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Financial Services Authority

Turner Review Conference Discussion Paper

A regulatory response to the global banking crisis: systemically important banks and assessing the cumulative impact

October 2009

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Acronyms

The Financial Services Authority invites comments on this Discussion Paper. Please send your comments by 1 February 2010.

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1 Chairman's foreword



In April this year, the FSA published *The Turner Review* and an associated Discussion Paper, which set out proposals for regulatory reform at UK and global level to respond to the financial crisis and build a sounder financial system for the future.

Many of those recommendations were closely in line with those of other major reports, such as those by Jacques de Larosière and the G30.¹ Many have now been adopted by the international Financial Stability Board, and the Basel Committee on Banking Supervision is now engaged in an intense programme of work to design the details of new capital and liquidity regimes. Responses to *The Turner Review* and Discussion Paper, meanwhile – on which we reported in a Feedback Statement published in September – raised some important issues relating to detailed implementation, but in general supported the broad thrust of the agenda proposed in the Review and now being pursued.

There are, however, two related issues where there is not yet a clear consensus, where debates since April have suggested new approaches not covered in detail in *The Turner Review*, and where the FSA's own thinking has continued to evolve. These are:

- how to offset the moral hazard created by the existence of large systemically important banks which can be either 'too-big-to-fail', 'too-inter-connected-to-fail', or 'too-big-to-rescue'? It is agreed these problems must be solved: but should the policies to achieve this be smaller banks, capital surcharges, more standalone subsidiaries, the separation of narrow from investment banking, or 'living wills'? and
- how should the cumulative impact of the various capital and liquidity regime changes be assessed, and what can we say about optimal levels of capital and liquidity in the global banking system? It is agreed that the global banking system needs more capital and more liquidity than in the recent past: but how much more?

¹ Jacques de Larosière report: http://ec.europa.eu/internal_market/finances/docs/de_larosiere_report_en.pdf
G30 Report: www.group30.org/pubs/reformreport.pdf

This Discussion Paper focuses on these two issues. It describes current FSA beliefs and approaches where these are defined, but also sets out the full range of possible approaches which could be considered.

The first of these two issues – dealing with large systemically important banks – will be the focus of the second Turner Review conference being held on 2 November. On both issues we hope that this paper will stimulate debate.

2 Overview

Introduction: the purpose of this Discussion Paper

- 2.1 In September the FSA published the Feedback Statement (FS) to *The Turner Review* and its associated Discussion Paper 09/2: *A regulatory response to the global banking crisis*. That FS reported broad agreement with many of the recommendations put forward in the Review and Discussion Paper (DP). The FS explained, however, that the FSA would release another DP looking at wider issues which had emerged since *The Turner Review* was published and on which further debate and consideration was required before deciding a precise way forward.
- 2.2 As with *The Turner Review*, this DP is intended to stimulate debate. It describes current beliefs and approaches which the FSA will adopt in discussions with stakeholders and counterparts, nationally and internationally. It also seeks to identify the full range of options which could be considered.

Two key issues considered

- 2.3 This DP focuses on two key issues: systemically important banks and, how to assess the cumulative impact of capital and liquidity reforms.
- 2.4 Section 3 covers the issue of how to deal with systemically important banks which are seen as ‘too-big’ or ‘too-inter-connected-to-fail’ or ‘too-big-to-rescue’. It describes the problems created by such firms, the historic approach to them, and recent policy developments in the UK and internationally. It considers how systemic importance can be defined and assesses policy options. These include: higher capital levels in systemically important banks; a greater focus on standalone national subsidiaries; action to reduce bank inter-connectedness in trading markets; the separation of ‘narrow banking’ from proprietary trading; and recovery and resolution plans (sometimes known as ‘living wills’). Annex 1 sets out a more in-depth consideration of how such recovery and resolution plans will be applied in the UK, potentially serving as a blueprint for international initiatives.
- 2.5 Feedback to the first DP strongly urged the need for careful assessment of the combined impact of the different elements of reform (for example, higher overall capital and liquidity, reforms to the Trading Book, countercyclical capital buffers,

and possible capital surcharges for systemically important banks). Section 4 examines a potential approach to assessing the cumulative impact of reforms to the global capital and liquidity regimes. It considers the complex theoretical issues and important trade-offs that will need to be considered when attempting to determine the optimal level of capital across the banking system. Annex 2 sets out supporting detail, reporting the illustrative results of modelling work conducted on the FSA's behalf by the National Institute of Economic and Social Research (NIESR). Section 4 also considers the case for banks and investment banks conserving capital now, in anticipation of higher international regulatory requirements. There is a clear international consensus that, once recovery is assured, minimum capital requirements for banks will have to increase. A number of banks and investment banks are currently making high profits, in part due to the favourable conditions brought about by the measures to alleviate the crisis taken by governments and central banks around the world. This DP sets out the case for banks retaining these profits in anticipation of the build up in capital requirements.

- 2.6 Whatever approaches are eventually agreed, both these issues should be implemented internationally to have the maximum benefit. Although the FSA continues to believe strongly that a coordinated international approach remains the best option, it would have to consider acting unilaterally if there were inadequate progress towards this goal.
- 2.7 The DP is being launched ahead of the second Turner Review conference which the FSA is holding on 2 November 2009. This DP is to help set the agenda for this conference and engender debate.

Who should read this paper?

- 2.8 Although the focus on the DP is on banking activities, elements of the DP, as with *The Turner Review*, are much broader in their potential application and will be of interest to other types of regulated firms, including insurance firms. Therefore this paper should be read by those with a general interest in the financial services industry, including policy makers and supervisors in other countries. There are implications for the global regulatory framework and global banking system and these in turn have clear implications for consumers.

3 Systemically important banks

- 3.1 The crisis has revealed the great importance within the financial system of large, inter-connected, and often cross-border firms, and provoked a wide ranging and still unresolved debate about how such firms should be identified, regulated and supervised in future. This debate revolves around the problems created if some firms either are, or are perceived as, too systemically important to 'fail'.
- 3.2 Any discussion of systemically important firms will tend to focus on banks. This is because banks are generally the main propagators of system-wide risk, and this was certainly the experience in this crisis (the problems at AIG were largely due to the activities of its asset management and financial products business units, rather than its insurance activities). However the FSA recognises that other firms and infrastructure providers (both regulated and unregulated) can potentially be systemic, even though the risks they pose can be very different. This means that, while the focus of this paper is on systemically important banks, the FSA will, in due course, consider how a framework for systemically important firms in general could be developed.
- 3.3 The debate is about banks considered too systemically important to fail and it is, therefore, important to be precise about what 'fail' means in this case. Although large systemically important banks may require resolution or government intervention (and hence they fail in a business sense), the resolution of, or intervention into, such firms has generally, with the notable exception of Lehman Brothers, ensured that uninsured depositors, senior creditors (and in some cases subordinated creditors as well) experienced no loss whatsoever. If loss given resolution is expected to be zero, this removes the incentive of uninsured depositors, senior creditors and even subordinated debt holders to monitor and discipline the bank in the sense of demanding a higher risk premium from and/or restricting the amount of credit available to such 'too-big-to-fail' institutions.
- 3.4 During the crisis, several banks and other financial institutions across the world were allowed to enter an insolvency process, with a claim being made against deposit insurance arrangements. In the case of several small and medium-sized deposit-taking institutions (for example, Kaupthing Singer and Friedlander in the UK and IndyMac in the US), insured depositors were fully protected, but other uninsured creditors suffered losses depending on the outcome of the firm's

administration. In the case of Lehman Brothers, an investment bank that did not fund itself from retail deposits, bankruptcy rules were followed. However, practically all other very large and complex institutions were not allowed to enter an insolvency process. Instead they were rescued via capital injections and guarantees, with the equity shareholders usually facing very large losses but with other creditors generally protected.

- 3.5 This policy was based on the judgement that, if systemically important banks were allowed to fail in the normal fashion, potentially catastrophic shocks to financial stability would result. The speed with which the global financial system entered crisis after the Lehman Brothers failure suggests that suddenly reversing this policy had disastrous consequences. It is therefore highly likely that the policy of exceptional rescue operations of large, systemically important banks was the best one available in the circumstances of autumn 2008. But the fact that total bank rescue was perceived to be the only option available to the authorities raises major concerns about the moral hazard consequences of the existence of such too systemically important to fail banks.
- 3.6 A wide variety of policy proposals to address this moral hazard problem have been put forward. These include: capital surcharges for systemically important firms, the development of recovery and resolution plans (often known as ‘living wills’), more standalone national approaches to the capital and liquidity requirements of cross-border banks; and limitations on the ability of retail banks to be involved in trading activities (the ‘narrow banking’ approach). No clear agreement on a full package of appropriate measures has yet been reached at international level.
- 3.7 This section, therefore, pulls together all the different strands of the debate and the different policy options which have been proposed. It considers in turn:
- 1) Defining the problem: ‘failure’ in non-systemic and systemically important firms.
 - 2) The historic approach before the crisis in the UK and globally.
 - 3) Coverage of these issues in *The Turner Review* DP and subsequent UK and international policy developments.
 - 4) The definition of systemic importance: how can it be measured?
 - 5) Alternative policy approaches: reducing the probability of failure or reducing the consequences of failure.
 - 6) The cross-border dimension and ‘too-big-to-rescue’: more global or more national approaches?
 - 7) Reducing inter-connectedness in wholesale trading: central counterparties and improved risk management.
 - 8) ‘Utility banking’ versus ‘casino banking’: narrow bank options.
 - 9) Current FSA policy stance and issues for debate.

1) Defining the problem: ‘failure’ in non systemic and systemically important firms

- 3.8 The problem considered in this section relates to systemically important banks and in particular to those which are cross-border and/or complex. It is often described as the ‘too-big-to-fail’ problem. It is useful to define precisely what is meant by ‘fail’ in this context. In a narrow sense, failure is when a bank is unable to continue to meet its obligations as they fall due and enters into bankruptcy proceedings. The essential point relates to how the authorities resolve a bank which is nearing the point of failure, in particular how the authorities treat economic claims of those other than common equity owners:
- for non-systemic banks the authorities can choose from the full range of resolution options permitted under the banking resolution procedures available in that jurisdiction. In the UK these are established in the Banking Act 2009 and include liquidation, transferring deposits, introducing a bridge bank and placing the bank into temporary public ownership. In each case insured depositors are protected in full up to the limit provided by the deposit guarantee scheme (DGS), but the resolution procedures may impose losses on debt capital providers and/or senior debt holders in accordance with the financial resources of the bank in failure and the legally defined ranking of creditor claims, as well as on depositors not covered by the DGS;
 - however, when very large banks get into trouble, the pattern of the last year has been to use government capital injections to rescue the bank so that it remains a going concern in its existing entirety, with common equity holders facing loss but debt capital or senior debt providers protected.² This policy has been followed throughout the world for two reasons: (i) fears that any other approach would result in systemic knock on consequences; and (ii) operational difficulties of rapidly executing any other approach.
- 3.9 Therefore, ‘fail’, within the phrase ‘too-big-to-fail’, means fail in a fashion which allows options other than rescue of the entire group, and which also allows the imposition of losses on creditors other than common equity shareholders.
- 3.10 The fact that some banks are perceived as ‘too-big-to-fail’ according to this definition then produces three separate concerns:
- about the moral hazard created if uninsured creditors of large banks believe ex ante that a systemically important bank will always be rescued in total via recapitalisation. As a result they have no incentive to impose discipline and will provide funds at lower interest rates than they would otherwise;
 - about the potential costs to the fiscal authorities of any rescue operation and the unfairness of the ‘socialisation of losses’; and

2 The loss to equity holders can result from either (i) outright nationalisation (ii) falls in equity prices and dilution via new government equity subscription (iii) government subscription of preferred equity also accompanied by share price falls. Clearly there is a range of intermediate options: for example, imposition of losses on subordinated debt holders but not on senior debt holders.

- about being ‘too-big-to-rescue’: i.e. the concern that if the bank in trouble is very large relative to the home country domicile of its headquarters, the home country would not have sufficient fiscal resources to be willing, or able, to conduct a rescue, with economic consequences not just for the home country, but throughout the world. This problem arose on a relatively small scale with the failure of the Icelandic banks. However, figures setting out ‘total bank liabilities as percentage of GDP’ (where banking liabilities are calculated as the total global liabilities of all banks headquartered in a country) are often quoted to illustrate that some major countries could face a significant challenge if they were ever required to rescue the global operations of all banks headquartered in their country.

3.11 The third of these problems reflects, of course, the present global practice in which rescues of banks via state recapitalisation have (i) been conducted almost entirely by the home country fiscal authorities with the costs borne entirely by home country taxpayers and (ii) have involved the rescue and recapitalisation of the entire global group, rather than only of the home country operations. Subsection 6 below raises the question of whether alternative approaches to the provision of fiscal support are feasible.

2) The historic approach before the crisis in the UK and globally

3.12 The FSA’s supervisory approach has always linked the amount of supervisory resource devoted to a firm to the firm’s size (or ‘impact’ in the FSA’s terminology). Thus ‘high impact’ firms, which include the largest banks and building societies, are subject to more intensive supervision and, as set out in Section 8 of DP09/2, the FSA is now implementing an approach to the supervision of the highest impact firms that is significantly more intensive than in the past.

3.13 But in the past, neither the FSA nor other bank regulators across the world have, as a matter of general policy, imposed more stringent prudential requirements (for example, capital or liquidity) on banks defined as systemically important. Furthermore, neither the FSA nor most other developed world authorities have, in recent years, limited the range of activities in which large banks can be engaged.³ Indeed if anything, the tendency of global policy has been to impose lighter capital requirements on the largest banks to reflect the perceived benefits of diversification and management sophistication. Three considerations are relevant:

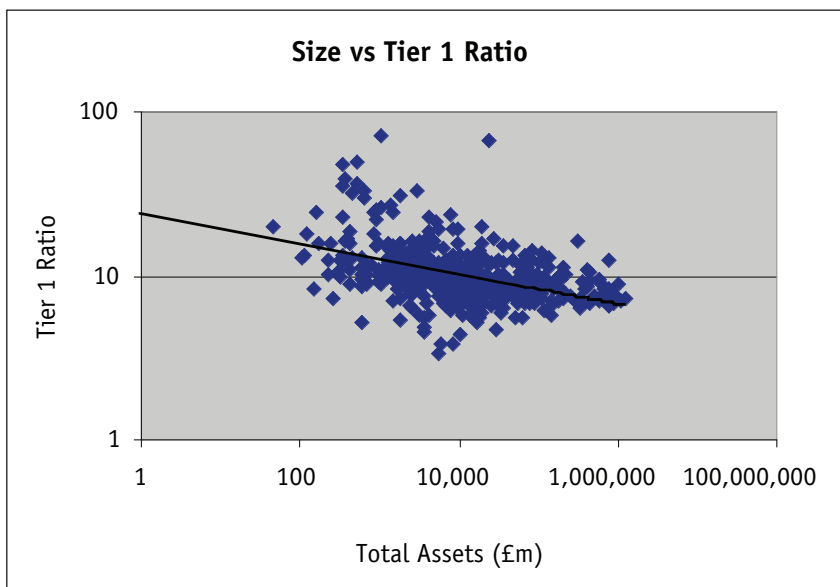
- in general, in the UK and across the world, large global banks have tended to operate with slightly lower regulatory capital ratios (see Figure 1 below). This reflected a regulatory belief in the benefits of diversification, both across countries and across activities. And it is possible that from the market point of view, these lower ratios were felt to be acceptable because of the large banks’ diversification and/or implicit status as ‘too-big-to-fail’;
- this tendency to favour large ‘sophisticated’ banks was given further impetus by the development and implementation of the Basel II capital framework, which explicitly anticipated that the Advanced Internal Ratings Based approach (Advanced IRB), likely to be predominantly applied by large banks, could result

³ The limitations implemented in the US in the 1930s by the Glass-Steagall Act were progressively removed throughout the 1980s and 1990s, the final step being the Gramm-Leach-Bliley Act.

in lower estimates of risk weighted assets than would be generated by the simpler standardised approach likely to be used by the smaller banks.⁴ As a result Advanced IRB banks could carry less capital for any given risk than smaller banks continuing to use the simpler standardised approach. The theory was that banks sophisticated enough to perform the modelling calculations of the Advanced IRB approach, based on detailed understanding of the past evolution of risks in different activities, would be better able to manage risks; and

- most developed economies have either never had legal distinctions limiting the ability of large commercial banks to be involved in investment bank trading activities (for example, the predominant European model has always been that of the ‘universal’ bank), or, as with the US, have steadily dismantled such restrictions over the 1980s and 1990s.

Figure 1: Tier 1 capital ratios of global banks by size (end 2007)⁵



Source: Bank Scope

- 3.14 In the face of the crisis, however, it is essential to question past assumptions. In particular the crisis has revealed the importance of total system as against firm idiosyncratic considerations. Diversification may protect a large firm against idiosyncratic risk, but similar patterns of diversification by many large firms across the world may make the whole system more fragile. This is because all are exposed to the same risks and therefore to self-reinforcing collapses in confidence. A large globally diversified firm may, on average, be less likely to fail than a smaller, national firm concentrated in specific products and customers. However, its failure may be more likely to occur when the whole global system is in crisis,

4 Certain types of risk capital requirements under the Advanced IRB approach can be up to one third lower than under the standardised approach.

5 Based on regression analysis, the null hypothesis of zero or a positive relationship between total assets and Tier 1 capital ratios can be rejected at the 95% confidence level, suggesting that Tier 1 ratios tended to decline as bank size increased.

and the consequences of its failure may be far more serious, not only because of its larger size, but because of the circumstances in which failure occurs.

3) Coverage of these issues in *The Turner Review* DP and subsequent UK and international policy developments

3.15 *The Turner Review* and the associated DP included some discussion of the various issues raised by systemically important and cross-border banks. They:

- questioned whether systemically important firms should be subject to tougher prudential requirements in relation to capital and liquidity. The DP identified arguments both for and against, and concluded that the case for differentiation was not yet clear and that further consideration was required. The DP also raised the question of whether or not anything other than Tier 1 capital was relevant for systemically important banks;
- suggested that the difficulties of cross-border crisis management argued for a response which involved both more global and more local approaches. The global dimension being an intensification of the role of cross-border supervisory colleges and increased intensity of cross-border contingency planning; the national dimension being more focus on the capital and liquidity held in standalone national subsidiaries of global groups; and
- discussed the issue of whether commercial banking activities should be kept legally separate from proprietary trading activities. They considered measures to ensure that large commercial banks could not exploit the benefits of retail deposit insurance, lender of last resort access and too-big-to-fail status, to support excessive risk-taking. However, they tentatively concluded that it was unlikely to be practical to achieve this through a complete institutional separation of commercial banking from all trading activity.

3.16 Since then there has been intense debate about these issues in the UK and globally:

- the July 2009 HM Treasury White Paper concluded that the best strategy for dealing with systemically important firms was a combination of: stronger market discipline; higher levels of capital; stronger resolution arrangements; and strengthened market infrastructure to reduce the probability of failure;⁶
- the US Treasury, in a paper published in September 2009, stated that ‘systemically important firms (Tier 1 financial holding companies) should be subject to higher capital requirements than other firms to force them to internalise the costs of potential spillover effects’;⁷
- the G20 has called for stronger regulation and oversight of systemically important firms;⁸

6 www.hm-treasury.gov.uk/d/reforming_financial_markets080709.pdf

7 www.treas.gov/press/releases/docs/capital-statement_090309; see also www.financialstability.gov/docs/regs/FinalReport_web.pdf

8 www.g20.org/Documents/FM_CBG_Declaration_-_Final.pdf

- the FSB has identified the issue of a global capital surcharge for systemically important firms as a crucial one, requiring rapid resolution, and the BCBS has established a working group which will make recommendations on this and related measures to the BCBS and the FSB in 2010;⁹
- the FSB has also endorsed the idea that systemically important cross-border firms should develop resolution plans ('living wills') with a timetable now in place for the initial development of such plans over the next 12 months;¹⁰ and
- in the UK, though not to any significant extent in most other countries or at global level, there has continued to be an active public debate about whether a formal separation of narrow banking from some or all investment banking is possible and desirable.

3.17 The FSA has contributed extensively to these debates over the last six months, and its own thinking has evolved in that period. In particular, as subsection 9 will outline, the FSA now believes that a differentiated approach to the capital adequacy and liquidity of systemically important banks is appropriate, and that the development of recovery and resolution plans for systemically important firms could play a useful role in driving legal simplification, and increasing the range of resolution options potentially available in future crises. The FSA's thinking on these issues is set out below.

4) The definition of systemic importance: how can it be measured?

3.18 In general terms, a firm is systemic when its collapse would impair the provision of credit and financial services to the market with significant negative consequences for the real economy. The factors which make firms systemically important fall into three categories (although firms may combine elements of these factors):

- systemic by size.** This can be a function of the firm's absolute size or in relation to a specific financial market or product in which a firm is particularly dominant. The channels through which systemic risks would crystallise as a result of the failure of such a firm include: losses to uninsured creditors and depositors through high bankruptcy costs and reduced recoveries; disruption to financial services (such as to payments, clearing and settlement, extension of credit); and losses to insured depositors because the DGS could not pay out sufficiently quickly or because the aggregate payout imposes unsustainable costs on those who fund the DGS. In addition and crucially, systemic risks can take a macroeconomic form, with the loss of credit extension capacity leading to, or exacerbating, a downturn in economic activity which then has consequences for the rest of the financial system.
- systemic by inter-connectedness.** Links and inter-connections can include, inter alia, inter-bank lending, cross holdings of bank capital instruments, membership of payment systems, and being a significant counterparty in a crucial market. The channels through which such problems manifest themselves include:

⁹ www.financialstabilityboard.org/publications/r_090925a.pdf

¹⁰ Also see, www.financialstabilityboard.org/publications/r_090925a.pdf

- interbank exposures. The domino effect where the collapse of one firm leads to major losses at others, and then in turn leads to their collapse. This can then trigger a chain reaction;¹¹
 - the confidence channel. The collapse of a systemically important firm leads to a crisis of confidence in financial markets. The confidence channel is particularly important to the ‘systemic as a herd’ category (see below), given the perceptions by the market that a number of firms are exposed to the same set of risks;
 - the asset margin spiral channel. Firms increasingly finance themselves through repo and reverse repo arrangements. The haircuts charged on the collateral underlying these contracts dictate the extent to which firms can leverage themselves. In a crisis, both funding conditions and credit concerns will lead counterparties to increase haircuts, triggering a deleveraging process. This will in turn be disruptive, through a self-reinforcing spiral between lower market liquidity and funding liquidity.¹²
- iii) **systemic as a herd.** The market can perceive a group of firms as part of a common group (for example, because they have a similar business model, such as building societies in the UK and the savings and loans banks in the US), or common exposures to the same sector or type of instrument. A single firm in this group may not be systemic in its own right, but the group as a whole may be.

- 3.19 Although these general criteria are to a large extent intuitive, in order to be able to apply a specific set of prudential measures, supervisors need to be able to identify the extent to which firms are likely to be systemic along each of these dimensions. This calls for a set of metrics or at least a set of benchmarks to be put in place.
- 3.20 Criteria that identify systemically important institutions by size seem relatively straightforward. One key issue is whether there should be a binary size cut-off (above a threshold a firm is systemic, below it is not) or whether there should be degrees of systemic importance. There are strong arguments for favouring the latter approach, since any clear specification of firms as either systemic or not could itself increase the dangers of moral hazard (for example, if firms attempt to position themselves on a particular side of the boundary). As a result any additional prudential requirements that are imposed on firms should probably be a continuous and increasing function of certain measures of systemic importance (such measures should be transparent and objective).

11 Moreover, the actions of a systemically important firm under serious stress can have significant adverse impacts on the wider financial system, for example through hoarding liquidity.

12 S. Morris-H.S. Shin, *Financial Regulation in a System Context*, Brookings Paper on Economic Activity, Fall 2008, pp. 229-261, especially pp. 241-242 and 252-257. Also in M. Brunnermeier et al., *The fundamental principles of financial regulation* (Geneva Report), International Center for Monetary and Banking Studies and Centre for Economic Policy Research, 2009. This effect was particularly important in the failure of AIG. Given their confidence in AIG’s credit rating, market counterparties had written very large derivative contracts with AIG either without collateral arrangements or with light collateral. As perceptions of AIG’s credit worthiness declined, and its rating was downgraded, the scale of potential margin calls threatened the failure of AIG, forcing government action to offset potentially catastrophic knock-on effects for counterparties. Even without the danger of specific failure however, the asset margin spiral effect can impart a strongly pro-cyclical deleveraging effect, magnifying the impact of initial reductions in confidence.

3.21 Measures of inter-connectedness can be even more challenging given the speed and extent to which they can vary, on a daily or even intra-day basis. All that said, it is relatively straightforward to identify a group of large and highly inter-connected firms that are likely to be systemically important in all circumstances. Box 1 sets out the approach adopted by the Swiss authorities and that proposed by the US authorities.¹³

13 There have been some related developments in terms of how to define ‘significant’ branches within the EU. Recent revisions to the Capital Requirements Directive (article 42(a)) give the host state of a ‘significant’ branch the right to be a member of a supervisory college. The Capital Requirements Directive provides both quantitative and qualitative indicators as to whether a branch is significant. If there is no agreement, the host state takes the final decision. It is proposed that in future the new European Supervisory Authorities would have the power to settle any disagreement about whether a branch is significant.

BOX 1: Systemically important firms: Swiss approach and US proposals

Systemically important institutions ¹⁴		
	Switzerland	United States
Identification	Applies to the two largest Swiss banks.	The US Treasury proposes to identify so called Tier 1 Financial Holding Companies (FHCs) and Designated Financial Market Utilities (DFMUs). Those financial institutions would be subject to enhanced regulation and supervision from the Federal Reserve (the Fed). The Fed will identify Tier 1 FHCs and DFMUs according to factors to be specified in forthcoming legislation. These are likely to include size, inter-connectedness, leverage, reliance on short-term funding, likely impact on the financial sector and the real economy under stressed economic conditions. Ultimately, the Fed will be able to exercise discretion in the identification. Treasury draft legislation indicates that the Fed will be able to ask US and foreign (assets and revenues to be located in the US) financial companies which have: <ul style="list-style-type: none"> • \$10bn or more in assets; • \$100bn or more in assets under management; or • \$2bn or more in gross annual revenues; to submit such information that the Fed Board may reasonably require for the sole purpose of determining whether to designate the company a Tier 1 FHC.
Capital surcharge	The two major banks are required to hold a target capital-to-RWA ratio of 200% of the minimum Basel capital-to-RWA ratio (100% Pillar 1 and 100% Pillar 2). This is required in 'good times', while in 'bad times' the buffer can be drawn down to 150% (i.e. 16% to 12% capital-to-RWA ratio). There is some flexibility as to how good and bad times are identified. The two banks are expected to hold mainly Tier 1 capital and have until 2013 to adjust gradually to the new requirements.	Higher capital requirements as defined by the Fed. Tier 1 FHCs should be required to have enough high-quality capital during good economic times to keep them above prudential minimum capital requirements during stressed economic times. The Fed should also evaluate the firm's capital strength using assessments of capital adequacy under severe stress scenarios, assessment of the firm's capital planning practices and review market-based indicators of the firm's credit quality. Tier 1 FHCs should be subject to a prompt corrective action regime similar to the FDICIA when the firm's regulatory capital declines
Other measures	Leverage ratio: 3% of core capital to total assets is required at group level, while 4% of core capital to total assets is required for individual institutions. This is required for the whole Swiss banking system. The two largest banks are expected to exceed the minimum leverage ratio in good times. Banks' domestic lending business is excluded from this requirement.	Enhanced consolidated supervision for Tier 1 FHC and DFMUs For Tier 1 FHCs: <ul style="list-style-type: none"> • stricter liquidity requirements; • stricter risk management standards; • restriction on non financial activities; and • rapid resolution plans. For DFMUs: <ul style="list-style-type: none"> • higher prudential and risk management requirements.

14 Switzerland: Swiss Federal Banking Commission Decree, November 2008 (www.finma.ch/archiv/ebk/e/publik/medienmit/20081204/mm-em-leverageratio-20081204-e.pdf); US: Proposals in US Treasury paper *Financial Regulatory Reform*, June 2009 (www.financialstability.gov/docs/regs/FinalReport_web.pdf); Draft Legislation, July 2009 (www.treas.gov/press/releases/reports/title%20ii%20tier%201%20fhcs%20%207222009%20fnl.pdf).

- 3.22 Clearly, the extent to which other firms are to be considered systemically important will depend on the wider market conditions prevailing at the time the firm requires resolution. This makes it difficult, and in some cases impossible, to determine ahead of time whether particular firms will be systemic (this is particularly true for ‘systemic as a herd’ firms). The FSA’s view is that firms which fall into this ‘grey area’ should not be considered as systemically important for the purposes of subjecting them to higher requirements at all times. But macro-prudential surveillance needs to be alive to the risks presented by these firms and authorities need to be ready to prevent or reduce any systemic impacts they might have.
- 3.23 These issues are being examined jointly by the IMF, BIS and FSB, which will produce guidance on the assessment of systemically important firms. These are due to be presented to G20 Finance Ministers and Central Bank Governors in early November 2009.¹⁵ Ideally this should be the framework that is used by authorities throughout the world as a basis for determining which firms are systemically important. It will be essential that the FSB reviews the decisions that national authorities are making to give some assurance that the IMF/BIS/FSB guidelines, and whatever further framework may emerge from them, are applied rigorously and consistently.

5) Alternative policy approaches: reducing the probability of failure or reducing the consequences of failure

- 3.24 Three possible categories of policy response to the too systemically important to fail problem can be defined:
- i) making systemically important banks smaller or less inter-connected and therefore less likely to be systemically important.¹⁶ Reducing inter-connectedness could take the form of reducing the multiplicity of contracts between major banks, or of reducing allowable links between some category of ‘narrow banking’ and risky proprietary trading activities. Payments and clearing infrastructures also need to be sufficiently robust to withstand the failure of large participants;
 - ii) reducing the probability of failure to a very low level (far lower than for smaller, non systemically important banks). This could potentially be achieved by requiring higher capital and/or liquidity requirements for systemically important banks than for other banks, and/or by making this capital wholly or predominantly common equity in form. This policy would not only achieve the objective of reducing the probability of failure, but would also, to a significant degree, address the moral hazard problem by increasing the percentage of all claims on the bank which would undoubtedly be lost in the event of recapitalisation.¹⁷ To the extent that capital other

15 www.g20.org/Documents/pittsburgh_progress_report_250909.pdf

16 Of course, it should be recognised that there are some advantages to having large, inter-connected firms (for example, economies of scale, more efficient intra-day liquidity management).

17 For instance, if today the common equity ratio is 4% and the total capital ratio 10%, but with the problem that the 6% non equity providers are not in fact required to suffer loss in failure, then a 10% common equity requirement eliminates all the moral hazard previously arising in respect of the non equity capital providers, since 10% of claims are now clearly exposed to loss. There is a subsidiary issue of whether in the event of problems at such ‘too-big-to-fail’ institutions, the state recapitalisation option results in only significant dilution of equity holders or complete elimination (i.e., via nationalisation). These options are however sub-sets of approaches in which non equity claims are protected while equity is subject to loss.

than common equity is allowed for systemically important firms, consideration must be given to requiring that such capital be capable of bearing loss whilst the firm remains a going concern. Such capital could take the form of contingent capital that converts into common equity when the common equity of the firm crosses some threshold. This effectively amounts to a pre-pack recapitalisation of the firm, provides scope for the firm to recover and/or delays the point at which more resolution may be required; and

- iii) increasing the likelihood that, in the event of its being unable to meet its obligations, a systemically important bank can be allowed to ‘fail’ in the specific sense defined in subsection 1. The object here would be to put in place, ex ante, the conditions that would allow a range of options other than a whole bank rescue to be considered. These wider options would involve imposing losses on some non-equity claims. This might be achieved by defining possible recovery and resolution options in advance, and by using the development of such resolution plans to force legal structure simplification. This could make it easier to pursue options other than whole bank rescue (for example, with a different approach to different businesses within the group – some rescued outright, some allowed to ‘fail’ in a normal bankruptcy sense).

3.25 It is possible that, even with recovery and resolution plans and legal structure simplification in place, circumstances will still arise of widespread systemic fragility in which the optimal policy for financial and macro-economic stability will be to pursue a whole bank rescue via recapitalisation. But even if this is one possibility, recovery and resolution plans and related structure simplification could still help address the moral hazard issue, since other circumstances could exist (for example, idiosyncratic failure) in which the firms will be allowed to fail and losses are imposed on non-equity funders. As long as this ex ante possibility exists, a reduction in moral hazard is achieved.

6) The cross-border dimension and ‘too-big-to-rescue’: more global or more national approaches?

3.26 The policy options outlined in subsection 5, would significantly decrease the probability of any future need for fiscal support for whole bank rescue while still allowing the existence of systemically important banks, including large cross-border banks. But they would not make that probability zero. The danger would still exist, therefore, that there could be circumstances where total group rescue was the optimal policy for the global economy, but where either:

- a home country government would have to accept the burden of the full cost of a rescue, the benefits of which were spread across the world;
- it might choose not to do so, since it faces the whole costs but only enjoys some of the benefits of a rescue; or
- it could not afford a rescue.

- 3.27 These dangers all derive from the existing implicit ‘rules of the game’ of fiscal support, in which home country governments have generally assumed responsibility for the rescue through recapitalisation of entire banking groups. Two alternative ‘rules of the game’ could be envisaged. These are:
- global fiscal burden sharing, with several major countries sharing the costs of group rescue in line with a pragmatic assessment of exposure to the resulting harm. While in theory this is attractive, the evidence to date suggests that this approach is unlikely to be politically feasible. In the current crisis, it has not proved possible to achieve effective agreement on such burden sharing even between countries with a long history of close cooperation let alone on a global basis; and
 - an approach in which national governments are separately responsible for the rescue through recapitalisation of separate national subsidiaries with no government considered responsible for group-wide resolution. In this case each national government would exercise more discretion on whether to pursue a whole national bank rescue through recapitalisation or resolution with losses imposed also on some debt holders. This is potentially an option with respect to some banking groups (i.e. those which are to a significant degree organised as constellations of separately subsidiarised national banks, rather than as globally integrated banks).
- 3.28 This implies that in designing the policy response to the ‘too-big-to-rescue’ problem, it is useful to recognise that there are different categories of large cross-border bank. A distinction needs to be drawn between:
- those banking groups which are already to a significant extent constellations of separately subsidiarised national banks, with each of these national banks typically involved in a full range of commercial banking activities (retail and corporate) and playing central roles in the banking systems of the host country; and
 - those groups which tend to be more involved in wholesale banking and trading activities, and which have tended in the past to organise their business on a globally integrated basis, often with complex and overlapping relationships between management structures and legal entity structures.
- 3.29 Clearly there is a continuum between these classifications with some banks combining features of both of these models, but it is still possible to envisage a policy response to the ‘too-big-to-rescue’ problem which combines:
- an overt acceptance in the case of banking groups which are in whole or part constellations of more or less standalone national subsidiaries, that the home country government of the headquarters of the group will not, in any circumstances, consider itself responsible for the rescue of the whole group via recapitalisation. This approach would imply that in respect of these types of banking groups, calculations of ‘total bank liabilities against home country GDP’ would become irrelevant. It would naturally be accompanied by host country approaches which required such groups to organise local commercial banking operations on a fully capitalised subsidiary basis, reinforcing the pattern already

largely in place.¹⁸ In this environment, the focus on capital adequacy and liquidity would be as much on the capital and liquidity of the standalone subsidiaries as on the overall group. One or more parts of the constellation might still be systemically important in their own right and therefore subject to any framework of higher prudential requirements for such firms;

- an approach to the globally organised wholesale/trading banks, which focuses on (i) levels of total group capital and liquidity sufficiently high to make the probability of failure very small and (ii) recovery and resolution plan and legal structure simplification which increase the range of realistic options available, making possible differentiation between different business units and the imposition of losses on debt providers and trading counterparties; and
- for hybrid banks combining features of both categories, a hybrid policy would be pursued.

3.30 One important issue to be considered in deciding the appropriate balance of approaches is whether a greater focus on standalone national subsidiaries, meeting nationally specific capital and liquidity requirements, could have consequences for global capital flows. The Institute of International Finance has cautioned against the risk that measures of this sort will lead to ‘fragmentation’ of the global capital market, impeding cross-border capital flows within banking groups and undermining the globally efficient allocation of capital resources.¹⁹ While this might be a danger, it is not proven that it is the case since:

- separately capitalised national bank subsidiaries can still be the recipients/providers of capital flows from/to other countries. These can include capital flows from/to others of the same group, although rigorous internal discipline over intra-group flows would need to be applied;
- such flows to/from banking subsidiaries might be more stable than flows to/from bank branches operating within a centrally managed global bank. Some emerging markets authorities argue that it is capital flows to local branches which reversed most rapidly in the current crisis with adverse consequences for local credit availability; and
- if the alternative to a strong focus on standalone subsidiaries is an even greater capital surcharge on large global banks, this alternative might conceivably have more adverse implications for global capital flows (or for the transfer of banking skills and technology through global banking groups).

3.31 The issue of the relationship between the structure of global banking groups and economically useful flows of global capital has therefore been identified as a key agenda item for the FSB Standing Committee on Regulation and Supervisory Cooperation, which will analyse the issue over the next six months and report conclusions to the FSB in Spring 2010.

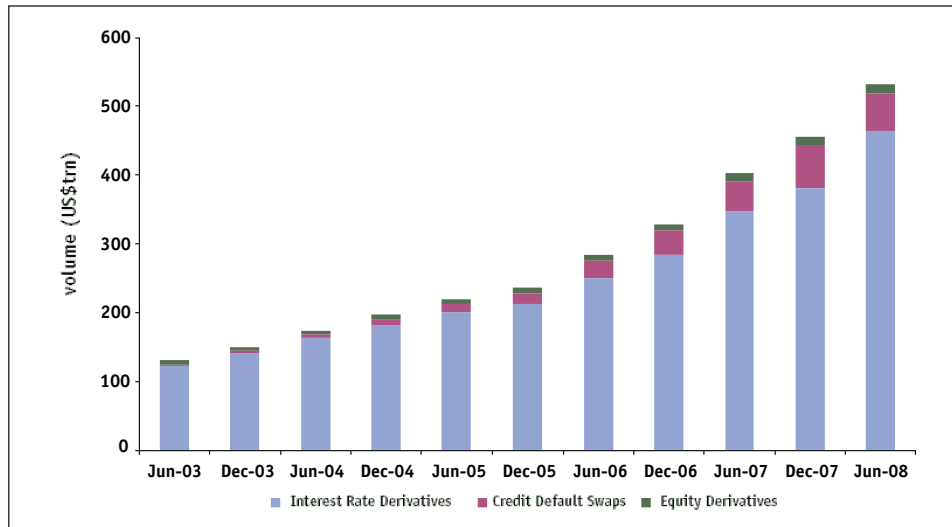
18 In addition there might have to be restrictions on interaffiliate transactions and intra-group exposures, as well as limitations on upstreaming of dividends and distributions. Taken together, such restrictions may limit the synergies that such an international group could achieve.

19 For example, www.iif.com/press/press+119.php

7) Reducing inter-connectedness in wholesale trading: central counterparties and improved risk management

3.32 One of the options described in subsection 5 was to reduce the inter-connectedness of large firms, for instance by reducing the multiplicity and complexity of trading contracts between large banks and investment banks. The importance of inter-connectedness via trading relationships has hugely increased over the last ten to fifteen years as the total volume of OTC derivative contracts has soared, as set out in Figure 2.

Figure 2: OTC derivative volume by product type



Source: ISDA

3.33 The implications of this increased inter-connectedness for financial stability became starkly apparent in September 2008, when the US authorities concluded that AIG was too big and too inter-connected to be allowed to fail due to its huge volume of outstanding derivative contracts with a wide range of counterparties.

3.34 Two complementary policy initiatives can help reduce the risks of trading inter-connectedness:

- the migration of clearing-eligible derivative contracts to Central Counterparty (CCP) clearing, reducing bilateral exposures and achieving increased disclosure and transparency of positions. The FSB has agreed that action to encourage and incentivise the migration of OTC derivatives to CCPs should be a priority and the FSA is intensely involved in initiatives to achieve this in key markets, for instance Credit Default Swaps; and
- improvements in risk management procedures for those contracts which continue to be bilateral in nature, with appropriate capital requirements and approaches to the posting of collateral and calling of margin. Ideally such arrangements should minimise (for example, via large upfront collateral requirements) the danger that ratings triggers and suddenly increased risk perceptions generate self-reinforcing leverage spirals of the sort described above in subsection 4.

- 3.35 In implementing these initiatives it will be important, however, to guard against the emergence of new systemic risks. CCPs can clearly play a very important role in reducing counterparty and operational risk in the system but CCPs themselves are systemically important as potential single points of failure. Moreover, many of the clearing members of CCPs (i.e. the firms that provide or subscribe to their default funds) would typically be among those regarded as systemically important. It is therefore essential that CCPs are themselves subject to stringent capital, risk management, margining and operational standards.²⁰
- 3.36 Moreover, given the global nature of many of the markets which are, or will be, subject to clearing, these standards need to be agreed internationally. CPSS and IOSCO have initiated a review of their existing recommendations in order to address issues specific to OTC derivatives, in which the FSA is participating. There is also a need for a full review of the recommendations as a whole, to take account of recent market and regulatory developments and to ensure that they remain appropriate to underpin the further development of CCP activity. Within Europe, the ESCB and CESR have agreed standards based on the CPSS-IOSCO recommendations.

8) 'Utility banking' versus 'casino banking': narrow bank options

- 3.37 Subsection 7 discussed actions to reduce inter-connectedness through greater use of CCP clearing and improved risk management in OTC derivatives. Another route to reducing inter-connectedness could be to require the legal separation of defined 'narrow banking' activities from high-risk activities such as proprietary trading. This section considers this option.
- 3.38 The starting point is a global financial system which, for the most part, allows universal banking (i.e. banking groups can undertake all activities, including trading activities) and can do so on the same legal balance sheet. The predominant model in continental Europe has always been one in which banks combine lending and securities trading activities. In the US, the separation of roles introduced by the Glass-Steagall Act of 1933 was dismantled in the course of the 1980s and 90s. In the UK, a de facto (but not legally required) separation of roles in securities markets before the 1980s disappeared after the 'Big Bang' deregulation of the equity markets.
- 3.39 Globally there has been very little debate on options which would now separate banking functions. However, in the UK there has been extensive debate about the desirability of 'narrow bank' options. This reflects the justifiable concern that losses arising from risky proprietary trading were 'socialised' via government and central bank support to large integrated financial institutions, and that the scale of those risky activities may have been swollen by the expectation of such support and in some cases by the availability of retail deposit funding.
- 3.40 A separation of 'narrow banking' from other activities could take many forms, according to where the line between activities was drawn. Three specific options along the possible spectrum merit highlighting: i) extreme narrow banking;

²⁰ Of course, the systemic nature of an individual institution may be symptomatic of the lack of substitutes available to provide similar financial services. Examples of this are key elements of market infrastructure such as central counterparties, settlement systems and payment systems. These institutions are systemically important due to their provision of key financial services, on which other financial market participants rely.

ii) intermediate narrow banking; iii) separating commercial from investment banking. These are set out below.

(i) Extreme narrow banking: retail deposits invested in risk-free government assets

3.41 This is the proposal recently put forward by Professor John Kay in a paper entitled *Narrow banking: the reform of banking regulation*.²¹ Professor Kay argues that it is unacceptable that the government has had to provide taxpayer funds to protect depositors in banks where problems have been created by risky proprietary trading activities. However, he does not propose a reimposition (or in the UK an imposition for the first time) of Glass-Steagall type distinctions, arguing that the increased scope and complexity of financial markets makes the Glass-Steagall distinction between full range commercial banking and proprietary trading impractical. This is because ‘the trading activities which have produced losses differ only in scale and motivation not inherent nature from the treasury operations which a commercial bank might properly undertake in its normal day-to-day business’. Instead therefore he proposes a division between:

- narrow banks focused solely on retail deposit taking and payment services with all the retail deposits ideally invested 100% in risk-free government bonds, and with such narrow banks the only institutions able to provide retail investors with insured deposits; and
- all other financial activities (including commercial lending as well as proprietary trading), which he believes could then be radically deregulated, with no capital or liquidity requirements imposed and no microprudential supervision of such activities. (Professor Kay notes that – subject to limitations – narrow banks might, but need not, engage in consumer lending, mortgage finance and SME lending. The funds for these activities would be raised from wholesale markets, securitisations and own capital, not from retail deposits.)

3.42 This proposal would clearly guard against the danger that the government ever had to provide fiscal support to ensure that retail depositors were safe. However, it can be questioned on two grounds. The first relates to the practicality of backing the entire stock of retail deposits with 100% gilts. UK insured retail deposits amount to approximately £950bn,²² which is slightly higher than the approximately £800bn total value of gilts currently outstanding.²³ However, it is likely that in excess of £300bn of these gilts are currently owned by insurance companies and pension funds which use them to back defined promises to customers (for example, annuitants and pensioners).²⁴

21 John Kay, *Narrow Banking: the reform of banking regulation*, Centre for the Study of Financial Innovation publication, no. 88, London September 2009

22 www.bba.org.uk/content/1/c6/01/51/35/BBA_Response_to_CP08_15_-_FSCS_Review_of_Limits.pdf; see also www.fsa.gov.uk/pubs/cp/cp08_15.pdf

23 www.dmo.gov.uk/index.aspx?page=Gilts/Gilts_In_Issue

24 The DMO reports £230bn of gilts held by insurance companies and pension funds at Q1 2009, which is out of a total stock of £642bn, although £730bn is separately identified as the nominal value of the gilt portfolio (including inflation uplift) - www.dmo.gov.uk/documentview.aspx?docname=publications/quarterly/apr-jun09.pdf&page=Quarterly_Review. However, the ONS MQ5 report shows that, at the end of 2007, insurance company and pension fund holdings were £290bn. A clear upward trend can also be identified in these figures in previous years; therefore the current figure is very likely to be in excess of £300bn - www.statistics.gov.uk/downloads/theme_commerce/Q22009MQ5.pdf. A further £160 billion is also held by the Bank of England - www.bankofengland.co.uk/markets/apf/results.htm - whilst approximately £200 billion is held overseas - www.dmo.gov.uk/rpt_parameters.aspx?rptCode=D5N&page=Gilts/Overseas_Holdings

In total, therefore, the personal sector currently owns a higher value of risk-free savings (combining insured deposits plus directly and indirectly held gilts) than the total gilt issue. Requiring that insured retail deposits have to be backed 100% by gilts would thus reduce personal sector holdings of risk-free assets below the current level.²⁵

3.43 The second concern is, however, the more fundamental. There would be a danger that the proposed arrangements for the rest of the banking system, other than the narrow banks, could actually increase the riskiness of the system. As Professor Kay notes, the greatest costs of financial instability arise from ‘boom and bust in lending activity’. It is over-rapid credit expansion followed by sudden cut back and resulting macroeconomic recession, which is the primary driver of the huge increase in UK government debt now occurring. The direct costs of taxpayer support (via equity injection and deposit insurance top up) account for only a very small part of the total increase. The most crucial issue in designing a better regulatory system is therefore its implications for possible booms and busts in credit extension.

3.44 Professor Kay’s proposal, building on the initial descriptions of the extreme narrow banking model put forward by Robert Litan and Lowell Bryan,²⁶ assumes that household and commercial lending, once separated from insured retail deposit taking, can be left largely unregulated, with funding from wholesale markets and a significant role for securitisation.²⁷ It therefore assumes that market discipline will ensure prudent lending behaviour and guard against credit booms and busts. It is, however, possible that such a system would be even more susceptible to booms and busts than the existing one as:

- unregulated non narrow banks reliant on wholesale funding could be even more exposed to confidence and contagion risks than today’s diversified banks, which enjoy stable retail funding sources;²⁸ and
- in a system where a large proportion of lending was securitised, the riskiness of the system would depend on the extent to which securitised credit markets were rational and self equilibrating. In fact, one of the clear features of the crisis has been that securitised credit markets have proven as susceptible to momentum and overshoot effects as other liquid traded markets.

3.45 A crucial issue therefore is whether financial markets will be rationally self equilibrating provided only that they are subject to effective market discipline. While Professor Kay’s proposal is radical in one respect, it is quite overtly based on the idea that once narrow banking is separated out, the rest of the system will be self equilibrating and that, as a

25 Professor Kay suggests that when one way round this would be for the government deliberately to issue more gilts than it requires to fund its deficit and then be a net lender of funds to ‘first class lending institutions’. This would however entail socialising credit risk by another route, and would require the government to assess the creditworthiness of the lending institutions to which it provided wholesale funds. It is the difficulty to see how this credit assessment process would not need to use the same techniques of capital and liquidity requirement definition and supervision which Professor Kay ideally wishes to abolish for this class of institution.

26 For more see www.statistics.gov.uk/cci/nugget.asp?ID=277 and www.imf.org/external/np/g20/pdf/090309b.pdf (especially Table 2)

27 Robert Litan, *The future of banking: are ‘narrow’ banks the answer?* (1988); Lowell Bryan, *Breaking up the bank* (1988)

28 For instance Professor Kay notes favourably the development of specialist financial institutions such as those providing ‘mortgages based on wholesale funding’. The specialist mortgage providers have however proved to be a major source of instability in the UK mortgage market, driving rapid credit expansion in the upswing and withdrawing almost entirely after 2007. By comparison, on balance sheet lending by banks and building societies with stable retail deposit cases has been less volatile. See FSA *Mortgage Market Review* October, 2009.

result, there is no need for the countercyclical approaches to capital adequacy or the increases in capital against trading book activity that others have identified as key elements of the regulatory response.

(ii) Intermediate narrow banking: building societies and savings banks

- 3.46 While occasionally discussed in theory, the extreme narrow banking model described above has not in practice played a role in any modern economy. Intermediate narrow bank models, with some retail deposit-taking institutions restricted to a limited range lending activities, have existed in many economies, though always alongside full service banks. German Sparkassen, Spanish Caixa and US Savings and Loans institutions are among many such examples, with a legally restricted range of activities often accompanied by mutual, local government or foundation-based ownership structures.
- 3.47 The UK building societies fall into this intermediate category. Their core functions are retail deposit gathering and mortgage lending and their participation in non-residential mortgage lending (for example, commercial real estate) is subject to statutory quantitative limits, as is the amount of funding they can source from the wholesale markets. They are also restricted from undertaking significant proprietary trading activities. The severity of these restrictions was, however, significantly relaxed in a sequence of Building Society Acts between 1986 and 1997. In particular these allowed greater participation in commercial real estate lending than previously allowed.
- 3.48 The failure of the Dunfermline Building Society in March 2009 revealed the danger that building societies could use the freedoms of the 1997 and previous Acts to become involved in riskier commercial real estate lending in which they had few skills. In a letter to the Chancellor describing the background to the society's failure, the FSA Chairman therefore raised the issue of whether the deregulation introduced by the various Building Society Acts had gone too far.²⁹ Any change in the statutory restrictions would require new legislation. However, the FSA can see merit in considering tightening the restrictions applying to building societies. This would not in itself, however, be relevant to the issue of the division between commercial banking and risky proprietary trading activities, since existing legislation prohibits building societies from engaging in such trading activities.

(iii) Separating commercial from investment banking: a 'new Glass-Steagall'

- 3.49 The third option which merits consideration is the imposition of Glass-Steagall type constraints, allowing deposit-takers to be involved in the full range of commercial bank activities, but restricting their involvement in proprietary trading. This was one of the intents of the US Banking Act of 1933,³⁰ which severely limited the extent to which deposit-taking commercial banks could be involved in the underwriting, distribution or selling of capital markets securities.

29 www.fsa.gov.uk/pubs/other/response_Dunfermline.pdf. The new FSA sourcebook for building societies proposes an approach whereby the more diversification by a building society away from traditional, prime residential lending, the higher the level of management skills and systems and controls the FSA will demand from the society. Societies which can demonstrate that they have the requisite management skills and systems and controls, will have flexibility to operate within the statutory limits. Societies which cannot demonstrate the management and systems and controls to handle broader activities will be steered towards a more restrictive set of activities that they can safely undertake and control.

30 The term 'Glass-Steagall' (after the relevant Senators) is commonly used to refer to Sections 16, 20, 21 and 32 of the 1933 Banking Act, which cover banks' securities operations.

- 3.50 In principle this way forward has attractions, avoiding the potential disadvantage of the extreme narrow bank proposal that deregulating all non narrow bank activities could increase the volatility of credit extension. The practical question, however, is whether it is possible to draw a clear legal distinction between allowed and prohibited activities in the modern economy of increasingly blurred boundaries among asset classes, floating exchange rates, global capital flows and a significant role for securitised credit. Commercial banks are involved in making markets in some instruments and contracts, and in order to make markets some proprietary position-taking is essential. Professor Kay cites this complexity as arguing against the practicality of the Glass-Steagall approach. Paul Volcker, while identifying a reduction in commercial bank trading activity as a key objective, reaches the same conclusion.³¹ It is also notable that, while the concept of a new Glass-Steagall has been put forward in general terms, there has not, as far as the FSA is aware, been any specific proposal as to how the legal distinction should be drawn.
- 3.51 While a ‘Glass-Steagall’ type approach achieved by legal distinction of permitted activities may turn out to be impractical, it is possible to pursue the objectives of this approach by other means, and in particular:
- by imposing a trading book capital regime which very significantly increases overall capital requirements against trading activities, and which strongly differentiates between the capital requirements for basic commercial bank market making (for example, foreign exchange market making) and activities which, while they may have some customer service role, are more weighted towards pure proprietary trading. In relation to the latter activities, a ‘bias to conservatism’, (which imposes capital requirements even above those which a more narrowly focused risk-based approach would indicate) is possible; and
 - by the use of recovery and resolution plans to force greater clarity and simplicity of legal structures, with clearer definition between the legal entities involved in basic commercial banking activities and those involved in trading activities. This clearer differentiation could make it possible to rescue the retail operations of large complex groups while ensuring that counterparties of legal entities involved in trading activities are aware that resolution would impose losses on them.
- 3.52 Each of the three ‘narrow banking’ options described above merits further debate. The FSA would in particular welcome responses on:
- its assessment of the potential dangers in the extreme narrow banking model; and
 - where an appropriate boundary between utility and casino banking might be drawn; and

31 See Paul Volcker’s statement before House of Representatives Committee on Banking Supervision and Financial Services, 24 September 2009, in which he noted that ‘some trading, it is reasonably argued, is necessary as a part of a full service customer relationship’, and that the distinction between proprietary and ‘customer-related’ may be cloudy at the border’. However, he concluded that ‘by the active use of capital requirements and the exercise of supervisory authority, appropriate restraint can be maintained’
Full statement: media.ft.com/cms/db7afe2-a90b-11de-b8bd-00144feabdc0.pdf

- its tentative conclusion that a Glass-Steagall type separation is unlikely to be practical via legal distinctions, but that its objectives could be pursued by other means.

9) Current FSA policy stance and issues for debate

- 3.53 It is clear that the future regulatory regime must include effective answers to the ‘too-big-to-fail’, ‘too-inter-connected-to-fail’ and ‘too-big-to-rescue’ problems. Authorities around the world need to reduce the risk that, in future, they will once again be confronted with only one option – using public funds to rescue whole groups with only equity holders suffering loss. The FSA and other authorities should also work to remove the danger created by banks so large relative to their home countries that their rescue could be impossible under existing fiscal responsibility conventions. Furthermore, there must be a limit to the extent to which implicit government guarantees support unnecessary levels of risky proprietary trading.
- 3.54 The purpose of this DP is to stimulate debate on the range of possible policy responses. The FSA’s policy position will be influenced by arguments put forward in that debate, but its current policy stance, which informs its contribution to international debates on these issues, is that:
- there is a strong case for applying some form of capital (and perhaps liquidity) surcharge to systemically important banks, to reduce the probability of them failing and to internalise the externality costs which their systemic importance produces. The surcharge could be calculated as a continuous and increasing function of measures of systemic importance, avoiding the dangers created by the definition of a specific threshold of systemic importance;
 - this capital surcharge approach could, however, be combined with an approach to global banking groups which places greater emphasis on the standalone sustainability of national subsidiaries, with an overt global understanding that home country authorities will not consider themselves responsible for the rescue of entire groups. The more that groups are organised on this basis, the less might be the required capital surcharge at group level;
 - action should be taken to reduce inter-connectedness in wholesale trading markets, with much OTC derivative trading moved to CCPs, and with effective collateral and margin call arrangements for bilateral trades which reduce the dangers of strongly pro-cyclical margin call effects;
 - reforms to the trading book capital regime should significantly increase capital requirements and differentiate more strongly between basic market-making functions which support customer service, and riskier trading activities, with a bias to conservatism in relation to the latter; and
 - systemically important banks should be required to produce recovery and resolution plans which set out how their operations would be recovered or resolved in an orderly fashion. If supervisors’ examinations of these plans show that they contain serious obstacles to resolution, then steps need to be taken to reduce or remove them. This may require restructuring certain parts

of the group. Possible details of this approach to recovery and resolution plans are considered in Annex 1.

- 3.55 An important open issue is whether this restructuring of complex integrated groups should go as far as requiring – within the same overall group – clear separation between the retail deposit-taking businesses and any businesses involved in proprietary trading activities. One possible approach is to recognise a trade-off, with the capital surcharge for systemically important banks lower for those groups which go further in the direction of clear legal separation of different activities.
- 3.56 The FSA would welcome responses to this DP which address both the feasibility and details of the specific policy responses, as well as the appropriate balance between them.
- 3.57 One crucial factor to consider in assessing this balance is the cumulative impact of the various changes in capital and liquidity regimes now being considered and the trade-off between the costs of crises and the price of stability. This is covered in the following section.

4 Capital and liquidity reforms: assessing the cumulative impact

4.1 There is a strong international consensus that the global framework for prudential regulation must be radically reformed to create a more robust and resilient financial system. In future, the global banking system will hold significantly more capital and liquidity and operate at lower levels of leverage. Within the context of this general principle, agreed by the FSB, the BCBS has a series of workstreams. These are set out in Box 2.³²

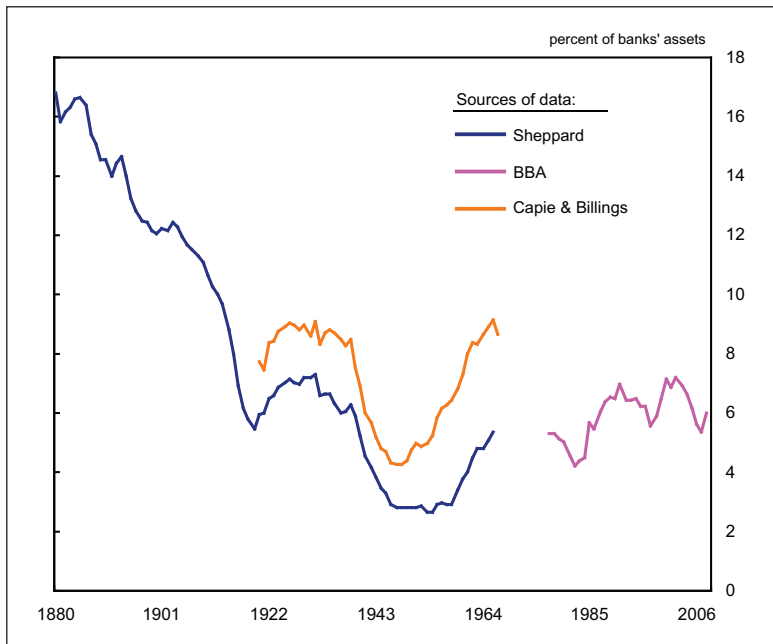
Box 2: BCBS workstreams	
Workstreams	Timings
Overall regime of higher capital requirements, with higher quality capital (more focus on Core Tier 1 capital) and higher minimum ratios.	Proposals on the quality, consistency and transparency of the Tier 1 capital base to be issued by end 2009 for impact assessment in 2010.
A countercyclical element to capital, with capital buffers built up in good years to be drawn down in recessions.	Concrete proposal due by end-2009 for 2010 impact assessment.
Possible capital surcharge for systemically important firms.	The BCBS oversight body announced on 7 September that the BCBS would assess the need for a capital surcharge for systemic banks, and the G20 Leaders' Pittsburgh Statement subsequently called for specific proposals by end-October 2010.
Significant increases in trading book capital, with a more rigorous definition of trading risks reflected in higher risk weighted assets, and thus higher capital requirements even before the impact of changes in required minimum ratios.	Quantitative Impact Study on final part of July 2009 proposals due in 2010.
A new liquidity regime, with increased buffers of assets that are clearly liquid and some type of structural mismatch ratio.	BCBS to propose a global standard for funding liquidity that includes a stressed liquidity coverage ratio by end of 2009.

32 Further detail on these workstreams can be found in *The Turner Review* Feedback Statement; www.fsa.gov.uk/pubs/discussion/fs09_03.pdf

- 4.2 One of the points made strongly by several respondents to *The Turner Review* and its associated DP was the need to ensure that the cumulative impact of this package of measures is carefully considered, identifying both costs and benefits. The FSA strongly agrees with this point. In addition the FSA has a statutory requirement to conduct Cost Benefit Analysis (CBA) of new policy proposals, and believes that such analysis, even if difficult and ultimately requiring a significant element of judgement, is an important discipline which can help improve the quality of proposals. This section, therefore, sets out some thinking on how the aggregate impact of capital and liquidity regime changes can be assessed, and refers then to some modelling work conducted for the FSA by NIESR that illustrates the unavoidable trade-offs involved in such assessments.
- 4.3 The fundamental theoretical question is: what is the optimal level of capital and liquidity for the global banking system? Two points are striking when the issue is posed in this way:
- first, when taking a very long-term view, the level of bank capital and liquidity in developed economies has varied enormously. For example, prior to the 1960s, bank capital ratios and liquidity levels were much higher than levels seen more recently. Figure 3 illustrates this point for the UK;
 - second, this fundamental issue has received very little attention in deliberations of capital adequacy and liquidity policy over the last two decades. While, in the 1980s, the introduction of the Basel I capital regime deliberately aimed at achieving a levelling up of capital standards to good international practice, it was not based on any theoretical analysis of what good international practice should be. During the subsequent development of Basel II, the focus was almost entirely on the relative weight to be attached to different categories of risk, with an explicit decision that the ‘calibration’ exercise should result in aggregate levels of capital remaining unchanged.

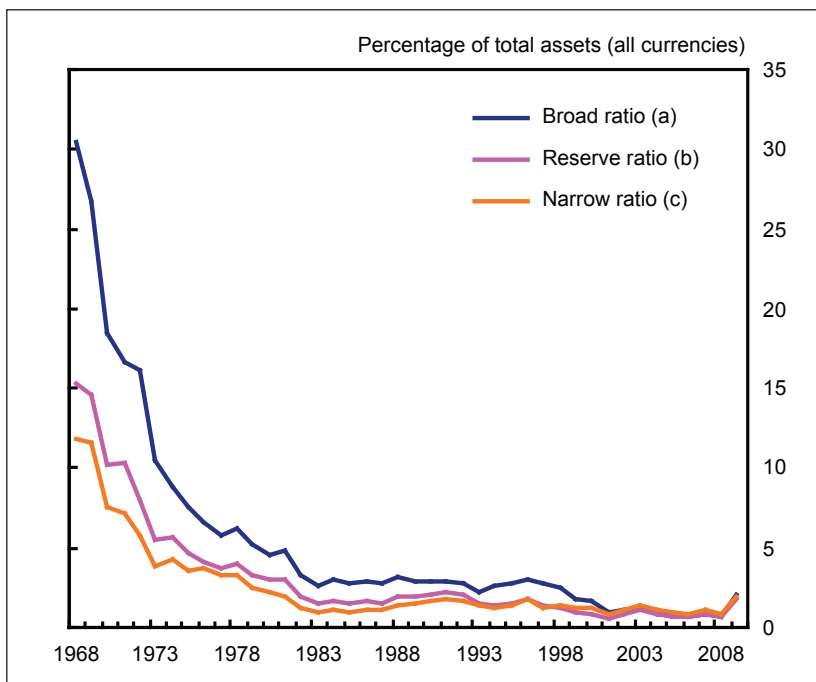
Figure 3: Long-run trends in UK bank and liquidity ratios

UK Banks' Unweighted Capital Ratios



Source: Sheppard (1971), Billings & Capie (2007), BBA, Bank of England³³

UK Banks' Sterling Liquid Assets³⁴



Source: Bank of England³⁴

33 Sheppard, David K. (1971), *The Growth and Role of UK Financial Institutions 1880-1962*, London: Methuen & Co., 1971; British Bankers' Association Abstract of Banking Statistics; the Billings and Capie data were compiled by Mark Billings and Forest Capie and summarised in Billings, M and Capie, F (2007), *Capital in British banking 1920-1970*, Business History, March 2007 (reproduced with authors' permission).

34 Key: (a) Cash + Bank of England balances + money at call + eligible bills + UK gilts.
 (b) Proxied by: Bank of England balances + money at call + eligible bills.
 (c) Cash + Bank of England balances + eligible bills.

- 4.4 This lack of focus on the fundamental issue reflected, in part, the inherent difficulty of reaching any definite answers. In the FSA's discussion of this issue below, and in the commentary on the NIESR modelling work, it is absolutely clear that there is no model which can give 'the answer'. Any decision must be strongly informed by judgement and by a process of iterative evolution of the regime and empirical observation of effects over time. However, it is valuable to root these judgements in a fuller understanding of the trade-offs implicitly being made, and to attempt at least some illustrative quantification of the orders of magnitude which might be involved. This is the purpose of this section.
- 4.5 Developing the new global regulatory regime will take time. The BCBS workstreams will not be completed until autumn 2010, and the subsequent transition to new rules will need to be carefully planned in the light of the robustness of the global economy, and of bank lending trends and profitability. However, the direction of change is clear – it is towards higher overall capital requirements. It is also clear that one area of banking activity – that of trading and market-making – has returned rapidly to profitability. This has been, to a significant extent, a result of specific conditions created in the wake of the financial crisis. There is a strong argument for ensuring that the priority use of these profits should be to build capital levels towards future higher international requirements. Capital conservation and enhancement are therefore a major regulatory concern.
- 4.6 The subsections below therefore cover:
- the theoretical considerations and judgemental trade-offs involved in assessing optimal capital and liquidity levels;
 - the role of modeling work in illustrating these trade-offs; and
 - the priority of capital enhancement and the conservation of trading profits to assist in this, even ahead of full definition of a new global regime.

1) Prudential standards and the macroeconomy: optimal capital and liquidity levels

- 4.7 In theory, the optimal level of capital and liquidity in the banking system should reflect an optimising trade-off between the benefits of reduced financial instability and the costs which may arise from a higher price or reduced volume of credit extension and maturity transformation.
- 4.8 The benefit of both higher capital and more demanding liquidity requirements is that they increase the stability of the financial system, although it must be recognised that this is in the context of given monetary and fiscal policy strategies.³⁵ For a given level of risk, highly capitalised banks with more liquidity are less likely to fail, or to come close to failure, reducing the likelihood of creditor loss or of the high public costs of rescue which have been observed over the past year. However, higher

35 The impact of prudential policy is sensitive to the potential response of fiscal and monetary policy. Certain volatile fiscal and monetary policies might generate economic instability and increase the probability of financial instability.

standards benefit macroeconomic stability even if the risk of outright failure (with lower standards) is very remote. This is because:

- banks with higher capital levels are less likely, in the face of an economic downturn and loan losses, to have to reduce lending to conserve capital. High capital levels, particularly if they include an overtly countercyclical buffer, can thus reduce the amplitude of economic cycles; and
- banks facing tougher liquidity standards are less able to grow rapidly in boom years through increasing reliance on wholesale and short-term funds, and less likely to have to contract lending to conserve liquidity in the face of collapsing confidence of the sort that gripped the financial system in 2007 and 2008.

4.9 It is very difficult to quantify these benefits: a priori modeling depends on a large number of judgemental assumptions; and the historical record does not provide a large enough number of observations of the frequency and severity of crisis under different capital and liquidity regimes to allow robust conclusions based on empirical relationships.³⁶ However it is clear from the events of the last year that the costs of insufficiently demanding capital and liquidity standards can be enormous. UK GDP is forecast to fall 4.3% in 2009,³⁷ and current HM Treasury assumptions are that, even once a return to trend growth is achieved, the UK will face a permanent loss of 5% of trend output from mid-2010 against the previously assumed trend path.³⁸ Assessment of the welfare consequences of instability also needs to allow for the impact of unemployment and of sudden setbacks to achieved wealth in addition to these growth effects. Even absent any ability to model or quantify the benefit of increased stability, the severity of the last year's crisis creates a compelling argument for significant tightening of capital and liquidity standards.

4.10 The potential disadvantages of higher capital and liquidity requirements arise from the higher price which the banking system will charge for the economic services of credit intermediation and maturity transformation. There are major complexities in assessing the scale of these costs.

Increased capital

4.11 Regulated financial intermediaries fund their lending activities primarily through debt liabilities (deposits and debt securities), but also by issuing equity and hybrid capital instruments. The cost of the latter is higher than the cost of debt due to the greater riskiness of equity investment. As a result, requiring banks to hold a greater percentage of their total liabilities in equity form will have a first-order effect of increasing the average cost of funding.³⁹ This will tend to be reflected in a higher cost of credit and/or a lower volume of credit provided to the real economy. The effect of this is, however, mitigated by the fact that the higher proportion of equity capital may result in a lower cost of debt (since debt holders are now more secure)

36 There are a number of uncertainties associated with this analysis, which are discussed in Annex 2.

37 Consensus Economics, Consensus Forecasts, 10 August 2009

38 Budget 2009 pages 194-197 - www.hm-treasury.gov.uk/d/bud09_complereport_2520.pdf

39 Banks will also face competitive pressure from disintermediation, which will be reflected in the average price of lending to users of capital in the economy. Some potential issues with disintermediation are discussed in Annex 2.

and of equity (since returns on equity will be less volatile because the issuers are less leveraged). The Modigliani – Miller Theorem would suggest that the impact of these off-setting effects would be total if it were not for the different tax treatment of debt versus equity. Moreover, the increased tax payments made by financial intermediaries are not a cost from a social perspective.⁴⁰

- 4.12 Notwithstanding possible offsetting effects, however, empirical evidence (for example, that conducted by NIESR for the FSA referred to below) often finds that the average cost of funding does increase when regulatory capital requirements increase. One explanation of this is that the cost of debt funding for banks is somewhat insensitive to capital levels because of the existence of explicit deposit insurance guarantees and of implicit assumed guarantees arising from observation of past government rescues of troubled institutions. As a result, it is likely that increased capital requirements will increase the cost of credit or reduce its volume to some extent. By how much, however, is very difficult to assess.

Tighter liquidity standards

- 4.13 Tighter liquidity requirements can take the form of requiring banks to hold larger quantities of very liquid, low risk assets (for example, government bonds). Since these assets will also be low return ones, this requirement imposes a cost on banks that is likely to be reflected in higher costs for credit extension, similar to those generated by higher capital requirements. But tighter liquidity rules can alternatively constrain banks' maturity transformation, forcing them to limit the extent to which they hold long-term assets matched by short term liabilities. This reduced maturity transformation must have an effect on the rest of the real economy, with households and companies in aggregate induced either to increase the term of their assets (for example, hold term deposits rather than instant access deposits) or decrease the term of their liabilities (for example, with contractually shorter term loan agreements). Achieving these quantity effects should theoretically require a shift in the term structure of customer interest rates, with higher rates paid on longer term deposits and charged for longer term loans. To the extent that longer term loans make possible growth-inducing long-term investment, limiting the holding of long-term assets by banks may impose a real economic cost (i.e. a lower growth rate).
- 4.14 In slightly different ways, therefore, higher capital and liquidity requirements could increase the cost or constrain the volume of credit extension in the economy. This could be to the detriment of economic output if it constrains investments which are required to achieve a sustainable growth rate in line with technical change and population growth. But it is also possible that constrained credit supply, particularly in periods of strong economic upswing, could prevent investments which subsequently turn out to be unsustainable and a poor use of capital resources. Ideally, prudential

40 The fact that tax shield effects increase the relative cost of equity versus debt capital but are theoretically offset at the social level by the receipt of tax revenue, suggests that tax regime design may have implications for optimal structures. For instance, contingent capital instruments of the sort described in paragraph 3.24 could combine tax deductibility in 'normal' times (thus reducing the impact of higher capital requirements on the cost of intermediation) while converting to equity capital when needed (thus achieving increased stability benefits).

standards should be set so as to limit the divergence of credit extension and investment from an optimal path for the economy, maximising the likelihood that the ‘right’ marginal investment projects are funded and unsustainable projects are not. The optimal approach to capital and liquidity in the banking system is therefore linked to the optimal level of credit and leverage in the real economy.

- 4.15 Despite these complexities, however, it is highly likely that, above some level, increased capital and liquidity requirements will have some negative impact on the rate of growth attainable in ‘normal’, non-crisis years. Conceptually the optimal level of capital and liquidity should therefore reflect the trade-off between higher growth and the adverse costs of instability. Two separate aspects of this trade-off should, however, be distinguished:
- the first is between growth in good years and the negative effects of periods of instability, with the optimal trade-off being that which maximises growth over the whole cycle. Thus, for instance, while easy credit availability may have facilitated the UK economy’s growth at 2.7% per annum from 2000-2007, the huge adverse impact of financial instability is such that the average growth rate from 2000 to 2012 is now forecast at 1.8%.⁴¹ Higher capital and liquidity requirements, which prevented or reduced this instability, could therefore have been justified even if their impact on growth in the good years was quite significant;
 - the second reflects the fact that society may value economic stability, and may prefer slightly lower long-term growth in return for more stability. Welfare may be more strongly negatively affected by the adverse impact of unemployment, or by sudden setbacks in wealth and income levels already attained, than it is increased by small increments to long-term growth rates. If this is the case, the optimal prudential approach would be tighter than that which maximises the long-term growth rate.

Illustrative quantitative assessment – a possible modelling approach

- 4.16 The previous section describes the trade-off between the benefits of reduced financial instability and the costs which may arise from a higher price, or reduced volume, of credit extension and maturity transformation. Part of this trade-off is about social choice – consumers might value stability sufficiently highly to prefer prudential standards set above the level implied by an attempt at pure maximisation of long-term output – and the FSA recognises that this raises issues for other decision-makers such as central government. Given this and the uncertainty and abstraction inherent in macroeconomic modelling, the FSA does not believe that decisions about the calibration of capital and liquidity standards can be taken solely on the basis of the outputs of any model. The FSA believes, however, that judicious use of relevant models can illuminate the crucial question of the calibration of international capital standards, which will be considered by the BCBS in 2010. Moreover, without research of this kind, policy makers would have to take decisions with far-reaching consequences for the global economy while having little information about what the macroeconomic consequences might be. The FSA has therefore undertaken its own

41 Consensus Economics, Consensus Forecasts, August 10, 2009.

research and commissioned research from NIESR to illustrate trade-offs involved in analysing the cumulative impact that reforms of prudential regulation could have on the macroeconomy.

- 4.17 This research is briefly described here and some important areas for possible further work are set out below. The FSA notes that a full analysis of the costs and benefits will only be possible once detailed policy proposals are available. Meanwhile the FSA would welcome comments on its broad approach, which it believes to be broadly similar to the approach used by some central banks in considering the level of bank margin (reserve) deposits, which can similarly force banks to raise the cost of credit.
- 4.18 In common with HM Treasury, the Bank of England and many other leading institutions, the FSA has used NIESR's model, NiGEM, for some of its macroeconomic work. Previous versions of NiGEM, however, lacked a detailed financial sector component which is required to model the input of banks on credit provision. The FSA provided the basis for a financial sector module through the results of its own research on how financial intermediaries have responded to changes in capital standards in the past.⁴² This enabled NIESR to estimate the relationship between economic output and the increases in intermediaries' weighted average cost of capital – and the reductions in the supply of credit arising – that might be caused by more stringent regulation.
- 4.19 NiGEM, like other macroeconomic models, does not (and cannot) provide estimates of the likelihood of financial crisis. The model can only be used to analyse the impact of a crisis once it has occurred (and thereby provide an estimate of the potential costs that can be avoided). To explore the likelihood of crisis, NIESR constructed a crisis model reflecting standard literature in this field. Using data from a range of countries and crises, the crisis model assesses the probability of a crisis occurring in relation to states of the macroeconomy.⁴³ Since states of the macroeconomy depend in part on prudential requirements (as well as on the outcome of other policies, reflected in real asset prices), it is possible to estimate the change in probability of crisis associated with different levels of prudential requirements. The crisis model is quite simple. More reliable information could be derived from a richer model – for example, one that takes into account networks between banks within countries and across national borders which help determine whether distress within a subset of banks or other financial institutions leads to systemic financial crisis.
- 4.20 A strength of much of the modelling described above is that it produces aggregate results for the economy as a whole over a long period. Proposed changes in prudential standards, however, may affect different banks in different ways, especially in the extent to which different proposals interact in the context of each bank's business model, funding structure, and portfolio of assets. The impact of higher capital standards on the macroeconomy depends on the combined impact of the proposed changes in policy on a few banks which dominate the banking sector in the

42 William Francis and Matthew Osborne (September 2009), *Bank Regulation, Capital and Credit Supply: Measuring the Impact of Prudential Standards*, FSA Occasional Paper 36, which can be found at www.fsa.gov.uk/pubs/occpapers/op36.pdf.

43 The crisis model uses the definition of crisis set by the IMF (i.e. the level of non-performing loans is higher than 10%; or public bailout costs exceed 2% GDP; or large scale bank nationalisation occurs; or there is visible emergency government intervention; or extensive bank runs occur).

UK. Hence, any analysis of this kind needs to understand the situation of each of these banks at the relevant point in time and the constraints on their business that would arise from particular changes to prudential standards.

4.21 To understand the impact of specific policy proposals on individual banks, the FSA has developed a ‘model bank’ which enables application of the banks’ response functions, as estimated in the FSA research mentioned above, to individual banks’ (current) balance sheets in order to develop a more refined estimate of how individual banks are likely to change lending and capital in response to specific packages of changes to capital regulation. Combining estimates for a number of such model banks, which can be broadly representative of those banks holding most of the capital in the UK financial system, enables the inclusion in NiGEM of a more realistic estimate of the cumulative response to changes in capital standards. From this analysis an estimate of the macroeconomic consequences of changes in capital standards can be made that will be more realistic than those currently available.

4.22 Given the inherent uncertainties of any modelling, and the ‘work in progress’ nature of the FSA research into the issue of optimal capital and liquidity levels, it would be unwise to attach significant weight to the specific figures suggested by the NIESR results presented in Annex 2.⁴⁴ But these results do help to illustrate that:

- it is likely that significant increases in capitalisation and liquidity requirements could produce an increase in expected future GDP over time, suggesting that current requirements have been set too low to help maximise the sustainable path of GDP;
- this implies that increases in capital and liquidity requirements would be welfare enhancing even before allowing for a willingness to trade off a slight decrease in sustainable GDP for an increase in GDP stability; and
- it is, however, also the case that there is some level of capital and liquidity requirements beyond which the benefits are outweighed by costs.

2) Further work and next steps

4.23 The inherent uncertainties involved in assessing optimal capital and liquidity levels mean that models such as those described in Annex 2 can never provide ‘the answer’. The FSA believes, however, that the conceptual approach described can help inform a more effective global debate on optimal capital levels. It will therefore encourage global regulatory bodies, industry groups and academics to conduct similar analysis, while continuing to work with NIESR to address specific technical modelling challenges.

4.24 The limitations of and some possible improvements in the technical modelling approach are described in Annex 2. They include taking into account the potential for cross-border credit extension, the influence of banking sector networks, and the impact of the quality of capital.

⁴⁴ It should be noted that the methodology of the NIESR model relates to capital held against banking books, where it is reasonable to assume some relationship between capital requirements and volume/price of lending. Assessing appropriate capital to be held against trading books raises separate issues. Planned increases in capital against trading books would therefore be in addition to any increase in global capital implied by NIESR-type modelling.

- 4.25 At the global level, two sets of analysis need to be pursued in parallel:
- quantifying the effect of all the proposals for capital and liquidity regulation now under discussion, to ensure that the cumulative impact of changes to numerators, denominators and ratios are fully understood. This quantification will be done within the context of the BCBS's 'calibration exercise'; and
 - structured consideration of the trade-offs discussed above and in Annex 2 informed where possible with illustrative modelling. The FSA will propose to the FSB and the BCBS that modelling work of this form should be commissioned.

3) Conserving and enhancing capital

- 4.28 The preceding discussion has illustrated the difficulties of defining the optimal level of capital and liquidity for the banking system. As described in Box 2, the design of the details of a new international regulatory regime will not be completed until autumn 2010. However, the direction of change is clear – over time the overall level of capital required in the banking system will be significantly increased and liquidity standards significantly tightened. These changes are required to create a more stable financial system for the long term, dramatically reducing the likelihood of severe financial crises, and to enable the banking system and individual banks to sustain market confidence as authorities withdraw the exceptional government and central bank support measures put in place in many countries in response to the crisis.
- 4.29 Action has already been taken to introduce some elements of a more robust regime, both at national and global levels. The FSA has established an enhanced prudential supervisory framework for a set of major financial institutions comprising the largest UK banks and building societies through an interim capital regime. The key element of this framework is that the FSA expects those subject to it to have a minimum Core Tier 1 ratio of 4% under a demanding stressed scenario (which was defined and agreed by the Tripartite authorities).
- 4.31 This interim capital framework focuses on levels of capital that are well in excess of those required by the Basel II standard and implemented in the EU through the Capital Requirements Directive. These higher levels of capital will protect consumers and help ensure financial stability is maintained in the UK. This framework will remain in place until Basel II has been modified. In addition, the FSA has introduced a new liquidity regime, which over time will require a significant strengthening of banks' approaches to liquidity management.⁴⁵
- 4.32 A similar approach, focusing on a 4% common equity ratio after a stress test has been applied in the US, and Switzerland has very significantly increased capital requirements for its major banks.⁴⁶ The BCBS has agreed new global rules which require significant increases in capital against some trading activities and these will come into force on 1 January 2011.

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

46 See also Box 1

- 4.33 However, full transition to new global regimes for capital and liquidity is likely to be (and should be) phased in over several years. This is because of the danger that moving too early and rapidly to higher minimum capital requirements and tighter liquidity standards could cause banks to reduce lending activities in the short term, slowing recovery of the economy from severe recession. This danger may be somewhat tempered by the fact that increased requirements are already anticipated by investors and market participants and already reflected to a degree in bank strategies. However, a cautious approach to a formal transition remains appropriate in still fragile economic conditions. The FSA will, therefore, over the next six months consider carefully the appropriate quantitative rules to apply within its new liquidity policy and will phase in the requirements over a number of years. A similar phased approach is planned once global capital rules are agreed.
- 4.34 The need for careful phasing, however, arises specifically because of the danger that too rapid increases in capital requirements will harmfully constrain lending to the real economy which is likely to have negative implications for the capital position of firms. Capital enhancement through restraining cash bonus payments and unnecessarily high dividends will not have this harmful effect. Capital enhancement achieved by these means will contribute to whole system stability and confidence by speeding the pace at which exceptional government and central bank support measures can be withdrawn.
- 4.35 These considerations are particularly relevant in the case of investment banks and commercial banks significantly involved in trading activities, which so far in 2009 have enjoyed high profitability from these activities. These profits are in part attributable to favourable market circumstances brought about by the crisis and by government and central bank policies in response. The exit of several major players has increased market shares for the survivors and very high levels of government debt issuance, combined with very low policy interest rates and significant market volatility, are creating relatively low risk profit opportunities.
- 4.36 In these circumstances there is global agreement, expressed in FSB and G20 commitments, that banks earning large profits (in particular from trading activities) should treat the conservation and enhancement of capital as a higher priority than bonus or dividend payments.⁴⁷ This is so that they can accelerate their attainment of possible future capital requirements ahead of the likely legally required implementation dates.
- 4.37 The FSA's application of its new remuneration rules will therefore include a focus not only on how the structure of individual contracts affects incentives to risk-taking, but on aggregate payout rates and their implications for the pace of progress towards higher capital levels.

47 www.g20.org/Documents/FM_CBG_Declaration_-_Final.pdf

5 Next steps

- 5.1 The issues set out for discussion in this DP have been of growing importance internationally, as reflected in *The Turner Review* feedback, various international fora (particularly the FSB and G20), and the media. The immediate objective of this paper is to help set the agenda for the second Turner Review conference, which the FSA is holding on 2 November 2009. More generally the DP sets out the position the FSA intends to take in its discussions with key stakeholders, international counterparts and the various international regulatory bodies in which the FSA is involved.
- 5.2 The FSA remains committed to the international process and continues to believe that the issues identified in this DP should be tackled on a global basis. International agreement will be particularly important in the development of coherent approaches to systemically important firms. The FSA will continue to work with other national authorities, as they develop their own approach to systemically important firms, and bodies such as the BCBS. The BCBS will be issuing proposals on a global standard for funding liquidity and the quality of capital by the end of 2009 and will consider the calibration of the overall regulatory framework in 2010.⁴⁸ This work is likely to include analysis of the options for dealing with systemically important firms, including systemic surcharges. The possible approach to assessing the cumulative impact, set out in Section 4 and Annex 2 of this DP, should inform how the BCBS carries out the impact assessment of its package of reform proposals and the consequent calibration of the new framework.
- 5.3 The IMF, alongside the FSB and BCBS, is working to develop guidelines for assessing systemically important institutions, markets and instruments. These guidelines are due to be presented to G20 Finance Ministers and Central Bank Governors in November. The FSB will look at systemic issues through its Standing Committee on Supervisory and Regulatory Cooperation, chaired by Lord Turner. It will also look at the international elements of recovery and resolution plans ('living wills') through its crisis management groups, which are due to meet in late 2009 and 2010.

48 For more, see Box 2

5.4 However, as set out in Annex 1, the FSA has already begun working to implement recovery and resolution plans in the UK. By the end of 2009 a small number of major UK banking groups will have begun producing recovery and resolution plans as part of a pilot exercise and first drafts are expected at the end of Q1 2010. The outcome of the pilot will be the basis for rolling out such plans to a wider set of firms in a proportionate manner. A Consultation Paper will be issued as necessary.

Recovery and resolution plans ('living wills')

- A1.1 Section 3 identified a range of possible measures that could be applied to systemically important firms to reduce their probability of failure. However, the FSA recognises that it is not possible, or desirable, to reduce the probability of failure to zero. The FSA must therefore be prepared for the fact that a systemically important firm – however well managed and however well regulated – may reach the point of failure and require the authorities to intervene. This means that, in extremis, the UK authorities must be able to resolve systemically important firms without systemic disruption and without putting the public finances at risk. Where a firm is at risk of failing, there are two objectives that the firm and the authorities can pursue:
- 1) a recovery strategy. The management of the firm take actions that are aimed at preventing it from failing, by restoring its capital or liquidity position (depending on the nature of the firm's problems). This does not mean that the firm will emerge unchanged. In order to avert failure, management may need to undertake radical options (such as exiting particular lines of business, selling subsidiaries or raising fresh capital); and
 - 2) a resolution strategy. The authorities prepare for the failure of the firm and aim to manage its demise in a controlled manner that limits the cost to creditors, public funds (including FSCS levy-payers) and other systemic disruption. For firms that have a deposit-taking permission this will be managed using the UK's Special Resolution Regime (SRR); other firms that are systemic but do not fall within the scope of the SRR will be treated under UK insolvency law in the absence of any alternative resolution regime.⁴⁹
- A1.2 These two strategies – recovery and resolution – have mutually exclusive outcomes, but will in general be pursued simultaneously by the authorities, at least for some period of time. This reflects the fact that private sector solutions that secure sustainable financial stability will always be the preferred outcome. At the same time, contingency planning will need to be undertaken in parallel in case management actions cannot save the firm or no private sector solutions are possible.

⁴⁹ For instance, see HM Treasury's May 2009 paper *Developing effective resolution arrangements for investment banks*; www.hm-treasury.gov.uk/d/consult_investmentbank110509.pdf

- A1.3 The success of both recovery and resolution is based on preparedness. It is vital that both the firm and the authorities have considered in advance the range of actions that they might undertake to deal with a crisis at the firm, the information they need to carry out those actions, the obstacles that they may face and potential solutions. Taken together, these recovery and resolution plans have been referred to as ‘living wills’.
- A1.4 The FSA already has in place requirements that contribute to a firm’s preparedness for recovery, in relation to capital and liquidity requirements (including stress and scenario testing and a contingency funding plan), which, as noted above, are likely to be higher for systemically important firms. A group’s structure will, of course, continue to be considered in the context of the Post-BCCI Directive (implemented by the FSMA Threshold Condition on Close Links), which is concerned with the FSA’s ability to supervise the firm.⁵⁰
- A1.5 A recovery plan will, therefore, build on these existing components. It will need to be supplemented with details of other actions that could be taken by the firm ex ante to deal with a future crisis (to the extent that they have not already been factored into the firm’s planning). These should include a detailed plan of the businesses and subsidiaries that the institution might sell to third parties and the contingencies there would be to such actions. The firm’s plans should demonstrate the extent to which its recovery could be supported by management actions to reduce the risks to which the business is exposed (‘de-risking’). The firm should also be able to explain how it could ‘de-risk’ its business over a relatively short period. Systemically significant firms should be able to demonstrate how they would be able to withstand the failure of their largest counterparties – a form of ‘contagion control’.
- A1.6 Resolution plans will need to identify the actions that would need to be taken for the authorities to use the SRR tools (or for the firm to be placed into insolvency, if the SRR is not applicable). The FSA has already made rules requiring firms to introduce a ‘Single Customer View’ by end 2010.⁵¹ This will cover, for each customer, the deposits they have with the bank and the extent to which they are covered by the FSCS. This will better enable the authorities to close a bank and require payout to depositors, or to facilitate the transfer of insured deposits. In respect of client assets, the current regulations require firms to hold and record them separately from firm assets.⁵² Further work is also underway to establish what recovery and resolution plan provisions would help facilitate the timely distribution of client assets from a failed or failing firm.
- A1.7 Further resolution planning will be required for systemically significant firms, falling into three broad categories:
- firms will need to be able to assure the authorities that they can provide the substantial amount of data that is necessary at short notice for the authorities to assess the resolution options;

50 <http://fsahandbook.info/FSA/html/handbook/COND/2/3>

51 www.fsa.gov.uk/pubs/policy/ps09_11.pdf

52 <http://fsahandbook.info/FSA/html/handbook/CASS>

- firms will need to have undertaken an analysis of the potential barriers to the authorities being able to exercise the SRR powers or wind a firm down (as set out in A1.28); and
- firms, together with payments, clearing and settlement infrastructures, will have to conduct an analysis of how the firm could ‘unplug’ itself from the relevant infrastructure so that the infrastructure itself remains robust and continues to operate and damage to other participants is minimised (or how such systems could be maintained in cases where the firm provides the infrastructure).

A1.8 The FSA expects that relevant firms will be required at all times to have made ex ante preparations and produced plans for recovery and resolution. Once a firm has produced these plans they will be subject to review by the FSA, in consultation with the Bank of England. The FSA will assess the risks identified by these plans and the actions proposed by the firm to mitigate them. This will form the basis for considering whether further actions are required by the firm to remove obstacles to recovery or resolution. This may include the need for structural change and/or off-setting measures such as capital and/or liquidity where the organisation of the group and its regulated activities could pose a risk to implementing the recovery and resolution plan.

A1.9 However, recovery and resolution plans are not just about the ex ante preparations. If a systemically important firm is seriously at risk of failure the firm would be required to demonstrate how their ex ante plans could be put into effect in the specific circumstances in which they find themselves within a set period of time, setting out how it will deal with this particular set of circumstances. Upon approval by the FSA, the firm would be required to execute this situation-specific plan, which would either result in the firm returning to health or enable the authorities to effect a resolution without having to fund the firm on an ‘open institution’ basis using the public finances.

International developments

A1.10 In March 2009 the Financial Stability Forum (before it became the FSB) agreed a set of principles for Cross-Border Cooperation on Crisis Management. These principles were subsequently endorsed by G20 Leaders at their London summit in April and published shortly thereafter.⁵³ A working group of the FSB on cross-border crisis management is working to ensure their implementation by national authorities.

A1.11 Principle 4 (of the principles referred to above) require that relevant national authorities meet at least annually to consider together the specific issues and barriers to coordinated action that may arise in handling severe stress at specific firms, coordinated by the home supervisor. Additionally, Principle 8 provides that ‘authorities will strongly encourage firms to maintain contingency plans and procedures for use in a wind down situation...and regularly review them to ensure that they remain accurate and adequate’. Crisis Management Groups will therefore discuss the firm’s legal and business structure, its intra-group interdependencies, the

53 www.financialstabilityboard.org/publications/r_0904c.pdf

interlinkages between the firm and affected financial systems, the firm's own contingency plans, the legal and bank resolution frameworks in the countries in which the firm operates and the main impediments to coordination.

- A1.12 The FSA, as a home country supervisory authority, will be responsible for coordinating the establishment of crisis management groups for a number of firms. In many cases, of course, the UK is a significant host country and in the relevant cases the FSA will also participate in the crisis management groups coordinated by the relevant home country supervisory authority.
- A1.13 In taking forward the implementation of recovery and resolution plans within the UK, the FSA will work closely with international colleagues, through the FSB to develop common approaches where possible but also recognising that recovery and resolution plans will need to be tailored to the recovery and resolution frameworks in individual jurisdictions. The UK authorities will ensure that the evidence and insights developed while implementing recovery and resolution plans in the UK are applied to the international debate. The FSA believes that it is important for the UK to begin its domestic implementation of recovery and resolution plans in parallel with ongoing international work. In doing so, the FSA will be supporting the UK's financial stability as well as providing the evidence and experience with which to influence the international debate.

UK implementation

- A1.14 Work is underway to produce guidance for systemic firms to use in developing their recovery and resolution plans. By the end of 2009 a small number of major UK banking groups will have begun work to produce their recovery and resolution plans as part of a pilot exercise intended to help the FSA develop policy in this area (bearing in mind that – as noted above – significant parts of the recovery plan will be in place already). The FSA expects first drafts of these plans to be submitted at the end of Q1 2010. This will be followed by a period of review by the authorities, considering both the adequacy of the plans for each firm, as well as identifying the wider policy implications.
- A1.15 The pilot exercise will be used as the basis for requiring recovery and resolution plans from a wider population of systemic firms (experiences and lessons of the pilot phase will inform these plans). At this stage the FSA is minded to extend the requirement for recovery and resolution plans to include all UK deposit takers, in addition to systemically important firms. The extension of these requirements to non-systemically important firms would need to be proportionate to the nature and scale of the firms, taking into account the likely options for resolving such firms. For instance, the scope of the requirement could be linked to the scope of the FSA's rules requiring an electronic Single Customer View.

High-level contents of recovery and resolution plans

- A1.16 This section sets out the FSA's initial views on the likely contents of recovery and resolution plans. These are intended to give an indication of the FSA's current thinking, but it is important to recognise that they do not represent a final position.

The development of recovery and resolution plans is an iterative process. The FSA will use the information gathered from the pilot exercise to evaluate this approach and refine it. The FSA will take into account any relevant feedback to this DP; engagement with stakeholders; and international developments. There are also a number of prudential policy areas subject to ongoing development, as well as the work to develop effective resolution arrangements for investment banks.⁵⁴

A1.17 The FSA's approach to the initial roll-out of recovery and resolution plans will fall into four stages:

Stage 1: the FSA will write to the relevant firms setting out that it expects them to produce a recovery and resolution plan; the timescale in which they should do so; and providing guidance on its contents. The FSA will discuss progress with firms during the production of their plan, but it is important that the firm should produce its own analysis. The FSA will expect the firm's Board to sign off its submission to the FSA.

Stage 2: once firms have submitted their draft recovery and resolution plans, the FSA, in consultation with the Bank of England, will review and challenge them. In undertaking this challenge process the FSA will draw on existing supervisory knowledge of the firm. The FSA will focus on assessing the credibility and limits of the firm's recovery plans, the extent to which it has rigorously identified potential obstacles to resolution, and the acceptability of any actions proposed to mitigate those obstacles.

Stage 3: the FSA will revert to each firm with a set of comments on the draft recovery and resolution plan. The FSA will expect the firm to make appropriate adjustments to its plan in response to the points made by the FSA. The firm will be able to make alternative proposals if it can provide evidence that its proposals would achieve the outcomes required by the authorities. Ultimately, if supervisors' examinations of these plans show that they contain serious obstacles or impediments to resolution, then steps need to be taken to reduce or remove them. This may mean, for example, restructuring certain parts of the group or investing in systems to ensure that the firm is able to provide the authorities with the data that would be required to undertake recovery and resolution work. Once the firm has made the adjustments, there may still remain impediments to orderly resolution. The FSA will need to consider whether to take these into account in setting capital requirements.

Stage 4: once the firm and the FSA have discussed any remaining points, the FSA will expect the firm's recovery and resolution plan to be signed off by its Board and any agreed ex ante changes to be made.

A1.18 The production by a firm of a recovery and resolution plan should not be a one-off event and the plan it produces should not be treated as a static document. The authorities may make further statements of their expectations for recovery and resolution plans as Stages 1 to 4 progress. The FSA will expect firms to maintain the plan on an ongoing basis, ensuring that it is updated to reflect changes both within the

⁵⁴ HM Treasury's May 2009 paper on *Developing effective resolution arrangements for investment banks*; www.hm-treasury.gov.uk/d/consult_investmentbank110509.pdf

firm and in the external environment. This will need to be supported by clear accountability and governance arrangements within the firm. For each firm the FSA expects the frequency and depth of the review of the recovery and resolution plans to be linked to the FSA's assessment of the risk posed by the firm.

- A1.19 The FSA will set out a description of the components it expects to see included in a recovery and resolution plan, the type of scenarios that firms need to consider in preparing their plans, and examples of the interlinkages within a firm that the authorities will need to understand. However, the FSA does not expect to provide detailed questions or criteria against which firms will be expected to produce a recovery and resolution plan. If the FSA were to do so, there would be a significant risk that the plans that resulted would be limited to the questions the FSA had asked and firms might not be sufficiently rigorous in identifying and analysing the risks that are specific to their business. The FSA may make further statements as to what is expected of firms in recovery and resolution plans. The recovery and resolution parts of these plans are quite different and would need to contain specific components, as set out below.

Recovery plan

- A1.21 The recovery plan will need to set out the firm's plans for how it would respond to a severe stress. In particular it should cover:
- i) a capital recovery plan; and
 - ii) a liquidity recovery plan.
- A1.22 Where applicable, these may be met by existing FSA requirements, such as the rules on contingency funding plans and stress testing. The firm's plans should demonstrate the extent to which its recovery could be supported by management actions to reduce the risks to which the business is exposed ('de-risking').
- A1.23 For each of the actions identified by the firm it will need to be able to demonstrate that it has in place plans to take such steps. This would include setting out the process for deciding upon and executing the action, the circumstances in which it would be appropriate, the key dependencies, the information that would be required by the firm or third parties (and the ability to provide that information in the time available), and the legal, financial and operational constraints on taking the proposed action.
- A1.24 Additionally, the recovery plan should consider how the firm would deal with the failure of its largest counterparties (a 'contagion control plan'). This would include the operational impacts, such as the ability to continue to access the settlement system or to close out under netting contracts.
- A1.25 As mentioned above, further work is also underway to establish what recovery and resolution plan provisions would help facilitate the timely distribution of client assets from a failed or failing firm.

Resolution plan

- A1.26 In contrast to a recovery plan, a resolution plan is not focused on the steps that the management of the firm would take. If a firm moves into resolution it will be for the authorities to determine the appropriate course of action, within the appropriate legislative framework (i.e. the SRR for deposit-takers, and insolvency if not a deposit-taker). In order to ensure that the authorities are able to use the resolution toolkit, the firm's resolution plan should assume that the authorities may use any of the options available.
- A1.27 Authorities will need to be assured that firms are able to provide – in an appropriate, and potentially very short, timescale – the data necessary both to assess the resolution options and to execute the authorities' chosen strategy. Where the SRR does not apply, this will need to include the information that would be required by an insolvency practitioner. The FSA is considering further how firms should do this. This could include the establishment of a virtual 'data room' to provide secure access to information. Under this heading, firms will need to be able to demonstrate that they comply with FSA rules on a Single Customer View (where applicable).
- A1.28 Firms will need to be able to explain the relationships between the different entities within a group, in each case explaining the basis of the relationship (for example, legal status, financial, staffing, premises) and contingency arrangements in case of interruption to that relationship. Building on this, firms should have undertaken a detailed assessment of the potential obstacles or impediments (financial, legal, operational) to the authorities using the following tools:
- i) the bank insolvency procedure;
 - ii) a partial transfer of assets and liabilities (either to a bridge bank or private sector purchaser);
 - iii) a whole bank transfer of the assets and liabilities;
 - iv) the taking into temporary public ownership of the deposit-taker; and
 - v) the taking into temporary public ownership of any holding companies that sit above the deposit-taker.
- A1.29 Firms will also need to identify the market and payment infrastructures to which they are connected and plan for the firm to disconnect from those systems in an orderly manner.
- A1.30 The FSA would welcome views on its proposed approach to recovery and resolution plans.

A possible approach to the CBA of prudential requirements

- A2.1 This Annex provides more details of the preliminary CBA discussed in Section 4 of the main text. It gives further important background and then describes the work done so far by the FSA and by NIESR. It also gives some indicative results of this work and describes some possible further work.

Background

- A2.2 The financial crisis clearly demonstrated the potential for the financial sector, and banks in particular, to have a wide-ranging impact on the UK macroeconomy. These impacts arise from a number of market failures present in financial markets, including informational problems (the inability to assess the risk inherent in banks or financial market products; misalignment of incentives between banks' management and investors, customers and counter-parties; herding behaviour of investors in financial markets) and externalities (banks take insufficient account of the potential cost to society of their failing). A substantial increase in the extent of banks' leverage over the extended period of the world economic upswing and, to some extent, the procyclicality of internationally agreed regulatory requirements also contributed to the severity of the crisis.
- A2.3 As mentioned in Section 4, financial crises raise the risk premium in the economy which, in turn, restricts the future formation of capital. Consequently, financial crises can reduce long-run economic output by lowering the level of GDP for a sustained period (and potentially permanently) relative to what would have been achieved in the absence of any crisis, in addition to the immediate short-term loss of output. Higher prudential standards can reduce the probability and impact of financial crises. Very large benefits can therefore arise by avoiding loss of output, as well as preventing the immediate costs of any crisis.
- A2.4 Offsetting this benefit is the impact that tougher regulatory requirements will have on the availability of credit in the economy. Increases in both the amount of capital and the liquid assets that banks hold can be expected to increase the costs that banks face in providing credit to the economy.⁵⁵ Thus changes in regulation

⁵⁵ Increasing the amount of capital that banks hold is expected to reduce the cost of capital for banks as customers and investors recognise that banks are less risky. However, the lower cost of capital is not expected to offset completely the impact of higher capital requirements due to a number of distorting factors.

are expected to increase the price of bank credit. To the extent that this bank credit is not readily substituted for by other disintermediation⁵⁶ (leading to a decline in the banking sector and contraction in the total amount of credit available during the upswing), the increase in capital and liquidity requirements for banks will tend to suppress macroeconomic activity during the upswing of the business cycle. However, some moderation in economic activity arising from tougher regulation can be a price worth paying if, partly depending on consumers' valuation of stability, the benefits of reducing both the risk of a crisis and the loss of output that occurs are substantial.

- A2.5 Prudential policy, however, does not operate in isolation from other macroeconomic policy measures. Fiscal and monetary policy may well have a greater impact on the likelihood of financial crises, for example through their effects on asset prices, and they also affect the price and demand for finance in the economy. Therefore, it is crucial for an analysis of the impact of changes in capital and liquidity policy to take into account the impact of fiscal and monetary policy, and the possible interaction of these policies with financial regulation.
- A2.6 Estimates of the positive and negative impacts on output of prudential policy need to take into account any change in other macroeconomic policy measures that arise from changes in prudential policy itself. For example, tighter prudential policy may result in a moderation of the volatility in economic activity over the cycle, a consequent reduction in general risk premia and a reduction in official interest rates. These effects could offset the impact of prudential policy on output, at least during the transition to a new level of equilibrium output. Prudential policy could also increase the effectiveness of the operation of monetary policy through the bank lending channel, since it may reduce the capital buffers that firms have with which to offset changes in monetary policy. Similarly, increased government spending could reduce the impact of higher prudential standards on overall growth.
- A2.7 It is not the case, however, that adjustments to monetary and fiscal policy are expected to negate the effects of changing prudential policy. NIESR's macroeconomic model, NiGEM, includes a rule for adjusting monetary policy and a path for fiscal policy, both of which have been used in other public policy work. The results derived from NiGEM nevertheless suggest that prudential policy makes a difference to the course of output. One reason is the following. Higher prudential standards affect the cost of capital in the economy by increasing the gap between borrowing and lending rates in the UK economy and the ultimate cost of financial intermediation in the economy (the 'lending wedge'), which in turn may lower UK capital formation and production.⁵⁷ This change in the returns in the UK economy vis-à-vis other economies could in turn have a negative impact on the exchange rate.

56 Disintermediation includes sourcing funding from foreign banks; directly from hedge funds, insurance companies or other large providers of funds for capital projects; or directly in the securities markets.

57 The size of the increase in the lending wedge will depend on the final scale of policy proposals. Initial calculations indicate that, even for very large increases in prudential requirements, increases in the lending wedge are relatively small. For example, more than doubling banks' capital requirements, from the current Basel minimum of 8% of RWA, to 18% would increase the average lending wedge in the economy by around 80 to 90 basis points, with the impact on consumers around half this size, at between 40 to 50 basis points.

The increased lending wedge associated with higher prudential standards may lead to lower base rates than would otherwise be the case, and these will also tend to lower exchange rates (albeit with further consequences for inflation). The differential impact on inflation of exchange and interest rates means that monetary policy is unlikely to offset fully the impact of prudential policy in the economy.

The FSA's research on banks' responses to prudential standards

A2.8 In general, the FSA's research shows that regulatory capital standards strongly influence the capital held by banks. For a panel of banks over a lengthy sample period, the FSA examined the relationship between regulatory capital requirements and banks' actual capital holdings, controlling as appropriate for other relevant factors. The FSA found that banks tend to respond to increases in capital requirements by:

- 1) adjusting the amount of capital that they hold above any regulatory minimum (the 'buffer');⁵⁸
- 2) raising additional capital; and
- 3) adjusting both the composition and quantity of assets on their balance sheets to manage the total amount of capital needed to back these assets.⁵⁹

The results include measures of the scale of each of these responses.

A2.9 Individual banks may respond differently depending upon characteristics such as size, exposure to market discipline, and how near they are to existing regulatory requirements. Moreover, banks respond differently to capital requirements depending on the state of the economic cycle.⁶⁰

A2.10 The research undertaken by the FSA takes an original approach that provides some empirical evidence to illustrate the size and timing of banks' responses to past changes in capital requirements and shortfalls in capital relative to each bank's internal target, in terms of their levels of capital, lending and other assets. The interactions of different policy initiatives on banks can then be considered, providing some insight into where different policies overlap and under which economic conditions these policies may, or may not, be binding.

A2.11 For example, understanding the adjustment path of banks' balance sheets towards each bank's internal target capital ratio allows an examination of the conditions under which a leverage ratio is likely to constrain banks' behaviour, or the extent to which any counter-cyclical measures will reduce the risk in banks' balance sheets over the course of the cycle. Overall, the FSA can give consideration to estimating the likely impact of all policy measures combined, although this work is subject to the caveat that it is based on banks' reactions to events in the past, and their reaction to similar events, or different shocks to their balance sheets, may not be the same in the future. In particular,

58 Isaac Alfon, Isabel Argimon and Patricia Bascuñana-Ambrós (July 2004), *What determines how much capital is held by UK banks and building societies?*, FSA Occasional Paper 22

59 William Francis and Matthew Osborne (September 2009), *Bank Regulation, Capital and Credit Supply: Measuring the Impact of Prudential Standards*, FSA Occasional Paper 36

60 William Francis and Matthew Osborne (March 2009), *On the Behaviour and Determinants of Risk-Based Capital Ratios: Revisiting the Evidence from UK Banking Institutions*, FSA Occasional Paper 31

the FSA has had to generalise from banks' reactions to capital requirements expressed in terms of the ratio of total regulatory capital to risk-weighted assets, a key part of the Basel I regime as applied in the UK, to recent policy proposals which are applied to un-weighted assets and to different definitions of capital. Similarly, the reaction of other economic agents, particularly firms seeking capital funding, is based on past behaviour and a more robust consideration of this effect would better account for switching to other forms of disintermediation. It is also important to note that the substantial changes to prudential standards under consideration are far greater than any included in the critical sample period. Thus the results have to be regarded at this stage as being only illustrative of the potential costs and benefits.

- A2.12 As international policy develops, the FSA will look to refine its estimates of the likely reaction of banks' capital and assets through time, and take more fully into account the movement of intermediation activity across borders, providing a 'dynamic path' in response to regulatory change. Consideration of this dynamic path will be important given the likely difference in timing between implementation of the Basel II, European (Capital Requirements Directive) and Turner Review initiatives, all of which are still being developed.

Measuring the impact of prudential requirements on the macroeconomy – NIESR's research using the FSA's results

- A2.13 To help understand the impact of policy changes on the macroeconomy, the FSA commissioned NIESR to provide a starting point for a CBA of the policy proposals that includes the macroeconomic impacts.⁶¹ This analysis involves building on the results obtained in FSA Occasional Papers 31 and 36 to provide the basis of a financial sector in NiGEM, NIESR's macroeconomic model of the UK economy, and a model of the probability of a crisis occurring.⁶² Together, these models enable a tentative assessment to be made of the impacts on economic output of different levels of the overall increase in the regulatory requirements for banks' capital and liquidity implied by specific proposed rules.

Benefits

- A2.14 As noted above, the key benefit of prudential policy is to reduce, for any given monetary and fiscal policy context, the likelihood of a crisis occurring (and to limit the damage to the economy that arises in the event a crisis does occur). This, in turn, reduces the likelihood of a crisis imposing further costs on the economy, both in terms of the immediate loss of output as well as any sustained reduction in the level of GDP. NiGEM can be used to estimate a likely path for economic activity in the absence of a crisis, and a likely path for output once a crisis occurs, noting that this path will be sensitive to any potential response from monetary or fiscal policy. In large part, the difference in economic output between these two paths will represent the macroeconomic costs that would be avoided if a crisis does not occur.

61 Ray Barrell, E Philip Davis, Tatiana Fic, Dawn Holland, Simon Kirby and Iana Liadze (2009), *Optimal Regulation of Bank Capital and Liquidity: How to Calibrate New International Standards*, FSA Occasional Paper 38 (forthcoming)

62 Ray Barrell, E Philip Davis, Dilruba Karim and Iana Liadze (2009), *Bank Regulation, Property Prices and Early Warning Systems for Banking Crises in OECD Countries*, NIESR, available at www.niesr.ac.uk/pubs/searchdetail.php?PublicationID=2201

A2.15 The benefits of changes to prudential policy can therefore be estimated as the consequent reduction in the probability that a crisis occurs multiplied by the estimate of the output lost as a result of a crisis.

Costs

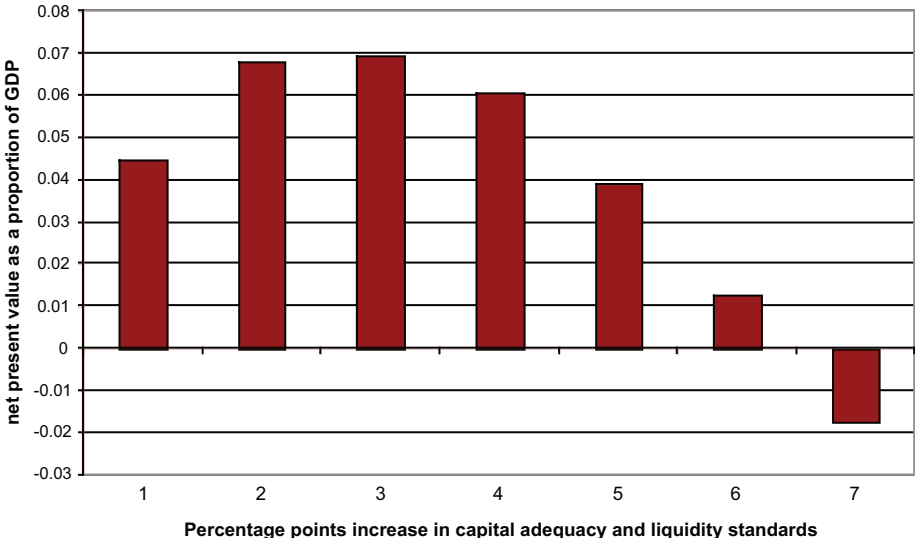
A2.16 Similarly, NiGEM can be used to make illustrative estimates of the reduction in economic output which might arise directly from higher prudential requirements. The banking module added to NiGEM allows the FSA to simulate the impact of raising the level of capital and liquid assets that banks may be required to hold, providing an estimate of the extent to which economic output is constrained by higher requirements.

A2.17 The costs and benefits of policy proposals on economic output can therefore be estimated to assess the overall impact on the macroeconomy.

NIESR’s indicative results

A2.18 NIESR has undertaken an indicative CBA based on an arbitrary range of higher prudential standards. By use of appropriate metrics, various bundles of policies can be placed within this range, and the range can be extended. It should be noted that the approximation of net benefits assumes no adjustment is made to reflect a possible preference for avoiding crises over maximising output.⁶³ This issue is, however, addressed in the discussion of welfare below. NIESR’s indicative calculations are shown in Figure A1 below.

Figure A1: Illustrative impacts of increased capital and liquidity standards using NIESR preliminary estimates and assumptions



63 It should be noted that the methodology of the NIESR model relates to capital held against banking books, where it is reasonable to assume some relationship between capital requirements and volume/price of lending. Assessing appropriate capital to be held against trading books raises separate issues. Planned increases in capital against trading books would therefore be in addition to any increase in global capital implied by NIESR-type modelling.

- A2.19 It must be emphasised that these results are indicative only, and represent mere point estimates of the possible outcomes from the range of higher prudential standards represented. They are subject to large estimation error, do not necessarily reflect current policy proposals and are contingent on the assumptions made by NIESR and the current limitations of the models. Currently there is no analysis of the degree of uncertainty around these estimates, although it is anticipated that this uncertainty will be material and will rise as the scale of policy choices increases. Consequently, any effort to predict the impact of policy changes which will occur in the future and which represent a significant departure from the existing regulatory regime inevitably involves a great deal of approximation, certainly pending substantial further research.
- A2.20 The results so far obtained will undoubtedly be altered by some improvements to the modelling, on which the FSA is either working or expecting to work. This is set out in the section on further work below. In principle, the results that the FSA will obtain by using the outputs from the FSA's model bank as an input to NiGEM should be more realistic than the results quoted above. Nevertheless, these results are instructive for the type of CBA the FSA thinks will need to be undertaken.

Indicative results

- A2.21 The vertical axis of Figure A1 expresses the central point within an expected range for the net present value of cumulative future gains in real GDP as a proportion of estimated real GDP in 2009. That is, a value of 0.01 represents 1% of the level of real GDP for 2009, or approximately £13 billion.⁶⁴ Thus the largest net benefit estimated is 7% of real GDP or, approximately, £91 billion and so is an extremely large benefit, certainly relative to the other benefits that regulation can deliver.
- A2.22 The horizontal axis represents an arbitrary range of higher prudential standards against which increases in the net present value of future GDP have been estimated. As explained above, increases in regulatory standards impact on lending by increasing the capital and liquidity that banks actually hold. This in turn increases the price that banks charge for credit (to which there is a demand-side response). Thus different capital and liquidity measures are aggregated by adding up their impact on the price of credit.
- A2.23 Specifically, the first bar on the chart represents the net benefit of the policy combination of a one percentage point increase in total capital requirements (the total capital banks must hold as a proportion of their risk-weighted portfolio of assets) and a one percentage point increase in liquidity requirements (the liquid assets banks must hold on their balance sheets as a proportion of their total assets). In this context, it is assumed that requirements are reflected one-for-one in the target capital ratio of the banking sector considered as a whole. Thus, if the aggregate targeted ratio for all types of regulatory capital were 8% of RWA, the capital element of the regulatory package whose effect is described in the first bar would be an increase in requirements to 9% of RWA. The liquidity element represents a one percentage point increase in the liquid assets that banks hold, in aggregate, on their

⁶⁴ This calculation is based on the sum of quarterly GDP estimates available to the June quarter, 2009 – the latest estimates available at the time of writing.

balance sheets – that is, if current holdings of liquid assets are around 3% of total assets, the first bar represents an increase in banks' holdings to 4% of total assets. Similarly, point 2 on the horizontal axis shows the combined effect of a two percentage point increase in capital requirements and a two percentage point increase in liquidity requirements, and so on.

- A2.24 NIESR has advised that its data suggest that the impact of a percentage point increase in liquidity standards is somewhere between one quarter and one half of the impact of a one percentage point increase in capital standards. In principle, this allows one to use the scale on the horizontal axis to approximate, in broad terms, the effects of increases in liquidity requirements or capital requirements by themselves, or in differing combinations, although the two effects are not strictly additive.
- A2.25 Taken at face value, the data summarised on the chart suggests that the net present value of future gains in output would be maximised with an increase in prudential standards of around 3 percentage points. At the present stage of development of this work, however, it is impossible to place any weight on these specific figures. Rather, the purpose of the chart is to illustrate the important point that tighter prudential standards can, in principle, be associated with higher expected output over the course of the economic cycle.
- A2.26 There are some important aspects of the model which need to be treated with particular caution at this stage:
- 1) the estimate of the reduction in the probability of future financial crises and in their depth and duration that would result from the introduction of the policy measures almost certainly omits a number of important factors. A discussion follows below on research to improve the crisis model;
 - 2) the 'transformation function' that translates the financial crisis into a loss in output and employment is based on the current crisis, and of course future crises may be different;
 - 3) the real rate of discount applied to the benefit of avoiding the crisis that may occur at some point in the future is 3%, which is broadly consistent with HM Treasury's Green Book, but it is possible to take other views;⁶⁵
 - 4) the monetary and fiscal policy that the authorities would pursue under the two scenarios (with/without financial reform) both prior to and subsequent to any crisis are included in NiGEM as rules that reflect past behaviour, but these could change; and
 - 5) the share of the banking markets in total financial intermediation, the degree of switching between the banking and securities markets as a result of changes in relative cost of borrowing in the two sectors, and the extent to which business transfers between UK and foreign-headquartered banks, are accounted for in NiGEM to the extent that they have happened in the estimation sample period. Larger changes in standards may have disproportionately large effects.

65 www.hm-treasury.gov.uk/d/green_book_complete.pdf

Further work to improve the reliability of the results

- A2.27 There remain some issues that the FSA cannot easily address with the NiGEM model, even as enhanced by the model bank. Some of these issues may be intractable but on others the FSA will look to do some further research, including sourcing work from other public sector agencies and academia. The more important areas of further work are summarised below.
- A2.28 *Changes to the competitive landscape:* while NIESR's estimates of the impact of changing prudential requirements reflect the extent of historical competition, any change to competition in the market following the financial crisis may alter banks' and other firms' responses to the cost increases associated with increases in prudential requirements.
- A2.29 For example, higher prudential standards may raise barriers to entry and limit competition in the banking sector. The competitive response of banks to higher standards may be reduced to the extent that banks already exercised market power and were able to price above a 'competitive' level before the crisis. The extent to which borrowers are willing to use other forms of disintermediation will also influence the banks' competitive response. Again, the amount of financial intermediation undertaken outside the regulated banking sector subject to much less-stringent regulatory oversight may increase, subject to how willing borrowers are to engage with the non-bank sector.⁶⁶ A competition analysis would illuminate these effects.
- A2.30 *The impact of liquidity measures:* NIESR was unable to derive empirically the response of UK banks to changes in liquidity requirements due to a lack of UK data. The impact is estimated from US banks' data whose responses were considered to be most like those of the UK from the data set available. NIESR estimates from the US data that the impact of changes in the ratio of liquid assets to total assets is between one quarter and one half that of changes in the ratio of total capital to risk-weighted assets, with one half to be an upper bound to the scale of the relative impact of these measures in the UK economy. Nevertheless, the lack of empirical evidence for the response of the UK banking sector in NiGEM means that this impact is subject to considerable uncertainty, and careful work to interpret the results is needed.
- A2.31 *Changes to banks' risk behaviour:* the 'too big to fail' status of some banks constitutes, in effect, an implicit subsidy for banks, which has been used to fund projects or asset purchases that otherwise would not have been funded. In the event of a crisis, the capital invested in these higher risk projects is more likely to be lost entirely, increasing the likelihood of bank failure.
- A2.32 Increases in capital requirements may ameliorate banks' credit losses by reducing the overall level of risk inherent in banks' lending, although only up to some 'optimal' point, beyond which capital is not as productively invested as it could be. However, another response banks may have to higher, and more costly, capital requirements is to increase the risk in their portfolios in ways that policy measures cannot anticipate (and, possibly, supervisors cannot observe). This would be likely to reduce the benefits of higher prudential standards but is likely to prove difficult to model. The

⁶⁶ This issue has been discussed by Charles Goodhart as *The Boundary Problem in Financial Regulation*. Proposals to deal with this issue were set out in Section 7 of DP09/2

significance of this modelling issue may be reduced, however, provided that reforms to prudential regulation in general are successful, including in addressing the problem of ‘too big to fail’ and its associated excessive risk-taking.

- A2.33 *Influence of ‘network effects’*: network effects arise because of the interrelationships between banks’ balance sheets, whether through interbank lending or through similar diversification of banks’ assets. These effects could magnify the propagation of shocks in the banking sector (for example, sharp downward revaluation of a particular asset’s value), causing bank failure. The FSA will consider how best to use the results of network modelling to improve on the results so far obtained from the crisis model used by NIESR. This may well be as part of the Tripartite macro-prudential initiative.
- A2.34 *Measuring the benefits*: a necessary element to calculating the benefits is the probability of crisis. The relevant models of probabilities are ‘non-linear’ in nature, which means that an increase in capital requirements of 1 percentage point will reduce the likelihood of a crisis by a smaller amount if firms already have capital ratios of 30% rather than 15%. This has a number of consequences:
- 1) the estimated probability of a financial crisis will tend towards zero as each bank’s equity increases relative to its assets, but these benefits taper off dramatically once the equity ratio passes some critical level;
 - 2) calculation of the additional benefits of each policy initiative will depend upon the order in which they are implemented. For example, implementing changes to liquidity policy ahead of changes to capital requirements will reduce the measured reduction in the probability of a crisis (and hence the benefits) arising from changes to capital requirements. The FSA and international standard setters will, therefore, need to consider policy measures jointly to ensure that benefits are properly assessed.
- A2.35 In addition to these issues, the current crisis model estimates the probability of a crisis occurring but takes no account of the size or severity of the crisis in relation to the probability. Consequently, it is not possible with the current models to judge the extent to which any future crisis may be less severe as a result of current policy proposals, and therefore whether, or the extent to which, the benefits of policy proposals may be understated. The FSA will consider further extensions to the crisis model to try to give consideration to this potential effect.
- A2.36 *Welfare implications*: NiGEM provides an estimate of the cumulative impact on GDP of different capital requirements, but it does not take into account the extent to which individual economic agents may value a sudden loss of income induced by a crisis, relative to a much longer reduction in overall GDP growth. Up to a point, lower growth and higher stability may be a welfare gain for consumers. Moreover, as previously noted, NiGEM is a model of the aggregate economy, and makes no distinction between the welfare of different sectors of the economy. Thus NIESR’s results cannot be interpreted, for policy purposes, as defining a cap on increases in capital and liquidity standards. The FSA will look to source additional work on the potential welfare impacts from the academic literature and, possibly, empirical research.

A2.37 *Quality of capital and location of capital within the banking system:* most relevant historical research on the impact of capital standards has largely focused on the ratio of total regulatory capital over risk-weighted assets, as defined by the Basel I Accord. Since this was the key regulatory ratio in the UK before the crisis of 2008, NIESR's analysis follows these other studies in focussing on the Basel I ratio. However, many of the proposals for regulatory reform currently under consideration involve higher quality sub-categories of capital such as Tier 1 capital or Core Tier 1 capital. Hence, there is a need to extend NIESR's analysis to consider the role of different types of capital, for example, whether the greater cost of higher quality forms of capital implies more substantial changes in the cost of borrowing. Furthermore, the biggest impact of changes in prudential policy will arise through the reaction of the six banks that hold the great bulk of the capital in the UK banking system. The FSA is already developing its own 'model bank' framework to help assess these issues.

Progress beyond NIESR's results – the FSA's model bank

- A2.38 The NiGEM model necessarily abstracts from detailed structural issues within the banking sector, relying on assumptions about the aggregate behaviour of the banking sector. However, different policy initiatives will affect individual banks in different ways, dependent upon factors such as a bank's business strategy and risk profile.
- A2.39 A model bank framework is being developed by the FSA that may in future allow a more detailed assessment, at institutional level, of the impact of measures on the UK banking system and a translation of these changes into a form usable in the NiGEM model. This will draw on the insights into firms' reactions to capital standards found in Occasional Paper 36⁶⁷ and on the most recent data the FSA has on the current balance sheets of major banks which serve as the starting point for modelling. As explained above, this work may produce a more refined and realistic estimate, than has so far been possible, of the overall response of banks to specific changes to prudential regulation.
- A2.40 In addition, the FSA may be able to include consideration of issues such as the response of banks to changes in the quality of capital. For example, work is planned to estimate the impact on banks that may arise as a result of requirements to hold capital that is better at absorbing losses (and potentially more expensive) such that this impact can be appropriately reflected in the NiGEM model.
- A2.41 Aggregating the results from a set of model banks – one to represent each of the major banks within the UK system – will in principle give more realistic results than the work done to date since it will take into account detailed information on their balance sheets at the start of the analysis, the distinctive effect of new packages of regulations on each individual bank, and the results of research on the behavioural response of banks to regulation.

67 William Francis and Matthew Osborne (September 2009), *Bank Regulation, Capital and Credit Supply: Measuring the Impact of Prudential Standards*, FSA Occasional Paper 36

Acronyms

AIRB – Advanced Internal Ratings Based

BCCI – Bank of Credit and Commerce International

BCBS – Basel Committee on Banking Supervision

BIS – Bank for International Settlements

CBA – Cost Benefit Analysis

CCP – central counterparty

CDS – Credit Default Swap

CEPR – Centre for Economic Policy Research

CESR – Committee of European Securities Regulators

CPSS – Committee on Payment and Settlement Systems

CSFI – Centre for the Study of Financial Innovation

DFMUs – Designated Financial Market Utilities

DGS – Deposit Guarantee Scheme

DP – Discussion Paper

ESCB – European System of Central Banks

FDCIA – Federal Deposit Insurance Corporation Improvement Act

FHC – Financial Holding Company

FRS – Federal Reserve System

FS – Feedback Statement

FSB – Financial Stability Board

FSCS – Financial Services Compensation Scheme

GDP – gross domestic product

ICMB – International Center for Monetary and Banking Studies

IMF – International Monetary Fund

IOSCO – International Organization of Securities Commissions

IRB – Internal Ratings Based

NIESR – National Institute of Economics & Social Research

NiGEM – National Institute Global Econometric Model

OTC – over-the-counter

RWA – Risk Weighted Assets

SME – small and medium-sized enterprises

SRR – Special Resolution Regime

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