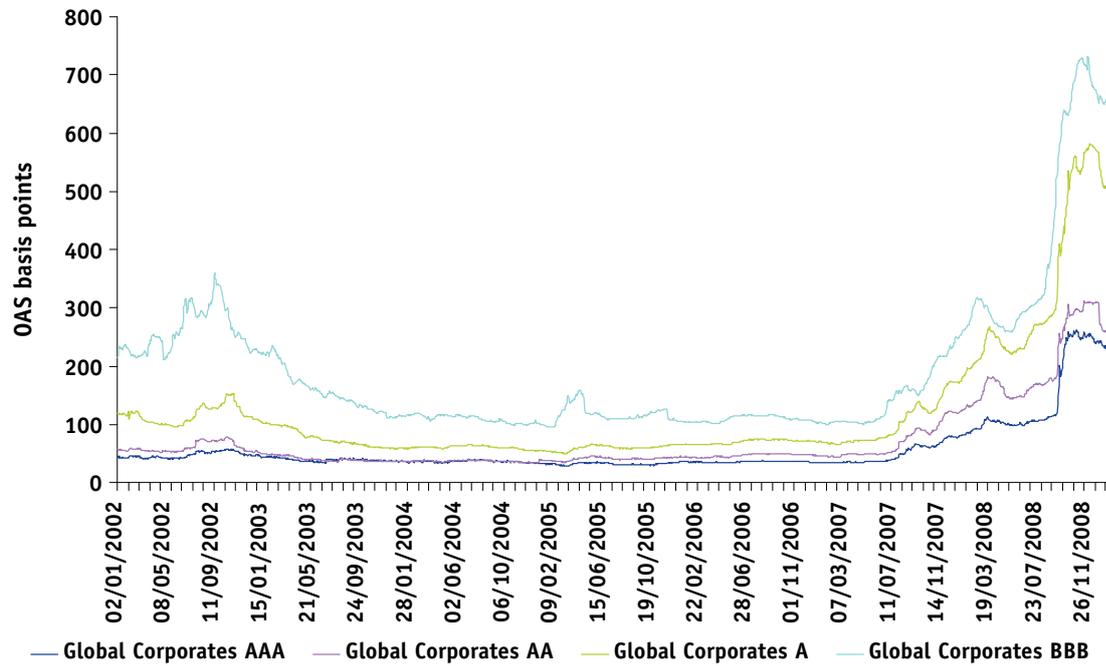
The five features of the securitised credit model described above, operating within the context of a sustained period of strong global growth, low inflation and reduced macroeconomic volatility, played a major role in stimulating a self-reinforcing cycle of falling risk aversion and rising irrational exuberance of the sort to which all liquid traded markets are at times susceptible. They also created a system which, when confidence broke and risk aversion rose, was highly susceptible to a self-reinforcing cycle of deleveraging, falling asset prices and collapsing liquidity.

The upswing was characterised by:

- credit spreads on a wide range of securities and loans falling to clearly inadequate levels (Exhibit 1.15);
- the price charged for the absorption of volatility risk falling because volatility seemed to have declined (Exhibit 1.16);
- falling spreads and volatility prices driving up the current value of a range of instruments, marked to market value on the books of banks, investment banks and hedge funds. This in turn produced higher apparent profits and higher bonuses, and as a result reinforced management and traders' certainty that they were pursuing sensible strategies.

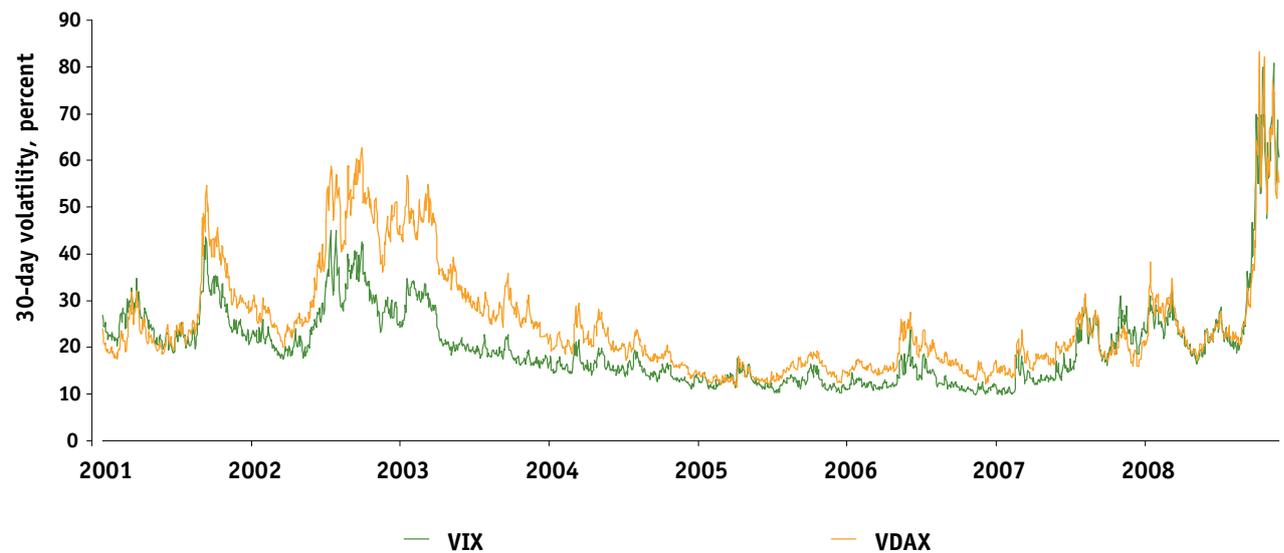
In mid 2007, however, these trends ceased and then went sharply into reverse. The origins of the reverse lay in the US housing market, with growing evidence that excessive credit extension and weak credit standards had resulted in rapidly rising credit losses, with implications for the price of many asset backed securities. This initial stimulus then triggered a self-reinforcing set of effects, progressing through the stages outlined in Box 1B.

Exhibit 1.15: Corporate spreads



Source: Bloomberg

Exhibit 1.16: Implied volatility of the S&P 500 and DAX



Note: VIX and VDAX are indices of implied volatility for stock option prices on the S&P 500 and DAX respectively.

Source: CBOE and Deutsche Borse



<b>BOX 1B: STAGES OF THE CRISIS: 2006 – 2009</b>	
<p><b>2006 – Summer 2007</b> Localised credit concerns</p>	<p>Rising defaults in US subprime and Alt-A loans. Falling prices of lower credit tiers of some credit securities. Expectations of property prices fall.</p>
<p><b>Summer – Autumn 2007</b> Initial crack in confidence and collapse of liquidity</p>	<p>Failure of 2 large hedge funds. Spreads in inter-bank funding and other credit products rise sharply. RMBS funding and inter-bank funding for second tier banks dries up. Northern Rock faces retail run.</p>
<p><b>Autumn 2007 – early Summer 2008</b> Accumulation of losses and continuation of liquidity strains</p>	<p>Severe mark-to-market losses in trading books. Collapse of commercial paper markets: SIVs brought back on balance sheet. Funding strains in the secured financing market. Worries about liquidity of major institutions Government assisted rescue of Bear Stearns.</p>
<p><b>Summer 2008</b> Intensification of losses and liquidity strains</p>	<p>Mark-to-market losses and liquidity strains continue to escalate. Housing market problems recognised as widespread in UK, US and other countries, as house prices fall and supply of credit dries up. Fannie Mae and Freddie Mac increasingly reliant on US government support. Funding problems of UK mortgage banks intensify.</p>
<p><b>September 2008</b> Massive loss of confidence</p>	<p>Bankruptcy of Lehmans breaks confidence that major institutions are too big to fail. Credit downgrade of AIG triggers rising collateral calls, requiring government rescue. Mix of credit problems, wholesale deposit runs and incipient retail deposit runs lead to collapse of Washington Mutual, Bradford &amp; Bingley, and Icelandic banks. Almost total seizure of interbank money markets; major banks significantly reliant on central bank support.</p>
<p><b>October 2008</b> Government recapitalisation, funding guarantees and central bank support</p>	<p>Exceptional government measures to prevent collapse of major banks; explicit commitments that systemically important banks will not be allowed to fail.</p>
<p><b>November 2008 →</b> Feedback loops between banking system and economy. Further government measures to offset feedback loop risk.</p>	<p>Impaired bank ability to extend credit to real economy produces major globally synchronised economic downturn. Recession threatens further credit losses which might further impair bank capital. Tail risk insurance – Asset Protection Scheme.</p>

## The financial system and the real economy: implications for the regulatory reform agenda

So, the essence of what has occurred is that:

- Characteristics of the new global financial system, combining with macroeconomic imbalances, helped create an unsustainable credit boom and asset price inflation.
- Those characteristics then played a crucial role in reinforcing the severity of the financial crisis and in transmitting financial system problems into real economy effects.
- The shock to the banking system has been so great that its impaired ability to extend credit to the real economy has played and is still playing a major role in exacerbating the economic downturn, which in turn undermines banking system strength in a self-reinforcing feedback loop.

The agenda for regulatory reform (set out in Chapter 2) therefore needs to address both the factors which drove the initial over-extension of credit, and the factors which have played a crucial role in increasing the length and severity of the crisis.

These include:

- **The massive growth and increasing complexity of the securitised credit model**, underpinned by inadequate capital requirements against trading books, which facilitated unsustainable growth in credit extension to households and to some parts of the corporate sector.
- **Extensive commercial bank involvement in trading activities**, which meant that falling asset prices have had a large and rapid effect on bank profitability, and in turn on perceptions of their credit worthiness, creating a collapse in bank funding liquidity.
- **High leverage in multiple forms**, which helped drive the rapid growth in credit extension and asset prices, and which increased the vulnerability of the system, since asset price falls had an amplified impact on system capital adequacy.
- **Expanded maturity transformation dependent on the marketability of assets**, which made the system hugely more vulnerable to a loss of confidence and disappearance of liquidity.
- **The complexity and opacity of the structured credit and derivatives system**, built upon a misplaced reliance on sophisticated mathematics, which, once irrational exuberance disappeared, contributed to a collapse in confidence in credit ratings, huge uncertainty about appropriate prices, and a lack of trust that published accounting figures captured the reality of emerging problems.
- **Hard-wired procyclicality**, which exacerbated the scale of the downturn, with credit ratings, margin calls, CDS spreads and general market confidence, interacting to create self-reinforcing feedback loops.
- **Lack of adequate capital buffers**, as a result of which commercial banks losses have driven falling confidence in the banking system, impairing the ability of the banking system to extend credit, and creating a powerful feedback loop between banking system stress and downturn in the real economy.



## 1.2 UK specific developments

The financial crisis has been global and its origins and development are best understood in terms of the overall global analysis presented in Section 1.1 above. But it is also useful to highlight specific UK features of the crisis, both those arising from UK bank participation in global securitised credit markets, and developments within UK markets for credit and funding.

As a leading centre for the trading activity (whether by UK or foreign owned banks), which underpinned the securitised credit model, and as the home country of several leading global banks, the UK was bound to be affected by the developments described in Section 1.1. Some specific factors were less relevant to the UK market or UK owned institutions than in the US, but the UK was significantly influenced both by the growth of the securitised credit model and shadow banking activities and therefore highly vulnerable to their collapse.

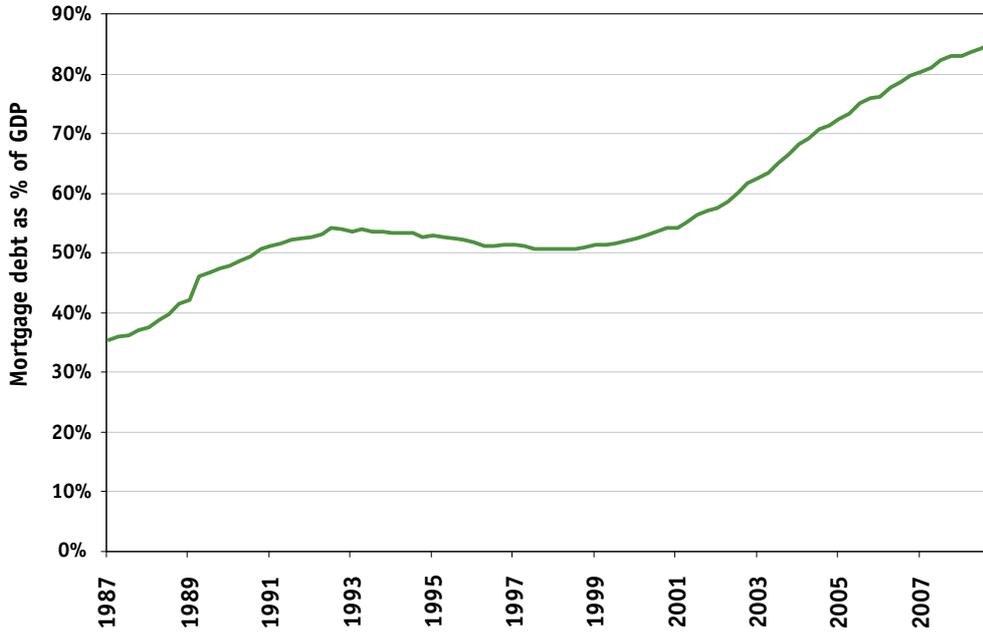
- The development of mutual-fund based maturity transformation was much less important in the UK than in the US: UK consumers do not to a significant extent hold mutual-fund investments as bank deposit substitutes. And while several UK banks set up SIVs and conduits, the scale was in general smaller than those of the big US banks. But US mutual funds and SIVs were very significant buyers of UK securitised credit: when they stopped buying, a large source of funding for UK credit extension disappeared.
- And several of the UK's largest banks were major players in the 'acquire and arbitrage' model of credit intermediation in the UK, US and other international operations. UK bank leverage increased significantly as trading books expanded (see Exhibit 1.11): in those trading books, UK banks, like US commercial and investment banks, were on average placing increased reliance on 'liquidity through marketability' and they were deeply involved in the growing and intricate web of intra-financial system assets and liabilities illustrated in Exhibit 1.-12. They were therefore as exposed as US banks and investment banks to the loss of confidence, disappearance of liquidity, and fall of assets prices which gradually gathered pace from summer 2007 but which became catastrophic after the collapse of Lehmans in September, 2008.

In addition, the UK experienced a credit and property price cycle similar to that seen in the US, but with some specific features which played a crucial role in determining the particular form of the crisis in the UK.

- In the UK, as in the US, the decade running up to 2007 was a period of rapid credit growth in the household sector. House prices grew rapidly with very strong demand for houses relative to physical supply. Total mortgage debt to GDP increased from 50% to over 80% (Exhibit 1.17): measures of income leverage also increased (Exhibit 1.18): and an increasing supply of mortgages was available at very high initial loan-to-value ratios as borrowers and lenders assumed that debt burdens were likely to fall with continuous property price appreciation which delivered large increases in the value of household assets. Though not to the same extent as in the US subprime market, mortgage credit was extended to social categories which would not previously have enjoyed access (Exhibit 1.19). The buy-to-let sector grew from trivial to significant proportions (Exhibit 1.20).<sup>7</sup>

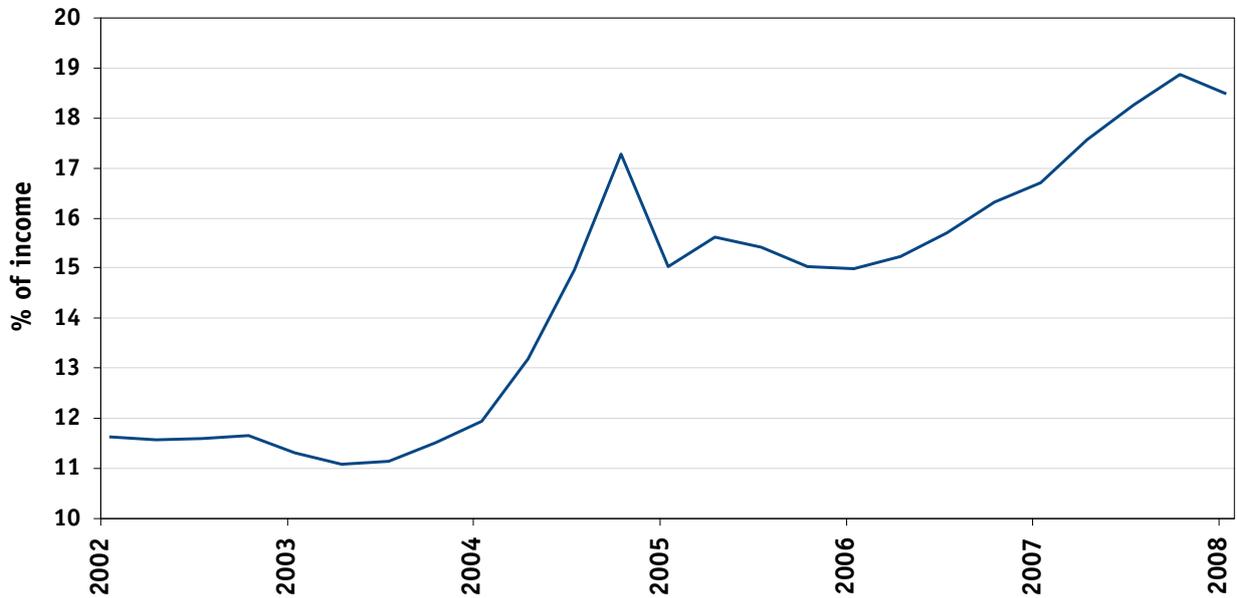
<sup>7</sup> During this period the government extended the scope of the FSA's responsibilities to include the regulation of first charge residential mortgage lending, administration, arranging and advising. FSA regulation of these activities commenced on 31 October 2004.

**Exhibit 1.17: Mortgage debt outstanding (UK)**



Source: Bank of England

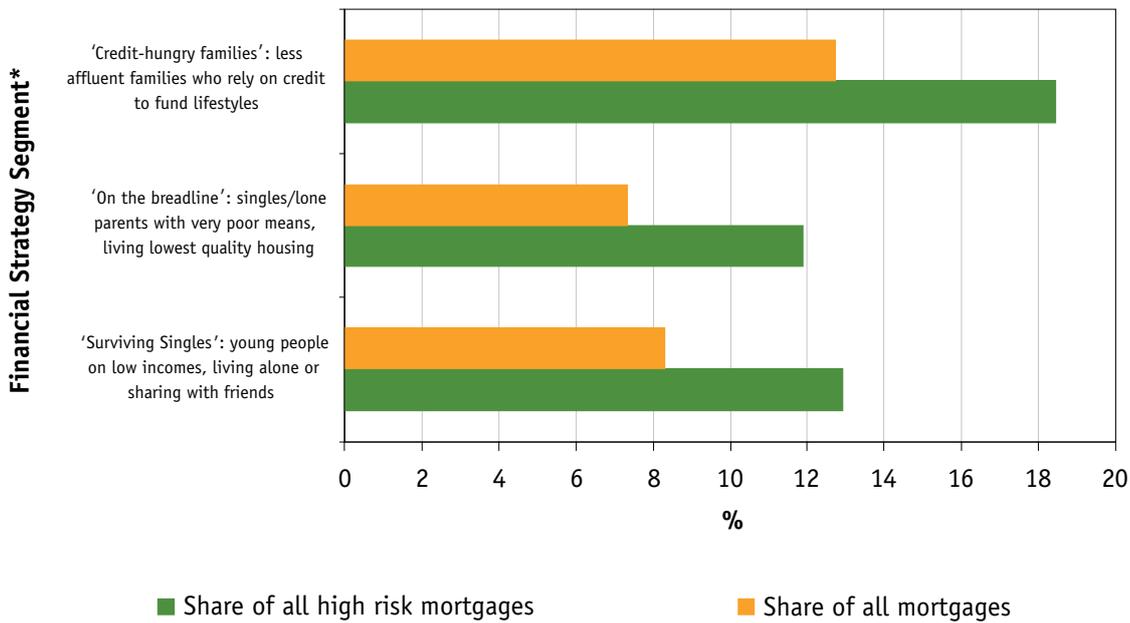
**Exhibit 1.18: Median mortgage payments as a percentage of income**



Source: Regulated Mortgage Survey



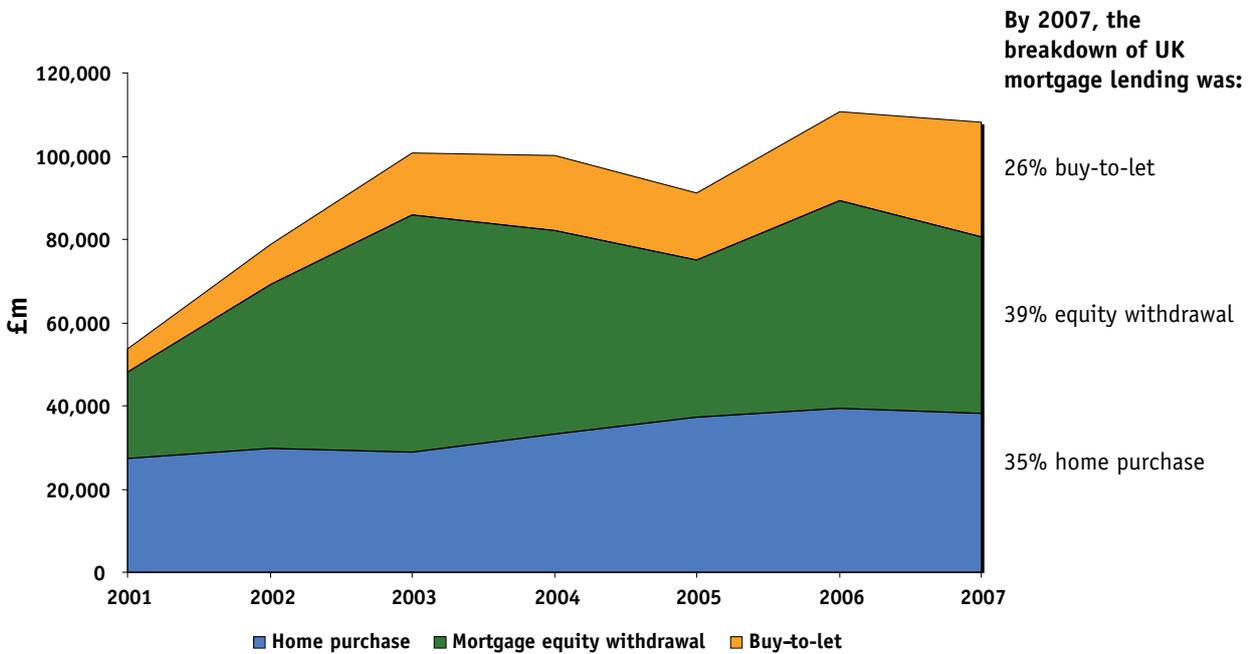
**Exhibit 1.19: Mortgage lending to lower-income social categories, 2005-2008**



"High risk" defined as >95% loan-to-value ratio, >25 year terms and/or >3x income multiples.

\* See Experian 'Financial Strategy Segments: The consumer classification of financial behaviour in the UK' for more detailed definitions.  
Source: Product Sales Database, Experian

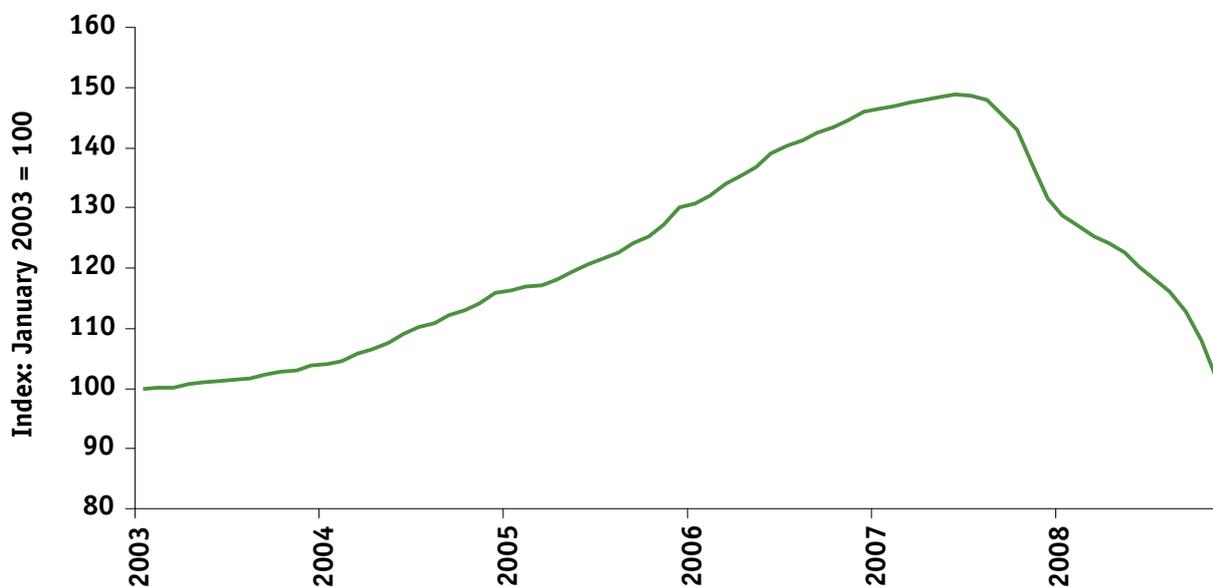
**Exhibit 1.20: Mortgage lending by purpose 2001-2007**



Source: Bank of England, CML, FSA calculations

- The story on corporate lending growth was more varied: some major listed companies actually deleveraged; but as in the US there was rapid growth of the leveraged buyouts market. Commercial real estate lending grew rapidly and commercial property prices increased 51% in five years to June 2007 (Exhibit 1.21). The average income leverage (debt to gross operating surplus) of non-financial corporates grew from 4.9 in 2002 to 6.0 in 2007.
- As in the US too, this rapid credit extension was underpinned by major and continued macro-imbalances, with the UK – like the US – running a large current account deficit (Exhibit 1.22) and with domestic credit expansion thus financed at the aggregate level by the willingness of overseas investors to extend credit to UK counterparties. Unlike in the US, the crucial form of this credit extension was not the purchase of government and government agency securities by foreign central banks, but private sector inflows, including from the US. One of the distinctive features of growing global imbalances indeed, was that the US was simultaneously a large importer and exporter of capital (Exhibit 1.23).
- The import of capital into the UK, funding the rapid growth of credit, in part took the form of foreign purchases of UK credit securities, in particular retail mortgage-backed securities (RMBS). Before 2000, unlike in the US, securitised credit had played a small role in the UK mortgage market but by 2007, 18% of UK mortgage credit was funded through securitisation (Exhibit 1.24). But the UK also saw the rapid growth of on-balance sheet mortgage lending, with UK banks expanding their loan books more rapidly than deposit bases, placing increasing reliance on wholesale funding (Exhibit 1.25). At the aggregate level, this implied a significant increase in overseas bank financing of the UK current account deficit (Exhibit 1.26).

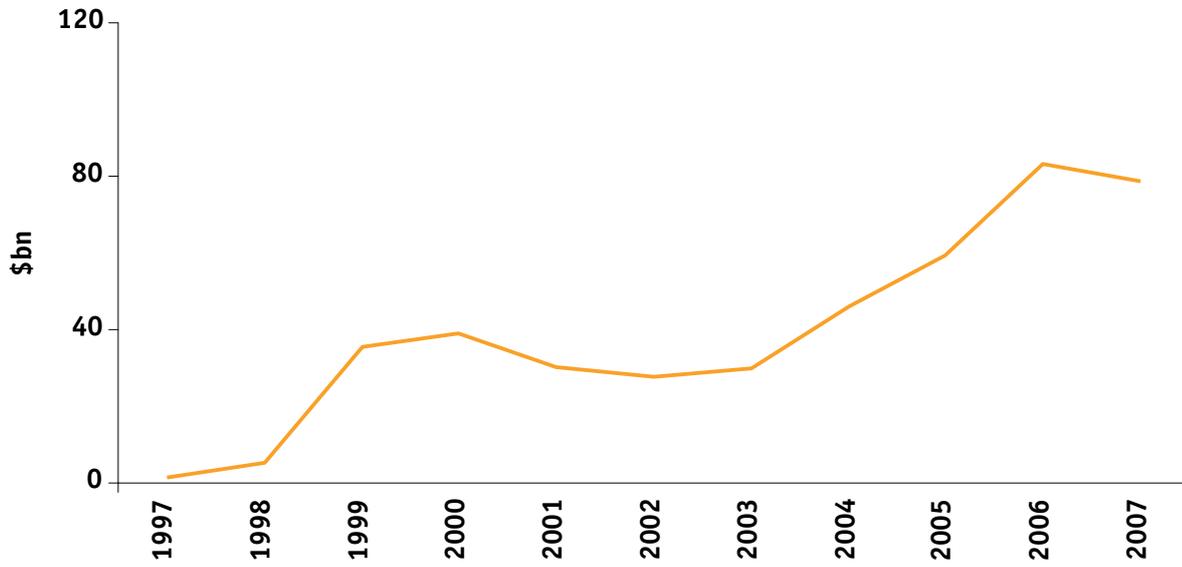
**Exhibit 1.21: Commercial property prices in the UK**



Source: IPD, Nationwide, HBOS, FSA calculations

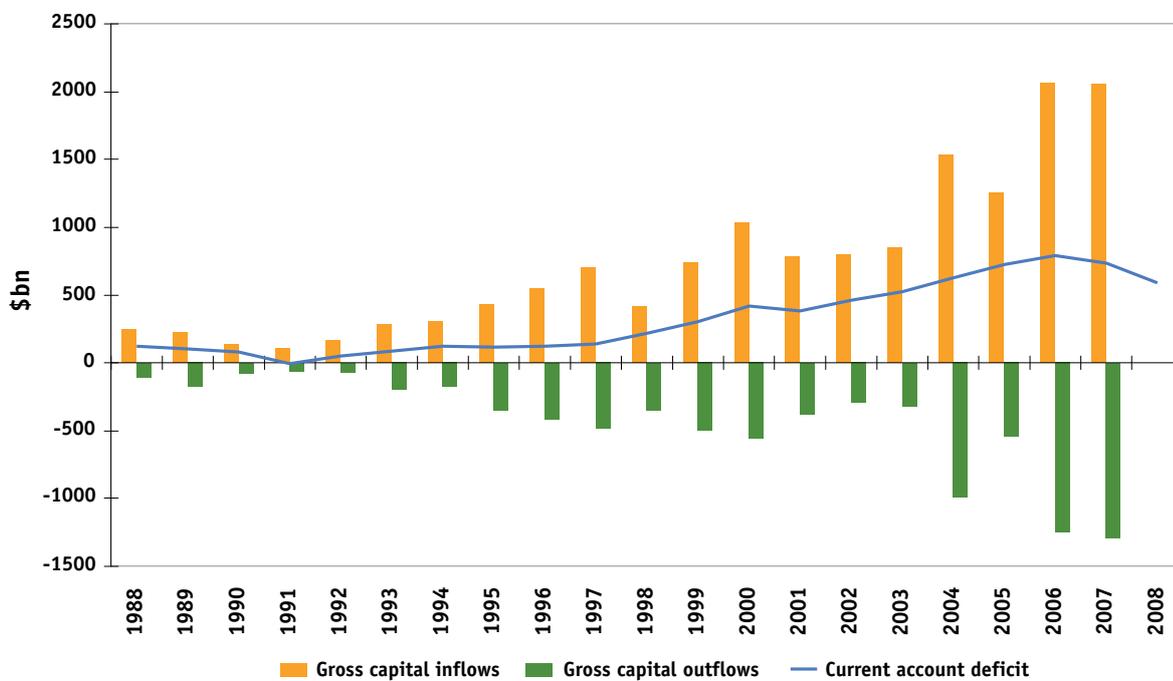


Exhibit 1.22: UK current account deficit



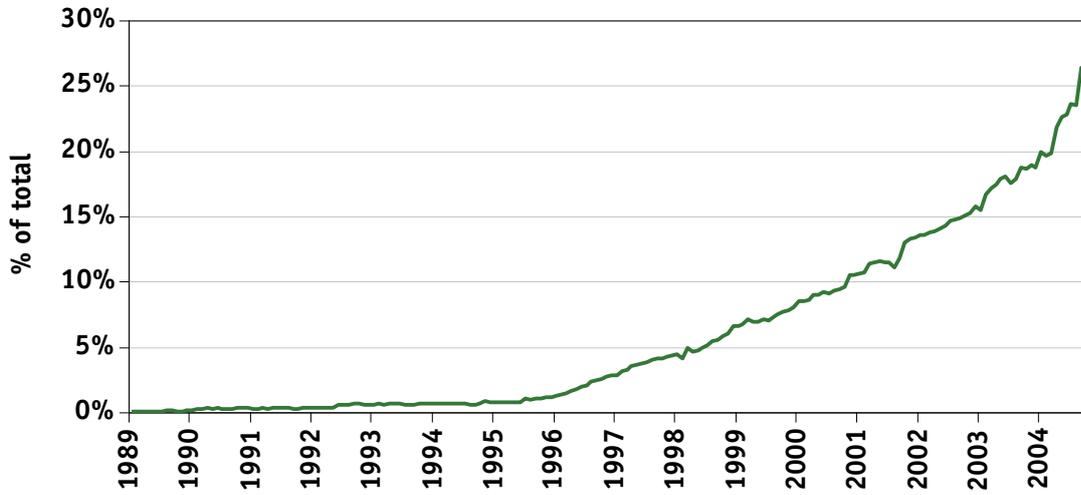
Source: IMF

Exhibit 1.23: US current account deficit and gross capital flows



Source: IMF

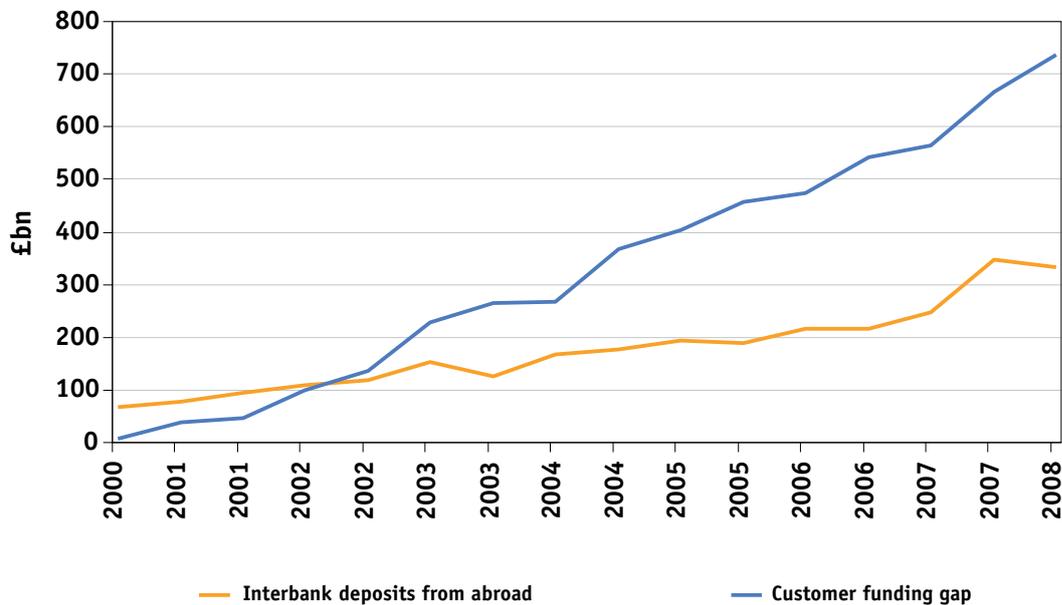
**Exhibit 1.24: Estimated share of securitised loans in UK mortgage lending (includes covered bonds)**



Securitised loans can take the form of those used as collateral in covered bonds and those which are securitised and taken off balance sheet. This data includes both. The percentage of total mortgages securitised and sold off balance sheet is estimated to have reached 18% by 2007.

Source: Bank of England, ONS, FSA calculations

**Exhibit 1.25: Major UK banks' customer funding gap and foreign interbank deposits**

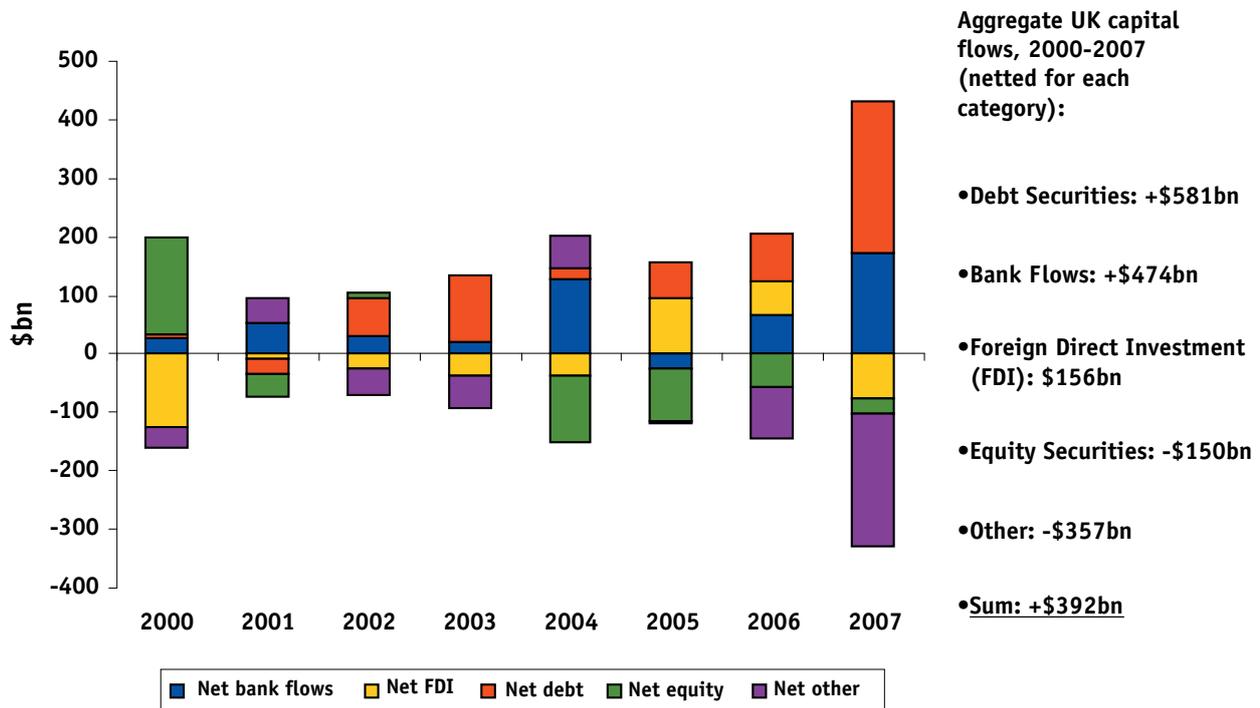


The customer funding gap is customer lending less customer funding, where customer refers to all non-bank borrowers and depositors.

Source: Bank of England, Dealogic, ONS, published accounts and Bank of England calculations



**Exhibit 1.26: Composition of UK capital flows, 2000-2007**



N.B. Positive numbers represent inflows, negative numbers represent outflows.

Source: IMF, FSA calculations

A crucial feature of the UK system in the run-up to the crisis, was therefore the rapid growth of a number of specific banks – Northern Rock, Bradford & Bingley, Alliance and Leicester and HBOS – which were increasingly reliant on the permanent availability of a large-scale interbank funding and/or on their continuous ability to securitise and sell down rapidly accumulating credit assets, particularly in the mortgage market.

The combination of factors common with the US and global story, and factors specific to the UK, resulted in the evolution of the crisis in the UK having the following features:

- An initial focus on funding problems, with the failure of Northern Rock caused not by immediately evident solvency/credit quality problems, but by the drying up of the market for both securitised credit assets and wholesale funding availability. Such funding issues were also critical to the problems of Bradford & Bingley and HBOS in September/October 2008.
- The emergence of major trading book losses on the balance sheets of those UK banks which had been extensively involved in the ‘acquire and arbitrage’ model of securitised credit intermediation
- The subsequent emergence of a wider set of credit problems – in mortgages and in corporate lending, and in particular in commercial real estate – as the financial crisis in itself generated credit capacity constraints and economic slowdown. This slowdown in turn exposed the risky nature of some credit extension in the boom years and is now generating credit quality deterioration even among previously credit worthy customers.

### 1.3 Global finance without global government: faultlines in regulatory approach

The developments described above raise important questions about appropriate future approaches to regulating capital, liquidity, bank-like institutions, credit rating agencies and remuneration, which are relevant to all banks across the world – irrespective of whether they operate entirely within national markets or on a cross-border basis. But they also raise issues specific to the operation of cross-border banks.

The origins of the crisis were to a significant degree global. Some of them (e.g. rapid mortgage credit extension and property price bubbles) were more prevalent in the English-speaking countries, but there were also other property markets, such as Spain which showed similar rapid growth. And the purchase of securitised credit assets was widely spread across the world, with some German banks big purchasers, for instance.

But the crisis also followed a period of significant globalisation of banking activities, both wholesale and retail. Major European investment banks, such as UBS and Deutsche bank, expanded extensively in both London and New York, and major US investment banks developed much larger London operations and extensive networks throughout the world. UK banks like Barclays, RBS and HSBC significantly expanded their US operations. In addition there was a significant extension of cross-border retail activity, particularly in Europe – with, for instance, the Icelandic and Irish banks and ING being active gatherers of retail deposits in the UK, either through physical branches or online.

The crisis revealed fault lines in the global regulation and supervision of some of these cross-border firms, which raise fundamental issues about the appropriate future approach. The essence of the problem – as the Governor of the Bank of England, Mervyn King has put it – is that global banking institutions are global in life, but national in death. That is, when crises occur, it is national central banks which have to provide lender-of-last-resort (LOLR) support and national governments that provide fiscal support, and that if there is a failure, bankruptcy procedures are national and it matters with which specific legal entity a creditor has their claim.

The failures of Lehmans and Landsbanki threw these fault lines into sharp relief:

#### 1.3(i) Lehman Brothers and the future approach to global wholesale banks

Lehman Brothers collapsed in September 2008, following a loss of market confidence in the firm's solvency, arising from its overexposure to troubled asset classes – in particular, mortgage-backed securities and commercial real estate.

In the past the FSA's regulatory approach to large cross-border wholesale banks and investment banks, in line with that of most other regulators, assumed that primary responsibility for ensuring prudential soundness lies with the home country supervisor (though with extensive information sharing between home and host supervisors). It also assumed that it is appropriate for firms to gain efficiency benefits from global approaches to managing liquidity, allowing significant flexibility in the use of legal entities to book transactions across border, and to move liquidity between legal entities.



The failure of Lehman Brothers demonstrated, however, that decisions about fiscal and central bank support for the rescue of a major bank are ultimately made by home country national authorities focusing on national rather than global considerations. It also illustrated that separate legal entities and nationally specific bankruptcy procedures have major implications for creditors.

To address these problems in the future requires some combination of:

- More international cooperation in ongoing supervision through, for instance, colleges of supervisors. And more intense international cooperation and coordination in crisis management.
- An increased use of host country powers to require strongly capitalised local subsidiaries, ring-fenced liquidity and restrictions on intra-group exposures and flows.

The balance between these options, the inherent limits to what can be achieved, and the possible implications for cost efficiency and international capital flows, are discussed in Section 2.2 (vii) and 2.10 (i).

### 1.3 (ii) Landsbanki and the European single market: the need for major reform

The lessons arising from the Icelandic banking crisis are summarised in the box overleaf (Box 1C). The essential points are that:

- European Union single market rules require that banks which are recognised by their home country supervisors as sound have a right to operate as branches in other member states; and
- that, as a result depositors in one country (or the government) can be vulnerable to the failure of banks in another country if the home country concerned lacks the supervisory resources to ensure bank solvency, or the fiscal resources to fund bank rescue, and if the deposit insurance cover is low and unfunded.

These current rules and arrangements are untenable for the future and must be changed through some combination of:

- more European coordination in regulation, supervision and deposit insurance; and
- more host country national powers in regulating and supervising the branches of banks based in other member states.

Section 2.10 (ii) discusses these alternative ways forward.

### **BOX 1C: LESSONS FROM THE ICELANDIC BANKING CRISIS**

The collapse of Landsbanki HF in October 2008 raises important issues relating to the appropriate regulation of bank branches within the European single market and appropriate approaches to deposit insurance.

Landsbanki operated in the UK as a branch, raising retail internet deposits under the Icesave brand. It had around £4.5 billion of retail deposits outstanding at the time of failure. These deposits were legally covered by the Icelandic deposit insurance scheme up to a value of €20,887. In addition, they were covered on a top-up basis by the UK Financial Services Compensation Scheme (FSCS), to which Landsbanki had chosen to opt in. As a top-up member, Landsbanki would have been liable to meet a share of the costs in the event of the default of another bank covered by the UK scheme.

The Icelandic government indicated that it would not be in a position to meet the liabilities of the Icelandic deposit insurance scheme immediately, and is currently discussing the terms of a loan from the UK to allow it to meet those liabilities. In addition, there were £800 million of retail deposits which, because above £50,000, were covered neither by the Icelandic scheme nor by the FSCS top up. The UK government concluded that these deposits should be protected to underpin depositor confidence in the banking system. The total initial costs of retail depositor protection arising from the collapse of Landsbanki's UK branch have therefore been met by a combination of the UK government and the FSCS.

Landsbanki's UK branch was not subject to full prudential supervision by the FSA. This is because European Union single market rules – which cover Iceland as a member of the European Economic Area (EEA) – allow banks in one country to operate as branches in another, with the supervision of solvency and of whole bank liquidity resting with the home country supervisor (this right is known as 'pass-porting'). The FSA, as host country supervisor, had only limited powers relating to the supervision of local liquidity.

The insolvency of Landsbanki therefore illustrates a weakness in the current European approach to a single market in retail banking. Depositors in one country (or their government) are vulnerable to the failure of banks in another country if the home country concerned lacks the supervisory resources to ensure bank solvency, or the fiscal resources or willingness to fund bank rescue, and if the deposit insurance cover is low and unfunded.

The approach to bank branch passporting rights, at least as they apply to branches conducting retail business, therefore requires review. Options for change could include:

#### **Increased home country power:**

- The restriction of branch passporting rights and the requirement that retail deposit gathering be conducted through fully capitalised subsidiaries supervised by the host country regulator.
- Host countries' supervisory powers to conduct a whole bank assessment and to refuse local branches the right to operate if not satisfied.

#### **Increased European coordination:**

- European-wide processes to assess the effectiveness of home country supervision of those banks wanting to conduct retail business in other member countries.
- Cross-European requirements for pre-funded and ring-fenced deposit insurance, combined with more overt warnings to customers of the limits of deposit insurance.

The relative merits of these different approaches are discussed in Section 2.10



## 1.4 Fundamental theoretical issues

The analysis of the causes of the financial crisis implies the need for major changes in our approach to capital, liquidity, accounting, and institutional coverage, which are addressed in Chapter 2. But the crisis also raises important questions about the intellectual assumptions on which previous regulatory approaches have largely been built.

At the core of these assumptions has been the theory of efficient and rational markets. Five propositions with implications for regulatory approach have followed:

- (i) Market prices are good indicators of rationally evaluated economic value.
- (ii) The development of securitised credit, since based on the creation of new and more liquid markets, has improved both allocative efficiency and financial stability.
- (iii) The risk characteristics of financial markets can be inferred from mathematical analysis, delivering robust quantitative measures of trading risk.
- (iv) Market discipline can be used as an effective tool in constraining harmful risk taking.
- (v) Financial innovation can be assumed to be beneficial since market competition would winnow out any innovations which did not deliver value added.

Each of these assumptions is now subject to extensive challenge on both theoretical and empirical grounds, with potential implications for the appropriate design of regulation and for the role of regulatory authorities.

### 1.4 (i) Efficient markets can be irrational

The predominant assumption behind financial market regulation – in the US, the UK and increasingly across the world – has been that financial markets are capable of being both efficient and rational and that a key goal of financial market regulation is to remove the impediments which might produce inefficient and illiquid markets. A large body of theoretical and empirical work has been devoted to proving that share prices in well regulated liquid markets, follow ‘random walks’, and that it is therefore impossible to make money on the basis of the knowledge of past patterns of price movement, with prices instead changing as new information becomes available and is assessed by a wide range of independently acting market participants.<sup>8</sup> And the assumption has been that these independently acting market participants are in general rational in their assessments and that the overall level of prices as a result has a strong tendency towards a rational equilibrium.

<sup>8</sup> Note that the finding of ‘random walks’ (i.e. the nonexistence of chartist patterns) does not imply that the determinants of the price movements are random and irrational, but rather that they are determined by flows of relevant information which, since they arise in a fashion unrelated to past price movements, will result in apparently random but in fact entirely rational price movements.

These assumptions have always been subject to some challenge. Many market participants accept on the basis of pragmatic observation that significant temporary bubbles in market prices are possible. And scepticism about the rationality of markets and the benefits of liquidity has a long intellectual lineage. Keynes's General Theory contains a famous attack on the idea that equity prices are driven by the rational assessment of the available information.<sup>9</sup> Hyman Minsky argued in 1986 that financial markets and systems are inherently susceptible to speculative booms which, if long lasting, will inevitably end in crisis.<sup>10</sup> Charles Kindleberger's *Manias, panics and markets* illustrated how the tendency towards occasional speculative excess spanned different markets, countries and centuries.<sup>11</sup>

But the predominant tendency of financial markets theory of the last 20 to 30 years has been to assert that:

- (i) efficient and liquid financial markets deliver major allocative efficiency benefits by making possible a full range of contracts, thus enabling providers and users of funds more effectively to meet their preferences for risk, return and liquidity;
- (ii) markets are sufficiently rational as to justify a strong presumption in favor of market deregulation; and
- (iii) that even if markets are theoretically capable of irrational behaviour, policymakers will never be able to judge when and how far they are irrational with sufficient confidence to justify market intervention.

In the face of the worst financial crisis for a century, however, the assumptions of efficient market theory have been subject to increasingly effective criticism, drawing on both theoretical and empirical arguments. These criticisms include that:

- **Market efficiency does not imply market rationality.** There is nothing in empirical tests of market efficiency narrowly defined (i.e. tests of the non-existence of chartist patterns) which illustrates market rationality. The fact that prices move as random walks and cannot be predicted from prior movements in no way denies the possibility of self-reinforcing herd effects and of prices overshooting rational equilibrium levels.<sup>12</sup>
- **Individual rationality does not ensure collective rationality.** There are good theoretical and mathematically modellable reasons for believing that, even if individuals are rationally self interested, their actions can, if determined in conditions of imperfect information and/or

<sup>9</sup> Keynes likened investing in financial instruments to 'those newspaper competitions in which the competitors have to pick out the six prettiest faces from 100 photographs, the prize being awarded to the competitor whose choice most nearly corresponds to the average preferences of the competitors as a whole; so that each competitor has to pick not those faces which he himself finds prettiest, but those which he thinks likeliest to catch the fancy of the other competitors, all of whom are looking at the problem from the same point of view. It is not a case of choosing those which to the best of one's judgment are really the prettiest, nor even those which average opinion genuinely thinks the prettiest. We have reached the third degree where we devote our intelligence to anticipating what average opinion expects the average opinion to be. And there are some, I believe, who practice the fourth, fifth and higher degrees', John Maynard Keynes, *General Theory*, (1936).

<sup>10</sup> Hyman Minsky, *Stabilising an Unstable Economy* (1986).

<sup>11</sup> Charles Kindleberger *Manias, panics and markets* (1978). Charles Mackay's classic account *Extraordinary public delusions and the madness of crowds* (1852) also covers some of the great speculative bubbles e.g. the Mississippi Company Scheme and the South Sea Bubble.

<sup>12</sup> See e.g. Robert Shiller *Irrational Exuberance* (2000), Chapter 9 *Efficient markets, random walks and bubbles* for a discussion of the limited implications of efficient market theory.



determined by particular relationships between end investors and their asset manager agents, result in market price movements characterised by self-reinforcing momentum.<sup>13, 14</sup>

- **Individual behaviour is not entirely rational.** There are moreover insights from behavioural economics, cognitive psychology and neuroscience, which reveal that people often do not make decisions in the rational front of brain way assumed in neoclassical economics, but make decisions which are rooted in the instinctive part of the brain, and which at the collective level are bound to produce herd effects and thus irrational momentum swings.<sup>15</sup>
- **Allocative efficiency benefits have limits.** Beyond a certain degree of liquidity and market completion, the additional allocative efficiency benefits of further liquidity and market completion may be relatively slight, and therefore easily outweighed by additional instability risks which increasing liquidity or complexity might itself create. It is for instance arguable that the allocative efficiency benefits of the creation of markets for many complex structured credit securities (e.g. CDO-squareds) would have been at most trivial even if they had not played a role in creating financial instability.
- **Empirical evidence illustrates large scale herd effects and market overshoots.** Economists such as Robert Shiller have argued persuasively that empirical evidence proves that financial market prices can diverge substantially and for long periods of time from estimated economic values, with the calculated divergences at times so large that policymakers can reasonably conclude that market prices have become irrational.<sup>16</sup>

Given this theory and evidence, a reasonable judgement is that policymakers have to recognise that all liquid traded markets are capable of acting irrationally, and can be susceptible to self-reinforcing herd and momentum effects. This does not imply that liquid and efficient markets have no benefits nor that the only problems of financial instability arise within liquid financial markets:

- It is quite possible, for instance, that efficient and liquid markets provide useful and accurate price signals as to the *relative* attractiveness of different equities or credits even if the overall level of prices is subject to irrational overshoots.
- And it is certainly the case that markets other than liquid financial markets can also be subject to irrational overshoots. Robert Shiller's work illustrates that irrational exuberance is possible in housing markets as well as in equity markets. And markets for on-balance sheet credit, provided via non-traded bank loans, have often displayed herd effects in the past, leading to underpricing of credit.<sup>17</sup>

<sup>13</sup> See e.g. *An institutional theory of momentum and reversal*, Vayanos and Woolley LSE, (November 2008).

<sup>14</sup> See George Soros *The new paradigm for financial markets* (2008) for an argument based on the general principle of 'reflexivity' rather than a mathematical model.

<sup>15</sup> See e.g. Kahneman, Slovic and Tversky *Judgment under uncertainty: heuristics and bias* (1982) for discussion of how economic agents actually make decisions on the basis of rough heuristics i.e. rules of thumb. These rules can then generate self-reinforcing herd effects.

<sup>16</sup> See e.g. Shiller *Irrational Exuberance* (2000). Note that Shiller's empirical work also finds evidence of irrational prices in non-financial markets, such as property. The implication of the fact that it is not only liquid financial markets which can be irrational is considered in Section 1.4.(ii) below.

<sup>17</sup> While other markets are capable of irrational momentum effects, financial instrument markets are still however somewhat special in the speed with which momentum effects and overshoots can develop. And it is possible that a feature of the securitised credit market has been that irrational underpricing of securitised and traded credit has itself driven underpricing of on balance sheet credit, with market prices treated as carrying information relevant to risk assessment and price setting.

But the acceptance that financial markets are inherently susceptible to irrational momentum effects does imply that regulatory approaches should be based on striking a balance between the benefits of market completion and market liquidity and the potential disadvantages which may arise from inherent instabilities in liquid markets.

The optimal balance may moreover be different when considering securitised credit markets compared with other markets (such as those for equities and commodities). The arguments for this proposition and the implications if it is true, are considered in Section 1.4 (ii) below.

#### 1.4(ii) Securitisation and financial instability: inherent or fixable with better regulation?

As Section of 1.1 (i) described, the system of securitised credit intermediation was originally proposed as a mechanism for taking risk off the balance sheets of banks, placing it with a diversified set of end investors, and thus reducing banking system risks. Subsequently the system grew massively in both scale and complexity. But even once it had done so the predominant intellectual assumption was that the new system had reduced financial instability risks. The IMF's *Global Financial Stability Report* of April, 2006 stated that 'the dispersion of credit risk by banks to a broader and more diverse set of investors, rather than warehousing such risk on their balance sheets, has helped make the banking and overall financial system more resilient'. It noted that this dispersion would help to 'mitigate and absorb shocks to the financial system' with the result that 'improved resilience may be seen in fewer bank failures and more consistent credit provision'.

This analysis has been proved wrong. Rather than improving financial system resilience, the development of securitised credit has ended up producing the worst financial crisis for a century. The crucial issue is whether increased instability is inherent to a securitised model of credit intermediation or the result of the particular form of securitised credit which developed over the last 15 years and the manner in which these developments were regulated.

There are some theoretical reasons for believing that a securitised credit model may be inherently more vulnerable to financial instability shocks than a model of on-balance sheet credit intermediation.

- In a securitised system credits become marketable instruments, tradeable in liquid markets. And as described in Section 1.4 (i), all liquid markets are inherently susceptible to periodic swings in sentiment which produce significant divergence from rational equilibrium prices. Internet equity prices in 2000 were driven irrationally high by rational exuberance and subsequently fell. Bond yields were driven irrationally low and prices irrationally high by self reinforcing exuberance between 2002 and early 2007; when confidence disappeared yields subsequently soared, and prices collapsed.
- But while the former boom and bust in equity prices had surprisingly small consequences for the real economy the latter upswing and reversal is having an enormous one. That contrast may be inherent. The world economy may have greater ability to absorb without dire consequences severe cases of irrational exuberance and then depression in equity prices, than in the prices of a broad range of credit instruments, held to a significant extent on the trading books of banks, shadow banks or near banks.
- This is because of the characteristics of banks, their central role in the economy, and the specific risks they face. Banks are highly leveraged: they perform maturity transformation which exposes them to liquidity risks: and they are involved in a process of continual rollover of new credit supply to the real economy without which economies will contract. So irrational



swings in prices of credit securities held by banks, and thus in their capital resources, are likely to be far more economically significant than irrational swings in the prices of equity investments held by end investors.

- It is therefore possible that the growth of the securitised credit intermediation model has increased systemic risk in ways which are not just the result of poor execution – bad remuneration policies, inadequate risk management or disclosure, failures in the credit rating process – but inherent.

But it is also important not to overstate this case and to recognise the potential for better regulation to ensure a more robust model of securitised credit intermediation.

- Some of the arguments originally advanced in favour of securitised credit are sound: taking regionally or concentrated credit risk off bank balance sheets and distributing it to diversified investors can be beneficial.
- Many forms of credit, for instance residential mortgages, are best assessed via quantitative scoring techniques, rather than by individual bank officer judgement, and can therefore be turned into securities, the risk of which can be well captured in credit ratings. Credit ratings indeed (as Section 2.5 (i) will illustrate) worked reasonably well as indicators of relative probability of default until the development of overly complex structured credit instruments.
- Many of the problems of the securitised credit model as it emerged over the last 15 years were the direct result of poor regulation: e.g. the emergence of off-balance sheet shadow banking activities and inadequately low capital requirements against trading books.
- And while we are now facing a crisis of the securitised credit model, history has provided many examples of credit crises involving almost entirely on-balance sheet banking – the US savings and loans debacle of the 1980s, the Japanese and Swedish banking crises of the 1990s, the US banking crisis of 1929-33. Some of these cases (e.g. the Japanese banking crisis) illustrate the point made in Section 1.4 (i) above – that irrational exuberance can operate in the market for traditional on balance sheet loans and in the property market, as well as in liquid financial instrument markets. And some of the factors which played a role in those crises e.g. the regionally specific concentration of bank exposures in US banks in the 1930s, could have been partially offset by appropriate application of an originate and distribute model of securitised credit.<sup>18</sup>

A reasonable judgement therefore is that future system for credit intermediation will and should involve a combination of traditional on-balance sheet mechanisms and securitisation. The challenge is to design regulatory responses which will produce a safer version of the securitised credit model – less complex, more transparent to end investors, with less packaging and trading of securitised credit through multiple balance sheets, more true distribution to end investors and more real risk diversification.

This conclusion has implications for the debate about whether regulation should seek a clear distinction between traditional on balance sheet banks and investment banking style trading activities (sometimes labeled ‘utility banking’ and ‘casino banking’). This is discussed in Section 2.9.

<sup>18</sup> This argument should not, however, be overstated. The fundamental cause of the early 1930s US banking crisis was catastrophic failures in the conduct of monetary policy which would probably have overwhelmed any banking system design. See *The Great Contraction* in Friedman and Schwartz *A monetary history of the United States 1867-1960* (1963).

#### 1.4 (iii) Misplaced reliance on sophisticated maths: fixable deficiencies or inherent limitations?

As Section 1.1 (iv) discussed, the development of a greatly expanded financial sector and the rapid growth and increased complexity of the securitised model of credit intermediation was accompanied and, it was believed, made safe by the development of increasingly sophisticated mathematical techniques for the measurement and management of position taking risks. The techniques entailed numerous variants to cope with the different mathematics of, for instance different categories of option. And their application required significant computing power to capture, for instance, relationships between different market prices, the complex nature of structured credit instruments, and the effects of diversification across partially but not wholly correlated markets. But the underlying methodological assumption was straightforward: the idea that analysis of past price movement patterns could deliver statistically robust inferences relating to the probability of price movements in future.

The financial crisis has revealed, however, severe problems with these techniques. They suggest at very least the need for significant changes in the way that VAR-based methodologies have been applied: some, however, pose more fundamental questions about our ability in principle to infer future risk from past observed patterns.

Four categories of problem can be distinguished:

- **Short observation periods.** These have already been discussed above in Section 1.1 (iv). Measures of VAR were often estimated using relatively short periods of observation e.g. 12 months. As a result they introduced significant procyclicality, with periods of low observed risk driving down measures of future prospective risk, and thus influencing capital commitment decisions which were for a time self-fulfilling. At very least much longer time periods of observations need to be used.
- **Non-normal distributions.** However, even if much longer time periods (e.g. ten years) had been used, it is likely that estimates would have failed to identify the scale of risks being taken. Price movements during the crisis have often been of a size whose probability was calculated by models (even using longer term inputs) to be almost infinitesimally small. This suggests that the models systematically underestimated the chances of small probability high impact events. Models frequently assume that the full distribution of possible events, from which the observed price movements are assumed to be a random sample, is normal in shape. But there is no clearly robust justification for this assumption and it is possible that financial market movements are inherently characterized by fat-tail distributions.<sup>19</sup> This implies that any use of VAR models needs to be buttressed by the application of stress test techniques which consider the impact of extreme movements beyond those which the model suggests are at all probable. Deciding just how stressed the stress test should be, is however inherently difficult, and not clearly susceptible to any mathematical determination.
- **Systemic versus idiosyncratic risk.** One explanation of fat-tail distributions may lie in the importance of systemic versus idiosyncratic risk i.e. the presence of ‘network externalities’.<sup>20</sup> The models used implicitly assume that the actions of the individual firm, reacting to market price movements, are both sufficiently small in scale as not themselves to affect the market equilibriums, and independent of the actions of other firms. But this is a deeply misleading

<sup>19</sup> See e.g. Benoit Mandelbrot *The Misbehaviour of Markets* (2004) and Nassim Nicholas Taleb *The Black Swan: the Impact of the Highly Improbable* (2007)

<sup>20</sup> See Andrew Haldane *Why banks failed the stress test* (February 2009) for discussion of Network Externalities, Disaster Myopia (rooted in non rational decision heuristics) and Misaligned Incentives as three explanations of fat-tail distributions.

assumption if it is possible that developments in markets will induce similar and simultaneous behaviour by numerous players. If this is the case, which it certainly was in the financial crisis, VAR measures of risk may not only fail adequately to warn of rising risk, but may convey the message that risk is low and falling at the precise time when systemic risk is high and rising. According to VAR measures, risk was low in spring 2007: in fact the system was fraught with huge systemic risk. This suggests that stress tests may need (i) to be defined as much by regulators in the light of macro-prudential concerns, as by firms in the light of idiosyncratic concerns; and (ii) to consider the impact of second order effects i.e. the impact on one bank of another bank's likely reaction to the common systemic stress.

- **Non-independence of future events; distinguishing risk and uncertainty.** More fundamentally, however, it is important to realize that the assumption that past distribution patterns carry robust inferences for the probability of future patterns is methodologically insecure. It involves applying to the world of social and economic relationships a technique drawn from the world of physics, in which a random sample of a definitively existing universe of possible events is used to determine the probability characteristics which govern future random samples. But it is unclear whether this analogy is valid when applied to economic and social relationships, or whether instead, we need to recognise that we are dealing not with mathematically modellable risk, but with inherent 'Knightian' uncertainty.<sup>21</sup> This would further reinforce the need for a macro-prudential approach to regulation. But it would also suggest that no system of regulation could ever guard against all risks/uncertainties, and that there may be extreme circumstances in which the backup of risk socialization (e.g. of the sort of government intervention now being put in place) is the optimal and the only defence against system failure.

#### 1.4 (iv) The failure of market discipline

The challenge to efficient market theory has consequences for the extent to which we can rely on market discipline rather than regulatory action to constrain risks.

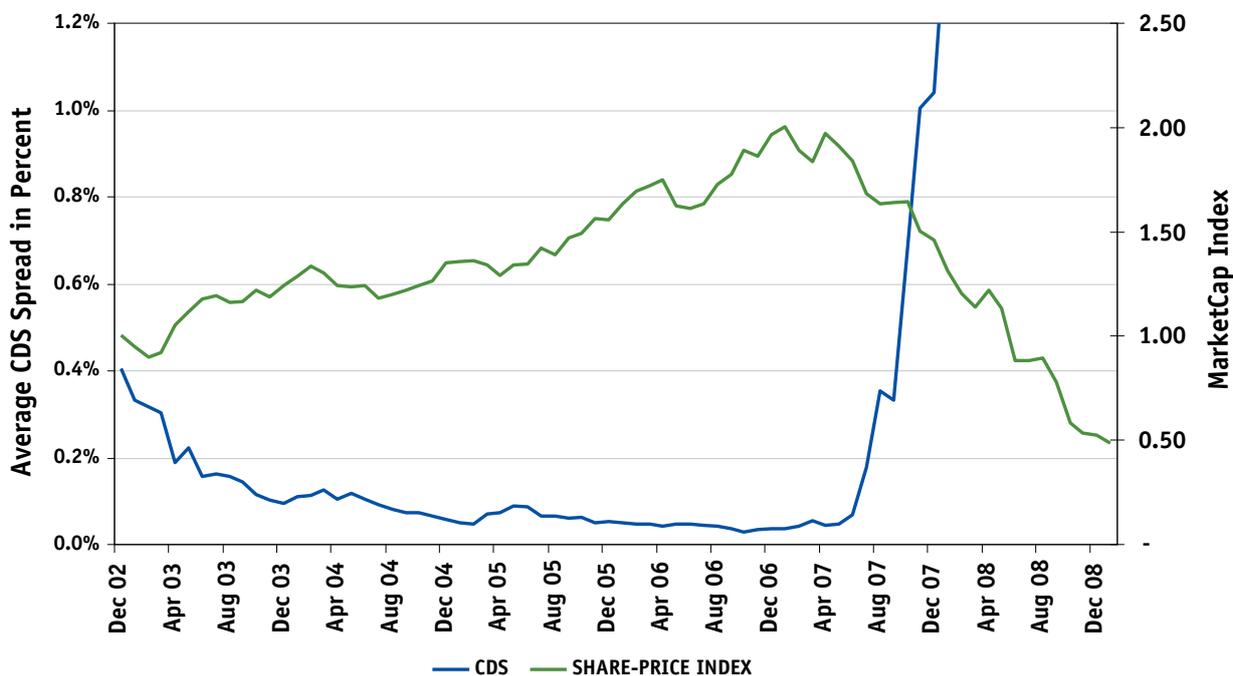
In the past, an important school of thought has argued that market discipline can play a key role in incentivising banks to constrain capital and liquidity risks. The Basel II capital adequacy framework includes the assumption that improved disclosure under 'Pillar 3' will play a significant role alongside regulation, in incentivising appropriate behaviour. Proposals have also been put forward in the past to require banks to issue subordinated debt, in the belief that a transparent market price for bank credit will in itself improve discipline, either directly through its influence on management behaviour, or indirectly by providing information which might trigger intervention by bank regulators.<sup>22</sup> The development of the CDS market has also been assumed by some commentators to create an increased discipline, since it provides a clear external measure of risk. And many responses to the crisis have focused heavily on the need for increased disclosure and transparency as a key response, and – in some cases – the single most important response.

But a strong case can be made that the events of the last five years have illustrated the inadequacy of market discipline: indeed, they suggest that in some ways market prices and market pressures may have played positively harmful roles.

<sup>21</sup> The classic statement of the distinction between risk and uncertainty is Frank Knight *Risk, Uncertainty, and Profit* (1921). See Adair Turner *Uncertainty and Risk: reflections on a turbulent year*, Cass Business School, February 2008, for a discussion of the application of this distinction to different categories of financial risk.

<sup>22</sup> See Daniel Tarullo *Banking on Basel*, (2008) Chapter 7 for an assessment of various different forms of direct and indirect market discipline.

**Exhibit 1.27: Composite Time Series of Select Financial Firms' CDS and share prices**



Firms included: Ambac, Aviva, Banco Santander, Barclays, Berkshire Hathaway, Bradford & Bingley, Citigroup, Deutsche Bank, Fortis, HBOS, Lehman Brothers, Merrill Lynch, Morgan Stanley, National Australia Bank, Royal Bank of Scotland and UBS

CDS series peaks at 6.54% in September 2008.

Source: Moody's KMV, FSA calculations

- Bank CDS prices before the crash of 2007 did not provide forewarning of the scale of problems ahead. They were moderately successful in indicating the *relative* riskiness of different institutions – e.g. suggesting that Northern Rock was more risky than other banks.<sup>23</sup> But their overall sector wide level suggested that risks were at historically low not historically high levels (Exhibit 1.27).
- Bank share prices similarly failed to indicate that risks were increasing, but rather delivered strong market price reinforcement to management's convictions that their aggressive growth strategies were value creative.
- And while, as will be discussed in Chapter 2.1, capital adequacy regulations are sometimes criticised as procyclical, it is clear that market pressures from investors and analysts were far more so. Far from banks being pressured to build up capital buffers in the good times before 2007, ahead of potential future problems, the pressure of the market was for them to return capital in order to reduce capital ratios from what were perceived as inefficiently high levels.
- Finally, while it is clear in retrospect that some major corporate actions, in particular the RBS bid for ABN AMRO, were risky mistakes, and while several institutional shareholders expressed significant concerns that the time, they were not able or willing to force a change of strategy.

<sup>23</sup> Note that this is consistent with the hypothesis considered in Section 1.4 (i) – that market prices may be relatively efficient indicators of underlying relative economic values, and therefore effective guides to the efficient allocation of capital between competing alternative uses, even while at the aggregate level subject to herd and momentum effects which can produce significant irrational diversion from underlying value.



A reasonable conclusion is that market discipline expressed via market prices cannot be expected to play a major role in constraining bank risk taking, and that the primary constraint needs to come from regulation and supervision. There may, however, be potential to achieve more effective institutional shareholder influence over corporate strategies: the issues this raises should be considered within the Walker Review of bank governance arrangements.

#### 1.4 (v) Financial innovation and value added

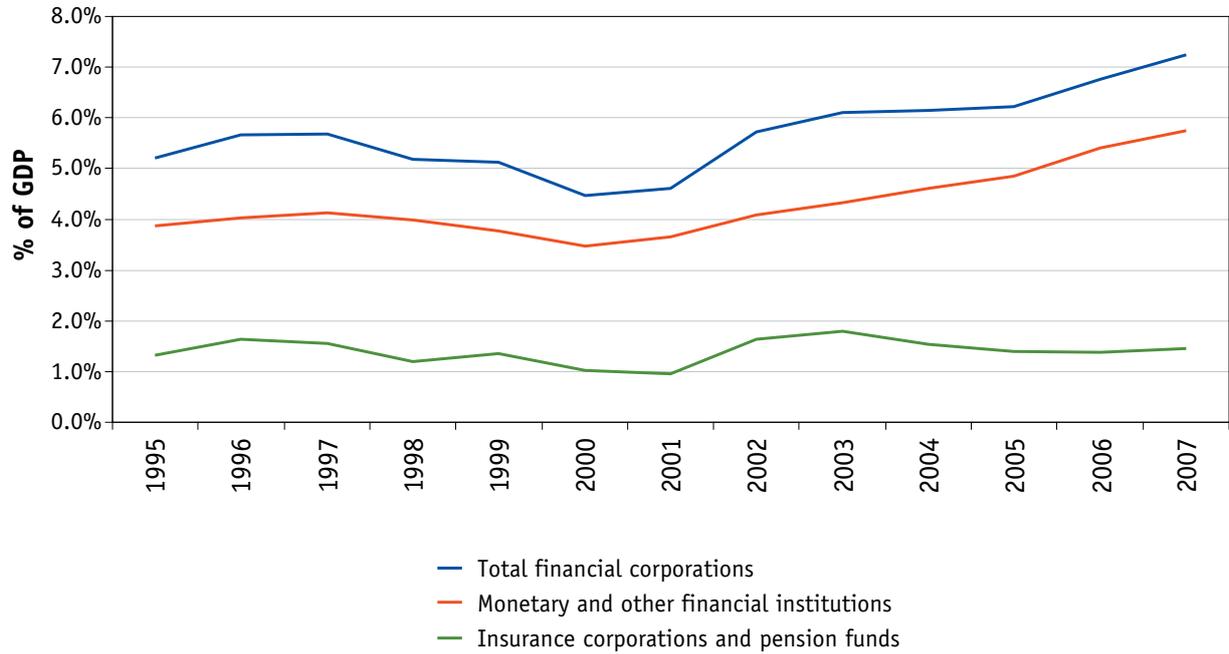
As Section 1.1 (ii) described, one of the striking features of the last 15 years has been a dramatic increase across the world in the relative size of wholesale financial services within the real economy. Exhibit 1.10 illustrated how financial system balance sheets had increased far more rapidly than lending and deposit taking to and from the non-financial sectors of the economy. This increase in balance sheets was moreover matched by similar trends in measures of value added and profit. Financial sector ‘value added’ as a % of GDP increased significantly (Exhibit 1.28). Banking sector profits grew as a % of total profits. And the market capitalisation of financial companies, and in particular banks, grew as a % of GDP and as a % of total market capitalisation (Exhibit 1.29).

This growth appears to be at variance with one of the arguments made in favour of securitisation, that it would be a more cost efficient system, delivering the service of credit intermediation to the real economy at a lower total cost. An important theoretical issue is therefore why wholesale financial services have grown so significantly.

A reasonable assessment is while that while there are some inherent reasons why financial services tend to grow in importance as income per capita rises, the increase over the last ten to 15 years has also been driven by unnecessary and undesirable factors which raise questions about the value of some financial innovation and about appropriate regulatory responses.

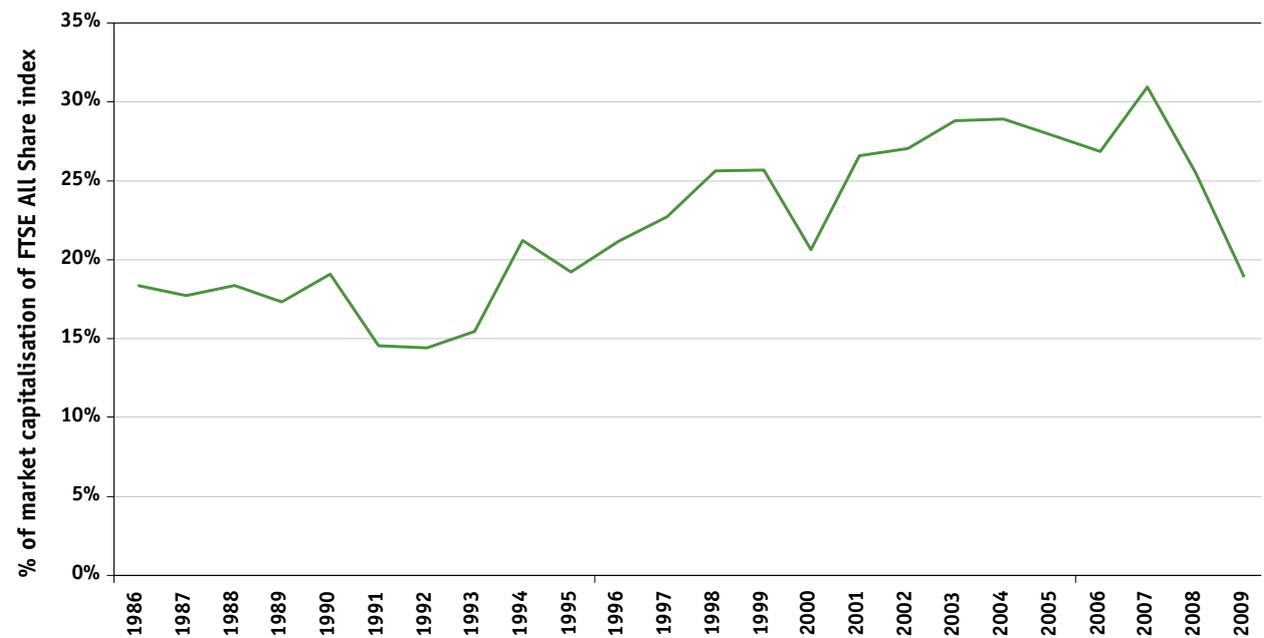
- There are some fundamental and benign factors which tend to increase the relative importance of financial services (both retail and wholesale) as incomes grow. The wealthier people become, the more life cycle consumption smoothing occurs, and the more diverse they become in their preferences for consumption at different points in their life. As a result there is a simultaneous increase in demand for both savings and borrowing products. And the more globalised the world economy becomes, the more complex are the functions which global banks have to perform in intermediating credits and other flows and in themselves managing and helping corporates to manage the risks that arise from global operations, and from fluctuating exchange rates, interest rates and commodity prices. In general income per capita and financial sector value added as a % of GDP are somewhat correlated, across at least a range of income per capita levels, for inherent and benign reasons.
- But it also seems likely that the importance of financial services as a % of GDP has been swollen by two other factors, one illusory and the other harmful:
  - The illusory affect can arise from mark-to-market profits in a rising market. The bank and near-bank system in total holds a net long position in those assets which are marked to market. As a result, if irrational exuberance pushes the price of assets to irrationally high levels, mark to market accounting will swell declared profit in an unsustainable way. A significant element of trading book profits recorded in the years running up to the crisis proved in retrospect illusory. These illusory profits were however used as the basis for bonus decisions, and created incentives for traders and management to take further risk. This carries implications for remuneration policies, considered in Chapter 2.5 (ii).

**Exhibit 1.28: Gross value added as a percentage of GDP**



Source: ONS, FSA calculations

**Exhibit 1.29: Market capitalisation of FTSE All Share Financials as a % of FTSE All Share index**



Source: FTSE, FSA calculations



- The possible harmful effect is rent extraction. For it seems likely that some and perhaps much of the structuring and trading activity involved in the complex version of securitised credit, was not required to deliver credit intermediation efficiently. Instead, it achieved an economic rent extraction made possible by the opacity of margins, the asymmetry of information and knowledge between end users of financial services and producers, and the structure of principal/agent relationships between investors and companies and between companies and individual employees.<sup>24</sup> Wholesale financial services, and in particular that element devoted to securitised credit intermediation and the trading of securitised credit instruments, grew to a size unjustified by the value of its service to the real economy.

If this is true, it could carry implications for appropriate regulatory approaches. An underlying assumption of financial regulation in the US, the UK and across the world, has been that financial innovation is by definition beneficial, since market discipline will winnow out any unnecessary or value destructive innovations. As a result, regulators have not considered it their role to judge the value of different financial products, and they have in general avoided direct product regulation, certainly in wholesale markets with sophisticated investors. Chapter 3.1 discusses possible implications if these assumptions are challenged.

\* \* \* \*

The implications of this chapter for the changes which are clearly required are set out in Chapter 2. Some of the wider questions about future appropriate policy which are suggested by Section 4: Fundamental Theoretical Issues are proposed for debate in Chapter 3: Wider issues and open questions.

<sup>24</sup> Thus for instance if a trader, a senior executive or an institution (e.g. a hedge fund) is remunerated on the basis of a contract which provides for a significant profit share in good years but no claw back in years of poor performance, that person or institution will have a strong incentive to pursue strategies which generate strong return in many years but at the expense of the small probability of occasional very large losses. Applied in general across the financial system, such contracts will result on average in excessive compensation relative to the economic functions performed.





## 2: What to do?

In response to the financial crisis described in Chapter 1, a wide-ranging set of changes are required to banking regulation and to supervisory practice. This chapter sets them out. It covers actions already taken in response to the crisis, changes where the FSA can take action on its own, and changes where international agreement is required, but where the FSA has a clear set of proposals. Additional measures which may be appropriate, but where further debate is desirable, are proposed for consideration in Chapter 3. This chapter discusses:

1. The need for a systemic approach.
2. Fundamental changes in regulatory approach: capital, accounting and liquidity.
3. Institutional and geographic coverage: economic substance not legal form.
4. Deposit insurance and bank resolution: changes already made.
5. Other important changes: credit ratings, remuneration, and counterparty risks.
6. Macro-prudential analysis and the need for intellectual challenge.
7. A new approach to supervision: more intrusive and more systemic.
8. Governance and risk management: firm responsibilities and structures.
9. The regulation of large complex banks: 'utility banking' versus 'investment banking'.
10. The regulation and supervision of cross-border banks: globally and within Europe.

Chapter 4 discusses implementation details, processes for achieving international agreement, and issues relating to appropriate transition paths given the starting point of today's macroeconomic position.

## 2.1 The need for a systemic approach

The future approach to banking regulation and supervision needs to be rooted in the fact that the risks involved in performing bank or bank-like functions are different not only from those involved in non-financial activities, but also from those which arise in performing non-bank financial activities, such as life insurance. There are three reasons for this difference:

- The role of banks as providers of maturity transformation, holding longer tenor assets than liabilities and thus enabling non bank sectors in total to hold longer liabilities than assets. This is a vitally important function delivering important benefits to the economy. But it is inherently risky. If all creditors of a bank simultaneously demanded their money back on the due date, almost no bank would be able to meet this demand unless it received central bank lender of last resort support.
- The potentially systemic nature of banking liquidity risks, and to a degree solvency risks. A fall of confidence in one bank is capable of undermining confidence in others. The response of several banks to liquidity problems (e.g. drawing down wholesale lines or reducing wholesale placings) can strain the liquidity of other banks not originally affected. And the simultaneous attempt of many banks to address liquidity problems via sale of assets can generate asset value falls and solvency risks.
- The fact that the impact of bank failure and in particular of bank system failure is extremely serious for the real economy. Recent IMF analysis has illustrated that financial economic slowdowns and recessions associated with banking-related financial stress are both deeper and longer lasting than those associated with non-banking financial stress and than those which arose for reasons unrelated to financial system stress (Exhibit 2.1).

### Exhibit 2.1: Duration and severity of recessions: the impact of banking crises

	Number of periods (253 in total)	Duration of slowdown or recession <sup>1</sup> (quarters)	Cumulative output loss (average % of GDP) <sup>2</sup>
Financial stress	113		
Of which:			
Followed by slowdown	29	7.6	-7.6
Banking-related	18	8.4	-9.3
Followed by recession	29	6.8	-13.8
Banking-related	17	7.6	-19.8
Others	55		
Slowdown not preceded by financial crisis	109	5.1*	-4.1*
Recession not preceded by financial crisis	31	3.1*	-5.4*

<sup>1</sup> Slowdown duration: number of quarters during which GDP is below trend; Recession duration: number of quarters until GDP is at or exceeds peak level.

<sup>2</sup> Slowdown output loss: cumulative output loss below trend; Recession output loss: cumulative output loss until recovery.

\* Asterisks indicate difference from slowdowns preceded by financial stress significant at 10 percent or better.



Because of these specific characteristics many of the most important challenges in banking regulation are systemic rather than idiosyncratic. One of the key deficiencies problems of the past approach, not only in the UK but in many other countries, was that it did not reflect this reality. There was inadequate focus on the analysis of systemic risk and of the sustainability of whole business models: and a failure to design regulatory tools to respond to emerging systemic risks.

The implications of this for appropriate regulation and supervisory approach are profound.

## 2.2 Fundamental changes: capital, accounting and liquidity

Chapter 1.1 and 1.2 described the origins of the financial crisis at the global level and specifically in the UK. Capital, accounting, and liquidity related issues played a central role. Inadequate capital against trading book positions allowed excessive leverage: changing patterns of maturity transformation created system-wide liquidity risk: mark-to-market accounting helped fuel a self-reinforcing cycle of irrational exuberance. And when the crisis broke, banks did not have sufficient capital buffers to absorb losses, creating the danger of a self-reinforcing feedback loop between weak lending capacity, economic recession, and credit losses.

The most fundamental changes required to create a sounder banking system for the future are therefore those relating to capital adequacy, accounting, and liquidity policies. This section sets out the seven key measures required:

- (i) Increasing the quantity and quality of bank capital.
- (ii) Significant increases in trading book capital: and the need for fundamental review.
- (iii) Avoiding procyclicality in Basel 2 implementation.
- (iv) Creating counter-cyclical capital buffers.
- (v) Offsetting procyclicality in published accounts.
- (vi) A gross leverage ratio backstop.
- (vii) Containing liquidity risks: in individual banks and at the systemic level.

Exhibit 2.2 summarises the specific recommendations and their likely impact on the banking system and on financial stability.

### 2.2 (i) Increasing the quantity and quality of bank capital

Chapter 2 of the FSA's Discussion Paper which accompanies this Review discusses the theoretical issues relating to appropriate levels of bank capital. It distinguishes two approaches to the definition of adequate capital:

- A 'gone concern' approach in which what matters is the protection of senior creditors and depositors in the event of an individual bank failure within a stable overall system. From this perspective, any capital claim which is ranked subordinate to senior creditors will protect them: subordinated debt as much as common equity.
- A 'going concern' approach in which regulators and macroeconomic policymakers need to be concerned about the implications of bank capital structure for the behaviour of banks and the implications of that behaviour for the whole economy. From this perspective it is essential that capital is available to absorb losses without banks being under excessive pressure to constrain lending to the real economy: and that banks are not so highly leveraged relative to common equity as to create incentives for excessive risk taking.

## Exhibit 2.2 Capital, Accounting and Liquidity

Recommendation	Detail	Impact
Increase the quantity and quality of overall bank capital	<ul style="list-style-type: none"> <li>• Focus on Tier 1 and Core Tier 1 capital for systemically important banks</li> <li>• Regulatory minima significantly increased from current Basel 2 regime</li> </ul>	<ul style="list-style-type: none"> <li>• Future banking system better able to absorb shocks</li> <li>• Will tend to mean lower return on equity but lower risk banking industry</li> </ul>
Major changes to trading book capital	<ul style="list-style-type: none"> <li>• Major (e.g. more than 3 times) increases in capital required against key types of trading risk</li> <li>• Fundamental review of market risk capital regime (e.g. reliance on VaR measures)</li> </ul>	<ul style="list-style-type: none"> <li>• Significant reduction in scale of proprietary risk taking</li> <li>• Will drive simplification and derisking of securitised credit model</li> </ul>
Avoid procyclicality in Basel 2 implementation	<ul style="list-style-type: none"> <li>• FSA action already in hand to enable 'through the cycle' rather than 'point-in-time' estimates of credit risk</li> </ul>	<ul style="list-style-type: none"> <li>• Will reduce the extent to which lending capacity is impaired in economic downturn</li> </ul>
Create countercyclical capital buffers	<ul style="list-style-type: none"> <li>• Capital levels to increase in booms and decrease in recessions</li> <li>• Variety of options: discretionary versus formula: in calculated capital or in reserve</li> </ul>	<ul style="list-style-type: none"> <li>• Dangers of banking system instability greatly reduced</li> <li>• Amplitude of economy cycles reduced</li> </ul>
Offset procyclicality in published accounts	<ul style="list-style-type: none"> <li>• Countercyclical buffers to be defined in published accounts 'Economic Cycle Reserve'</li> </ul>	<ul style="list-style-type: none"> <li>• Remuneration and management behaviour less influenced by irrational exuberance</li> </ul>
Introduce a gross leverage ratio backstop	<ul style="list-style-type: none"> <li>• Absolute limit on gross assets to some category of capital (e.g. Core Tier 1)</li> </ul>	<ul style="list-style-type: none"> <li>• Guards against under estimation of risks</li> <li>• Limits system-wide financial instability risks by limiting aggregate positions</li> </ul>
Major intensification of liquidity regulation and supervision	<ul style="list-style-type: none"> <li>• Action already outlined in Consultation Paper (08/22) <ul style="list-style-type: none"> <li>• Much more detailed information requirements on liquidity mismatches</li> <li>• Stress tests defined by regulators and covering systemic effects</li> <li>• Detailed mandatory Individual Liquidity Guidance</li> </ul> </li> <li>• Possible introduction of code funding ratio rule</li> </ul>	<ul style="list-style-type: none"> <li>• Reduced reliance on risky forms of 'liquidity through marketability' and risky levels of wholesale funding.</li> <li>• Reduced risks of liquidity strain driving financial instability</li> <li>• Will tend to constrain aggregate system maturity transformation and marginally change term structure of interest rates.</li> </ul>



The crisis has revealed the crucial importance of focusing on the second approach when determining bank capital adequacy rules for systemically important banks. The FSA therefore believes that required capital ratios for such banks should be expressed entirely in terms of high quality capital – broadly speaking the current Core Tier 1 and Tier 1 definitions – and should not count dated subordinated debt as providing relevant support. This is in line with the direction of Basel Committee deliberations.

The crucial issue then becomes what minimum ratios should be set for Core Tier 1 and Tier 1 capital. The current international rules described in Box 2A effectively result in an absolute minimum of 2% Core Tier 1 relative to Weighted Risk Assets (WRAs), 4% Tier 1 and 8% total capital (including dated subordinated debt).<sup>25</sup>

These absolute minimum were defined at the time of the Basel I accord which was implemented in the late 1980s. They were not based on any clear theory of optimal capital levels, but rather represented a pragmatic compromise between different objectives. There was a desire to achieve a level international playing field: a perception that some banks were very lightly capitalised: but there was no intention to drive a generalised increase in the capital requirements of all banks.

This pragmatic approach to determining overall capital levels was carried over to the Basel II regime. While Basel II introduced a new approach to the definition of the relative capital requirements to be held against specific asset categories (see Section 2.2 (iii) below), it was deliberately ‘calibrated’ to ensure that the overall level of required capital across the banking system was broadly similar to that which the Basel I regime required.

The fundamental question which international debates on bank capital adequacy have therefore never answered and indeed hardly addressed is what overall level of bank capital is optimal. In theory this should be based on a tradeoff between:

- the economic benefits of higher bank capital in reducing financial instability (these arise both through reduced probability of bank defaults and through a reduced danger that bank capital strains will increase the amplitude of the economic cycle via the impact on lending capacity); and
- the economic cost of higher capital, which arises because banks facing higher capital requirements will need to reflect that in higher intermediation margins.

Estimating either of these effects is extremely difficult: so too is deciding what relative weight to attach to each effect.<sup>26</sup> But two arguments strongly support the proposition that the optimal level of capital is likely to be significantly higher than that which appeared appropriate in the past:

- The massive scale of the economic losses now being suffered across the world as a result of banking system collapse. Any theory of optimal capital level must strike a balance between the

<sup>25</sup> It should be noted however that almost all major international banks already have ratios well above these levels, and that regulators already have discretion to require higher levels via Pillar 2 adjustments.

<sup>26</sup> To decide what weight to attached to these two effects, requires that we know how relatively important to human welfare is (i) a slight increase in the long-term sustainable growth rate in GDP per capita arising from lower intermediation margins (ii) a decrease in the probability of significant economic volatility which, even if outweighed over the long term in terms of its impact on GDP per capita, will produce significant human welfare detriment during the period of instability, given the high welfare impact of sudden shifts in relative income or periods of unemployment.

## BOX 2A: MINIMUM QUANTITY AND QUALITY OF CAPITAL UNDER EXISTING RULES

### Broad definitions\*

Tier 2: subordinated debt  
Tier 1 (not core): preferred stock  
Core Tier 1 (CT1): common equity and retained earnings

### Total and Tier 1 requirements (broadly unchanged between Basel 1 and Basel 2)

Total capital (Tier 1 + Tier 2) must be greater than 8% of Weighted Risk Assets  
AND  
Higher quality Tier 1 capital must be at least half of total capital



Tier 1 capital must be at least 4% of WRA

### Core Tier 1 requirements

Not formally defined within Basel 2 but BCBS guidelines suggest CT1 should be predominant part of Tier 1.  
Many jurisdictions, including UK, treated this as implying CT1 at least half of Tier 1



Effective minimum Core Tier 1 of 2% of WRA (except for market risk)

### Trading book/market risk variant

Basel 2 rules on quality of capital for market risk capital requirements are different from those for credit risk and more lenient.  
As a result, a bank with significant trading book activity could face somewhat lower minimum CT1 than 2% and lower minimum Tier1 than 4%

(\*) The precise definitions need to cover the complexity of hybrid instruments which have mixed characteristics of subordinated debt and preferred stock, and complexities relating to what is included in retained earnings. An element of trading book/market risk capital can also be covered by 'Tier 3' capital.



increased costs of financial intermediation which will result from higher capital requirements, and the benefits of the decreased probability of bank failure and economic harm which will be achieved. The crisis has forcibly reminded the world that the economic costs of bank system failures are extremely high. It therefore tips the balance in favor of setting higher requirements.

- The fact that the increased economic costs resulting from higher capital requirements may be less than often supposed, since simple calculations fail to allow for the insights of the Modigliani-Miller theorem relating to the cost of capital. This theorem (described in the related Discussion Paper) identified that under certain assumptions higher leverage cannot in the absence of tax effects reduce a firm's cost of capital, since as leverage increases both the cost of debt and the cost of equity will increase to reflect heightened risk, offsetting the impact of a higher proportion of lower cost debt. In a taxless world therefore the costs of regulator requirements on banks to hold more capital would be materially offset. Taxes on profits mean that, other things equal, there is a cost penalty.<sup>27</sup> But it remains the case that if regulators increase capital requirements, part of the cost impact will be offset by declining costs of both equity and debt to reflect lower risk. The future world of banking probably will and should be one of lower average return on equity but significantly lower risk to shareholders as well as to depositors.

The FSA has commissioned analysis by the NIESR – using their NiGEM model – of the tradeoff highlighted above, and during 2009 will publish a paper to stimulate public debate, in the UK and internationally, on the optimal level of bank capital.

But there is a strong *prima facie* case that minimum bank capital requirements should in future be significantly above those which have applied in the past. The FSA is already applying a set of guidelines, which imply a minimum Core Tier 1 capital of 4%. A possible future regime might be one in which the minimum Core Tier 1 ratio throughout the cycle is 4% and the Tier 1 ratio 8%. The dynamic capital mechanism (discussed below in 2.2 (iv)) is expected to generate an additional buffer equivalent to 2-3% of Core Tier 1 capital at the top of the cycle. It should remain open to supervisors to require a further discretionary buffer above this.<sup>28</sup>

It is essential, however, that the transition to higher capital requirements is phased, and takes account of the need to avoid procyclical pressure on bank capital adequacy in the current economic downturn. The appropriate design of the transition path is discussed in Chapter 4.

<sup>27</sup> The Discussion Paper also discusses the other real world factors which affect the applicability of Modigliani-Miller. In particular, the large and irreversible costs of bankruptcy mean that optimal leverage, even viewed from a purely private perspective, is significantly below 100%. The extremely high social costs of bank bankruptcy, in turn, imply that the socially optimal leverage of banks is significantly less than the leverage which the private sector would be likely to select.

<sup>28</sup> It should be noted that the principle of increased capital requirements relative to risk can be achieved in two ways: (i) an increase in the declared capital ratio (e.g. from 2% to 4% CT1); (ii) or through increases in the weights attached to different risks before applying the required capital ratio. Some regulatory authorities may prefer to proceed via the second option. The FSA's preference is for a combined approach, with increase in the declared ratio and, in respect to trading books (see Section 2.2.ii), increases in weights. We recognise, however, that the essential principle of increased effective capital can be achieved via a variety of ways.

## 2.2 (ii) Significant increases in trading book capital: and the need for fundamental review

The impact of capital adequacy requirements depends both on the minimum ratios set (e.g. 8% Tier 1 capital relative to Weighted Risk Assets) and the rules used to define the riskiness of different assets or contractual positions. A crucial failure of the current capital regime, which played a major role in allowing the developments which led to the crisis, is that it has required only very light levels of capital against trading books on the grounds that the risks are low because assets can be rapidly sold and positions rapidly unwound (see Exhibit 1.12 in Chapter 1).

Major changes to trading book capital should now be introduced, and a fundamental review of the whole methodology of assessing trading book risk is now essential.

The present treatment of trading book risk (i.e. the risk involved in taking market positions in assets or contracts held within the designated trading books) was defined in the mid 1990s as an amendment to the Basel I regime and has been carried over unchanged into the Basel II regime. Value-at-risk (VAR) measures – estimates of the probability of losses which could be incurred before positions can be closed – play a central role. The deficiencies of this approach to measuring risk have already been described in Sections 1.1 (iv) and 1.4 (iii). It can generate procyclical behaviour: it fails to capture the danger of low probability high-impact tail events; and it can suggest to individual banks that the risks facing them are low at the very point when, at the total system level, they are most extreme.

These deficiencies with the VAR-based approach were always present. But their harmful impact in distorting realistic assessment of risk has grown significantly over the last decade, as the composition of trading books has changed, partly as a result of regulatory arbitrage. So, whereas VAR was initially designed as a risk measure to assess the risks in trading assets and contracts which could reasonably be assumed to be always liquid (e.g. major government treasury bonds or major currencies swaps) increasingly over the years trading books were swollen by large holdings of much less than liquid instruments (e.g. complex structured credit products) which would have attracted higher capital charges if booked in the banking books. When the crisis broke, the VAR measures of risks proved highly misleading as market liquidity dried up and prices changed far more rapidly than had been assumed.

A radical change in the approach to trading book capital is therefore essential:

- Proposals already adopted by the Basel Committee, strongly supported by the FSA and planned for implementation by the end of 2010, will make a major difference with (i) requirements for stressed VAR calculations; (ii) an incremental capital charge to cover default and credit risk mitigation; and (iii) increased charges for securitisations, particularly resecuritisations. These changes will in themselves produce increases in capital requirements for some bank trading books of more than three times.
- However, in addition, the FSA proposes a more radical review of trading book risk measurement and capital adequacy requirements. This needs to cover the:
  - definition of assets appropriately booked in trading and banking books;
  - use of VAR, stressed VAR and other measures of risk; and
  - the extent to which approaches should vary by trading book activity, to reflect, for instance, different liquidity characteristics.

This Review needs to be conducted an international level: the FSA will propose that it is completed within one year.



## 2.2 (iii) Avoiding procyclicality in Basel II implementation

The way in which capital requirements and the actual level of capital vary through-the-cycle is as important as the absolute minimum level. There are strong arguments for taking action to avoid unnecessary procyclicality but also for introducing overt counter-cyclicality into the capital regime.

A capital adequacy regime is procyclical if its operation tends to encourage or necessitate business responses that exacerbate the strength of the economic cycle. If capital requirements tend to fall in periods of strong lending growth and low credit losses, this can tend to accentuate the boom with well-capitalised banks able to expand lending aggressively. Conversely if capital requirements rise in recessions, banks facing capital constraints may cut back the lending, making the recession worse.

The Basel II capital regime, which was introduced for most UK banks from the beginning of 2008, is often criticised for having procyclical effects. Some commentators have argued for abandoning it, citing both its procyclicality and its complexity. A strategy of adapting its implementation to avoid unnecessary procyclicality, while introducing separate measures to achieve overt counter-cyclicality, is preferable.

Unlike in the trading book area, the treatment of banking books has changed significantly under Basel II, in particular for large banks using the Internal Ratings Based (IRB) approach. Whereas Basel I divided assets into broad risk buckets – so that all mortgages were treated as equally risky, and all corporate loans as equally risky – Basel II aims to introduce a more risk-sensitive approach, building on banks' detailed analysis of the risk characteristics of different subcategories of asset and more precisely matching capital requirements to risk (see Box 2B).

In theory this new approach has advantages: indeed if it had been in place over the last ten years, it might have helped avoid some of the problems which contributed to the current crisis. The previous Basel I regime, by treating all mortgages equally, made more risky mortgages seem more attractive: the new regime can identify that high loan-to-value (LTV) mortgages are likely to be more risky than low LTV. But while this risk sensitivity is a potential advantage, it necessarily increases the danger of procyclicality in capital measures. As the creditworthiness of borrowers declines in a recession, Basel II, unlike Basel I, can require banks to hold more capital.

The extent to which this procyclicality arises in practice depends crucially on the detailed design of the risk measurement models used by banks in their IRB assessments, and in particular on the extent to which their risk models are based on 'point in time' rather than 'through-the-cycle' estimates of loan losses likely to arise in different categories of assets. The 'through-the-cycle' approach is less procyclical and is the preferred Basel II methodology. But several banks did not develop effective 'through-the-cycle' estimates before the launch of Basel II, either because they lacked sufficiently long historic records of past credit losses or because the 'point in time' methodology was computationally simpler.

The FSA has therefore already in its detailed implementation of the Basel II framework introduced measures to ensure that the procyclical impact of 'point-in-time' based models is minimised as far as is compatible with the maintenance of a risk sensitive approach. These measures (known as variable scalars) are described in the Discussion Paper.

## BOX 2B: BANKING BOOK CAPITAL ADEQUACY UNDER BASEL 1 AND BASEL 2 INTERNAL RATINGS

### Basel 1

Assets were grouped into buckets which have different average risk characteristics and then assigned weights, which determine different capital requirements as a percentage of assets.

	Asset Weight		Required Capital to Weighted Assets		Required Capital to total Assets
Corporate Loans	100%	*	8%	=	8%
Residential Mortgages	50%	*	8%	=	4%
Inter-bank	10%	*	8%	=	0.8%

### Basel 2: Internal rating-based approached

#### Guiding principle

- Banks should conduct detailed analysis of the relative riskiness of different classes of assets at a granular level (e.g. multiple different categories of corporate loans) and develop their own estimates of required economic capital, thus ensuring integration of capital adequacy conditions into bank risk management practices.
- Estimates should be subject to parameters and limits defined by the Basel 2 regulation and subject to agreement by national supervisors.
- Aggregate impact should leave total capital across banking system broadly unchanged, while changing significantly the weights against different loans to reflect their inherent riskiness.

#### Key calculations

- Banks analyse historic patterns of loan losses on different types of loans (e.g. corporate loans as categorised by the banks on internal credit scoring/ranking system) and determine estimates of:

$$\text{PROBABILITY OF DEFAULT} * \text{LOSS GIVEN DEFAULT} = \text{EXPECTED LOSS}$$

- This is translated into Unexpected loss, the crucial driver of capital requirement, using defined methodologies.

#### Key parameters defined by regulation/supervisor guidance

- Floors on default possibilities
- Maturity adjustment on corporate exposures to ensure higher capital requirement on long-term commitments.
- Correlation parameters within asset classes.
- Multipliers to derive possible unexpected loss from estimates of expected loss.
- Calibration factor (currently 1.06) to ensure that overall banking system capital is broadly unchanged from Basel 1.



## 2.2 (iv) Creating counter-cyclical capital buffers

The measures described above will significantly reduce the procyclical impact of Basel II's risk-sensitive approach. But they will not eliminate it. Indeed, any approach to capital adequacy which is risk sensitive will produce somewhat higher capital requirements when economic conditions deteriorate since some risks truly will have increased.<sup>29</sup> And as Section 1.1 (v) noted there are many other features of the financial system which produce 'hard-wired' procyclical effects which cannot easily be offset by specific policy interventions (see e.g. section 2.5 (i) below for discussion of the difficulties of preventing the use of credit ratings from having a procyclical impact).

There is therefore a very strong case for going further than reducing procyclicality in capital requirements, introducing overt counter-cyclicality in order to offset the impact of unavoidable procyclicality elsewhere. Under such a regime, required and actual capital would increase in good years when loan losses are below long run averages, creating capital buffers which would be drawn down in recession years as losses increase. Such a regime would:

- decrease the probability of bank default or of public authorities having to take steps to prevent default;
- decrease the probability of system-wide bank failures; and
- reduce the extent to which bank behaviour increases the amplitude of the economic cycle. A counter-cyclical capital regime would help constrain the growth of bank lending in the upswing, and in the downswing would reduce the extent to which banks need to cut back on lending to maintain capital ratios when capital is depleted by losses.

The general principle of counter-cyclicality now has extensive support internationally, and both the FSA and Bank of England are arguing for it in international fora.

Two key choices need to be made in designing the details of a countercyclical regime. The first is how the level of buffers is determined; the second how the impact is presented.

The level of buffer can be defined in either a discretionary or a formula driven fashion:

- Under a discretionary system, bank regulators such as the FSA would need to judge the appropriate level of required capital ratios in the light of analysis of the macroeconomic cycle and of macro-prudential concerns. (The issue of how this analysis and these judgements would be shared between the Bank of England and the FSA is discussed in Section 2.6 below). Such an approach could build on the Basel II Pillar 2 system, which already gives bank regulators the discretion to increase required bank capital above that indicated by Pillar 1 calculations, even though it was not originally designed to serve countercyclical purposes. The discretionary system would have the advantage of allowing a nuanced analysis of macroeconomic and macro-prudential conditions to guide decisions: but it would depend crucially on the quality and independence of the judgements made.
- Under a formula-driven system, the required level of capital would vary according to some predetermined metric such as the growth of the balance sheet or estimates of average through-the-cycle loan. It would provide a preset discipline not dependent on judgement and not subject to the influence of lobbying.

<sup>29</sup> Thus while 'through-the-cycle' estimates of the loss potential from long-term mortgage contracts can recognise that mortgages on the books in 2005 carried the risk of future credit losses even if arrears at that time were minimal, a one-year unsecured loan extended in 2005 truly was on average less risky than one extended today.

- In both systems, complex issues would arise in relation to large cross-border banks operating in different national economies, and affected therefore by different economic cycles.

The FSA believes that there is merit in making the regime at least to a significant extent formula driven. But this could be combined with regulatory discretion to add additional requirements on top of the formula-driven element if macro-prudential analysis suggested that this was appropriate.

The presentational choice is between a system in which the required capital ratio itself varies through the cycle, and one in which the buffer is present as a reserve but excluded from capital calculations:

- In the first system, either regulatory discretion or a formula would define a minimum required capital which would increase in periods of strong economic growth (for instance from a minimum required CT1 ratio of 4% to 7% at the peak). Banks would need to meet this rising ratio in the upswing, but would be permitted to run down the ratio towards the absolute minimum in an economic downturn. This would clearly communicate the intent of the policy: but with the danger that market expectations might constrain banks from reducing their ratios in the downturn given the apparently negative signal of a falling capital ratio.
- In the second system, the capital buffer would take the form of a reserve deducted from capital in periods of good economic performance, which would then be released in an economic downturn, but with the minimum capital rule kept constant throughout the cycle. The Spanish dynamic provisioning system (described in Box 2C) combines this presentational approach with a formula driven approach to the calculation of the required buffer. This approach could allow for consistency between capital adequacy requirement rules and published account figures (see subsection (v) below).

The pros and cons of these alternative approaches need now to be debated and the FSA would welcome responses to the Discussion Paper as an input to decisions on details. The FSA will also be closely involved in international discussions with the aim of achieving an internationally agreed approach: the Basel Committee is now committed to producing a proposed way forward by the end of 2009.

*But the position in principle is clear.* The capital adequacy regime, in addition to requiring more and better quality capital, should include the creation of countercyclical capital buffers which are built up in periods of strong economic growth and available for use in downturns. These are needed both to increase the resilience of the banking system and to reduce the potential impact of banking system cycles on the real economy. The appropriate size of the buffer requires detailed debate, but as a starting point proposal, the Discussion Paper suggests that buffers of the order of magnitude of 2 - 3% of WRAs might be appropriate at the peak of the cycle.

### 2.2(v) Offsetting procyclicality in published accounts

Given the recommendation above that capital requirements should include an overt countercyclical element, a crucial issue arising is whether this countercyclical element, anticipating future losses before they are evident in trading book values or loan repayment problems, should be reflected in published account figures as well as in calculations of required or actual capital. The FSA believes that it should.



## BOX 2C: DYNAMIC PROVISIONING: CONCEPT AND SPANISH APPLICATION

Dynamic provisioning uses a statistical method to allow for losses inherent within the portfolio which have not yet materialised.

- In economic upswing, it builds up a buffer by requiring provisions higher than recognised by standard 'incurred loss' accounting
- In economic downswing, it allows some losses to be met from the accumulated buffer.

Dynamic provisions can be either deducted from published Profit and Loss (P&L), or from regulatory capital, or both.

In June 2000 the Banco de España introduced a dynamic (also known as 'statistical') provision for Spanish banks and other credit institutions. It aims to ensure that aggregate annual provisioning – including the dynamic provision – equals average annual net losses suffered by the banking system in the last decade.

The current Spanish (post 2005) dynamic provision takes the form:

$$\text{Dynamic Provisioning Change}_t = \alpha * \Delta C_t + \beta * C_t - \Delta \text{ Specific Provision}$$



Where  $C_t$  = stock of loans       $\alpha$  = inherent loss in each unit over the cycle  
 $\beta$  = average specific provisioning rate over a long estimated period

The current approach to published accounts for trading books and banking books is explained in the box overleaf (Box 2D). In both cases the present philosophy is that published accounts should not anticipate possible or probable future events, but should reflect the facts of the situation as at the balance sheet date. Trading books therefore reflect best estimates of the financial position at balance sheet date, irrespective of whether a reasonable person might consider future falls in value to be likely. Banking books allow for provisions only where there are known events of credit quality deterioration (e.g. late payments) or where it is reasonable to infer that such events have already occurred even if evidence in respect of individual loans is not yet available in the bank's systems.

These treatments reflect a philosophy of accounting which is focused on the communication of facts to shareholders, and which is wary of allowing discretion to management to manage earnings over time, or to embed in P&L and balance sheet judgements which are not transparent to the external world.

## BOX 2D: CURRENT ACCOUNTING PRACTICES FOR TRADING AND BANKING BOOKS

	PHILOSOPHY	METHODOLOGY
<b>Trading book</b>	Assets and liabilities should be valued so as to reflect the value which could be achieved if assets were sold and positions closed at balance sheet date	Fair value accounting <ul style="list-style-type: none"> <li>– Mark-to-market where possible</li> <li>– Modelling used to estimate equivalent of market price where market price unavailable</li> </ul>
<b>Banking book (most common treatment)*</b>		
Initial valuation:	Asset value should reflect fair value at the time it is put on book	Adjustment of nominal value of loan to reflect the impact of e.g. below market pricing
Subsequent valuation:	Asset value should be impaired if there is evidence of already incurred losses.	Specific provision: to reflect already known evidence (e.g. on payment arrears) relating to individual loans.
		Portfolio provisions: to reflect judgements which suggest that categories of loans have already suffered impairment even if precise evidence is not yet available in the bank's systems
<p>* In addition, elements of the Banking Book in the Available For Sale accounting portfolio can be subject to hybrid fair value impairment approaches</p>		

There are significant merits to this accounting approach when viewed from the perspective of a shareholder seeking information on the performance of a non bank company, or of an individual bank operating within a stable total system:

- On the trading book side, if an asset has a clearly defined market value, this is indeed the best indicator of what the shareholders indirectly own at the balance sheet date, and therefore of what could be available to them if the bank at that time sold its position. There are moreover some trading book positions, in particular derivative contracts where there is no realistic alternative to a mark-to-market approach, given that the initial value – the historic cost – is in many cases minimal or zero. And the evidence of the crisis suggests that the institutions which most rigorously applied mark-to-market approaches, identifying rapidly the impact of falling liquidity and falling prices, performed best since they exited problem asset areas faster and at lower eventual cost.

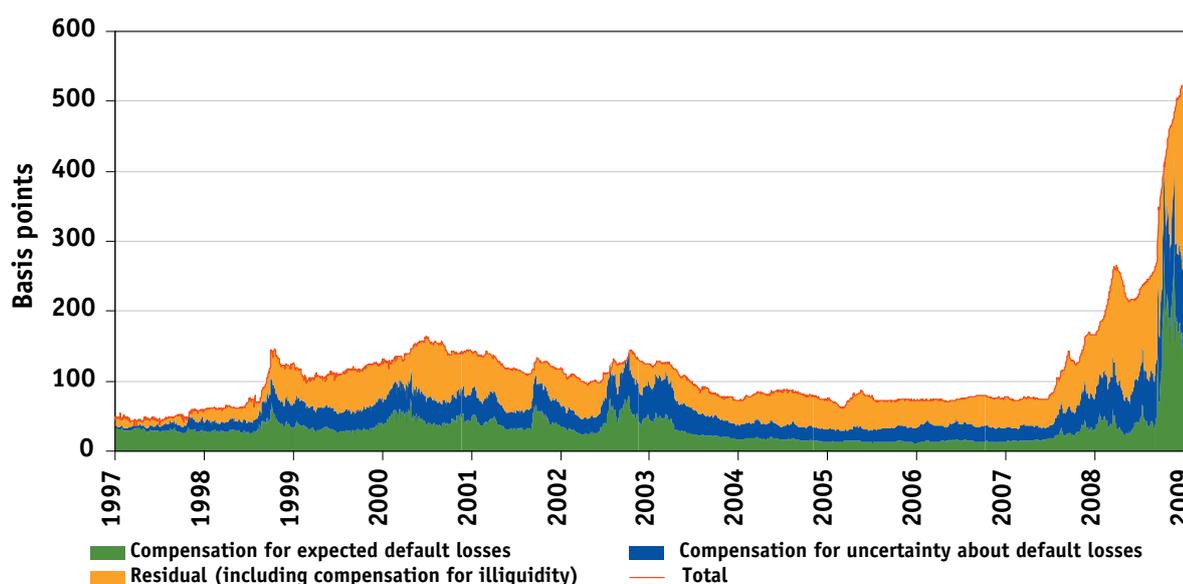


- On the banking book meanwhile, there are legitimate concerns that if management were able to provision in advance for future possible loss, it would have a cushion which it could use to hide the impact of losses subsequently arising, including losses which were idiosyncratic in nature, i.e. linked to bad decisions made by the individual bank, rather than reflective of a general economic downturn. The requirement to use fair value accounting for assets and liabilities when first acquired, meanwhile, is clearly appropriate: it ensures for instance that the impact of below-market pricing for relationship reason is not hidden.

But while this accounting philosophy is appropriate viewed from an idiosyncratic perspective – an individual bank operating in a reasonably stable financial and economic environment – from the point of view of regulators, and of systemic financial risk, it has serious disadvantages. On both the trading book and banking book side, it can fuel systemic procyclicality.

- In the trading books a mark-to-market approach means that irrational exuberance in asset prices can feed through to high published profits and perhaps bonuses, encouraging more irrational exuberance in a self-reinforcing fashion: when markets turn down, it can equally drive irrational despair. And at the total system level, the idea that values are realisable because observable in the market at a point in time is illusory. If all market participants attempt simultaneously to liquidate positions, markets which were previously reasonably liquid will become illiquid, and realisable values may, for all banks, be significantly lower than the published accounts suggested. While it is difficult to quantify the effect, it is a reasonable judgement that the application of fair value/mark-to-market accounting in trading books, played a significant role in driving the unsustainable upswing in credit security values in the years running up to 2007, and has exacerbated the downswing. Many bonds now trade at yields which reflect very large illiquidity premia, as well as increased reasonable expectations of default (Exhibit 2.3).

**Exhibit 2.3: Decomposition of sterling-denominated investment grade corporate bond spreads**



(a) Webber, L. and Churm, R. (2007), 'Decomposing corporate bond spreads', Bank of England Quarterly Bulletin , Vol. 47, No. 4, pages 533-41.

(b) Option-adjusted spreads over government bond yields.

- On the banking book side meanwhile there are equally important dangers. In good economic times, provisions will be lower than a reasonable expectation of the losses which might arise from existing long-term loan contracts and from customer relations over a complete economic cycle. High declared profits can in turn have two impacts:
  - They increase the capital of the bank, which, given unchanged capital ratio requirements, makes more rapid growth possible, potentially driving a credit extension boom.
  - And, through the impact on share prices and perhaps bonuses, they can increase management conviction that further rapid growth is desirable.

Whereas the first of these impacts can be offset by a countercyclical capital regime even if published accounts remain unchanged, offsetting the second effect would require adjustments to published accounts.

The essential challenge is therefore that the accounting regime which makes sense from the point of view of idiosyncratic risk and of the shareholders of banks operating in stable conditions is quite different from that which may be optimal when viewed from a regulatory, systemic and macro-prudential viewpoint. These different perspectives have in the past been the cause of some disagreements between accounting bodies and regulators on the appropriate way forward.

It would be possible, however, to devise an approach which can meet both requirements. Key features would be:

- Existing accounting rules would be used to determine specific P&L and balance sheet lines for trading books and banking books. Profit and loss figures for trading books (including derivative positions) would continue to reflect fair value / mark-to-market approaches. And banking book specific and portfolio provision figures would continue, as today, to reflect known information on loan servicing and best estimates of incurred loss.
- But these rules would be augmented by the creation of a non-distributable Economic Cycle Reserve, which would set aside profit in good years to anticipate losses likely to arise in future.

As with the regulatory capital buffer discussed above, there are two ways by which the size of this reserve could be determined, either

- proposed by management, extensively debated by boards and risk committees and agreed with the bank regulator; or
- determined by a formula. If this formula were the same as one used to determine the size of the regulatory capital buffer, a full consistency between the approaches to regulatory capital and accounting reserves would be achieved.

There would also be a crucial choice to be made in terms of presentation

- It would be possible for the Economic Cycle Reserve to be shown only as a movement on the balance sheet, rather than on the P&L.



- But there are very strong arguments that it should also appear somewhere on the P&L, allowing bottom line profit and earnings per share (EPS) to be calculated both before and after its effect, and thus providing two measures of profitability, the ‘traditional’ accounting figure and a second figure struck after economic cycle reserving.<sup>30</sup> Incentive-based pay systems which refer to profit and EPS would then be based on distributable profit and distributable EPS, after the deduction of this reserve, thus ensuring that such systems reflect a reasonable estimate of future possible credit losses and impairments, rather than a point-in-time calculation of profits which may subsequently prove illusory.

The appropriate way forward on accounting now needs careful debate between regulators and the bodies which ultimately set published account standards (the International Accounting Standards Board and the Financial Accounting Standards Board). *But the FSA position is in principle clear:* we believe it important that the counter-cyclical approach to bank capital is reflected in a significant way in highly visible published account figures, creating strong shareholder and management awareness of the need to assess profitability in the light of the position in the economic cycle.

## 2.2 (vi) A gross leverage ratio backstop.

A final issue relating to capital ratios is whether their effect should be buttressed by applying a maximum gross leverage ratio (total assets to capital). In theory, a leverage ratio should not be required if a robust regime exists to define the capital required against specific categories of asset, and thus to control the total scale of weighted risk assets relative to capital.

There are, however, two good arguments for using a gross leverage ratio as a back-stop control measure.

- The crisis revealed that assets which are believed to be low risk because highly liquid can become highly illiquid and risky when systemic problems emerge; and when that happens, the scale of the funding challenges faced by banks and the scale of the systemic impact arising from attempted asset sales is related to the gross scale of the balance sheet positions.
- Moreover, calculating capital requirements based on internal models will always entail significant judgement, and there will always be dangers that debates between bank management and regulators might result in pressure for too lenient a treatment. A back-stop against the impact of creeping regulatory concessions makes sense.

These arguments have convinced several regulators of the benefits of a gross leverage ratio. Canada applies a maximum gross leverage ratio (Asset to Capital Multiple (ACM)) of 20:1. The US has traditionally applied one to the GAAP assets of bank holding companies, but exempted investment banks from its coverage, thus allowing the very major increases in investment bank leverage which occurred between 2003 and 2007. Switzerland has introduced one to encourage rapid downsizing of the large trading books of its major universal banks.

<sup>30</sup> The P&L figure could of course be either a deduction, or (in years of high incurred losses) an increase, with the figure on the balance sheet either rising or falling to the extent of the net annual charge/release.

The FSA is also now convinced that the arguments for imposing a gross leverage ratio are compelling, and will be arguing in international fora such as the Basel Committee on Banking Supervision in favour of an international agreement on the appropriate definition and level. The FSA's Discussion Paper highlights some of the key requirements for an effective ratio (e.g. the need to cover derivative contracts) as well as some choices (e.g. whether to express the ratio as assets to Tier 1 capital or assets to Core Tier1 capita), which are less fundamental to the desired objectives.

## 2.2 (vii) Containing liquidity risks: in individual banks and at the systemic level

Measuring and managing bank liquidity risk is as important as capital/solvency risk management, but in the years running up to the crisis did not receive adequate attention, either in the UK or internationally, where debates about bank regulation were dominated by the design of the Basel II capital adequacy standard. It is essential now to restore liquidity regulation and supervision to a position of central importance.

The FSA has already published proposals for substantial changes in the liquidity regime which it applies to banks (see Consultation Paper 08/22 *Strengthening liquidity standards*, December 2008). This will result in major changes in bank liquidity management practices. But we believe it is appropriate in addition to consider introducing a more general liquidity rule – a 'Core funding ratio' which could form part of the armoury of counter-cyclical macro-prudential tools.

**Key considerations in liquidity risk management.** The way forward on liquidity risk management should reflect three considerations:

- First, liquidity risk has inherently systemic characteristics, with the reaction of one bank to liquidity strains capable of creating major liquidity strains for others. In the period between mid-September and mid-October, 2008, the simultaneous attempt by multiple banks to improve their liquidity position by shortening the tenor of their placements in the interbank market, contributed to a generalised collapse of liquidity.
- Second, liquidity management has become increasingly complex over time, with a widening set of potential sources of liquidity (in both securitised and non-securitised forms), and with an increased reliance on 'liquidity through marketability' alongside traditional liquidity through funding access. This makes it difficult to base good liquidity regulation primarily on one or a few standard ratios comparable to the capital adequacy ratio used to regulate solvency.
- Third, at the macroeconomic and macro-prudential level, there is a tradeoff to be struck. Increased maturity transformation delivers benefits to the non bank sectors of the economy and produces term structures of interest rates more favourable to long-term investment. But the greater the aggregate degree of maturity transformation, the more the systemic risks and the greater the extent to which risks can only be offset by the potential for central bank liquidity assistance.

The FSA's already-published liquidity management proposals amount to a major change and intensification of its approach to the measurement and management of liquidity risks. For large complex firms they entail<sup>31</sup>

- Far more extensive information requirements, with firms required to provide, for example, detailed maturity ladders, analysis of the assumed liquidity of trading assets, and analysis of off-balance sheet positions with liquidity implications.

<sup>31</sup> Simpler and smaller firms e.g. building societies, are covered by a simpler set of quantitative standards.



- The requirement to produce detailed Individual Liquidity Adequacy Assessments (ILAAs) which the FSA will review and then issue Individual Liquidity Guidance (ILG).
- The definition of a liquid assets buffer whose minimum value (defined relative to balance sheet size) will be determined for each bank in Individual Liquidity Guidance.
- Requirements that firms quantify and reflected in internal costing systems the liquidity risk created by participation in different categories of activity.
- A strong focus on stress testing and crucially: (i) the definition of some required stress tests by the FSA, rather than stress test definition left entirely to bank internal decisions; and (ii) stresses which consider market-wide events as well as firm specific events, recognising that it is systemic risks which can be most important in liquidity management.<sup>32</sup>
- A strong analytical focus on the analysis of cross-system liquidity trends, with the publication of a periodic system-wide report.
- Proposals relating to the management of liquidity by large cross-border banks which would increase FSA powers over local liquidity and require increased information flows relating to whole bank liquidity. The impact of these proposals is discussed in Section 2.10 (i).

**Likely impact of already published proposals on maturity transformation and costs.** We anticipate that this new liquidity regime will have a significant impact on bank liquidity policies, and will produce a significant reduction in the liquidity risks which were such an important element in the origins of the crisis (see Sections 1.1(iii) and 1.2). In particular, the new regime is likely to result in:

- less reliance on short term wholesale funding, including on wholesale funding from foreign counterparties;
- greater incentives for firms to attract a higher proportion of retail time deposits;
- a higher amount and quality of stocks of liquid assets, including a greater proportion of those assets held in the form of government debt; and
- with, as a result, a check on the unsustainable expansion of banking lending during favourable economic times.

In total this implies less aggregate maturity transformation than would otherwise occur, and this must in theory carry some economic cost. The crucial tradeoff – as with the costs of higher bank capital discussed in Section 2.2(i) – is between a small net cost to the economy during ‘normal times’ and the benefits of the reduced probability of extreme adverse events. Assessing and comparing these potential costs and benefits is extremely difficult.<sup>33</sup> But given the scale of the economic fallout from the financial crisis, a reasonable judgement is that a significant tightening of regulatory constraints on liquidity (and thus on aggregate system-wide maturity transformation) is justified in order to reduce risks to future financial stability.

<sup>32</sup> The vital importance of this approach to stress testing was highlighted in Section 1.4 (iii) and is well described by Andrew Haldane *Why banks failed the stress test* (February 2009).

<sup>33</sup> Chapter 9 of the FSA Consultation Paper 08/22 contains an estimate of the costs. The FSA will integrate further analysis of the costs of liquidity regulation into the analysis of the costs of higher capital requirements, discussed in Section 2.2 (i) above.

A ‘core funding ratio’ as a prudential and macro-prudential tool. The approach outlined by the FSA in its December Consultation Paper will have overall macro consequences, but its application is highly tailored to each individual bank and it does not entail the definition of a single funding rule applicable across all banks. The issue which the FSA now proposes for debate is whether this individual tailored approach should be buttressed by reference to a standard funding ratio, used either as a rule or as an indicator of potential concerns.

Most developed countries have not used standard funding ratios (e.g. loans to deposit ratios) as regulatory tools for many years: but several emerging countries (e.g. Hong Kong and Singapore) have continued to apply regulatory constraints of this nature.

The developments which led to the crisis, meanwhile, have increased awareness of the risks which can arise, both for individual banks and for the system as a whole, if rapid asset growth is funded through increased reliance on potentially unstable funding sources. In the UK it is noticeable that between 2002 and 2007 growth of bank balance sheets was significantly correlated with the % of funding derived from short-term wholesale deposits (Exhibit 2.4).

Careful consideration would have to be given to the most appropriate definition of any such ratio (the one used in Exhibit 2.4 is intended solely to illustrate a possible approach). And the potential role of a core funding ratio could be either as a backstop rule (similar to the function performed by the gross leverage ratio discussed in 2.2 (vi)), or as an indicator rather than a rule, used to identify overall macro-prudential risks and issues to be addressed in Individual Liquidity Guidance.

The FSA believes, however, that the potential role of a ‘core funding ratio’ merits debates and would welcome feedback to the Discussion Paper, both on the principle and on possible specific design.

### 2.3 Institutional and geographic coverage: economic substance not legal form

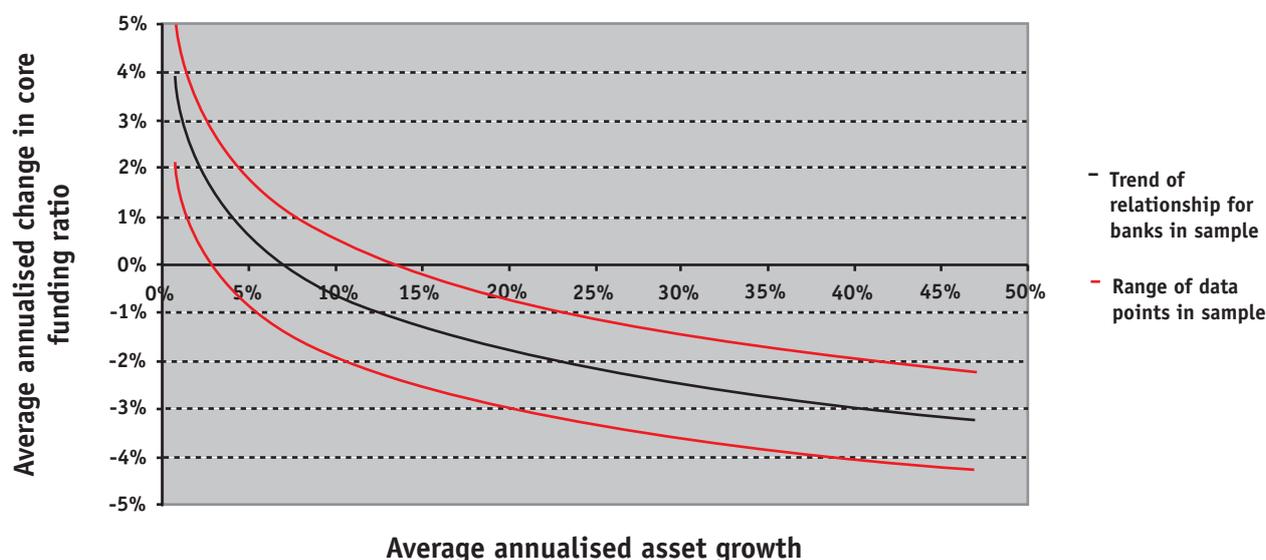
Section 2.2 has set out major changes required to capital and liquidity regulation and supervision: these will significantly improve the future stability of the banking system but will inevitably impose some additional costs on banks. This reinforces the importance of ensuring that bank-like activities do not migrate outside the regulator perimeter in order to escape capital and liquidity requirements.

Section 1.1 noted that one of the crucial factors in the origins of the crisis was the development of major institutions and financial devices – sometimes labeled near banks or shadow banks – which were performing bank-like functions, but which were not regulated as banks. Bank-sponsored (and other) SIVs and conduits were highly leveraged and performed extensive maturity transformation, with liabilities far shorter in tenor than the maturity of assets. US mutual funds had made implicit promises to their customers not to ‘break the buck’, encouraging investors to treat investments with them as similar to bank deposits in their assurance of capital value, and requiring the funds to liquidate assets quickly in a downturn to meet their promises. US investment banks had developed over several decades into very large, highly leveraged institutions, performing significant maturity transformation, but were not subject to the same regulatory regime as banks.<sup>34</sup>

<sup>34</sup> The SEC, as the lead regulator, had applied the Basel trading book/market risk regime to the investment banks, but they were not covered by the gross leverage ratio which applied to commercial banks.



**Exhibit 2.4: Annualised core funding ratio against annualised asset growth 2002-2007**



*Core funding is defined as retail deposits plus long-term wholesale funding as % of total liabilities*

Source: Bank of England

AIG was deeply involved in the Credit Default Swap (CDS) market, taking trading risk similar to that facing investment banks, but was subject to an insurance regime rather than a bank trading regime.

The importance of these ‘shadow banks’, and the extent to which they escaped the regulation applied to banks, differed by country. As Chapter 1.2 set out, mutual funds offering deposit-like promises have never been a major feature of the UK market. And the impact of regulatory boundary problems in the origins of the present crisis should not be overstated. The European Capital Requirement Directive (CRD) did not allow investment banks to escape regulation, applying capital requirements equally to the trading books of investment and commercial banks: and the SEC applied the Basel trading book/market risk regime to the investment banks. One of the most crucial problems indeed was not regulatory arbitrage, but the inadequacy of trading book capital, and the inadequate focus on liquidity risks, as applied to both commercial and investment banks, under both the Basel I and Basel II regimes.

But SIVs were a clear case of regulatory arbitrage. And both SIVs and mutual funds were large funders of UK securitised lending: their behavior in the crisis was therefore as relevant to the UK as to the US system. As a more effective regime for trading book capital is designed and implemented, moreover, the incentives for future regulatory arbitrage will increase.

The essential principle which needs therefore to be agreed and implemented internationally is that regulation should focus on economic substance not legal form. Off-balance sheet vehicles which create substantive economic risk, either to an individual bank, or to total system stability, must be treated as if on-balance sheet for regulatory purposes. Prudential oversight of financial institutions should ideally be coordinated in integrated regulators (covering banks, investment banks and insurance companies) reducing the dangers of inconsistency and arbitrage between different authorities within one country. And regulators must have the power to obtain information and identify new forms of financial activity which are developing bank-like characteristics, and if necessary to extend prudential regulation to them, or to restrict their impact on the regulated community.

The institutional and legal implications of these principles are more far reaching in the US, which has a highly fragmented regulatory system, than in the UK or many other European countries, where there have been fewer regulatory distinctions based on legal form, and where more integrated supervisory reproaches are already common. But the principle could still have implications for the future FSA approach to particular types of institution, for instance hedge funds.

The FSA already regulates UK domiciled hedge fund asset managers more extensively than several other regulatory authorities. These fund managers are FSA authorised and their business is subject to regulation and supervision consistent with FSA Rules and European Directives, covering the capital required to run an asset manager business and conduct of business.<sup>35</sup> But the hedge funds themselves (which are usually legally domiciled offshore) are not currently subject to prudential regulations affecting their capital adequacy or liquidity. This reflects the fact that hedge funds in general are not today bank-like in their activities. Hedge fund leverage is typically well below that of banks – about two to three on average (Exhibit 2.5).<sup>36</sup> They do not in general deal directly with retail customers (though they may have indirect contact via funds of funds). And they typically have not promised to their investors that funds are available on demand, and are able to apply redemption gates in the event of significant investor withdrawals. They are not therefore at present performing a maturity transformation function fully equivalent to that performed by banks, investment banks, SIVs and mutual funds, in the run-up to the crisis.

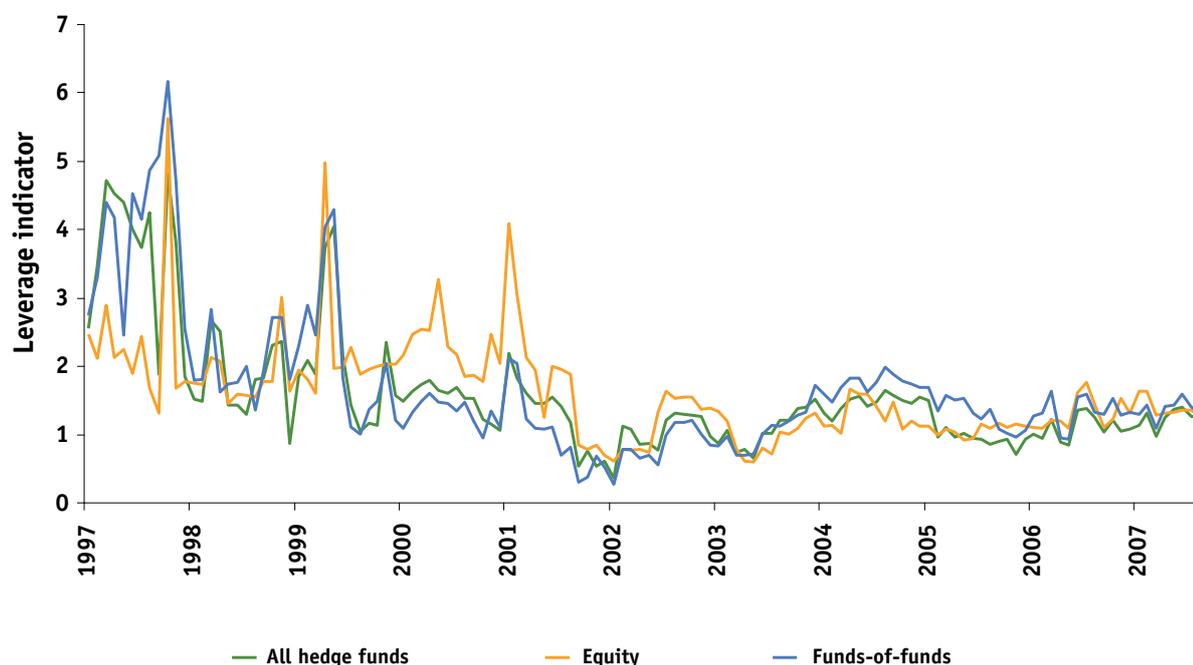
But hedge fund activity in aggregate can have an important procyclical systemic impact. The simultaneous attempt by many hedge funds to deleverage and meet investor redemptions may well have played an important role over the last six months in depressing securities prices in a self-fulfilling cycle. And it is possible that hedge funds could evolve in future years, in their scale, their leverage, and their customer promises, in a way which made them more bank-like and more systemically important. In the 1970s and 80s, the major US investment banks (then typically described as broker dealers) were probably not systemically important to the US or global financial system, and a default might well have been absorbed without the catastrophic effects which the failure of Lehmans produced. Gradually over the succeeding decades however they did become systemically important, but authorities did not overtly recognise this fact and did not change regulatory and supervisory approaches to reflect it. We need a regulatory philosophy which in future will spot such an evolution and respond in time.

<sup>35</sup> For example, the enforcement of FSA rules on short selling disclosure, and of temporary short selling bans, can entail information gathering visits to hedge fund managers involved in significant short selling activity.

<sup>36</sup> Funds employing a strategy of convertible or fixed income arbitrage however tend to use significantly higher aggregate leverage.



**Exhibit 2.5: Estimated hedge fund leverage measures**



The leverage indicator is estimated using a rolling (24-month window fixed effects) regression of hedge fund returns on a variety of market-based risk factors. It is the sum of the coefficients on these risk factors and is thus a measure of the aggregate sensitivity of hedge fund returns to movements in underlying prices.

'All hedge funds' includes market neutral (excluding equity hedged), directional, equity (including equity hedged), fixed income and fund-of-funds style families of active funds reporting to HFR database; weighted by assets under management in each style family.

Source: HFR, BIS calculations

So the appropriate approach to hedge funds is that:

- Regulators and central banks in the performance of the macro-prudential analysis role (Section 2.6 below) need to gather much more extensive information on hedge fund activities (or on the activities of any other newly evolving form of investment intermediation) and need to consider the implications of this information for overall macro-prudential risks.
- And regulators need the power to apply appropriate prudential regulation (e.g. capital and liquidity rules) to hedge funds or any other category of investment intermediary, (or to otherwise restrict their impact on the regulated community), if at any time they judge that the activities have become bank-like in nature or systemic in importance.

### Geographic coverage

If it ever did become appropriate to extend prudential regulation to hedge funds, the issue of the geographic coverage of regulation could become important, given that many hedge funds are legally domiciled, among other reasons for tax purposes, in offshore financial centres, even if the asset managers are legally domiciled and located in the UK, the US, or Switzerland.

Global agreement on regulatory priorities should therefore include the principle that offshore centers must be brought within the ambit of internationally agreed financial regulation (whether relating to banking, insurance or any other financial sector).

Equally, however, it is important to recognise that the role of offshore financial centers was not central in the origins of the current crisis. Some SIVs were registered in offshore locations; but regulation of banks could have required these to be brought on-balance sheet and captured within the ambit of group capital adequacy requirements. And many of the problems arose from the inadequate regulation of the trading activities of banks operating through onshore legal entities in major financial centres such as London or New York.

Tighter effective controls in offshore centers will, however, become more important over time as regulation is improved in the major onshore locations and as the incentives for regulatory arbitrage through movement offshore therefore increase.

## 2.4 Deposit insurance and bank resolution

The new approaches to capital, accounting, liquidity and coverage set out above will significantly reduce the probability of bank failure, as well as reducing the extent to which strains on bank capital and liquidity (short of failure) result in an impaired ability to extend credit to the real economy. But the probability of bank failure cannot be reduced to zero. The system of bank regulation and supervision therefore needs to be buttressed by arrangements for retail deposit insurance (to protect depositors in the event of default) and for bank resolution (to ensure orderly wind up and avoid knock on effects to the rest of the banking system).

When the financial crisis struck, the need for stronger UK arrangements in both these respects became apparent. In both significant changes have already been introduced. This section briefly summarises those changes and highlights remaining issues.

**Deposit insurance.** Before the failure of Northern Rock, the UK retail deposit insurance scheme covered the first £2,000 of each person's retail deposits at any one bank, and 90% of the balance up to £35,000. This was inadequate to prevent a retail deposit run.<sup>37</sup> Since then, the FSA has increased coverage to 100% of the first £50,000 of each person's deposit with each bank (£100,000 for a joint account) In addition the government has throughout the financial crisis acted to ensure that retail depositors in UK banks have not suffered loss of their deposits, even if their deposits were higher than the maximum covered by the FSCS.

The appropriate maximum coverage of retail deposit insurance is a matter of judgement. The FSA's Consumer Panel has argued for unlimited coverage, on the grounds that retail depositors are not in a position to make informed judgements about the creditworthiness of different banks. The counter arguments are that:

- (i) the current maximum already provides 100% cover for the vast majority of depositors: about 97% of accounts are below this level;<sup>38</sup>

<sup>37</sup> It was also the case that consumer understanding of the coverage was very limited, creating concern even among depositors who were fully covered. Since then consumer awareness has risen. Once the details of future arrangements are fully defined, the FSA and the FSCS will launch a major communication plan to ensure widespread understanding of the long term arrangements after the end of the current financial market disturbances.

<sup>38</sup> The % of depositors who have aggregate accounts at any one bank above the limit is, however, somewhat higher than 3%: the UK system does not currently require the compilation of data on a per depositor rather than per account basis. A per depositor aggregation system will be in place by 2011.



- (ii) depositors with total savings significantly (but not massively), above this level can reasonably be expected to spread their deposits across several banks or building societies;
- (iii) depositors with savings so large that deposit spreading would still leave them exposed can reasonably be expected to exercise some judgements about bank creditworthiness; and
- (iv) that some upper limit, by creating incentives for the dispersion of deposits between different institutions, places at least a slight discipline on irresponsibly generous pricing of deposits at the expense of increased bank risk.

The FSA's current intention is therefore to continue the system which has an upper limit, but it is currently consulting on whether that limit should be per legal entity or per brand and will consult shortly on what arrangement should be made to deal with temporary large balances (e.g. related to house purchase or sale). These consultations will be completed by 31 May 2009.

In addition consideration needs to be given to:

- whether prefunding of deposit insurance would create a more appropriate basis for contributions;
- the implications of European moves to harmonise deposit insurance limits: the proposed 100,000 euro limit would be equivalent to about £75-80,000 at recent exchange rates; and
- whether an element of EU coordination of insurance cover (which could include prefunding) is required to address the problems which can otherwise arise with bank branches 'passport' into the UK under single market rules (the Landsbanki example). This issue is discussed in Section 2.10 (ii).

Whatever the resolution of these issues, however, the UK in future will have a system of retail depositor insurance far more generous than that in place before the crisis, with the vast majority of retail depositors entirely insulated from the consequences of future bank failure. One implication is that regulatory approaches will need to be designed to ensure that the benefits to banks of deposit insurance are not used to cross subsidize risky activities: the implications of this for the 'utility bank' versus 'investment bank' debate are considered in Section 2.9.

**Bank resolution.** The Northern Rock failure also revealed the fact that the UK had not previously had in place a special bankruptcy-type regime to ensure the orderly resolution of a failing bank. This gap was closed by Banking (Special Provisions) Act 2008, which has now been replaced by the Banking Act 2009, which define the FSA's role in deciding upon the need for bank resolution, and provides the UK authorities (i.e. the FSA, Bank of England and Treasury) with wide-ranging powers to ensure orderly resolution. The optimal operation of these respective powers will depend on continued close cooperation between the FSA and the other authorities building on working procedures which, from the introduction of the Banking (Special Provisions) Act, have operated smoothly.

## 2.5 Other important regulatory changes

This section covers three categories of change which are important but where it is also vital to understand the limitations of what policy changes specifically focused on these areas can achieve. In two of them (credit ratings and remuneration) it is likely that changes in market practice will be driven as much by the policy shifts already set out in Section 2.2: Capital, accounting and liquidity and by market responses to the current crisis, as by policy changes per se. The section covers:

- (i) Credit ratings agencies (CRAs) and the use of credit ratings.
- (ii) Remuneration: requiring a risk based approach.
- (iii) Netting, clearing and central counterparties in derivatives trading.

### 2.5 (i) Credit rating agencies and the use of ratings

Credit ratings have played a long established role in capital markets, providing investors with an independent assessment of the relative probability of default of credit securities (e.g. corporate and sovereign bonds, commercial paper, state and municipal bonds). It is a valuable role since (i) good investment practice should seek diversification across a wide spread of investments; and (ii) it is impossible for all but the very largest investing institutions to perform independent analysis of a large number of issuing institutions.

Until recently, moreover, credit rating appeared to be reasonably effective, with ratings providing fairly good prediction of the relative credit risk of different bonds (Exhibit 2.6). As a result it seemed sensible for many institutions to embed ratings based rules in operating procedures e.g. for a corporate treasury department or charity finance function to be restricted to making deposits only with banks ranked above a certain rating, or for an insurance company or pension fund to aim for a portfolio of bonds meeting the requirements of a defined ratings based mandate. While this necessarily created the danger of some procyclicality within the system (e.g. a bank subject to a downgrade would automatically suffer the withdrawal of deposits) this was not seen as a major problem in the decades before the current crisis.

As Section 1.1 (v) described, however, the credit ratings based system played an important role in the origins of the crisis for three interrelated reasons:

- The role of securitised credit increased hugely in total importance with the development of structured credit. As a result so too did the dangers that hard-wired procyclicality would contribute to a self-reinforcing downturn. The growth of the credit derivatives market for instance, created the possibility that the use of credit ratings in counterparty collateral arrangements would produce a strongly procyclical effect: this danger crystallised in the case of AIG in September 2008, where a threatened rating agency downgrade led to severe liquidity strain. And as a greater proportion of securitised credit was held not by end investors intending to hold to maturity (and therefore interested solely in probability of default) but by investing vehicles (e.g. SIVs and mutual funds) performing maturity transformation, some of these investors seem to have assumed, quite wrongly, that a rating carried an inference for liquidity and market price stability, rather than solely for credit risk.



**Exhibit 2.6: S&P's corporate finance cumulative default rates 1981-2008 (%)**

%	Years after the issue of security		
	5	10	15
<b>AAA</b>	0.27	0.55	0.65
<b>AA</b>	0.34	0.83	1.20
<b>A</b>	0.72	1.94	2.91
<b>BBB</b>	2.43	5.16	7.70
<b>BB</b>	9.07	16.02	19.33
<b>B</b>	20.58	28.41	33.14
<b>CCC/C</b>	44.93	50.44	52.93

Corporate finance refers to long-term local currency credit ratings. It includes industrials, utilities and financial institutions, but excludes public sector ratings and all structured finance vehicles.

Source: S&P

- In addition, ratings for structured credit proved far less robust predictors of future developments than ratings for the single name securities which had existed for many decades. Changes in the ratings of structured credit have been far more volatile over the past two years than the historical record for single name credits, and far more weighted towards downgrades (Exhibit 2.7).<sup>39</sup> This breakdown in rating effectiveness reflected: (i) the fact that ratings were being extended to a instruments where there was limited historical experience, (ii) the enormous complexity of many structured credit instruments, and (iii) a misplaced confidence in the ability of mathematical modelling to define the risks. The resulting instability of ratings has not only produced direct procyclical effects, but has undermined confidence in the future stability of credit ratings, in turn reinforcing deflation effects. These ratings also play a role within the Basel II framework: the FSA therefore believes there should be a fundamental review of the use of structured finance ratings in that context.
- Finally, there are concerns about whether the governance of rating agencies has adequately addressed issues relating to conflict of interest and analytical independence. Rating agencies competing for the business of rating innovative new structures may not have ensured that commercial objectives did not influence judgements on whether the instruments were capable of being rated effectively.<sup>40</sup> And the practice of making the models by which agencies rated structured credits transparent to the issuing investment banks also created the danger that

<sup>39</sup> Ratings of single name corporates have also shown a significant, though not as striking, increase in instability and bias to downgrades in 2008 (see Section 10 of the Discussion Paper for details). This reflects the fact the scale of the economic downturn induced by the financial crisis is now producing an exceptional stress on the position of previously creditworthy companies.

<sup>40</sup> The fact that credit rating agencies are paid by issuers rather than investors creates the inherent danger of a conflict of interest, but is unavoidable given the impossibility of arranging payment by a hugely dispersed investor base.

**Exhibit 2.7: Largest CRAs global structured finance 1 year transition rates**

%	2007			2008		
	Downgrade	Upgrade	Stable	Downgrade	Upgrade	Stable
<b>AAA</b>	1.0	n/a	99.0	23.4	0.0	76.6
<b>AA</b>	4.4	3.5	92.1	34.9	1.8	63.3
<b>A</b>	11.3	4.2	83.9	36.9	2.1	61.0
<b>BBB</b>	20.2	2.9	77.0	40.2	1.0	58.1
<b>BB</b>	21.0	2.3	76.6	44.8	1.7	53.9
<b>B</b>	11.1	1.8	87.1	55.5	1.3	43.5
<b>CCC</b>	34.9	0.7	32.7	78.5	1.0	21.4

CCC figures for 2007 may not add to 100% because transitions to default are excluded.

Source: 1991-2006 & 2007 figures are average from Fitch Ratings, Moody's Investors Services and S&P, while the 2008 figures are for S&P only.

issuers were 'structuring to rating' i.e. designing specific features of the structure so that it would just meet a certain rating hurdle. However, this risk must be set against the need of investors to have access to appropriate data to allow them to make their own assessment of a CRA's methodologies and ratings.

Regulatory responses can address some of these problems, but only to a degree.

- Regulation can and should address issues relating to the proper governance and conduct of rating agencies and the management of conflict of interest. Legislation to achieve this aim is now being formulated by the European Union with regulation likely to enter into force in late summer 2009 if it is passed in first reading. The FSA supports the aims of this legislation. As the legislation currently stands credit rating agencies will be registered and financial regulators such as the FSA will play a supervisory role, coordinated at European level via colleges, which will ensure that appropriate structures and procedures are in place to manage conflicts of interest and to reinforce analyst independence from commercial revenue maximising objectives. This supervisory oversight should extend to requiring that rating agencies only accept rating assignments where there is a reasonable case (based on historical record and adequate transparency) for believing that a consistent rating could be produced.<sup>41</sup> Given the global nature of capital markets, it is important that the European legislation is matched by agreement of compatible global standards, and the FSA is working through IOSCO to achieve this.
- Some measures can also be taken to reduce the inappropriate use of ratings. The rating agencies themselves have sought to improve communication relating to the purpose of

<sup>41</sup> By 'consistency' we mean the ability to produce a rating which is comparable in its indication of credit risk to an equivalent rating for other types of security.



ratings, stressing that they cannot be treated as carrying inferences for liquidity and price. Public policy should avoid unnecessary requirements for investing institutions to hold securities of a specific rating.

- It is important, however, not to overstate the extent to which regulation can guard against the dangers of procyclical hard wiring. The use of ratings based investment and cash management rules by individual companies, foundations and investing institutions is entirely rational at the idiosyncratic level and it is very difficult to imagine how many institutions could operate without such decision rules. And while there is a danger that the use of credit ratings within the Basel II capital adequacy rules could introduce a new element of procyclicality in future, it is likely than other measures of assessing risk (e.g. complete reliance on bank internal models or on market price based indicators) would be still more procyclical.<sup>42</sup>

The implication is that while changes in regulatory policy relating specifically to rating agencies have an important role to play, other factors may have a bigger influence on the use of ratings and on the extent to which procyclical dangers can be offset:

- The combination of investor wariness and higher capital requirements for trading books is highly likely to ensure that when the securitised credit market returns it will do so in a simpler form, more in line with the original proposition of securitisation described in Section 1.1. It is unlikely that highly complex structures such as CDO<sup>2</sup>s will find an investor market in future; the issue of whether they can be rated effectively may therefore be purely hypothetical.<sup>43</sup>
- And the fact that it will probably always be rational for independent private institutions, seeking to manage idiosyncratic risk, to put in place decision rules and contract terms which create the danger of procyclicality, will be most effectively offset by the application of the countercyclical macro-prudential policies relating to capital, accounting and liquidity which were discussed in Section 2.2.

## 2.5 (ii) Remuneration: requiring a risk-based approach

High levels of remuneration in banks, and in particular high bonuses paid both to top executives and to traders involved in trading activities which subsequently generated large losses, have been the subject of intense public focus as the financial crisis has developed. It is important to distinguish two distinct issues:

- The first and short-term issue concerns the total level of remuneration paid to executives in banks which have received taxpayer support. This is a legitimate issue of public concern, and one where governments as significant shareholders have crucial roles to play. But it is not an issue for the long-term nor for bank regulators.
- The long-term issue concerns the way in which the structure of remuneration can create incentives for inappropriate risk taking. It is on this issue that the FSA and financial regulators across the world are now focused.

In the past neither the FSA nor bank regulators in other countries played significant attention to remuneration structures. And within firms, little attention was paid to the implications of incentive structures for risk taking, as against the implications for firm competitiveness in the labour market

<sup>42</sup> See Section 10 in the Discussion Paper for analysis of the use of external credit ratings in the Basel II regime.

<sup>43</sup> This will almost certainly be the case for many years. It will be important, however, for the regulation of credit ratings to guard against their reappearance once memories fade.

and for firm profitability. In retrospect this lack of focus, by both firms and regulators, was a mistake. There is a strong prima facie case that inappropriate incentive structures played a role in encouraging behaviour which contributed to the financial crisis.

It is very difficult, however, to gauge precisely how important that contribution was. A reasonable judgement is that while inappropriate remuneration structures played a role, they were considerably less important than other factors already discussed – inadequate approaches to capital, accounting, and liquidity. And it is indeed likely that the regulatory responses which will have greatest influence on future remuneration levels, will not be the specific remuneration related policies described in this subsection. The major increases in capital required against trading book activity, described in Section 2.2 (ii), are likely to play a much more significant role in reducing the aggregate scale of trading activity, and so reduce the aggregate remuneration of people involved in those activities, than any policies designed directly to influence remuneration.

It is nevertheless likely that past remuneration policies, acting in combination with capital requirements and accounting rules, have created incentives for some executives and traders to take excessive risks and have resulted in large payments in reward for activities which seemed profit making at the time but subsequently proved harmful to the institution, and in some cases to the entire system.

In future the FSA will therefore include a strong focus on the risk consequences of remuneration policies within its overall risk assessment of firms, and will enforce a set of principles which will better align remuneration policies with appropriate risk management. An initial draft of the Code which sets out these principles has already been published, and an FSA Consultation Paper will be issued within the next week setting out a refined version of the Code, a description of the mechanisms by which the FSA will ensure its application, and an assessment of how existing industry practices compare with the Code principles.

Key principles within the Code include:

- Firms must ensure that their remuneration policies are consistent with effective risk management.
- Remuneration committees (or equivalent bodies with responsibility for remuneration policies) should reach independent judgements on the implications of remuneration for risk and risk management.
- Remuneration should reflect an individual's record of compliance with risk management procedures, rules and appropriate culture, as well as financial measures of performance.
- Financial measures used in remuneration policies should entail the adjustment of profit measures to reflect the relative riskiness of different activities.
- The predominant share (two thirds or more) of bonuses which exceed a significant level, should be paid in a deferred form (deferred cash or shares) with a deferral period which is appropriate to the nature of the business and its risks.
- Payment of deferred bonuses should be linked to financial performance during the deferral period.

Adherence to the rules will be achieved by:

- A proposal to make adherence to the first overarching principle of the Code an FSA rule, at least for systemically important firms;



- integrating assessment of remuneration policies into the FSA standard risk-assessment process (ARROW) with required improvements included in Risk Mitigation Plans; and
- if necessary, using increases in Pillar 2 capital requirements to compensate for incomplete adherence.

The effectiveness of this new approach in achieving real change will depend on our ability to gain widespread international agreement to publish and enforce similar principles in all major financial markets. Acting alone, the FSA cannot influence the policies of foreign firms operating in the London market, nor (without possible adverse effects) the practices followed in other financial centres where UK banks have activities. The FSA has therefore been closely involved in a Financial Stability Forum (FSF) working group seeking to forge that international agreement, and the FSF will shortly publish principles closely aligned with the FSA's approach. Achieving international agreement on mechanisms to ensure application of the principles by all major supervisory authorities will be a crucial subsequent step.

The principles developed by the FSA and the FSF, which share the objective of integrating analysis of remuneration issues into overall risk assessment, mark a significant shift in regulatory approach. It should be reflected in bank management actions to ensure that remuneration committees focus on the risk consequences of remuneration policies.

But it is important to be realistic about the extent to which remuneration policies can ensure sensible risk assessment and behaviour, and about the relative importance of remuneration policies compared to other regulatory levers. Many top managers of financial firms which suffered huge losses during the financial crisis (and, in the case of Lehmans, complete failure), were very large shareholders in their firms, and in several cases had voluntarily chosen to invest large proportions of cash bonuses in their firms' equity. But these large stakes in the long-term profitability and stability of their firms did not seem to result in any greater awareness of or concerns about the risks the firms were running.

Excessive risk taking, at least at the top management level, may be driven more by broad behavioural and cultural factors than by a rational consideration of the precise incentives inherent within remuneration contracts: dominant executive personalities have a strong tendency to believe in their own strategies. And the reality of excessive risk can often only be spotted at a systemic level.

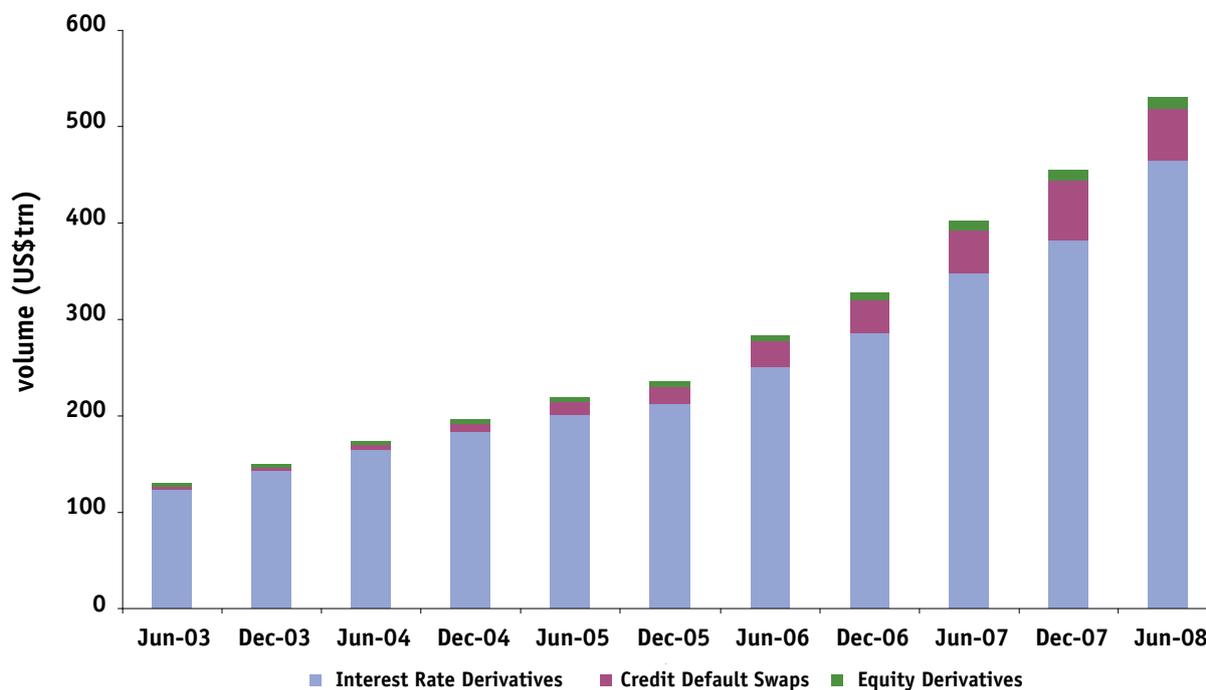
While remuneration-related policies can therefore play a useful role, other regulatory changes, in particular those relating to capital, accounting and liquidity, will have more profound effects.

### 2.5 (iii) Netting, clearing and central counterparty in derivatives trading

The last ten to 15 years have seen a huge growth in the value of OTC derivative contracts traded. (Exhibit 2.8) By far the majority of these are interest-rate derivatives, but the most dramatic recent growth rate has been seen in credit default swaps (CDS) which first emerged in the mid 1990s and had grown to over \$60 trillion of gross nominal value by end 2007.

The effective economic exposures (and therefore the risks) in the CDS market are much less than these gross nominal figures suggest. Net exposures currently outstanding (i.e. the total loss that either counter party could face if the position was closed today) after the netting off of bilateral positions are estimated to amount in aggregate to \$3.7 trillion in 2008.

**Exhibit 2.8: OTC derivative volume by product type**



Source: ISDA

But the sheer size and the complexity of the market, and the fact that it is traded in an almost entirely Over-the-counter (OTC) fashion, creates the danger that failure of one party could produce market disruption. In fact in the one major counterparty default, Lehmans, the market operated as anticipated. But the fact that it was not a major problem on this occasion does not prove that it might not be in future. And the fact that each exposure may be covered by collateral requirements, which in turn reflect the creditworthiness of the counterparties, creates a danger that changes in counterparty credit rating can produce disruptive procyclical effects e.g. threatened downgrades of AIG's credit rating in September 2008 would have required it to post significant collateral to cover its exposure as a counterparty in CDS contracts, resulting in severe cash flow strains within AIG.

Several reports (e.g. the Counterparty Risk Management Policy Group Third Report) have therefore identified the importance of reducing unnecessary multiplication of gross exposures. The simplest way to achieve this is through 'compression', the netting out of offsetting bilateral positions: use of this technique has already resulted in the elimination of \$27 trillion of redundant positions. Achieving a reduction in net positions outstanding could be achieved via firms closing out existing exposures, but would be greatly assisted by the development of clearing systems with central counterparties, allowing multilateral netting and reducing economic exposures to those outstanding versus the central counterparty.

The FSA strongly supports the objective of achieving robust and resilient central clearing house arrangements for CDS clearing and has been working with other regulatory authorities (in particular those in the US and Europe) and potential market infrastructure providers to expedite this progress. We also welcome European Commission initiatives to ensure that appropriate



structures are in place, while believing that proposals that euro-denominated CDS must be cleared ‘within the Euro zone’ are unnecessary for financial stability reasons which requires only that robust and well regulated arrangements are in place regardless of location. Next steps include assessing current applications for FSA clearing licences and defining cooperation agreements with overseas regulators, with the objective of achieving a significant shift of CDS trading to central counterparty clearing during summer 2009.

But while these measures are important, their potential impact should not be overstated. Clearing and central counterparty systems will only be feasible for the roughly 50-75% of the CDS which is accounted for by standardised contracts (e.g. referencing a standard index): a large volume of bespoke contracts will continue to be traded in an OTC fashion.

And there are a number of issues about the role of the CDS market, its role in facilitating the growth of structured credit, and whether it should be subject to constraints which go beyond clearing and netting arrangements, which are considered in Chapter 3: Wider Issue and Open Questions.

## 2.6 Macro-prudential analysis and intellectual challenge

A common theme of this chapter is the vital importance of a system-wide macro-prudential perspective. The lack of such a perspective, and the failure to specify and to use macro-prudential levers to offset systemic risks, were far more important to the origins of the crisis than any specific failure in supervisory process relating to individual firms. Getting macro-prudential analysis and tools right for the future is vital. This section covers:

- (i) What we mean by macro-prudential analysis and policy.
- (ii) How to ensure that it is effectively performed in the UK.
- (iii) How to ensure intellectual challenge at the international level.

### 2.6 (i) Macro-prudential analysis and tools

Macro-prudential analysis needs to identify the trends in the economy and in the financial system which have implications for financial stability and as a result for macroeconomic stability, and to identify the measures which could be taken to address the resulting risks. The factors considered could include trends in:

- The extension of credit to the economy, the pricing of credit, and levels of borrower leverage, and the implications for the risks which both borrowers (households, individuals and companies) and lenders are running.
- The pattern of maturity transformation and resulting liquidity risks e.g. the extent to which banks are increasing or decreasing maturity mismatches, and are relying on wholesale funding or on ‘liquidity through marketability’.
- Asset prices in property, equity and securitised credit markets and their possible relationship to long run equilibrium levels.
- Leverage within the financial system, whether at the institutional level (bank capital to asset ratios) or embedded in collateral margins and ‘haircuts’.

- The roles being played in the financial system by different institutions and in particular whether the institutions not currently subject to prudential requirements (e.g. hedge funds) are increasingly operating in a way which could create systemic risk.

This analysis could inform the conduct of monetary policy. But it could also lead to decisions to use macro-prudential levers e.g. varying capital requirements in a discretionary and countercyclical fashion (see Section 2.2 (iv) above) or to vary liquidity policies and guidance (see Section 2.2(vii)). Fiscal policy choices might also be informed by the analysis.

## 2.6 (ii) Macro-prudential analysis and policy in the UK

The failure to do this analysis and to take action on it was one of the crucial failures of the years running up to the financial crisis. It is not unfair to characterise what occurred as follows.

- The Bank of England tended to focus on monetary policy analysis as required by the inflation target, and while it did some excellent analytical work in preparation for the Financial Stability Review, that analysis did not result in policy responses (using either monetary or regulatory levers) designed to offset the risks identified.
- The FSA focused too much on the supervision of individual institutions, and insufficiently on wider sectoral and system-wide risks.
- The vital activity of macro-prudential analysis, and the definition and use of macro-prudential tools, fell between two stools. In the words of Paul Tucker, now Deputy Governor of the Bank of England for financial stability, the problem was not overlap but ‘underlap’.

Looking forward the analysis needs to be done by both the Bank of England and the FSA, bringing together insights from macro, sector-wide and firm-specific analysis, and with the analysis intensely debated between the two authorities, resulting if needed in agreed actions to translate analysis of risks into macro-prudential policy changes.

There are a number of different ways in which the formal character of the relationship between the Bank of England and the FSA could be defined. These could include:

- The Bank of England being the ultimate arbiter of judgements relating to the position in the economic cycle and the definition of macro-prudential risks, but with the FSA making decisions about which regulatory levers to adjust and by how much. The Bank of England could, for instance, write formally to the FSA setting out its analysis of macro-prudential risks; and the FSA could be required to respond setting out what actions it had taken in response.
- The Bank of England being not only the ultimate arbiter of judgements about the macro-prudential position but also able, at the limit and in the absence of agreement, to require the FSA to take specific macro-prudential measures.
- The Financial Stability Committee, currently defined as a purely Bank of England committee, being designed as a joint committee of the Bank of England and the FSA, with this committee making the final judgement as to macro-prudential conditions and final decisions as to appropriate policy responses.

In principle there are attractions to the third approach.

But it is vital to realize that whichever way the formal institutional relationship is defined, it will only work effectively if there is intense joint working to bring together macroeconomic



analysis and insight from specific institutions, and from sectoral and business model analysis, and if this analysis results in agreed points of view on how risks are evolving and what offsetting actions need to be taken. To achieve such an agreement, it is likely that devices such as joint evidence review and analysis sessions, combining both the top management of the Bank and the FSA and specialist staff, will be essential.

It will, moreover, be vital to achieve external challenge to conventional wisdom assumptions. One of the crucial failures of the years running up to 2007 was that the conventional wisdom relating to the global financial system – that risks had been diversified and reduced – was widely accepted and was wrong. Devices such as inviting external academics to review the conclusions of analysis, and to present deliberately counter conventional wisdom views, should be considered.

### 2.6 (iii) Macro-prudential analysis and intellectual challenge at the international level

This need for intellectual challenge is also vitally important at the international level. The failure to identify growing system wide risks was a global one. Indeed, it is important to note that not only was there a failure to identify hugely increased risks, but a widely held and authoritatively asserted conventional wisdom that the financial system had become more stable, and the amplitude of economic cycles less pronounced, precisely because of the financial market developments which we now believe led to crisis. The excerpt from the IMF Global Financial Stability Review (GFSR) of April 2006, shown on Exhibit 2.9 below, is an example of such an assertion.

#### **Exhibit 2.9: The conventional wisdom – 2006**

*“There is growing recognition that the dispersion of credit risk by banks to a broader and more diverse group of investors, rather than warehousing such risk on their balance sheets, has helped make the banking and overall financial system more resilient.*

*The improved resilience may be seen in fewer bank failures and more consistent credit provision. Consequently the commercial banks may be less vulnerable today to credit or economic shocks”*

**IMF Global Financial Stability Report, April 2006**

Intellectual challenge to conventional wisdoms is therefore essential. But so too is freedom from political pressure. For while the excerpt in Exhibit 2.9 illustrates that the IMF, like other institutions, failed to challenge what in hindsight looks like a clearly mistaken set of propositions, it is also true that the IMF in other sections of its GFSRs and in other reports and documents did often warn that specific developments in financial markets and in economies, and in particular the rapid growth of credit extension in several countries, were unsustainable and were creating risks. But these warnings were often ignored, in particular by the major rich developed nations. And IMF reports, which are agreed in a somewhat politicised process of review by national directors and the board, can be subject to influence to fit in better with dominant intellectual assumptions and to avoid overt criticism of major powers.

One of the vital challenges at the global level, which needs to be taken forward in the forthcoming G20 meetings, is to turn high level commitments to improved ‘early warning systems’, ‘surveillance,’ and ‘peer review’ into robust institutional arrangements which will empower the IMF or other international institutions to produce wholly independent analysis of system-wide risks, and which will require major international powers to take such report seriously as inputs to domestic macro-economic and macro-prudential policy decisions.

## 2.7 The FSA’s supervisory approach

The approach to capital, accounting, liquidity and institutional coverage outlined above, reflects a significant shift in the emphasis of regulation – from focusing primarily on the regulation of individual institutions, to combining this with a strong focus on the overall system and on the management of systemic risks across the economic cycle. This shift in focus has important implications for the FSA’s supervisory approach, and for the resources and skill needed to do the job, implications already reflected in the Supervisory Enhancement Programme, which had been put in place six months before I joined as Chairman.

This section sets out the key features of the required change covering in turn:

- (i) The FSA’s past approach.
- (ii) The new approach: more intrusive and more systemic.
- (iii) Implications for FSA resources; and international comparisons.
- (iv) Alternative division of responsibilities for prudential and conduct supervision.

### 2.7 (i) The FSA’s past approach

The FSA’s past supervisory approach has sometimes been described as ‘light touch’. This was always somewhat of a caricature, and a term which the FSA never itself used. A clear set of rules has always played an essential role within both prudential and conduct of business regulation, and the FSA has always made extensive use of its powers to require firms to make improvements in prudential management and conduct of business, and extensive use of its powers relating to enforcement of standards.



But the FSA's regulatory and supervisory approach, before the current crisis, was based on a sometimes implicit but at times quite overt philosophy which believed that:

- Markets are in general self correcting, with market discipline a more effective tool than regulation or supervisory oversight through which to ensure that firms' strategies are sound and risks contained.
- The primary responsibility for managing risks lies with the senior management and boards of the individual firms, who are better placed to assess business model risk than bank regulators, and who can be relied on to make appropriate decisions about the balance between risk and return, provided appropriate systems, procedures and skilled people are in place.
- Customer protection is best ensured not by product regulation or direct intervention in markets, but by ensuring that wholesale markets are as unfettered and transparent as possible, and that the way in which firms conduct business (e.g. the definition and execution of sales processes) is appropriate.

This philosophy resulted in a supervisory approach which involved:

- A focus on the supervision of individual institutions rather than on the whole system. This focus it should be noted was a common feature, and in retrospect a common failing, of bank regulation and supervisory systems across the world.
- A focus on ensuring that systems and processes were correctly defined, rather than on challenging business models and strategies. Risk Mitigation Programs set out after ARROW reviews therefore tended to focus more on organisation structures, systems and reporting procedures, than on overall risks in business models.
- A focus within the FSA's oversight of 'approved persons' (e.g. those proposed by firms for key risk management functions) on checking that there were no issues of probity raised by past conduct, rather than assessing technical skills, with the strong presumption that management and boards were in a better position to judge the appropriateness of specific individuals for specific roles.
- A balance between conduct of business regulation and prudential regulation which, with the benefit of hindsight, now appears biased towards the former. This was not the case in all sectors of the financial industry: the FSA for instance introduced in 2002-04 major and very important changes in the prudential supervision of insurance companies which have significantly improved the ability of those companies to face the challenges created by the current crisis. But it was to a degree the case in banking, where a long period of reduced economic volatility, which was attributed by many informed observers to the positive benefits of the securitised credit model, helped foster inadequate focus on system-wide prudential risks.

In addition, though this did not follow necessarily from the overall philosophy of regulation, it is noticeable in retrospect that where there was a focus on bank prudential regulation, it was heavily skewed towards the agreement and then implementation of the Basel II capital adequacy standard, which required the commitment of very large skilled resources both within the FSA and across all of the banks. In retrospect this skew was mistaken since (i) it meant that insufficient attention was paid to growing risks in trading books where Basel II did not change the Basel I approach to any significant extent; (ii) it meant that insufficient attention was directed to liquidity risks, which as Section 1.1 (iii) described, were fundamental to the crisis. This failure to spot emerging issues was rooted in the paucity of macro-prudential, systemic- and system-wide analysis.

The combination of these features, underpinned by the then dominant philosophy of confidence in self correcting markets, meant that even in the many cases where the FSA did meet high standards in the execution of its regulatory and supervisory approach, it was not with hindsight aggressive enough in demanding adjustments to business models which even at level of the individual institution were excessively risky and which pursued simultaneously by several banks, contributed to the build-up of system-wide risks. In addition, however, it is clear that in the specific case of Northern Rock, the FSA also fell short of high professional standards in the execution of its supervisory approach, with significant failures in basic management disciplines and procedures which have been set out in its Internal Audit report.

### 2.7 (ii) The new approach: more intrusive and more systemic

The FSA's new supervisory approach is significantly different and underpinned by a different philosophy of regulation. Major changes have already been introduced through the Supervisory Enhancement Programme (SEP), but developments since that program was launched last April illustrate the need for some additional measures.

The SEP programme launched last year aims to put right the deficiencies in internal process, management discipline, and skill revealed by the failure of Northern Rock, but will also support a fundamental shift in the FSA's approach to regulating and supervising banks and bank-like institutions. The new approach has been termed 'intensive supervision'. It involves:

- A significant increase in the resources devoted to the supervision of high impact firms and in particular to high impact and complex banks, with an increase in the frequency of comprehensive risk reviews (ARROWs) from a maximum of three to a maximum of two years, and less for firms facing particularly risky issues.
- A shift in supervisory style from focusing on systems and processes, to focusing on key business outcomes and risks and on the sustainability of business models and strategies. This shift will imply a greater willingness to vary capital and liquidity requirements or to intervene more directly if we perceive that specific business strategies are creating undue risk to the bank itself or to the wider system.
- A shift in the approach to the assessment of approved persons, with a focus on technical skills as well as probity.
- An increase in resources devoted to sectoral and firm comparator analysis, enabling the FSA to better identify firms which are outliers in terms of risks and business strategies and to identify emerging sector wide trends which may create systemic risk.
- Investments in specialist skills (e.g. in the analysis of liquidity risks), with supervisory teams able to draw on enhanced central expert resources.
- A much more intensive analysis of information relating to key risks, with for instance far more detailed information requirements relating to liquidity already outlined in the December Consultation Paper (CP08/22).
- A focus on remuneration policies, and the integration of oversight of remuneration policies into overall assessments of risk in the fashion described in 2.5 (ii) above.

These changes will in themselves amount to a major shift in the FSA's approach. But the crisis of the last year has illustrated the need for further changes which go beyond those initially outlined in the SEP. Two changes will be important:



- **Macro-prudential as well as sectoral analysis.** The SEP committed the FSA to develop enhanced capabilities in sectoral analysis. Analysis of the origins of the crisis has reinforced the importance of that commitment and highlighted that sector analysis must be used not just to identify outlier business models and strategies but to help build an overall picture of macro-prudential risks. So the FSA will need to build capabilities in such analysis to inform, for instance, decisions relating to operation of countercyclical capital and liquidity requirements (see Section 2.6 above).
- **A major shift in the role which the FSA plays in relation to published accounts and accounting judgements,** with far more intense contact with bank management and auditors on these issues.
  - If the Economic Cycle Reserve described in 2.2 (v) above were based to any extent on discretionary judgements, rather than solely on a formula, this would entail in-depth review of the assumptions which management proposed in relation to prudent through-the-cycle loss levels.
  - But there is also a strong case for bank regulators such as the FSA to be far more involved than in the past in the review and comparison of accounting approaches to fair value estimates and loan impairment provisions. Over the last six months the FSA has been intensively involved in the analysis of bank balance sheets to inform decisions on bank recapitalisations and the Asset Protection Scheme (APS). This analysis has revealed significant differences in the marks used by different banks to value similar trading book assets and significant differences in the allocation of assets between trading and banking books. The FSA has not in the past monitored these accounting policies as closely as now seems appropriate. A new approach is required, entailing detailed FSA comparative review of the judgements made by different banks, and meetings with management and auditors to explore the reasons for outlier positions.
  - In addition it is clear that the FSA needs to understand the assets (and liabilities) in bank balance sheets at the level of detail which has been involved in the APS analysis if it is to properly understand business model risks.

The FSA is therefore now working to define the information gathering and internal analytical processes which will be required to make APS style analysis of bank balance sheets possible on a continuous and cost efficient basis. And it will bring forward by the third quarter of 2009 proposals relating to its future role in monitoring accounting judgements. These proposals will cover the issue of whether any changes in FSA legal powers are required.

### 2.7 (iii) Implications for resources and international comparisons

Implementing the major shift in supervisory approach outlined above requires a significant increase in the resources available to the FSA, its budget and the fees charged to firms. But the increase planned will still leave the UK with a style of supervision which is less intensive than that employed by some other bank regulators. Comparison of the relative effectiveness of different approaches does not however suggest that a shift to what is sometimes called the ‘bank examiner’ model is required to ensure a sound banking system in the future.

The Supervisory Enhancement Program, launched last April, is already two-thirds way through implementation, and the impact on budget and fees is already fully reflected in the *Business Plan* for 2009/10 which the FSA published in February. The changes include the hiring of 280 additional staff, in some cases with specialist skills, new approaches to training and continuous professional development, and major changes to process and management control disciplines.

I believe these changes have been appropriately designed, and will enable the FSA to deliver the major shift in supervisory approach towards the banks which is now required. The further shifts in approach discussed in subsection (ii) above (e.g. a major intensification of the FSA's involvement in accounting judgements and balance sheet analysis) may require some resource increases beyond those already included in the SEP, but some contingency has been included in the budget to cover these.

Even once the SEP is implemented, however, the FSA's approach will still be significantly less intensive, in terms of onsite supervisory resources, than that employed in some other countries. Accurate comparison of different supervisory approaches is difficult: different authorities follow very different practices, for instance, in relation to their use of employed staff versus contracted staff, making comparisons of staff ratios potentially confusing.<sup>44</sup> The FSA Discussion Paper attached to this Review, however, presents the results of a comparison which we have conducted into the supervisory approaches used by the US, Spain, Canada and the UK, which we believe captures key dimensions of the different approaches. This analysis suggests that:

- Spain and the US both employ a considerably more intensive and in some senses more rule based approach to bank supervision. In the US, the bank examination departments of the OCC and the FDIC devote significant resources to on site inspections with direct examination of specific procedures down to the level of individual loan files. As a result a bank of Citibank's scale is covered by more than 30 OCC staff on site at any time, supplemented by significant staff commitment from the FDIC and the Federal Reserve. Even after the SEP is implemented a comparably figure for a major UK bank firm will be 10-20 staff, with none permanently on site, though with important backup from specialist teams.
- Canada follows an approach more similar to the UK with less focus on 'transaction based testing' (i.e. analysis of individual loan or other transaction files) and a much lower ratio of supervisors per bank.

It is noticeable, however, that this distinction between supervisory styles is not clearly correlated with relative success. The US system of resource intensive bank examination has been no more successful than the UK's approach in preventing bank failure. Conversely both Canada and Spain, with different supervisory approaches, have so far been less affected by the banking crisis, even though Spain is in a severe macroeconomic downturn.

The evidence is therefore consistent with our current judgement that a major increase in FSA resources devoted to bank supervision, beyond that already planned in the SEP, is not essential to more effective regulation and supervision. The determinants of Spain's and Canada's relative success seem more likely to lie in other factors than in a particular choice of supervisory style. In the Spanish case, the role of dynamic provisioning may be important: in the Canadian case, the particular characteristics of mortgage market regulation<sup>45</sup> and the application of a leverage ratio which has constrained Canadian bank participation in trading book activities may have played key roles.

<sup>44</sup> The Swiss financial regulator FINMA, for instance, makes extensive use of contracted accountants as agents in bank examination.

<sup>45</sup> Canadian mortgage regulation requires mortgages with deposits of less than 20% of purchase price to be insured by government insurance. Only 2.5% of the Canadian market is estimated to be subprime compared with around 20% of new US mortgages at the peak in 2006 (figures based on Federally Chartered Institutions in the US).



The crucial changes needed in the FSA's approach seem therefore likely to be:

- (i) the changes in supervisory approach already planned and being implemented, significantly increasing the intensity of supervision but without progressing to a bank examiner model;
- (ii) further steps to intensify supervision in particular high impact areas e.g. oversight of accounting judgements;
- (iii) more macro-prudential analysis, and more analysis of and willingness to make judgements on business models; and
- (iv) the more effective design and use of a small number of high impact prudential levers in particular those relating to capital, liquidity and accounting policies.

## 2.7 (iv) Alternative divisions of responsibility for prudential and conduct of business supervision

Effective regulation and supervision of financial services needs to encompass the full range of firms, sectors and markets, and to cover both prudential issues (e.g. capital adequacy) and conduct of business issues (e.g. fair sales practices or insider trading). Different countries have made different choices as to how to divide or combine these functions. There are three key choices to be made: (i) whether to combine the prudential supervision of all financial sectors (e.g. banking or insurance) or to supervise separately; (ii) whether the prudential supervision of banks should be combined with central bank functions; (iii) whether prudential and conduct of business supervision should be combined or separate.

It is noticeable that relative national success in the face of the financial crisis seems to be as uncorrelated with choice of structure as it is with supervisory style. Spain, which is perceived to have gained benefits from its dynamic provisioning approach, locates the prudential regulation and supervision of banks within the central bank. But Canada, which has an integrated prudential regulator separate from the central bank, is also perceived as having weathered the banking crisis relatively well.

Despite this lack of proven correlation, however, the arguments for and against different structures should be carefully evaluated. Even if analysis does not establish a case for major changes in overall division of responsibility, it can help identify the problems which any chosen structure will create, and the actions therefore required to offset such problems.

Key factors to consider are:

- The arguments for combining responsibility for the prudential regulation and supervision of all financial market sectors, e.g. banking and insurance, are very strong, with no apparent counter-arguments. Macro-prudential analysis should cover all sectors: problems in the banking industry and trends in bond prices can, for instance, have significant implications for insurance companies. And any separation of prudential regulation and supervision creates the risks of inadequate coverage and regulatory arbitrage, clearly illustrated by the case of AIG.
- Combining the prudential supervision of banks with central bank functions has some clear advantages, facilitating macro-prudential analysis of the banking sector, and ensuring an integrated approach to, for instance, liquidity risk management. As Section 2.2 (vii) described, individual bank liquidity management policies and central bank liquidity provision are closely related issues. The need to combine prudential supervision of all financial sectors, however, means that if in addition the prudential supervision of banks is combined with central banking, the resulting institution has a very wide span of responsibilities. And while there are benefits to

ensuring that banking liquidity supervision and central bank liquidity operations are closely linked, there is also a danger that this can reduce supervisory discipline, with excessive reliance on the potential for central bank support.

- Combining prudential supervision with conduct of business supervision has considerable advantages, both in ensuring a cost efficient interface with regulated firms, and in ensuring that linkages between conduct and prudential issues are identified (e.g. overly aggressive credit sales approaches can create both conduct detriment to customers and prudential risks to banks). The benefits of integrating conduct and prudential concerns may moreover increase in future if product regulation (e.g. of mortgage loan-to-value or loan-to-income ratios) is used as both a prudential and customer protection tool (see Chapter 3). But combining prudential and conduct of business regulation and supervision clearly creates the danger that there will be inadequate specialist focus on either, and in particular that a focus on conduct issues may crowd out prudential, particularly in good economic times when financial instability risks may appear less pressing.

The current UK structure combines all regulatory and supervisory functions, for all sectors and covering prudential and conduct of business, in the FSA, while giving the Bank of England an overall responsibility for financial stability. To make this structure work effectively it is essential that:

- The relationship between the FSA and the Bank of England works effectively, particularly in respect to the macro-prudential analysis and the use of macro-prudential tools discussed in Section 2.6 above.
- The FSA ensures that within its organisation there is adequate specialist focus on prudential risks, and that a combined responsibility for conduct and prudential issues does not lead to a crowding out of a prudential focus. Ensuring this may require changes in the internal organisation structure of the FSA.

## 2.8 Risk management and governance: firm skills, processes and structures

Analysis of the causes of the crisis suggests that there is a limit to the extent to which risks can be identified and offset at the level of the individual firm. Chapter 1.1 described how the origins of the crisis lay in macroeconomic imbalances and systemic developments: Chapter 1.4 argued that there are limits to the effectiveness of market discipline; and Section 1 of this chapter stressed that the crucial shift required in regulatory philosophy is towards one which focuses on macro-analysis, systemic risks and judgements about business model sustainability, and away from the assumption that all risks can be identified and managed at a firm specific level. As a result most of the changes proposed in this review relate to the redesign of regulation combined with a major shift in supervisory approach.

But improvements in the effectiveness of internal risk management and firm governance are also essential. While some of the problems could not be identified at firm specific level, and while some well run banks were affected by systemic developments over which they had no influence, there were also many cases where internal risk management was ineffective and where boards failed adequately to identify and constrain excessive risk taking.



Achieving high standards of risk management and governance in all banks is therefore essential. Detailed FSA proposals will await the outcome of the Walker Review (described below) but the key dimensions of required improvement are likely to be:

- **Improved professionalism and independence of risk management functions.** As already outlined in Section 2.7 above, the FSA will therefore in future play a more active role in assessing the technical competence of senior risk managers. And it will consider whether governance structures for risk oversight need to be changed, with a more direct relationship between senior risk management and Board risk committees.
- **Risk management considerations embedded in remuneration policy,** in the fashion described in Section 2.5 (ii). This has implications for the remit of remuneration committees and for the non-executive time commitments required.
- **Improvements in the skill level and time commitment of non-executive directors.** The crisis has revealed the extreme complexity of large banking groups and the difficulties which non-executive directors (NEDs) face in understanding all dimensions of the risks being taken, within the time commitments typically required of NEDs. It has also raised questions about the degree of technical skill and experience required to perform risk committee functions, and whether existing bank boards have sufficient people with these technical skills. In addition it has demonstrated the vital importance of non-executive challenge to dominant chief executives pursuing aggressive growth strategies.
- **Shareholder discipline over corporate strategies.** As Section 1.4(iv) described, shareholder influence seems to have been relatively ineffective in the past in constraining risky strategies. There may be ways of improving the effectiveness with which shareholder views are communicated to non-executives.

These issues and the implications for overall governance principles and structures need to be looked at in an integrated fashion. One question they prompt is whether the governance arrangements appropriate for banks are different from those which apply to the generality of companies, and whether therefore codes and rules which go beyond the general Combined Code are required.

These issues will be in part addressed by the review of bank governance being conducted by Sir David Walker which the government announced on Monday 9 February and which will report in October 2009. The FSA, which is providing the secretariat for this review, will work closely with Sir David Walker in consideration of these issues. Once the review has reported, the FSA will consider what changes to its rules and process are required to ensure that problems are addressed, making specific proposals by the fourth quarter of 2009.

## 2.9 Regulation of large complex banks: 'utility banking' and 'investment banking'

The origins of the current crisis, described in Chapter 1.1, entailed the development of a complex, highly leveraged and therefore risky variant of the securitised model of credit intermediation. Large losses on structured credit and credit derivatives, arising in the trading books of banks and investment banks, directly impaired the capital position of individual banks, and because of uncertainty over the scale of the losses, created a crisis of confidence which produced severe liquidity strains across the entire system. As a result, a wide range of banking institutions now suffer from an impaired ability to extend credit to the real economy, and have been recapitalised with large injections of taxpayer money.

Trading of complex instruments in dealing rooms by bankers who in the past have received very high remuneration is now resulting in significant economic harm. The issue clearly posed, and now extensively debated, is whether future regulation should enforce a greater institutional separation between classic bank services to the real economy (sometimes labelled ‘narrow’ banking or ‘utility’ banking) and risky proprietary trading activities (sometimes labelled ‘investment banking’ and sometimes ‘casino banking’).

In terms of formal legal rules, the historical background to this debate is quite different between the US and Europe. In the US, the Glass Steagall Act of 1933, introduced in response to some of the excesses of the pre-1929 boom, drew a clear regulatory distinction between commercial and investment banking, which survived until dismantled through legislative changes in the 1980s and 1990s. In most of continental Europe, however, there was no such distinction, and universal banks were involved in securities related activities and in some cases in the direct holding of large industrial stakes. In the UK, there was no clear regulatory prohibition on clearing banks becoming continental style universal banks, but there was a de facto separation between clearing bank activities and merchant banks, and equity market business was dominated, before the Big Bang reforms of 1986, by multiple small partnerships.

Whatever the historic background, however, the issue of the appropriate relationship between different types of banking and securities market activity needs to be addressed today. Several commentators have argued for a clear separation of roles in which:

- Banks which perform classic retail and commercial banking functions, and which enjoy the benefits of retail deposit insurance and access to lender of last resort facilities, would be severely restricted in their ability to conduct risky trading activities.
- Financial institutions which are significantly involved in risky trading activities would be clearly excluded from access to retail deposit insurance and from LOLR facilities, and would therefore face the market discipline of going bankrupt if they ran into difficulties.

The theoretical clarity of this argument has attracted considerable support. But it would be difficult for any one country to pursue a clear separation while other countries did not, particularly within the European Union, and there is unlikely to be an agreement on an appropriate division, given the very different historic traditions. And it is not clear that in its extreme and simple form, it is practical in today’s complex global economy, or that it would radically reduce banking system risks.

- The era of almost complete separation between clearing banks and merchant banks was also an era of fixed exchange rates and exchange controls, with far more limited capital flows and trade flows as a % of GDP, and a much smaller role played by cross-border corporations. Serving the financial needs of today’s complex globally interconnected economy, which over the long term has delivered rising prosperity to an increasing number of nations, requires the existence of large complex banking institutions providing financial risk management products which can only be delivered off the platform of extensive market making activities, which inevitably involve at least some position taking.
- It is important therefore when considering whether commercial banks should be involved in ‘investment banking’ activity to be clear about the different activities covered by that term. Many activities which before the lifting of Glass-Steagall were in the US conducted by investment banks – such as the underwriting of corporate bond issues – are core elements within an integrated service to corporate customers in a world where a significant element of debt is securitised. Large scale proprietary trading through in-house hedge funds is not.



- Moreover, while it is clear that the securitised credit model evolved in a fashion which undermined the initial proposition that it would prove lower cost and lower risk, it is important to recognise that, if more effectively regulated and supervised, it could have those advantages, and that the world has suffered in the past from crises of pure on-balance sheet narrow banking, whose severity might have been reduced if an appropriate form of securitised credit trading and credit insurance had been in place.<sup>46</sup> Banks can take excessive risk by making high risk loans which they hold on their own banking book balance sheet, as much as by acquiring securities originated by others. Section 1.4 (ii) argued that the optimal financial system for the future probably will include a significant role for securitised credit, and this will require some banks to be engaged in activities somewhat distinct from those envisaged in the pure ‘utility banking’ model.
- Furthermore, any idea that risky trading activities in institutions outside the utility banks, can be allowed to grow in an unregulated fashion, subject only to the market discipline that they will not receive LOLR or fiscal support in crisis, is not credible in a world of interconnected markets. Bear Stearns was not involved in any significant way in utility banking activities; but when it was on the verge of failure, the US authorities rightly identified it as systemically important. The direction of change must be towards extending the regulatory boundary to cover all financial activity which might create systemic risk, not allowing some activities to flourish beyond the boundary.
- Finally, it is important to recognize that ‘narrow banks’ focusing almost entirely on classic commercial and retail banking activities can be extremely risky. Northern Rock, Washington Mutual and IndyMac were all ‘narrow banks’.

It does not therefore seem practical to work on the assumption that we can or should achieve the complete institutional separation of ‘utility banks’ from ‘investment banks’ which the advocates of that model suggest. Large complex banks spanning a wide range of activities are likely to remain a feature of the world’s financial system.

But the narrow banking versus investment bank debate certainly does raise important issues requiring a regulatory response.

Large commercial banks enjoy the benefits arising from retail deposit insurance, lender of last resort access, and an implicitly understood ‘too big to fail’ status. These benefits can be used to support proprietary trading activities which create risks for both the institution and the system: the UBS Shareholder report into the bank’s write-downs (April 2008) set out how the expansion of the UBS fixed-income business, and the rapid growth of total leverage, was funded on the back of retail and commercial bank funds lent at an inadequate transfer price. Future regulation needs to prevent this. The key tools to achieve this will include:

- A regulatory regime for trading book capital (discussed in Sections 2.2 (ii) and (vi)) that combines significantly increased capital requirements with a gross leverage ratio rule which constrains total balance sheet size. Such a regime could include very major variation in capital requirements as between different types of trading activity, effectively achieving a distinction between market making to support customer service and proprietary position taking. The fundamental review of the trading book capital regime, proposed in Section 2.2 (ii), should consider the potential to achieve such distinction.

<sup>46</sup> e.g. the US banking crisis of 1929-33, which as a purely national crisis was actually far more severe than today’s, though less global in scope, was in part driven by the excessive localism of credit capacity and credit extension which the securitisation and trading of credit could in theory help overcome.

- A major intensification of the supervision of liquidity risks, as outlined in Chapter 2.2 (vii) and in the FSA's recent Consultation Paper, which will limit the ability of banks to hold potentially illiquid assets funded by short term liabilities, with appropriate internal pricing to reflect liquidity risk.
- Remuneration principles, outlined in 2.5 (ii) which will include a requirement for the calculation of profits to include adequate allowance for the different riskiness of different activities.

This approach is broadly in line with that put forward in the Group of 30 Report; *Financial Reform: A Framework for Financial Stability*, authored by a committee chaired by Paul Volcker, which seeks to constrain risk taking within large integrated banks, rather than require a disintegration into separate institutions. But these changes in regulation may well result in market developments which head in the direction which the 'narrow bank' advocates propose:

- Faced with the new regime, an increased number of banks are likely voluntarily to pursue strategies which are primarily focused on classic commercial and retail banking activity.
- Large complex banks still extensively involved in market making and trading activities will increasingly be doing so in support of customer relationships, rather than as a standalone activity.
- And across the whole banking system, the new regulatory system is certain to result in fewer resources – in terms of people or total balance sheet – devoted to the complex and risky trading activities whose growth was described in Chapter 1.1.

## 2.10 Regulation and supervision of cross-border banks

Chapter 1.3 described the major problems which arose as a result of the failure of institutions, such as Lehman Brothers and Landsbanki, which had extensive cross-border operations. This section considers the implications for the regulation and supervision of cross-border banks.

- (i) Regulating major global cross-border banks: the scope for and limits to improved international cooperation.
- (ii) The European single market: more Europe or more national powers?

### 2.10 (i) Cross-border banks: the scope for and limits to increased international cooperation.

The financial crisis has revealed major fault lines in existing approaches to the regulation and supervision of cross-border financial institutions. These were discussed in Chapter 1.3, focusing in particular on the Lehmans and Landsbanki cases. This section discusses the implications arising from the Lehmans case for the regulation and supervision of global financial institutions: Section 2.10(ii) discusses the particular issues arising within the European single market.

The FSA's past approach to the supervision of large cross-border institutions active in the London market, placed significant reliance on the ultimate home country supervisor to ensure the soundness of the overall institution. So while the FSA was the prudential supervisor of the main Lehman Brothers UK subsidiary (LBIE), was intensively involved in supervising Lehmans' business, and provided useful inputs to US authorities' understanding of the group's position, it was considered appropriate for global firms to gain the benefits of global approaches to the management of their business, with significant flexibility in the use of legal entities to book transactions and to manage liquidity globally.



The failure of Lehmans revealed the inherent interconnectedness of global investment banks, which make it very difficult for individual national entities to survive group failure, even if they are separate subsidiaries, given the huge importance of confidence factors in funding markets. It also however revealed that in the event of failure, national legal entities and national bankruptcy laws have a major impact on the relative position of different creditors.<sup>47</sup> The decision of the US authorities to allow Lehmans to fail, meanwhile, clearly had huge global, rather than solely US, financial and subsequently economic implications.

The issue is therefore how international regulatory and supervisory approaches should now be changed to decrease the likelihood of large cross-border failures in future and to reduce the severity of that impact. The appropriate response combines both greater international coordination and actions focused on specifically national concerns.

**Increased international cooperation.** The effective supervision of large cross-border institutions can be improved by maximising the flow of information between home and host country supervisors, sharing insights into the risks which firms are running. The Financial Stability Forum has defined the objective that all major cross-border financial institutions should be covered by a ‘college of supervisors’ and the FSA has led the working party which has defined the working methodology of these colleges. Colleges are now in place and operating for all the largest UK financial groups and for the largest foreign banks operating in London. The FSF has put mechanisms in place for monitoring the establishment of these colleges, and for learning lessons from their future operation (Box 2E).

In addition another FSF working group has defined appropriate processes for increasing international coordination in crisis conditions, at which stage fiscal and monetary authorities need to be intensely involved alongside supervisors given that crisis response almost inevitably involves the extension of LOLR facilities and often the provision of fiscal support. Significant progress has already been made in increasing the intensity of cross-border contingency planning for a wide range of large financial institutions.

But it is important to recognise that there are inherent and important limitations to what can be achieved by increased international supervisory cooperation operating within the existing rules that relate to fiscal support in a crisis. The failure of large financial cross-border banks clearly has global economic consequences; but throughout this crisis, fiscal support for potentially failing institutions has been organized on an entirely national basis. The German government, for instance, supported Hypo Real Estate (HRE) even though many of its problems had arisen within an Irish subsidiary; and the US government has been the sole supporter of major US commercial banks, even though the failure of any one of them would have huge economic consequences across the world.

<sup>47</sup> In addition, there are important issues relating to the recovery of client assets versus creditor claims which are addressed in the Discussion Paper but not covered in this Review.

## BOX 2E: COLLEGES OF SUPERVISORS: EUROPEAN AND GLOBAL

### European

- Established to carry out tasks under the European Union Capital Requirements Directive
- Wide memberships: supervisors from all member states in which a bank has operations
- Specific role in relation to the detailed implementation of capital adequacy rules.

### Global

- No legal basis but have developed voluntarily over time for a variety of purposes and with a variety of structures
- Financial Stability Forum (FSF) has agreed principles to govern the coverage, structure, role and working methods

#### Coverage

- Large complex financial institutions (LCFIs) which are systemically important in home country and have operations in at least two other countries large enough to affect stability of the group
- List of 30 banks and insurance companies headquartered in 10 home countries defined by FSF
- Colleges already in place for 25

#### Organisation/composition

- Chaired by home country supervisor
- With membership from countries which are significantly relevant to the stability of the group

#### Working approach

- Precise details to vary by firm
- But at least one physical meeting per annum and numerous conference call meetings
- Major existing colleges covered by FSA have at least 2 physical meetings per year
- Underpinned by exchange of information protocols

#### Role and focus

- Exchange of information and analysis on risks being run by the group in different locations and supervisory approaches to offset risk
- Development of unified point of view on evolution of group-wide risks
- Possible agreement of unified messages to senior management of the firm

#### Limits to role

- Do not create legal rights or obligations nor change the current guidance on relative responsibilities of home versus host supervisors
- Not formal decision making bodies

#### Next steps

- Establish colleges for five remaining firms on the list of 30
- FSF review of the workings of colleges and refinement of guidance by Q3 2009



Until and unless there is a willingness to change this approach and to move to a much more unified approach to global financial supervision and even fiscal support, mechanisms such as colleges of supervisors can make an important but still limited contribution. They can ensure better flows of information between national supervisors and achieve the voluntary coordination of national supervisory actions which will reduce the likelihood of firms coming close to crisis. But they cannot deliver fully integrated global supervision, since legal powers of intervention are national in nature, and since national governments look to national supervisors to protect national interests. In some circumstances, particularly if problems are beginning to emerge, there may therefore be a divergence of interest with, for instance, the home country supervisor wishing to see maximum transferability of liquidity to offset the emergence of group-wide liquidity problems, while host supervisors wish to ring-fence liquidity at national level precisely because they have emerging concerns about the whole group position.

**Increased national focus.** Alongside enhanced international cooperation, therefore, it is inevitable and appropriate that supervisory authorities throughout the world will increase their focus on the resilience of local legal entities. The FSA has therefore already in its Consultation Paper (08/22) *Strengthening Liquidity Standards* outlined a proposed approach to group liquidity supervision which will involve:

- Gathering far more extensive information from banks and from home country supervisors on the whole bank liquidity of banks operating in the UK, including those operating as branches.
- But with the power to impose tougher local liquidity requirements on branches and subsidiaries if we have any concerns about the quality of information available or the implications of that information.

In addition, the FSA will in future be more willing to use its powers to require major international banks to operate as subsidiaries in the UK, to increase capital requirements on local subsidiaries, and to impose other restrictions on business operation.

The extent to which such measures can ring fence the local operations of a global bank from the failure of the parent must not be overstated. Even well capitalized local bank subsidiaries are likely to face liquidity crises if the whole group is perceived to be in trouble. But even if these arrangements cannot guarantee the survival of a subsidiary if its parent collapses, they can provide better for the orderly run down of the local subsidiary and improve the position of local creditors.

At the group level, the impact of increased host country capital and liquidity requirements will be higher overall levels of group capital and liquidity. Holding that additional capital and liquidity necessarily has the economic cost consequences which were discussed in Section 2.2 (i) and 2.2 (vii) above. As those sections discussed, it is difficult to be precise about how large those costs are. In the face of the huge economic cost created by the current crisis, however, policy should be more willing than in the past to accept the costs arising from the additional capital and liquidity which will help reduce future instability.

### 2.10(ii) The European single market: more Europe or more national powers?

At the core of the policy dilemmas discussed above, and the only partial effectiveness of any one way forward, is the fact that the world has a global economy but not a global government, or even a powerful treaty-based organisation with authority in the area of bank regulation and supervision.<sup>48</sup>

The European single market in financial services is, however, governed by the rules and institutional structures of the European Union. So the issue arises whether the balance discussed above between more international coordination and more host country powers should be different within Europe from that which applies at the global level.

The present arrangements for banking regulation and supervision within the European Union are that:

- Important aspects of financial services regulation – including for instance capital adequacy rules for banks – are expressed in European Union directives. These directives set minimum standards which member states can exceed on a super equivalent basis. Directives are developed, debated and enacted in line with the standard procedures of the European Union, but in addition three committees (the Lamfalussy committees), representing national regulatory authorities, play important consultative roles.
- Supervision of banks and other financial service firms is entirely in the hands of national supervisory and regulatory authorities. Whether prudential supervision of banks is combined with central banking, with the supervision of conduct, and/or with the prudential supervision of insurance companies varies by country.
- Banks headquartered in one member state (or member state of the European Economic Area) have the right to open branches in other member states or to provide services cross-border (this is known as the ‘passporting’ right). Primary responsibility for prudential supervision rests with the home country supervisor, with relatively limited host country powers relating to branch liquidity but none in relation to capital adequacy.
- Deposit insurance is organised at member state level, but with harmonised minimum levels which will now increase in response to the financial crisis. Decisions on whether deposit insurance should be prefunded are also national.
- Crisis management remains national, albeit subject to, e.g. state aid rules.

The underlying philosophy is that while there is a basic framework of common European regulations, a single market in banking services should be based on the same market access principles which apply in markets for non-financial services.

The crisis has shown this philosophy to be inadequate and unsustainable for the future. The failure of Landsbanki, described in the box in Section 1.3, illustrated that existing single market rules can create unacceptable risks to depositors or to taxpayers. Since Iceland is a member of the European Economic Area, Landsbanki was free to operate in the UK as a branch over which the FSA had

<sup>48</sup> The IMF has treaty-based powers and functions in the arena of macroeconomic support and plays a role in macro-prudential surveillance discussed in Section 2.6, but it has no role relating to bank regulation, standards in bank supervision or crisis coordination for cross-border firms. International agreements on bank regulation, and encouragement to increased but voluntary coordination on supervision, are achieved via multiple non treaty based fora e.g. the Financial Stability Forum, The Basel Committee on Banking Supervision, the Senior Supervisors Group.



only limited powers. Primary responsibility for prudential supervision lay with the Icelandic home country authority (the FME). The potential for support to prevent bank failure was dependent on the fiscal resources of the Icelandic government: and UK depositors were dependent on the resources of the Icelandic deposit insurance scheme. Both fiscal resources and deposit insurance funds proved inadequate.

These current arrangements, combining branch passporting rights, home country supervision, and purely national deposit insurance, are not a sound basis for the future regulation and supervision of European cross-border retail banks. Sounder arrangements require either increased national powers, implying a less open single market, or a greater degree of European integration. A mix of both seems appropriate: the extent to which more national powers are required will depend on how effective ‘more Europe’ options can be.

**More national powers?** The more national powers (and therefore in a sense ‘less Europe’) option would entail increasing the power of host country supervisors to oversee the capital and liquidity of banks operating in their country. The FSA’s Consultation Paper on liquidity already proposes an increase in the information which we gather on whole bank liquidity and an increased willingness to use our powers to impose local liquidity constraints if we are concerned about the whole bank position. The more radical change, which would require treaty or at least directive amendments, would be to give host country supervisors the power to require local subsidiarisation where they have concerns about whole bank soundness and/or about the capacity of home country fiscal authorities and deposit insurance schemes.

The likely impact of such powers would be that bank supervisors would require banks headquartered in small member states to operate cross-border in a subsidiary fashion. This would create a less level playing field in the European single market, but would increase the protection for depositors and host country taxpayers.

**More Europe?** The alternative ‘more Europe’ option could entail two elements:

- Greater cross-European coordination of supervisory approaches and of macro-prudential analysis. There are very strong arguments for keeping the primary responsibility for supervision at member state level, facilitating a close and continuous supervisory approach. But there would be value in achieving: (i) more intense cooperation in the supervision of major cross-border firms; (ii) processes for defining supervisory standards and for peer review of specific supervisory approaches; (iii) more coordinated macro-prudential analysis, developing a shared view of emerging risks which would inform the refinement of regulation as well as specific supervisory responses.
- Greater coordination of deposit insurance arrangements, and in particular pan European arrangements for the deposit insurance of cross-border branches. A possible alternative to member state powers to require subsidiarisation would be a requirement that banks seeking to operate across-border as branches, had to pay into pre funded European deposit insurance, with funds sufficient to avoid claims on home or host country fiscal authorities.<sup>49</sup>

<sup>49</sup> Clearly, however, such arrangements would have to be combined with the other ‘more Europe’ option (greater coordination of supervision) since otherwise rapidly growing and inadequately supervised banks would gain access to deposit insurance without having made significant past contributions. The fundamental challenge of the prefunded insurance approach – that the fund only builds up slowly – remains.

It is essential that the European Union now considers the appropriate way forward. The FSA Discussion Paper therefore proposes for debate a number of options, expressing a current preference for:

- The creation of a new European Union institutional structure, which would replace the Lamfalussy committees. This body would be an independent authority with regulatory powers, a standard setter and overseer in the area of supervision, and would be involved, alongside central banks, in macro-prudential analysis, while leaving the primary responsibility for supervision at member state level (see Box 2 F). These issues are already being considered at European level. The de Larosiere report has suggested arrangements slightly but not radically different from the proposals made here.<sup>50</sup>
- The reinforcement of host country supervisory powers over liquidity, and the right of host country supervisors to demand subsidiarisation and to impose adequate capital requirements and restrictions on local business activity.

In addition the option of introducing pan-European arrangements for the deposit insurance of banks operating across-border in branch form should be considered in more detail.

This package of measures which is broadly in line with the proposals made in the Chancellor of the Exchequer's letter to Ecofin of 3 March 2009, would amount to a major change from the past philosophy that a European single market in banking can operate with little more coordination than applies to, for instance, manufacturing or retailing sectors of the economy. But the only viable alternative is a significant retreat from single market freedoms.

<sup>50</sup> The European Commission's White Paper on 'early intervention' will make proposals relevant to this issue. It will review the supervisory powers of host supervisors of branches and, where appropriate, suggest to establish early intervention powers vis-à-vis branches.



## BOX 2F: POSSIBLE EU LEVEL FINANCIAL REGULATORY BODY

### Formal Status

An EU institution independent of the Commission. It replaces the existing three Level 3 Committees CEBS, CESR and CEIOPS

### Coverage

An integrated (i.e. non sectoral) body encompassing both prudential and conduct of business regulation.

No powers over national supervisors to change individual regulatory decisions, nor to prescribe detailed supervisory practice.

### Roles and Responsibilities

#### Regulation: Technical rulemaking

- Drafting of detailed technical rules.
- Advice to the Commission on drafting framework Directive texts
- Issuance of non binding guidance to Member States and Industry on best practice for national implementation and interpretation of rules

#### Supervision: Oversight of national supervisors

- Oversight of activities of EU supervisory colleges of supervisors to include promulgation of “best practice” exchanges for supervisory colleges
- Oversight of peer review of regulatory outcomes, together with suggestions for best practice on a “comply or explain” basis.

#### International Role

- Undertake existing Commission representation on international standard setting bodies alongside Member States.
- Role in European macro-prudential analysis and early warning, in collaboration with ECSB and national regulatory authority





## 3: Wider issues – open questions

Chapter 2 set out changes in regulation and supervisory approach where the appropriate way forward is in principle clear, even if there are many details to be defined and/or a need to achieve international agreement. In addition it identified some areas where there are open issues (e.g. the potential role for a 'core funding ratio' in liquidity regulation) but where these are closely linked to, and extensions of, the clear recommendations. This chapter sets out a wider set of policy changes which might be appropriate, but where debate on principles is required.

The context for considering these options is Chapter 1.4's discussion of market efficiency and market rationality. Recent events have raised fundamental issues about the extent to which different markets are or can be made to be efficient, rational, and self correcting. They suggest that there may be inherent limits to how far problems of market irrationality can be overcome by measures designed to make those markets more transparent, liquid and technically efficient.

This suggests that regulators of banks and markets may have to consider.

- Whether they should play a role in product regulation, in either retail or wholesale markets.
- Whether regulators and central banks should deploy other tools in addition to the variation of capital and liquidity requirements, to achieve counter-cyclical effects or at least offset procyclicality.
- Whether approaches to the regulation of markets need more overtly to recognise tradeoffs between the benefits of technical efficiency and liquidity and the potential for harmful irrational momentum effects.

### 3.1 Product regulation?

The FSA has in the past been reluctant to accept the idea that it should regulate products in either retail or wholesale markets. Its regulatory philosophy has been based on the assumptions that: (i) firms must be subject to prudential regulation to ensure financial soundness; (ii) they must be subject to conduct of business regulation, including the regulation of selling approaches, to ensure that customers are treated fairly and are well informed; but (iii) that product regulation is not required because well managed firms will not develop products which are excessively risky, and because well informed customers will only choose products which serve their needs. The regulation of selling approaches has included the requirement that products sold should be 'suitable' to the individual customer's requirements, but the FSA has not considered it within its remit to prohibit specific products or product design features.

The regulatory philosophy has been that product regulation would stifle innovation, which in a competitive market has beneficial effects, and that the regulator is less well placed than the market to judge whether products deliver customer value.

The analysis of *Chapter 1.4: Fundamental theoretical issues – market efficiency and market rationality*, challenges these assumptions. Section 1.4 (iv) questioned how effective market discipline had been in controlling excessive risk taking. Section 1.4 (v) argued that financial innovations can sometimes achieve economic rent extraction, rather than delivering valuable customer and economic benefits.

One implication is that regulators may need to regulate products, in both retail and wholesale markets.

#### 3.1 (i) Retail product regulation: maximum loan-to-value ratios or loan-to-income ratios?

In the retail market the introduction of product regulations limiting mortgage loan-to-value (LTV) or loan-to-income (LTI) ratios merits consideration. The FSA will publish a paper in September which considers these and other options for mortgage market reform.

As Sections 1.1 and 1.2 described, the rapid extension of mortgage credit was a key factor in the origins of the financial crisis in the US, the UK and several other countries. In the UK high initial LTV<sup>51</sup> and LTI ratios played an important role:

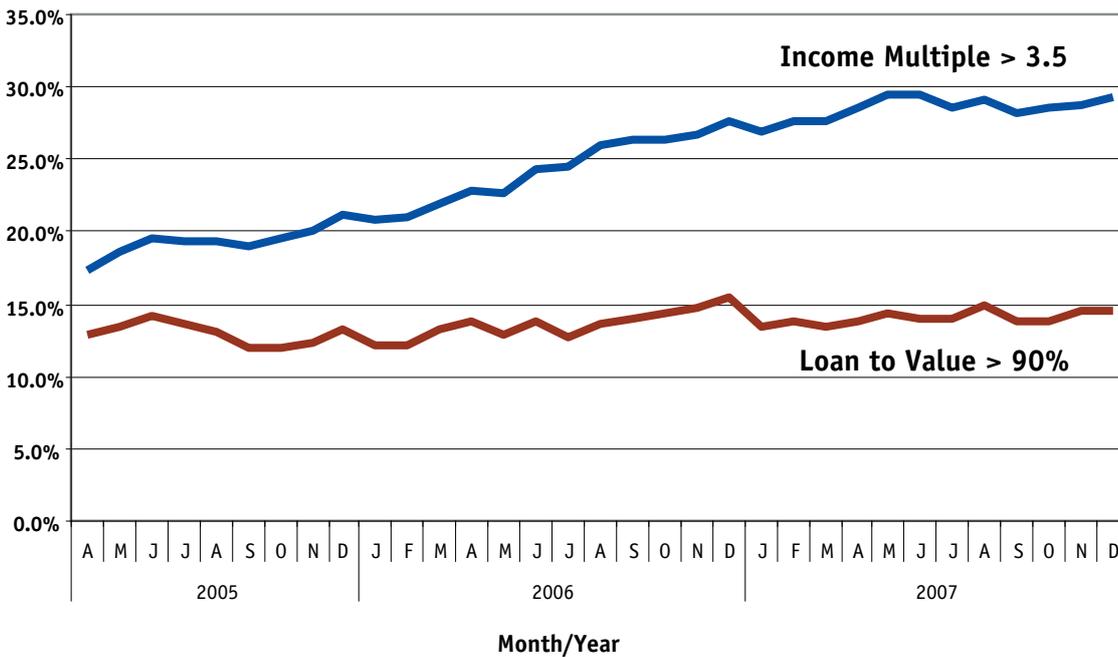
- Trends in initial LTVs were less dramatic than sometimes supposed, with only a slight increase in the % of new loans with an LTV greater than 90% (Exhibit 3.1). But the proportion of mortgage products allowing more than 100% initial LTV almost doubled (from 3.9% to 7.4%) between 2005 and 2007 and the riskiness of high initial LTV mortgages increased since rapidly rising property prices increased the probability of a subsequent price collapse. Both some customers and some providers relied imprudently on the assumption that ever rising house prices would reduce the risks otherwise inherent in high LTVs. Some customers assumed that there would always be a supply of new remortgage offers to allow refinancing when initial low interest rate periods ended; and some providers assumed that initial LTVs would fall rapidly over the contract to reduce their risks.

<sup>51</sup> The loan-to-value will change over time as borrowers repay their mortgage, take out further advances and/or as the value of the property changes.



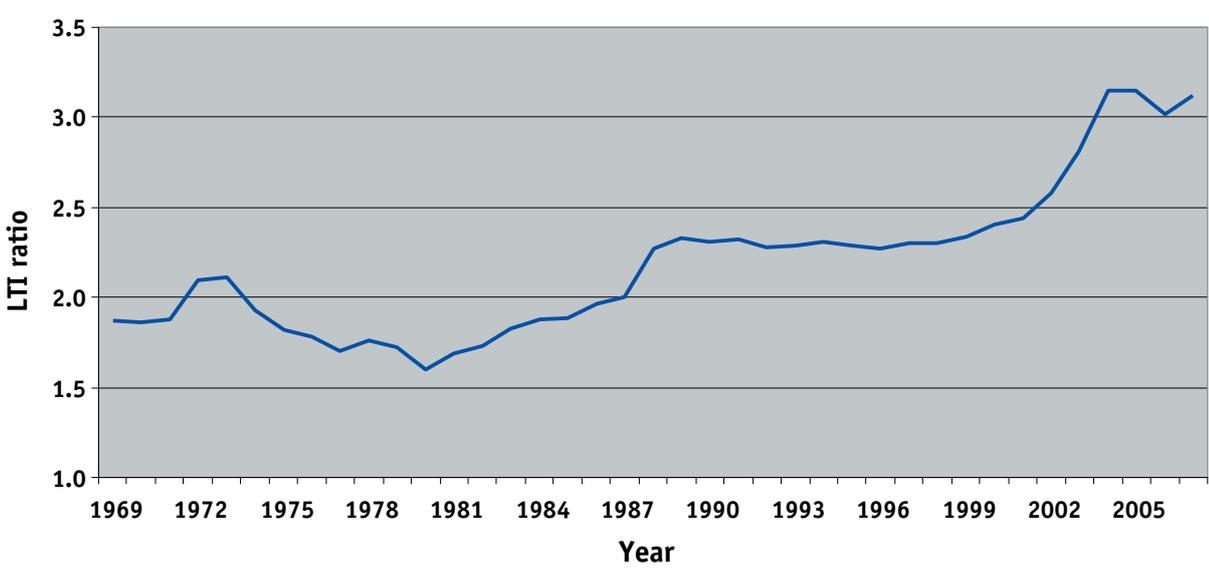
- The trend in LTI ratios was more clearly upward, with the average income multiple rising rapidly after 2000, and with the % of loans which had initial LTI over 3.5 growing from 20 to 30% between 2005 and 2007 (Exhibits 3.1 and 3.2). These rising LTIs in part reflected the fact that borrowers required rising loan multiples to afford higher house prices.

**Exhibit 3.1: Affordability indicators for mortgages sold in the UK, 2005-2007**



Source: Product Sales Database

**Exhibit 3.2: Average loan to income ratio for mortgages advanced in the UK, 1969-2007**



Source: CML

The UK has not imposed either legal restrictions or non-statutory restraints through guidance on mortgage LTV's or LTIs since the general dismantling of credit quantity restrictions in the 1970s. But limitations on LTV or LTI are in place in for instance Hong Kong, the Netherlands, Greece, Austria and Poland: and several other countries (e.g. Denmark and Germany) make maximum LTV ratios a condition of eligibility for covered bond programmes.

There are three potential rationales for mortgage product regulation:

- protecting customers against the consequences of imprudent borrowing;
- protecting bank solvency against the consequences of imprudent lending: Hong Kong's rules on maximum LTVs are for instance widely credited with enabling it to weather a major property price slump between 1998 to 2002 with only minimal impact on bank capital; and
- constraining over rapid credit growth and excessive property price increases, which increase the amplitude of economic booms and busts.

Equally it is important to note important arguments against such restrictions:

- Requirements for lower initial mortgage LTVs or LTIs, will tend to disadvantage new entrants to the housing market who cannot rely on, for instance, family sources of money to pay initial deposits. In both the UK and the US, rapid growth in mortgage credit was seen as driving a democratisation of home ownership.
- And it can be preferable for people to have high LTV mortgages, than to achieve the same total leverage more expensively by, for instance, combining a reasonably high LTV mortgage with extensive use of credit card debt or unsecured loans.

The FSA's paper on regulating the mortgage market will assess the strength of the arguments for and against. It will analyse the extent to which customer defaults and bank losses are correlated to either high initial LTV or LTI, and will draw lessons from international experience. It will also assess the merits of direct product regulation compared with other potential policy levers such as (i) tighter regulation of mortgage selling and in particular greater focus on suitability requirements or (ii) more aggressive use of differentiated capital requirements against mortgages of different LTV or LTI .

The paper will also consider whether more effective regulation of the mortgage market, through either tighter conduct rules or direct product regulation, would require the extension of the FSA's remit to cover second charge mortgages and buy-to-let mortgages.

### 3.1 (ii) Wholesale product regulation? CDS as a specific example – arguments for and against

The last 20 to 30 years have seen a proliferation of wholesale financial products, particularly in the area of structured credit and credit derivatives. The past philosophy of the FSA, shared with market and bank regulators across most of the developed world, has been to assume that wholesale market customers are by definition sophisticated and do not need protection, and that financial markets innovation delivers benefits to customers and to the economy. There was moreover until the crisis an overt and authoritatively stated theory that financial innovation had resulted in a significant reduction in financial stability risks (see. e.g. the quote from the April 2006 IMF Global Financial Stability Report cited in Section 1.4 (ii)).



Section 1.4 (v) questioned these assumptions, and indeed suggested that some forms of financial innovation may have delivered little if any allocative efficiency benefits, while increasing aggregate intermediation margins and contributing to significantly increased systemic risk.

If this is the case, there can an argument for financial market regulators to consider the direct regulation of products identified as having potentially adverse financial stability effects. To illustrate the sort of arguments that should be considered, this section uses the example of the CDS market.

Some commentators have argued that the CDS market should be subject to product regulation, with legislative proposals put forward in the US (though subsequently withdrawn), which would constrain the use of CDS contracts to those situations where the buyer of insurance has an insurable interest in the underlying bond or index.

The total nominal value of credit derivatives swaps outstanding has soared from trivial levels in the early 1990s to over \$60 trillion by 2007 – (see Exhibits 1.6 and 2.7). Section 2.5.(iii) discussed issues relating to the counterparty risks resulting, and the importance of limiting these as much as possible by encouraging the compression of contracts, and through the introduction where possible of clearing systems with central counterparties. The more fundamental issue, however, is whether the growth of the CDS market has acted to improve or harm credit intermediation efficiency and whether it has decreased or increased financial stability risks.

CDS contracts enable banks or other investors who hold long credit positions to hedge exposures that may have arisen through direct lending between the parties involved or from other forms of transaction (e.g. as counterparties in derivative transactions). They can therefore achieve the benefits of risk diversification which the model of securitised credit intermediation was believed to deliver. Sections 1.4 (ii) and 2.9 argued that the optimal future financial system for credit intermediation is likely to include a significant securitised element: CDS contracts can play an important role in such a system.

But opponents of its unrestricted operation believe that the scale and complexity of the CDS market has created financial stability risks, and argue that:

- A CDS contract is in many ways like an insurance contract, and it is a common feature of insurance law that people and companies are not permitted to take out insurance where they do not have an insurable interest (e.g. to take out a life insurance contract on someone else's life) given the obvious dangers of harmful incentives effects. By analogy, it is argued, the existence of significant investors who have an interest in a company running into trouble, when combined with the potential for short selling, creates a heightened risk of abusive market behaviour.
- CDS prices, far from providing a useful market-based measure of fundamental credit risk, systematically understate risk in the upswing and overstate it in the downswing, in a fashion well familiar in the insurance markets. Premia to insure against hurricanes increase in the year after large hurricane losses, not because the objectively estimated probability of hurricanes has increased, but because insurance capacity has been reduced by the losses. Similar effects it is argued are at work in CDS markets, thus making the extensive use of CDS prices to assess the fair value of illiquid underlying bonds potentially procyclical and making overall CDS spreads poor indicators of risk (see Section 1.4 (iv)).

- The combination of these factors mean that unrestricted CDS trading can introduce significant volatility into the price of credit, which can itself bring about the very default events which CDS instruments insure against. And that credit default events, unlike say the fall of an equity price, are large scale irreversible events which impose significant disruption costs on the real economy.<sup>52</sup>
- Finally, that these effects have the potential to be particularly harmful in relation to banks, where the combination of CDS shorting, and equity short selling can generate a failure of confidence and rising funding costs, creating an incentive for harmful position taking which can achieve its self-fulfilling effect even in the absence of behaviours (e.g. the spreading of rumours or concerted shorting) which would be covered by market abuse rules.

The strength of the arguments both in favour of and against the unrestricted operation of the CDS should be debated. Even if the balance is in principle in favour of some restrictions, it is possible that practical difficulties in enforcing restrictions might argue against direct product regulation. It is also possible that any restrictions should draw a distinction between different categories of the credit derivatives market; the role of complex synthetic credit derivative instruments in supporting the growth of complex structured credit, raises more concerns than the growth of more vanilla CDS instruments which are more likely to play a useful hedging role for a range of market participants. And the most important regulatory response may be to ensure the capital requirements are adequate both as they relate to insurance companies writing credit insurance, or to banks and investment banks trading on both sides.

But whatever the appropriate decision in respect to the specific case of CDS, the general principle is clear. Regulators should not treat it as given that direct product regulation is by definition inappropriate, but should be willing to consider over time whether particular markets have characteristics sufficiently harmful, and benefits sufficiently slight, as to justify intervention.

### 3.2 Other counter-cyclical tools

The central theme of Chapter 2 was the need for bank regulation to have a more macro-prudential focus. Chapter 2.6 outlined the need for better and more independent macro analysis. Chapter 2.2 (iv), (v) and (vii) argued that the macro-prudential focus needs to be reflected in counter-cyclical approaches to regulatory capital, published account provisions, and liquidity.

The open issue is whether other counter-cyclical tools should also be considered and in particular, whether:

- mortgage LTV or LTI limits should not only be introduced but also varied through the cycle; and
- whether regulators should set minimum requirements relating to the margin/collateral calls used in derivative contracts and in securities financing transactions.

<sup>52</sup> The specific economics of bankruptcy procedures – and their very large and irreversible costs – are central to understanding why credit market irrationality and disruptions can have far greater economic consequences than equity market booms and busts. See Ben Bernanke *The non monetary effects of the financial crisis in Essays on the Great Depression* (2000).



### 3.2 (i) Varying LTV or LTI limits through the cycle?

Section 3.1 (i) identified that one of the potential rationales for regulation of LTVs or LTIs is to constrain rapid credit growth and excessive property price increases in an attempt to reduce the amplitude of economic cycles. If this macro-prudential rationale is accepted, the logical implication might be that maximum LTVs and LTIs should not only be set but also varied over the cycle. Variation over the cycle could also be justified from the perspective of protecting customers and protecting bank solvency. So, for instance, it would be possible to envisage a regime in which maximum LTVs were reduced when property prices were rising rapidly and credit growth was strong and conversely increased when property prices fell.

The merits of such an approach can only be considered within the context of a far wider debate about the instruments which should be employed to achieve monetary and macro-stability objectives. These are issues for the Bank of England and the Treasury even more than for the FSA. The FSA is not therefore intending to focus on this issue in its 2009 Discussion Paper on the mortgage market. The full range of possible countercyclical tools should, however, be taken into account in consideration of future macroeconomic policy approaches.

### 3.2 (ii) Regulating collateral margin calls to offset procyclicality?

Section 1.1 (iii) argued that private market practices relating to collateral requirements in derivatives contracts and in secured financing transactions, can introduce procyclicality into market behaviour and market prices. Collateral requirements (haircuts) for specific categories of asset or contract have increased dramatically over the last year as VAR models have reflected increased volatility and as general risk aversion has increased (see Exhibit 1.14). These increases are playing a role in driving deleveraging, asset sales and asset price falls in a self-reinforcing cycle.

These procyclical variations in haircuts are entirely rational for individual firms seeking to contain idiosyncratic risk. They have also been longstanding features of secured financing and OTC derivatives markets: and initial margins required by central counterparties within clearing systems have also often been varied in this fashion. The importance of their potential procyclical effect has however increased with the growth of the securitised model of credit intermediation.

The open issue is therefore whether regulation should be used to set minimum levels of haircut in OTC derivatives contracts and in securities financing transactions. This would offset the procyclical tendency for levels to fall in boom years and reduce the extent to which increases in haircuts in periods of rising volatility contribute to deflationary pressures.<sup>53</sup> Careful consideration of the practical enforceability of such rules would be required.

<sup>53</sup> In essence, this would amount to a regulation of leverage at the transaction specific level, complementing institution level capital adequacy standards. The more radical step would be to vary these requirements over the cycle in an actively countercyclical fashion.

### 3.3 Balancing liquidity benefits against stability concerns

Belief in the benefits of liquidity in markets – whether equities, credit securities, or commodities – has been a fundamental philosophical assumption of most securities regulators, including the FSA. There are good reasons for this. Liquidity of markets reduces the bid/offer spreads which end investors face, reduces the potential for insider trading, and makes it easier for investors to manage risk.

But Section 1.4 (i) set out theoretical objections to the idea that additional liquidity is always and in all markets beneficial. If liquid traded markets are inherently subject to herd/momentum effects, with the potential for irrational overshoots around rational economic levels, then optimal regulation cannot be based on the assumption that increased liquidity is always and in all markets beneficial, but must recognise that there can be tradeoffs between technical efficiency and susceptibility to irrational herd effects. These tradeoffs may differ in importance over time, and may differ significantly between markets.

One area of policy where this can have implications is short selling. Short selling has beneficial effects in creating liquidity. A clear finding from the FSA analysis of the impact of its ban on short selling in financial stocks in autumn 2008 was that bid-offer spreads increased (Exhibit 3.3). And short selling can in some markets play a role in offsetting irrational exuberance. If there had been **more** investors taking short selling positions against major banks in the period of irrational exuberance before the crisis, this would have had at least a marginally beneficial counter-cyclical effect.

But there can be conditions in which this is not the case, and in which short selling can contribute to a self-fulfilling downward cycle of falling confidence, particularly in financial stocks, as interconnected movements in equity prices, CDS spreads, and ratings drive increased funding costs which in turn drive further falls. These effects, moreover, are not dependent on behaviour which falls within the definition of market abuse (e.g. the spreading of rumours or concerted short selling) but can be the collective impact of apparently rational and non-abusive individual investor behaviour.

The FSA's policy stance has, since last September, reflected this reality. It considers short selling as a legitimate activity within normally functioning markets. But it recognises: (i) the need for a disclosure regime which guards against market abuse; and (ii) the need to maintain the flexibility to impose short selling bans in particular sectors and in particular periods if there is a danger of self-fulfilling market disruption.

The challenge to efficient market theory suggested in Section 1.4 (i) does not therefore require a fundamental shift from the FSA's current policy stance. But it does underscore the importance of the FSA adopting a philosophical approach which overtly balances the benefits of increased liquidity in markets with the danger that in specific markets at particular times, financial stability concerns may be more important. One possible implication of this is that the FSA's legal powers to ban or limit short selling, or to require disclosure of short selling positions, should not as at present be based on the market abuse regime, but should rest on a responsibility to maintain orderly markets and financial stability.



### Exhibit 3.3: Impact of FSA financial sector short selling ban, Autumn 2008

	Change (whole period of ban / 90 days before the ban)	Change (60 days after / 60 days before)	Change (30 days after / 30 days before)	Change (15 days after / 15 days before)
<b>Mean (median) percentage change in relative bid-ask spreads - stocks on protected list</b>	225.0% (180.6%)	205.9% (165.4%)	231.0% (149.9%)	109.2% (89.5%)
<b>Mean (median) percentage change in relative bid-ask spreads - FTSE 350 stocks</b>	89.8% (65.4%)	68.6% (46.6%)	62.2% (39.9%)	44.0% (30.9%)

The FSA introduced a ban on short selling in a defined list of financial sector stocks (the 'protected list') on 19<sup>th</sup> September 2008.

This analysis was conducted in February 2009.





# 4: Implementation and transition

This chapter:

1. Summarises the recommendations and discusses implementation and timing.
2. Considers in particular the need for careful management of the transition towards higher capital adequacy requirements.
3. Describes the processes for responding to the review.

## 4.1 Domestic implementation and international agreements

The boxes on pages 118-122 set out the full set of recommendations. They also distinguish between those where action has already been taken, those where the FSA can and will take action on its own, and those where implementation either is unavoidably or should ideally be dependent on international agreement, either at European or global level.

Four categories of dependence on international agreement can usefully be distinguished:

- Areas where the UK must act within the constraints of European Union law and/or institutional arrangements, and where therefore the key priority is for the FSA and the UK government to play a major role in European-wide debates and decisions. The most crucial recommendations in this category are those relating to:
  - the operation of the European single market in financial services i.e. the recommendations for a new European regulatory institution and for changes to depositor protection ('more Europe') and/or for some increase in national powers ('less Europe'); and
  - the capital adequacy proposals, which will eventually need to find expression in amendments to the European Capital Requirement Directive.

Recommendations relating to credit rating agencies, CDS clearing, and macro-prudential analysis also have important pan-European dimensions.

- Areas where the UK must contribute to global decision-making about big impact regulatory levers, in particular those relating to capital adequacy. Here the key institutions are the Financial Stability Forum (FSF) and the Basel Committee on Banking Supervision, in which the FSA – along with the Bank of England and, in the case of the FSF, the Treasury – is intensively involved. International agreement on new capital adequacy standards is highly desirable since without it

- there would not be a level playing field for international competition; and
- the UK could be exposed to financial stability problems deriving from inadequate capital adequacy regimes in other countries.

Proceeding on an entirely national basis – e.g. in relation to the design of a countercyclical capital adequacy and provisioning regime, would be by far second best.

- Areas where there is a need for mechanisms to ensure that international agreements already reached are reflected in world wide implementation
  - The FSF has, for instance, already agreed at its plenary meeting on 11 March 2009 an international code of practice on remuneration policies. This must be applied evenly across the world; different rules for employees of the same bank operating in different locations or different rules for banks of different ownership nationality operating in the same location would make implementation ineffective. Processes for international surveillance/peer review of supervisory enforcement are now essential.
  - And the FSF has also agreed appropriate guidelines for the operation of colleges of supervisors for major cross-border financial institutions. The effective implementation of these guidelines requires actions by supervisors in all financial centers and needs to be ensured by some mechanism of agreed surveillance and review.
- Areas where there is a need for global political leadership to create the capacity for independent global analysis of macro-prudential trends, including effective review of and challenge to conventional wisdoms and national policies.

The boxes on pages 118-122 identify the required next steps in pursuing each of these dimensions of international agreement, and propose the timescales which should ideally be followed.

## 4.2 Transition from today's macroeconomic position

Section 2.2 argued that national and global banking systems should in future be subject to a capital regime which entails: (i) more and higher quality capital than required in the past; (ii) more capital specifically against trading book risk-taking; and (iii) some type of counter-cyclical capital regime, with capital buffers being built up in periods of strong economic growth so that they can be drawn on in downturns.

Such a regime will create a future banking system which is better able to absorb and moderate rather than amplify the amplitude of macroeconomic cycles. If such a system had been put in place a decade ago, the world would not have suffered an economic setback anything like as severe as the one it now faces. Lending growth would have been constrained by the need to build up capital buffers: and capital buffers would have been available to absorb losses at the onset of the economic downturn.

The government-backed recapitalisations which have been implemented in many countries, are in essence mechanisms to achieve through one-off and government backed action the capital positions which ideally should have been built up gradually over time and from private sources.



But the transition to the future capital regime needs to be managed carefully. All the major developed economies are now in severe recessions and are therefore in a phase of the economic cycle where capital ratios should be in decline, with banks absorbing losses while still maintaining lending to the real economy. Requirements on the banks to increase capital ratios would constrain their ability to lend. And while it would be desirable if capital ratios were already higher, avoiding the need for government support through, for instance, tail risk asset protection schemes, the reality is that many banks would find it impossible today to raise sufficient capital to achieve this without government support. Meanwhile government commitments that no systemically important bank will be allowed to fail are an effective alternative means of achieving financial stability.

Policy today therefore needs to focus on the pragmatic management of the macroeconomic challenge, using whatever interventions in the banking system are required to maintain lending capacity, while planning for a gradual exit strategy from government involvement which leads to a better more stable system for the future.<sup>54</sup>

Once international agreement on a long-term capital regime is achieved, a lengthy transition process and one whose precise timing will be dependent on the evolution of the macro economy and the recovery of banking profitability will be appropriate.

The one exception to this lies in the area of trading book capital where the Basel Committee has already published proposals for significant changes, implying significant increases, which will be implemented by 2010 (see Section 2.2 (ii)). This is appropriate given the central role that inadequate trading book capital played in the origins of the crisis and given the desirability of encouraging a rundown of excessive trading book positions and a concentration of deleveraging in trading book activity.

### 4.3 Processes for responding to this review

This review has made a wide set of recommendations, some of which can be considered formal FSA proposals for action, but some of which need to be deliberated further at global or UK level. The FSA Discussion Paper, which accompanies this Review, covers the formal proposals, and invites feedback from interested parties in line with standard FSA procedures. In addition, we would welcome responses to the wider issues raised by the Review. If you would like to respond, please follow the procedure set out in the Discussion Paper.

<sup>54</sup> A key tradeoff to be struck will be between the desire to maximise government proceeds in privatisation of bank holdings and the pace at which capital buffers can be built up, for instance via dividend restraint or new capital raising alongside privatisation sales.

## RECOMMENDATIONS AND IMPLEMENTATION DEPENDENCIES

RECOMMENDATIONS	DEPENDENCIES	NEXT STEPS/TIMING
<p>Organisations referred to in this table are</p> <p>BCBS: Basel Committee on Bank Supervision    FSF: Financial Stability Forum    IASB: International Accounting Standards Board    FASB: Financial Accounting Standards Board    IOSCO: International Organisation of Securities Commissions    FSCS: Financial Services Compensation Scheme</p> <p>In some cases the indications of timing for next steps reflect FSA proposals rather than formally agreed commitments by the bodies concerned.</p>		
<b>Capital adequacy</b>		
<ul style="list-style-type: none"> <li>• Higher quantity and quality of capital</li> </ul>	<p>FSA interim regime (4% CT1) already in place</p> <p>International agreement on long-term regime required</p>	<p>BCBS proposals on capital quality October 2009.</p> <p>Review of regulatory capital minimum in 2010</p>
<ul style="list-style-type: none"> <li>• Trading book capital               <ul style="list-style-type: none"> <li>– Immediate changes and significant increase</li> <li>– Fundamental review</li> </ul> </li> </ul>	<p>BCBS proposals issued January 2009</p> <p>FSA proposing BCBS review</p>	<p>In effect by December 2010</p> <p>Start 2009 and complete by December 2010</p>
<ul style="list-style-type: none"> <li>• Avoiding procyclicality</li> </ul>	<p>FSA adjustments (variable scalars) now being introduced</p>	<p>In place by March 2009</p>
<ul style="list-style-type: none"> <li>• Introducing counter-cyclical capital buffers</li> </ul>	<p>Ideally as part of international agreement. General principle agreed in FSF and BCBS</p>	<p>BCBS proposals October 2009</p>
<ul style="list-style-type: none"> <li>• Changes to published accounts</li> </ul>	<p>Requires international agreement with regulators and accounting standards bodies</p>	<p>To be agreed by FSF</p>
<ul style="list-style-type: none"> <li>• Gross leverage ratio</li> </ul>	<p>Ideally as part of international agreement. Principle broadly accepted by FSF</p>	<p>BCBS final report on supplementary measures in December 2009</p>
<b>Liquidity</b>		
<ul style="list-style-type: none"> <li>• Major reforms to liquidity regime</li> </ul>	<p>FSA Consultation Paper (08/22) has already made proposals; can be implemented at national level</p> <p>But general principles also supported by BCBS</p>	<p>Phased implementation Q4 2009 through to 2010</p>



RECOMMENDATIONS	DEPENDENCIES	NEXT STEPS/TIMING
<ul style="list-style-type: none"> <li>Consider 'Core funding ratio'</li> </ul>	Can be implemented nationally, but global agreement on principles desirable	FSA Discussion Paper invites responses; possible implementation in 2010
<p><b>Institutional and geographic coverage</b></p> <ul style="list-style-type: none"> <li>Economic substance, not legal form</li> <li>Information from hedge funds</li> <li>Offshore countries covered by regulation</li> </ul>	<p>FSA already has some powers to enforce in UK</p> <p>FSA will introduce increased requirements on London located asset managers. Global agreement highly desirable; principle accepted by FSF</p> <p>Dependent on overall political support</p>	<p>Additional powers on information gathering and right to extend regulation now required</p> <p>G20 commitment to principle</p> <p>G20 commitment to principle</p>
<p><b>Deposit insurance in UK</b></p> <ul style="list-style-type: none"> <li>Increase from pre-crisis level</li> <li>Consider brand versus entity and temporary large balance issues</li> <li>Communicate to ensure consumer understanding</li> </ul>	<p>Already implemented</p> <p>FSA consultation in hand</p> <p>FSA working with FSCS to design communication programme</p>	<p>Proposals by Q3 2009</p> <p>Probably Q3 2009</p>
<p><b>UK Bank Resolution Regime</b></p>	Introduced by Banking Act, 2009	In place
<p><b>Credit Rating Agencies</b></p> <ul style="list-style-type: none"> <li>Registration and supervision of governance</li> <li>Clearer communication of appropriate use</li> <li>Review of use of structured finance ratings in Basel II</li> </ul>	<p>Dependent on European agreement and legislation and ideally on globally agreed approach. New IOSCO Code of Conduct published May 2008</p> <p>Requires action by CRAs, industry associations and regulatory bodies eg IOSCO</p> <p>FSA proposing review by BCBS</p>	<p>Legislation expected to be introduced summer 2009. Implementation probably by Q2 2010</p> <p>EU legislation requires specific disclosures. Further IOSCO work</p> <p>To be determined</p>

RECOMMENDATIONS	DEPENDENCIES	NEXT STEPS/TIMING
<p><b>Remuneration</b></p> <ul style="list-style-type: none"> <li>• UK Code</li>   <li>• Global agreement</li> </ul>	<p>Already issued by FSA in Consultation Paper (CP 09/10)</p> <p>Dependent on international agreement to:</p> <ul style="list-style-type: none"> <li>- A global code</li> <li>- Processes for ensuring enforcement in all major centres</li> </ul>	<p>Implementation possible by November 2009</p> <p>Agreed by FSF March 2009 BCBS to coordinate implementation</p>
<p><b>Central Clearing of CDS</b></p>	<p>FSA approved proposal for some European Index CDS products in December 2008</p> <p>US authorities have approved proposal for some North American Index CDS products</p>	<p>Nine leading dealers have confirmed engagement to use EU-based central clearing for eligible EU CDS contracts by end-July, 2009</p>
<p><b>Macro-prudential analysis</b></p> <ul style="list-style-type: none"> <li>• Within UK</li>   <li>• At European level</li>   <li>• Globally</li> </ul>	<p>Bank of England and FSA need to put in place resources, methodologies and coordination processes</p> <p>Dependent on future institutional relationships (see 2.10 below)</p> <p>Requires commitment to allow e.g. IMF robust independence in reports</p>	<p>Define formal character of relationship between FSA and Bank of England</p> <p>To be determined</p> <p>G20 commitment</p>
<p><b>FSA supervisory approach</b></p> <ul style="list-style-type: none"> <li>• Supervisory Enhancement Programme (SEP)</li>   <li>• Further intensification of change</li> </ul>	<p>Already being implemented</p> <p>Will be implemented by FSA</p> <ul style="list-style-type: none"> <li>- Macro-prudential capability</li>   <li>- Increased role in balance sheet analysis and accounting judgements</li> </ul>	<p>Main changes in place by Q2 2009</p> <p>In place by Q4 2009</p> <p>Already underway with APS analysis. Proposals for role in accounting judgements by Q3 2009</p>



RECOMMENDATIONS	DEPENDENCIES	NEXT STEPS/TIMING
<b>Firm Risk Management and Governance</b>	To be addressed by Walker Review with FSA input  FSA will decide implications for rules and processes	Q4 2009  Q4 2009
<b>Cross-border Banks: Global</b> <ul style="list-style-type: none"> <li>• Colleges of supervisors for all major cross-border firms</li> <li>• Improved coordination and contingency planning for crisis management</li> <li>• Increased use of national powers over capital and liquidity</li> </ul> <b>Cross-border Banks: Within Europe</b> <ul style="list-style-type: none"> <li>• New European body for regulation and oversight of supervision</li> <li>• Increased national powers over subsidiarisation or branch liquidity</li> <li>• Possible European aspect to deposit insurance of cross-border banks</li> </ul>	FSF has agreed standards for proposal to G20. Colleges already in place for 25 out of 30 major global firms  Can be pursued by FSA alone; significant changes to practice already introduced, and will be reinforced by new Liquidity Standards regulation  Dependent on European debate and agreement, with other ideas input by e.g. Larosière Commission	FSF to review follow-up by Q3 2009  Liquidity policy to be implemented Q4 2009 to 2010  To be determined



RECOMMENDATIONS	DEPENDENCIES	NEXT STEPS/TIMING
<p><b>WIDER ISSUES : OPEN QUESTIONS</b></p> <p><b>Product Regulation</b></p> <ul style="list-style-type: none"> <li>• Mortgage market</li> <li>• Wholesale products (eg CDS)</li> </ul>	<p>UK specific policy decision</p> <p>Issue for global debate</p>	<p>FSA Mortgage Market Review by Q3 2009</p>
<p><b>Additional counter-cyclical tools</b></p> <ul style="list-style-type: none"> <li>• Counter-cyclical LTV or LTI limits</li> <li>• Avoiding pro-cyclicality in collateral margin ‘haircuts’</li> </ul>	<p>UK specific policy decision: for debate within wider Bank of England led consideration of macro-economic tools</p> <p>Review global debate and agreement</p>	<p>FSA Mortgage Market Review by Q3 2009</p> <p>On FSF forward agenda</p>
<p><b>Balancing liquidity versus stability concerns</b> (e.g. in regulation of short-selling)</p>	<p>FSA will apply special measures if needed</p> <p>Wider legal powers (beyond market abuse justification) would give greater flexibility-</p>	<p>Ongoing</p> <p>For discussion with HMT</p>



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**PUB REF: 003289**

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