

Goodhart, Charles

Working Paper

The emerging new architecture of financial regulation

CFS Working Paper, No. 2011/12

Provided in Cooperation with:

Center for Financial Studies (CFS), Goethe University Frankfurt

Suggested Citation: Goodhart, Charles (2011) : The emerging new architecture of financial regulation, CFS Working Paper, No. 2011/12, Goethe University Frankfurt, Center for Financial Studies (CFS), Frankfurt a. M., <https://nbn-resolving.de/urn:nbn:de:hebis:30-101941>

This Version is available at:

<https://hdl.handle.net/10419/57352>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.



No. 2011/12

The Emerging New Architecture of Financial Regulation

Charles Goodhart





Center for Financial Studies

The *Center for Financial Studies* is a nonprofit research organization, supported by an association of more than 120 banks, insurance companies, industrial corporations and public institutions. Established in 1968 and closely affiliated with the University of Frankfurt, it provides a strong link between the financial community and academia.

The CFS Working Paper Series presents the result of scientific research on selected topics in the field of money, banking and finance. The authors were either participants in the Center's Research Fellow Program or members of one of the Center's Research Projects.

If you would like to know more about the *Center for Financial Studies*, please let us know of your interest.

Prof. Michalis Haliassos, Ph.D.

Prof. Dr. Jan Pieter Krahen

Prof. Dr. Uwe Walz



CFS Working Paper No. 2011/12

The Emerging New Architecture of Financial Regulation

Charles Goodhart¹

September 2010

¹ London School of Economics (LSE) London. Contact Address: The London School of Economics and Political Science, Houghton Street, London WC2A 2AE, United Kingdom. E-mail: c.a.goodhart@lse.ac.uk

1. Introduction

A. Where have we reached?

Now is a good time to take stock of progress in the reform of financial regulation. Much has been happening. The monumental Dodd-Frank Act was passed by the US Congress in July 2010. The deliberations and conclusions of the Basel Committee on Banking Supervision (BCBS) and the Financial Stability Board (FSB) are being put to the G-20 Heads of State in Seoul in November. In the UK the Vickers Committee has been asked to report on the structure of the banking sector by summer 2011.

Some have argued from time to time that the momentum of financial regulatory reform was being lost; it is now two full years since the catastrophe of autumn 2008, and little seems to have been finally agreed. In fact the reverse is nearer the truth. In view of the power and predominance of the USA, it makes little sense for the rest of the world to try to press ahead with plans for the achievement of international regulatory agreements until the Americans have come to some outline decisions. In Congress the reform of financial regulation was given second priority, after the reform of their health-care program, and this has now resulted in the Dodd-Frank Act. Following that, financial regulators around the globe now can, and will, press forward to agree and then to implement revised and reformed plans for financial regulation.

The danger, as I shall try to document below, is not that enthusiasm and efforts for undertaking such reforms are dissipating and running into the sand, but rather that in several respects the proposed reforms are incomplete and/or partially misdirected.

B. Why official intervention in finance?

Financial regulation is normally purely reactive, introduced in order to prevent the factors deemed to have caused the previous crisis from happening again. Against the dramatic background of the recent crisis that is, naturally enough, recurring. The general populist consensus is that the crisis was caused by the bad behaviour of (Anglo-Saxon) bankers, and the proposed remedies are, all too often, to make them behave better, or suffer, or be constrained from such bad behaviour. But regulation should not be to make people behave better. The latter is normally achieved, in most business relationships, by some combination of competition, repetition in bilateral dealing, and reputation, rather than by direct regulation or conduct of business rules.

Instead, standard micro-economic theory provides three main justifications for official intervention in otherwise free markets. Taking these in reverse order of importance as relates to the financial system, they are:-

- (i) The control of monopoly power

This has relatively little salience in financial systems, for example as contrasted with utilities. There are strong network externalities in certain payment systems and in the establishment of some clearing and marketing systems. But the involvement of the public sector, especially the Central Bank, in each country has usually prevented the exploitation of monopoly powers in the management of such network systems. Indeed, national pride has often led to an

excessive plethora of national markets where a single, or at least smaller number of, international market(s) would have been more economic.

In several medium-sized, or smaller, countries most retail banking is done predominantly by a handful of large domestic banking chains. There are recurrent worries that such banks may operate as a restrictive cartel. But the availability of electronic, on-line banking makes potential entry much cheaper than it used to be for undertaking many retail functions, and large corporates have access to many alternative sources of funds. So, this concern is pretty much limited to a worry that small and medium enterprises (SMEs), where proprietary information is still necessary, may be getting a raw deal from facing an oligopoly. This concern is perennial, and not specifically related to the onset of the crisis, but it has been enhanced by the resultant tightening of credit conditions.

(ii) Customer protection, a.k.a. asymmetric information

This remains an important, and popular, aspect of financial regulation. Both the USA and the UK have now moved towards having a stand-alone agency with sole responsibility for such consumer protection, separate from bodies with wider responsibility for micro, and macro, prudential oversight. There is no doubt that most investors/depositors have much less information/understanding of financial conditions and of risks than their advisers and those proposing products and investments. The potential for leading the unwary and gullible astray remains considerable, let alone for purely fraudulent enterprises (Madoff).

Nevertheless there is not much evidence that consumer protection, (asymmetric information), issues had much relevance to the financial crisis, except that fraud and other forms of bad behaviour, vis a vis investors, tend to flourish more in the asset price boom that, once again, preceded the bust. It is true that many borrowers in the sub-prime mortgage market were encouraged to take out mortgages that only made sense on the assumption that housing prices continued to rise. But, unfortunately, the delusion that this would happen was just as prevalent amongst lenders, and even regulators; so the delusion was general, rather than foisted onto borrowers by unscrupulous and knowing miscreants.

Indeed, apart from suffering from the economic downturn and credit squeeze like everyone else, the poor, ignorant and ill-informed have been at no greater disadvantage than usual. Madoff's victims were rarely indigent. Deposit insurance generally worked, and where it did not, because of delays in paying out, co-insurance and maximum limits, or from insufficient government funding (Iceland), the (other) governments generally moved swiftly to insure that no retail depositor lost any of their monies. In the recent crisis, in almost all cases, the retail depositor was fully protected. While this will have increased moral hazard severely, since 100% deposit protection means that many will now place funds in the highest yielding offer, irrespective of risk or reputation, it hardly means that the widows and orphans need yet more deposit protection.

(iii) Externalities

The main reason for enhanced and reformed financial regulation is to counter externalities, whereby the actions of those operating in the financial system have costs, and benefits, that impinge on others beyond themselves. So long as all such assets/benefits were internalised within the financial system itself, there would be little cause for external regulation or intervention in the operations of financial institutions, or of markets.

What are the main externalities that justify such regulation? Hanson, Kashyap and Stein in their paper on ‘A Macroprudential Approach to Financial Regulation’, forthcoming in the Journal of Economic Perspectives suggest that the main problem is the “credit crunch and fire sale effects”, p. 4. I would broaden this to the claim that the operations of financial intermediaries have amplifying effects on leverage and credit cycles. A particularly noxious amplification often results from the bankruptcy and default of an interconnected (and large) financial institution, or market, for the reasons that I have set out in more detail elsewhere (Goodhart 2010, Chapter 5 in The Future of Finance: The LSE Report). Such amplification kicked in with a vengeance after the failure of Lehman Bros in September 2008. The superimposition of contagious insolvencies in the context of a sharp downturn of the credit/leverage cycle can lead to a debt/deflation quasi-equilibrium of the kind described by Irving Fisher (1933).

In practice, most organised markets, with central clearing parties (CCPs), continued to operate well and smoothly throughout the crisis, and various loss-sharing rules and protective mechanisms already in place such as margin and collateral requirements and position limits seem to have worked as planned. The markets that failed to work well were certain bilateral, over the counter (OTC) markets, such as the CDS market, where AIG built up, largely unbeknownst to most, an excessive concentration of tail risk, and the inter-bank market, which became dysfunctional once a generalised fear of counter-party credit risk had spread. We will discuss proposals to introduce reforms into such OTC markets later on.

Instead, the main systemic externalities have arisen from the cumulative effects of levered financial institutions simultaneously expanding in the up (boom) phase of the financial cycle and cutting their positions (deleveraging) in the down (bust) phase. What was worse was that the regulatory system, previously in place, actually exacerbated the leverage/credit cycle. A key problem is that a risk-related (capital) ratio control mechanism is self-evidently sensible, (so long as risk can be measured with any accuracy at all), on a cross-section basis, that is when comparing one bank with another at a given point in time; but, alas, it makes little sense in the time domain. This is because all risks appear to decline during the up phase of the cycle, as profitability and ratings and repayment rates rise, and worsen during the subsequent down phase. So, for a given portfolio, capital adequacy requirements (CARs) relax in the boom and tighten in the bust, thereby reinforcing the leverage cycle; add to this the generalised shift to mark-to-market accounting, whereby asset price changes (for assets held in the trading book) flow directly into profits (P and L) and capital. So regulation itself was one of the driving forces behind the recent cycle. This is not to suggest that either risk-related CARs or mark-to-market accounting are wrong in themselves and/or should be abandoned, but rather that their procyclical effects need to be appreciated and counter-acted by other, designedly counter-cyclical measures.

There is another (lesser) respect whereby regulation may have, unwittingly, led to more, rather than less, systemic risk. This is that a professed purpose of regulation was to bring all banks up to the standards of the best, in terms of risk management, etc. But a side effect of that is to make banks tend to behave in the same way, and have similar portfolios. For obvious reasons, as pointed out by Persaud [] and W. Wagner [], the more self-similar and less diverse are banks and other financial intermediaries, the more susceptible the system is to collapse in the face of a common shock.

So, in my view, a touchstone for assessing whether the planned reforms to financial regulation are desirable is whether they will diminish the extent and volatility of credit and leverage cycles.

C. The coverage of financial regulation

Most of the proposed reforms have been directed just at banks and bankers. In the light of the above argument, that is mistaken. Any levered financial intermediary can play a role in amplifying the credit/leverage cycle. Moreover, it is not just intermediaries. Final borrowers, such as households, corporates and governments, can become over-indebted at one stage in the cycle, and then put others at risk by cutting back too hard and too fast in the downswing. When borrowers realise that they have got themselves into an over-extended, dangerous state, there is not much that regulation by itself (e.g. as contrasted with other policy measures) can, or should, do to stop them deleveraging. This indicates that financial regulation should focus on trying to deter the build-up of excessive borrowing in the boom phase; easier said than done.

What this implies is that the focus of regulation should have been on the manifold sources of the leverage cycle, rather than so narrowly on banks, a line of argument also emphasized in the book by Acharya, et al (2010) on Regulating Wall Street. But at least the emphasis on banks has been widened to include other Systemically Important Financial Intermediaries (SIFIs). Unfortunately this shift of focus just goes to reveal how little we really know about the assessment and measurement of ‘systemic importance’. Whilst a number of techniques are being developed to try to measure this concept, such as Co-Var by Brunnermeier and colleagues, Systemic Expected Shortfall by Acharya and colleagues, and CIMDO by Segoviano, for the time being the main dividing line between a SIFI and a non-SIFI looks likely to be by size alone.

This is unfortunate. Much more academic work needs to be undertaken to increase our understanding of, and capacity to measure, systemic risk. In advance of such work, the focus of regulation may be too centred on banks alone, and leave levered, but unregulated, financial intermediaries, including money-market mutual funds and shadow banks of varying shades of obscurity, with too much leeway (see Gorton, 2010), while at the same time even preventing the Central Bank from counteracting panic collapses in such near-banks out of a mistaken wish not to extend the safety-net. To some extent this is the position taken in the Dodd-Frank Act, and on these arguments that is wrong.

D. Taxonomy and plan of paper

Be that as it may, the outline of the rest of the paper is as follows. The main thrust of the work done to improve financial regulation comes under the general heading of enhanced Crisis Prevention mechanisms (Section 2). This in turn can be decomposed into numerous subheadings. The subheadings that I shall employ here are:-

- A) Revised and Enhanced Ratio Controls (with numerous sub-sub-headings, such as sanctions and transitional arrangements);
- B) Pigouvian Taxes;
- C) Direct Constraints on Allowable Financial Practices;
- D) Remuneration;
- E) Reforms of Market Structures;

F) Other, such as margins on non-banks and reforms to credit rating agencies (CRAs).

The second main field for such work comes under the heading of Crisis Resolution (Section 3). This too can be decomposed into several sub-headings, as follows:-

A) Some Current Problems in Resolving Financial Crises;

B) Shift Resolution Costs from Taxpayers to Banks and their Creditors?;

C) Special Resolution Regimes and 'Living Wills';

D) Cross-Border Resolution Mechanisms.

Finally I shall turn to administrative arrangements for implementing such regulatory reforms, (Section 4).

2. Crisis Prevention

A) Ratio Controls

(i) Some history

From the 19th century until the 1970s/1980s, the key regulatory ratios were those imposed on various definitions of cash, or more widely on liquidity. Banks defaulted because they ran out of cash. Large banks could replenish their cash holdings rapidly and easily, with little loss, by holding certain types of liquid assets, which could be readily sold in broad markets and/or pledged as collateral with the Central Bank. Small (country) banks could replenish cash by holding balances with larger City banks. Moreover, the cash base of the banks could, up to a point, be controlled (it was thought) by the Central Bank, so a cash (liquidity) ratio control was supposed not only to act as prudential control against default, but also to constrain the total size/leverage of banks.

Meanwhile, capital was needed, not so much to prevent default, but as a protection for the deposit holder, a senior creditor, after the event of bankruptcy, a form of support made stronger when unlimited or double liability for shareholders remained in force. In the years up until the Great Depression in the 1930s capital ratios were high, compared to current practice. From the 1930s until the 1970s banking practices were in most countries restricted and forcibly cartelised, often with direct constraints on lending amounts and on the interest rates that banks could offer, so that banks made a steady low rate of profit, with limited leverage/credit cycles and few bankruptcies. Capital, and Capital Adequacy Requirements (CARs), were not seen as a pressing issue then.

All this changed in the 1970s. The main catalyst was the growth of global wholesale money markets, notably the euro-dollar market. Now banks, when faced with a cash drain, could just borrow what they wanted in such wholesale markets, so long as they were perceived as sufficiently credit-worthy to repay. Moreover, Central Banks could not stop their commercial banks expanding their books, i.e. adding leverage, by such wholesale borrowing so long as these Central Banks wanted to hold interest rates and/or exchange rates, if only for the time being, at some fixed level.

So the whole idea of cash, or liquidity, ratios serving as a protection against default, or as a constraint on overall credit and leverage expansion, began to fall out of fashion, with the partial exception of academic economists, amongst whom money multiplier analysis of the determination of the size of the money supply continued anachronistically to be taught to university students up until the 2000s! Meanwhile, the development of wholesale liquidity markets divorced the prior link between the growth of bank lending and of retail deposits. As documented by Schularick and Taylor [2009 check] from about that date (early 1970s) bank lending (credit) grew at a much faster rate than ordinary, retail deposits, fuelled largely by wholesale funding (funding liquidity), whereas bank holdings of owned liquid assets (market liquidity) fell, often precipitously. There was an attempt by the BCBS in the 1980s to fashion an Accord on Liquidity, along the lines of the 1988 Basel I Accord on Capital, but that failed, partly because it was held to be much less essential than a capital adequacy requirement (CAR).

In this brave new world, where a banker could almost always expect to fund his cash requirements from wholesale funding, what did protect banks from default and limit total leverage and credit expansion? The answer was bank capital. A bank could not borrow on wholesale markets, certainly not unsecured, if there was any doubt about its solvency. So (funding) liquidity, which soon became central for overall liquidity, was a function of perceived solvency, and solvency was a function of having adequate capital. So, the capital ratio held by banks became both the effective protection against default and the constraint on leverage/credit expansion.

The problem was that the bankers themselves preferred a lower, to a higher, capital ratio, because it enabled them to post a higher return on their equity (RoE), especially when borrowing cheaper, short-term wholesale funds. Economists argued that the structure of bank liabilities should not affect the value of the bank, under certain quite stringent assumptions; and that shareholders should be content with a lower RoE, when the CAR rose, since risk and volatility should decline, while fixed income creditors should also be willing to accept a lower rate of interest for the same reason (less risk), the Modigliani-Miller theorem. There were, however, several flaws to this theorem in the case of banking. First, in so far as creditors thought that they were already explicitly or implicitly insured by a government guarantee (100% deposit insurance or too big (or interconnected) to fail) the cost to the bank of raising debt finance would not decline commensurately when the capital ratio rose. Second, wholesale funding markets frequently do not work by calibrating lending rates to assessed risk. Instead a bank can borrow from a counterparty at the going (risk-free) rate, up to some limit, which may be zero. So a change in perceived risk will change the quantum that a bank can borrow in such markets, sometimes suddenly and drastically, not the rate payable. Third, it is remarkably difficult for an outsider to distinguish between a high RoE based on superior skill and market positioning from one based on a higher risk profile. Those involved will emphasize the former, even when the latter is the case, or in the jargon phrase, “Beta dressed up as alpha”.

(ii) Basel I

For all these reasons bankers preferred to lower their capital ratios, in order to raise RoE. This put them at greater risk of default. Capital ratios declined quite sharply from the 1960s through into the 1980s. The resulting fragility of the banking system became exposed in the 1982 Mexican, Argentinean and Brazilian (MAB) banking crisis, when, on a mark-to-market accounting basis, some, possibly most, of the New York city centre banks with large loan

exposures to the MAB countries (plus some other developing countries, such as Poland), would have been insolvent.

This experience led directly on to the 1988 Basel I Accord on Capital, on which I have written extensively elsewhere (Goodhart 2011, Chapter 6). This Accord did succeed in its main aim, which was to check the downward trend in capital ratios. But it had several flaws.

The first of these was that, although Basel I was risk-weighted, the risk buckets adopted, especially in the case of bank loans to the private sector, were broad, indeed in the case of private sector loans simplistic. Since this meant that the regulatory capital requirement on good loans were higher, relative to the 'economic capital' that banks would have wanted to keep on their own on them, banks were given a greater incentive to sell off such good loans (securitisation) to non-bank intermediaries, including to their own off-balance-sheet shadow banks, while keeping the worse quality loans on their own books. Thus Basel I was threatening to turn 'good' banks into 'bad' banks.

(iii) Basel II

It was this anomaly that Basel II aimed to overcome, by aligning regulatory capital more closely with banks' own internal risk based assessments. Basel II also took steps to impose a better regulatory control on banks' off-balance-sheet operations, though it failed to impose any equivalent controls on other non-bank leveraged intermediaries. But it failed to counter the greater procyclicality that a more sensitive risk weighting brought in its train, and, of course, its attempts, as well as others such as the credit rating agencies, to measure risk accurately were deficient, for example giving too much weight to Value at Risk (VAR) measures, and insufficient attention to tail risk. Note that it is dubious whether we will ever be able to assess risk with great accuracy, so that finance industry insiders will generally be able to dance around the regulatory framework.

Other problems also remained. The first was the definition of capital, which had generated so much painful discussion in the run-up to Basel I that no one had the stomach to reopen it in Basel II. The problem here was that pure core equity could be supplemented by a variety of additional quasi-equity elements for meeting the Tier 1 requirement, elements such as minority interests, deferred tax credits, which could not be deployed as a buffer against insolvency. Hence tier 1 core equity (TCE) could be as low as 2 or 3% of total assets. So a relatively small change in asset values could drive such a bank into insolvency; put another way, it would take massive de-levering (asset sales) to restore the CAR after an asset price shock. The required core equity base was just too low.

The next flaw was that, for reasons outlined in my book on the BCBS, the regulatory authorities there felt unable to consider sanctions for going below satisfactory levels of capital (or liquidity). Hence the agreed ratios became, in effect, regulatory minima which the banks could not fall below without potentially life-threatening reputational damage. So tier 1 and tier 2 required capital could not be used as a buffer. The buffer was the margin in excess of requirements. But banks still wanted to hold down any excess equity holdings, in pursuit of higher RoE. So the equity, or wider capital, buffer above the requirement was generally tenuous. And, of course, all such measures of capital and assets were accounting numbers which could be, to a degree, (and were) manipulated.

For all such reasons neither Basel I nor Basel II provided a safety net that was sufficient to protect the banking system from severe asset price shocks, and the bankers, if not the

regulators, knew that well enough. So when such an asset price shock did occur (US housing prices), banks knew that some of their counterparties could be at risk, and that they themselves might find it hard to refinance future roll-overs. So the first major symptom of the crisis starting in August 2007 was a liquidity crisis, with wholesale markets becoming dysfunctional.

In the old days, when banks held liquid asset ratios of some 20/30% of total assets, they could have met that liquidity squeeze by selling some of those assets. But these conditions were mostly long gone. There was no real alternative to a direct approach to the Central Bank for emergency lending assistance (ELA), and on the back of pledging collateral, such as mortgage-backed securities (MBS), that once upon a time most Central Banks would have turned up their nose against. The problem of how to respond was made much worse by two factors. First, going to a Central Bank for ELA is a patent sign of weakness, and carries a stigma. So banks will not do so until too late. Second, both as a result of looming solvency fears, and because it is generally cheaper, banks which are perceived as weaker are usually forced to borrow at shorter and shorter maturity, often mostly overnight. So, the moment they get shut out of wholesale markets, a fatal crisis is almost immediate. There is no time for orderly reflection or restructuring. Against this background Central Banks put in place in 2007/8 a weird and wonderful selection of, somewhat ad hoc, counter-measures to replace funding liquidity, which had dried up, with Central Bank liquidity, thereby expanding their balance sheets several times over. But it was not a comfortable experience.

(iv) What needs to be done?

So what have been the weaknesses that a current reform of capital and liquidity ratios should now curtail. On capital my own list would contain, not necessarily in order of importance:-

- (C1) Raise basic requirement for Tier 1 core equity.
- (C2) Have a much, much higher level that is regarded as fully satisfactory and impose increasing sanctions as actual equity falls below required equity.
- (C3) Reduce procyclicality by having state and time varying CARs.
- (C4) Realise that any assessment of risk will be inaccurate and hence support a RWA CAR with a pure leverage ratio, belt and braces.
- (C5) Maintain a level playing field by imposing an appropriate (but not necessarily similar) CAR on all credit expanding leveraged financial intermediaries.

On liquidity my list would involve:

- (L1) Sufficient owned liquid assets to give time for a severe liquidity squeeze to be resolved in an orderly fashion.
- (L2) Place increasing penalties/sanctions on intermediaries as their proportion of short-term wholesale funding rises.

(v) The score card on capital ratios

Against this background how do the current Basel II (and the Dodd-Frank Act requirements) match up?

Let us take capital first:

On C1 the proposed BCBS/FSB proposals get an A-. The regulators have realised the key importance of increasing the proportion of Tier 1 Core Equity, and the minimum ratio that will be acceptable is likely to rise by a factor of about 3 or 4x. The grade is not better than A- because there have been so few academic and/or empirical studies to try to work out what the optimal value or ratio of core equity to total, or risk-weighted, assets ought to be (see Hellwig 2010; Barrell et al. 2009 is an exception); so the choice of ratio, though much higher, is still largely a stab in the dark.

On C2 the BCBS proposals get a B. The regulators there have now understood the basic argument, and are willing to consider the imposition of a sanction, in the form of a prohibition on dividend payments, should the CAR fall too far, i.e. below 7%. But the prohibition of any payment of dividends is not only quite severe, but also would cause reputational damage. What was needed instead was a much more finely calibrated ladder of sanctions, with the initial sanctions being mild enough, so that banks, and commentators, would have not been much concerned when they were breached, for example start with a prohibition on any increase in dividends, and then continue with a mild cut in dividend payouts, and so on, before reaching the stage of prohibition. Moreover, in addition to sanctions on dividends, there could have been sanctions on mergers and expansion abroad, on advertising and on (average per employee) compensation (relative to the past). Partly because there is so little certainty about the optimal quantum of capital, it makes it all the more important to place much more emphasis on the design of a gradual ladder of sanctions. Against their prior tradition of refusing to touch this nettle, of designing sanctions, at all, the BCBS/FSB have made a start, but it is only a very tentative first step.

On C3 the BCBS did outline some, sensible, draft proposals in a working paper, but I understand that they have subsequently rejected this as “too difficult”. Instead, I believe that the use of counter-cyclical variations in CARs will be allowed, in principle even encouraged, but left entirely to the discretion of each area’s systemic regulator. This is a replication of the discretionary Pillar 2 of Basel II. Such Pillar 2 competences were rarely, if ever, used. The reason for this is simple. Asset price, and credit expansion, booms are popular, with politicians and both lenders and borrowers, and ex ante can only rarely be clearly seen as unsustainable (if they were so seen, market prices would go down on their own). So, a Central Banker/systemic regulator would have to be supremely brash and self-confident and impervious to widespread abuse to raise CARs at such a time. Regulators have missed an opportunity to make a counter-cyclical mechanism quasi-automatic. They get an A- for effort, but an F (Fail) for outcome; so, overall, a C- grade.

On C4 the regulators have been, rightly, chastened by their inability to spot the risks in the financial system in advance of the crisis. While there has been too much prior investment in the concept of risk-weighting to abandon it altogether as a failed approach, I believe that the regulators will now supplement the RWA approach with a simpler overall leverage ratio, belt and braces. But as before with the RWA approach, the more difficult question is what the fully satisfactory level should be, and on designing a gradual ladder of sanctions as actual ratios increasingly diverge from desired ratios, overall another A-.

The worst outcome, perhaps, is C5 were I award a score of C--. There has been too little awareness that the basic problem has been one of excessive credit, and leverage, cycles; indeed some would blame both the authorities' monetary and regulatory policies for actually exacerbating such cycles. Per contra, there has been over-much emphasis on the 'bad behaviour' of bankers, and a belief that 'bashing bankers' is the correct response to the crisis. In so far as this view is indeed correct, the question then is how far each financial intermediary contributes to such credit, and leverage, cycles, combined with a capital ratio control that should prevent them from doing so unduly. Again risk is hard to assess, though regulators need to be concerned about risk concentrations (AIG, monoline insurers?) and crowded trades. So probably some form of simple leverage ratio, with a size minimum, and adapted to each kind of business might be a good starting point. But we have not even reached that starting point, because the way of thinking about what is the real problem has been deficient.

(vi) The score card on liquidity ratios

For too long the financial crisis starting in August 2007 was seen as purely, or predominantly or primarily, as a liquidity crisis. It could never have been so, or else the wholesale inter-bank and repo markets would not have become so dysfunctional. The authorities, both Central Banks, FSAs and Ministries of Finance, ought to have done much more planning in advance on how to deal with the looming solvency crisis, rather than reacting in a great hurry off the cuff to each crisis event as it occurred. Be that as it may, the earlier symptoms of the crisis, (up to the failure of Lehman Bros, or perhaps even earlier with Bear Stearns, or even with Northern Rock, where the authorities had the brass neck to claim that the asset book was in good shape at the time of the rescue in September 2007), were primarily in the guise of liquidity difficulties. Hence the authorities came to rue their prior blind eye both to the run-down of asset liquidity and to their passive acceptance of a build-up, in too many cases, of banks' reliance on short-dated wholesale funding, especially overnight repos in the USA.

So, somewhat belatedly, since the wholesale horses have already stampeded away, the BCBS/FSB are moving to rectify such omissions.

On L1 the authorities are going to require each bank to have sufficient owned liquid assets to be able to withstand an occasion of acute stress, during which time unsecured wholesale markets will be shut to them, for four weeks (a month). Serendipitously this will require banks to purchase more short-dated government bonds just when governments have large deficits to finance. Moreover, banks already have amassed huge reserves, beyond requirements, at Central Banks, so a normalisation of balance sheets would allow Central Bank balance sheets to decline matched by a commensurate shift of commercial banks out of deposits at the Central Bank and into government debt. There is, of course, a danger that the liquid asset requirements on banks could be used just as a protective device for securing a captive market for financing government deficits. To prevent this, it is highly desirable that such requirements are set by independent systemic regulators and on the basis of clear criteria which take no account of the financing needs of government. In both respect the current BCBS/FSB proposals seem to me to score well.

Perhaps even more than in the case of capital, imposed liquidity ratio controls, must not become treated as minima. A stock of assets that must be held at all times is by definition not liquid. The regulators, once again, do not seem to have fully grasped this. As with capital ratios, the need is to define a sufficiently high ratio as fully satisfactory and then design a gradual ladder of increasing sanctions as the ratio falls below the 'fully satisfactory', so

gradual that some, or even most, banks/intermediaries will choose to position themselves below the ‘fully satisfactory’ level for much of time. It is important to avoid any sense of stigma in response to a bank’s decision to trench upon liquid asset holdings. Because this key aspect has not been fully incorporated into the proposals, I would only give L1 a B++ rating.

On L2 there have been more problems. The BCBS/FSB developed the concept of the Net Stable Funding Ratio, which represented, in effect, the proportion of assets backed by equity, longer maturity debt and retail deposits. The remainder, not included on the NSFR, was relatively short-term wholesale borrowing. The idea was to require banks to move quite quickly to an acceptable NSFR. The main problem was that the banking system had become so massively dependent on short-term wholesale funding, that achieving the NSFR over any short time period (say 2/3 years) would either have required issues of new equity and/or long term capital that appeared well beyond the capacity of these markets to absorb and/or a sharp reduction in bank lending to the private sector. As a result, largely of representations to this effect made by the banks, the prospective transitional period has now been extended until 2018 or even 2019, and the NSFR concept itself is now being reassessed.

(vii) Transitional arrangements

This latter point brings us quite neatly to the question of transitional arrangements. Although the banks have been portrayed as lobbying ferociously against tougher ratio controls, most bankers do accept the need for higher equity holding, and reinforced ratio controls on both capital and liquidity, though they are not as convinced, as the academic economists, that the market will happily trade a lower RoE for less risk and volatility. After all the markets thought, prior to 2007, that banking risk and volatility were already low!

To some large extent the debate has been a dialogue of the deaf, with the regulators and the academics claiming that in a comparison of one equilibrium state, with the banks holding a significantly larger proportion of capital, with another, with much less bank capital, there need be relatively little effect on bank spreads, or on the availability of credit to the private sector. In contrast the banks have focussed much more on the transitional period in the immediate future, where the need to move with any rapidity to a significantly higher level of equity and/or NSFR would likely place credit expansion under even greater pressure.

One might claim that both sides will have largely won the argument on which they have focussed most. With the possible exception of revisions to the NSFR, the regulators have mostly stood their ground on the ultimate destination, whereas the transitional period of adjustment has been, in several cases, considerably extended, perhaps now extended too far, and thereby possibly increasing uncertainty. There has been too little discussion of the comparative merits of ending the transition in, say, 2016 as contrasted with 2018.

B) Taxes

Most of the focus in the BCBS/FSB work has been on reforming and refashioning ratio controls. As already noted, one of the main deficiencies in this general approach has been an inability to design a gradual ladder of sanctions, or even to recognise the need for this. But there is an entirely alternative way to approach this same subject. This involves the application of (Pigovian) taxes to behaviour that is likely to cause adverse externalities.

Take capital ratios. These either impose limits on asset expansion relative to capital at some point, and/or introduce increasing sanctions as the CAR falls below some desired level. Both can be viewed analogously as a form of tax; the limit can be viewed as a tax above 100%, and the increasing sanctions as step changes in tax rates. Doing the exercise specifically in the guise of taxes rather than of other sanctions/absolute limits has a number of advantages. First, it provides fiscal support to the authorities, and the taxes could, at least in principle, be roughly calibrated relative to the social cost, the externalities, that the undesired behaviour (such as too little capital or liquidity) might bring upon the wider economy. Second the use of taxation, rather than specific limits/sanctions, could make the imposition of a gradual ladder of deterrence to anti-social behaviour considerably easier to achieve.

Over the years, at least prior to 2010, proposals in official, regulatory circles, (as contrasted with academia), to use taxation for regulatory purposes have been rare, almost conspicuous by their absence. Why? What are the arguments against? A first argument is that the imposition of a tax requires national political legislation. Not only might it become a political football, but it was, self-evidently, outside the remit of the BCBS. Such an international body (BCBS, FSB) felt it could not touch the subject, while the national legislatures were individually constrained by the 'level-playing-field' argument.

Second, there have always been doubts on anyone's ability to measure 'systemic externalities'. In the absence of such measurement, the tendency has been to impose a flat-rate tax, in relation to size. Since it is so hard to measure the probability of another financial crisis arriving, such a flat rate tax is usually inversely related to the length of time since the previous crisis, i.e. procyclically high in the immediate aftermath of a crisis and reaching its lowest point just before the next, thereby damaging the weakened survivors of a crisis and failing to deter excessive expansion before the next disaster.

Third, most non-economists think that if some form of behaviour is socially bad, such as drugs, prostitution or proprietary trading on the back of depositor funds, then it should be prohibited rather than allowed, whereas most economists believe that such, strongly individually desired social 'bads' should be allowed, but taxed sufficiently not only to limit its incidence, but also to fund measures to offset its social effects (subsidising groups of 'rogue traders anonymous?'). Most economists differ, and prefer (calibrated) taxation to prohibition, but we will meet a selection of proponents of prohibition in the next Section.

The arguments against considering the use of taxation for regulatory purposes have weakened. In particular, the proposal by President Obama, at the beginning of 2010, to levy a tax on banks, (on an ex post basis, above some minimum size, based broadly on wholesale short-term funding), broke the flood-barrier. In view of the straitened fiscal circumstances of so many countries and the patent unpopularity of bankers, the widespread adoption of bank taxation has become almost inevitable. But such taxation has not been properly designed to help constrain the social externalities of excessive leverage cycles. Most such tax proposals have been ex post, that is they relate to the structure of a bank's portfolio at some past time, rather than to its current structure, and thus cannot be avoided by a bank adjusting its portfolio towards a 'better', safer structure. Indeed, such taxes are often purposefully levied to repay past outlays in supporting the banking system, rather than to try to prevent the need for future taxpayer support. Thus they are imposed on the survivors, rather than those who failed and thereby stoked the disaster, and at a cyclical moment when the survivors are cyclically weakened. Perhaps because bank taxes are seen as a fiscal measure, and thereby as a matter for the legislature, Central Banks and bank regulators have hesitated to comment on the general issue of bank taxation. They should overcome such undue reticence.

The subject of (bank) taxation has a wider aspect. Much of the fragility of the financial system arises from excessive leverage, too high a ratio of debt to equity. This occurs because bankers (financial intermediaries) see debt as cheaper than equity. A major reason for this is the tax allowance (tax wedge) on interest payments. If this allowance were scrapped (for all financial intermediaries), or tapered (so that the higher the leverage, the lower the tax allowance on debt, even with a tax penalty perhaps after some point), much of the problem of financial fragility would be lessened, might even disappear. The reduction in this tax allowance would greatly benefit the exchequer. There would certainly be international competitive, cross-border, implications. Even so, it is surprising that so little attention, or discussion, has been given to using fiscal measures for lessening financial fragility. Mankind will surely find ways to indulge in manias and financial excesses whatever the tax system, but fiscal measures can be adopted to mitigate the credit boom/bust cycle.

On the other hand proposals to ban the use of debt contracts altogether in financial intermediation, as in Islamic banking or Kotlikoff's mutual fund banking (200?), go far too far. The advantage of debt contracts, over equity-based contracts, is that the former economise on information (Dang and Gorton, 200?). For a prospective lender on a debt contract the relevant information is limited to the interest rate and the probability of default. In contrast, a potential equity investor needs a much wider set of data. In a world where asymmetric information is the norm, debt contracts have many advantages.

I have no doubt that our inability to measure systemic externalities, even approximately, is the most serious constraint on the use of taxation to deter such behaviour. But even so, the sanctions and/or prohibitions on certain behaviour that we do impose can be regarded as equivalent to implicit tax rates. If seen in this light, the implicit tax rates often do not seem very sensible. Thus the prohibition on banks becoming larger than a certain size, or issuing debt, or undertaking proprietary trading, etc., etc., is the equivalent of a 100% tax on such activities. Often such a stringent tax is to be imposed on one set of intermediaries, but not on others, perhaps those abroad. This naturally leads to border problems, whereby the penalised activity is shifted from the taxed to the untaxed segment, with results that may even exacerbate the fragility of the ultimate outcome.

This line of argument leads naturally on to the next subheading.

C) Direct Constraints on Allowable Financial Practices

(i) Size

'If a bank is too big to fail, it is too big'. But why might a bank be 'too big to fail'? I can think of, at least, three, often overlapping, reasons. The first is the size of the bank, relative to the community in which it operates. If the bank had a preponderant share of the banking business in any community, then the community would be devastated by the failure of that bank, and that devastation could be socially unacceptable. But what is the relevant community? If the world, then no bank is too big. If the local town, then a small unit bank might be regarded as 'too big to fail'. In practice those countries which fared best in the recent crisis, (Australia, Canada, Sweden), had a somewhat cartelised protected domestic banking markets, with a handful (four/five) of oligopolistic banks which served all communities. It is frequently forgotten that the conclusions of those who studied the banking collapse in the USA in 1929-33 at the time was that this was caused by too much competition. Such competition drove a search for yield, and acceptance of higher risk, in the

pursuit of return on equity. In this context the greater consolidation of the banking system, caused by the encouraged mergers of weaker into stronger banks, is no bad thing, at least from the point of view of financial stability, so long as there remain some 4 or 5 large banks in each country.

If it was decided to tax, or constrain, banks on the basis of size, one would have to answer the question of relative to what? Standard Chartered, for example, is a large bank on an overall, international basis, but a smallish bank in most of the countries in which it operates, not least a relatively small bank domestically in the UK where it has its headquarters. Are subsidiaries to be consolidated? How about non-banking (e.g. insurance) subsidiaries? And minority interests? Cross-border issues? The mind boggles. Yet much of the discussion on regulatory reform, even CARs, has them being varied according to size. The definitional problems will be massive. The (legal) structure of our financial intermediaries will be bound to respond so as to minimise the resulting (tax, penalty) exposure. Such consequential structural adjustments may themselves lead to unintended consequences.

The next meaning of ‘too big to fail’ is actually the opposite, that a bank may be ‘too big to save’. The argument here is that certain cross-border banks were allowed to become so large relative to their home economies and governments that the latter could not easily support the former in a crisis. Examples are:- all the Icelandic banks, the two huge Swiss banks, RBS and HSBC in the UK, and Allied Irish in Ireland. Is the implication that the allowable size of a bank should be a function of the size of its home economy? USA, China and Japan are to be allowed huge banks, middle-sized countries (e.g. France, Italy, UK) middling banks, and small countries little banks? What should then happen if a big bank headquarters in a small country, say HSBC in Hong Kong? Should the authorities in some other financial centre refuse to accept an HSBC subsidiary, or branch, into their own market because the HK government/economy was too small to support HSBC on its own if it got into trouble? European directives make no mention of the size in the home country. Is not the fundamental question in any case how a cross-border crisis may be resolved, which we shall discuss in Section 2D, rather than size as such?

The third meaning of ‘too big’ is not size as such, but inter-connectedness, so that the failure of the institution has widespread external effects on other financial markets and/or intermediaries. This need not be related to size as such. For example the Bank of New York/Mellon is not one of the very biggest US banks, but its current role as one of the two banks operating the tri-party Repo market makes it too strategic to fail. Other examples of small, but strategic, institutions are those that run networks or payment systems, centralised counter-parties, etc. While we can roughly see which institutions are likely to be more, or less, interconnected, this is extraordinarily difficult to measure accurately. What we can measure, after a fashion, is how much the market prices (equity, CDS, etc.) of institution X responds to a (pricing) shock to institution Y, but not all financial institutions have such market prices, and markets are far from perfect (their failure to foresee the 2007/8 financial crisis being as abject as that of the regulators). Either trying to impose direct constraints, or taxes, on interconnection is, for the time being at least, beyond our technical capacity and competence.

So my conclusion is that the case for direct constraints on size has yet to be properly made, and the technical problems of how this might be done have not been properly addressed.

(ii) Asset holdings

The next proposition is that banks invested in assets that were too risky to be compatible either with financial stability in general or with their role as guardians of everybody's liquid assets (retail deposits) and of the payment system in particular. So, it is suggested that they should be stopped from doing so by direct constraints on their asset structure.

But this runs into several problems. First, there is a measurement problem. If we assume, for the purpose of argument, that we can measure (the incremental systemic) risk of an asset in a bank's book, why not impose a risk-weight on the CAR or a tax which more accurately reflects that risk, rather than a blanket prohibition? If, however, we should assume that we cannot measure risk at all well, how can we specify which assets the bank should hold, and which not? A bank, even a Greek bank, whose assets consisted primarily of Greek government bonds would hardly be considered 'safe'. Mortgage lending, such as undertaken by Northern Rock, is sometimes done safely, sometimes not so. Super senior tranches of collateralised pools of mortgages were thought to be extremely safe.

Perhaps the model that those who would impose direct constraints on banks' asset holdings have in their minds is one in which bank insiders have a quite different, and perhaps better, perception of risk than outsiders, including markets and regulators. Banks then consciously and opaquely assume extra risk in pursuit of higher RoE, confident in the knowledge that this will not be observed by regulators/markets (beta dressed up as alpha) and that they (or their creditors) may get bailed out by tax payers. Because, so the story would then go, regulators, creditors, markets and other outsiders cannot observe or measure risk, as well as the bankers, we cannot penalize such practises commensurately. The best that we can do is to ban the worst practices altogether and hope that those allowed are mostly safe.

That is not a story that I find plausible. In my view assessment of risk is mostly common amongst banks, regulators, credit rating agencies, markets and commentators. The problem is that we, all of us, tend to get it wrong, simultaneously, as a herd. A risk is underestimated in the boom by bankers, markets and regulators, and overestimated in the bust. If so, direct constraints on asset holdings by the regulated institutions, and no constraints on unregulated institutions will tend to exacerbate the credit cycle, which I have claimed to be the main externality that needs to be kept under control.

Consider the call for narrow banking, whereby such banks can only hold a limited set of low-yielding assets, but intermediaries outside the narrow banks can hold any assets, without regulation and without any protection. Being riskier, they will offer a higher yield. In normal times, when the possibility of the default of such risky intermediaries seems remote, most people will shift funds to the riskier, but better yielding intermediaries. Since these are unregulated there would be no check on their leverage multiples, or their credit expansion. Once a crisis ensued, the run back to the protected sector would exacerbate the decline in credit, and the rising yield spread between safe and risky assets. The adoption of narrow banking would therefore be a retrograde and damaging step, seriously worsening the financial boom/bust cycle.

Even the much more limited set of prohibitions under the Volcker rules, prohibitions on any connection to hedge funds or on proprietary trading, seems on this view to be dependent on an assumption that, through such operations, the banks can purposefully and opaquely raise their riskiness by more than outsiders and regulators can observe. If this is not so, the

diversion of such riskier business to (unregulated) hedge funds might tend to exacerbate the credit cycle. One reason why this has probably not been so in the last cycle has been that hedge funds have generally had a lower leverage ratio than banks. But the leverage ratios of banks need to come down sharply. If hedge funds receive a competitive advantage vis a vis banks in such proprietary trading activities and remain unregulated, irrespective of size, leverage and business policy, then the blanket prohibition under the Volcker rules could, in future, worsen the risk/credit/asset price cycle, rather than lessen it, by encouraging a greater shift of funds to the hedge funds in the boom and an increased flow-back in the bust.

If one takes, as I do, the contrary view, that the main problem has been the common misperception of risk, shared by almost everyone, then the main need is to impose greater contra-cyclical limitations on leverage and credit expansion in a boom on all agents involved. In so far as banks have greater systemic riskiness, their regulation needs to be tougher, but the regulation should be, as far as possible, calibrated to the incremental risk involved, not carried out via blanket prohibitions.

Nevertheless the view that bankers use superior (asymmetric) information to assume more risk than was appreciated by outsiders is widely held; it is difficult to assess its validity. One reason that this view is so widely held is that senior bankers' remuneration arrangements would appear to make such behaviour rational. So we turn next to proposals for reforming remuneration.

D) Remuneration and its Reform

The remuneration arrangements for investment bankers were devised when these institutions were still partnerships. The partners shared both in the good times and then in the losses in the bad times. But such compensation arrangements were not appropriately adjusted when such investment houses became limited liability companies. Under these new circumstances their remuneration, or comp (short for compensation), became aligned with that of equity shareholders, i.e. sharing in success but with a strictly limited downside in the case of failure.

While there once was an academic principle that the rewards of management should be aligned with that of shareholders, this is unwise and dangerous in the case of highly levered industries such as finance, as Bebchuk, and various co-authors, have shown. The problem is that the pay-off to a limited liability shareholder has the characteristics of a call option, see Diagram 1 below.

[Insert Diagram 1]

As can be seen from this diagram, a risky prospect which has a 50% chance of getting a return A and a 50% chance of return B does better for shareholders than a certain prospect of C, (because the fixed interest creditors or the taxpayer pick up the rest of the loss). So shareholders will rationally egg on management to take on risk, and management will have their own incentive to accede to such pressure.

There have been several suggestions for remedying this incentive to assume excessive risk. Both involve trying to increase the sensitivity of comp to downside loss. One way of doing so would be to require that part of any bonus was paid in subordinated debt. Another way would be to make any bonus payment subject to claw-back in the event of a bad outcome, for example by making such bonus payments subject to unlimited liability (N. Record). While

the claw-back approach has had some general academic support (The Squam Lake Report, Chapter 6), the technical details might be tricky.

Moreover, any significant change to remuneration that could reduce managerial rewards significantly in a downturn would be subject to coordination problems. No individual bank, or single government, could introduce them unilaterally without being at danger of losing staff, or whole parts of institutions, either immediately or when a downturn looms. Moreover, interference in the structure of pay and rewards is not something that governments, either individually and even less in G meetings together, feel comfortable in doing.

So the likelihood is that, beyond some gestures when a CEO publicly cuts his own remuneration from the obscene to the merely bloated, nothing at all will get done on this front. Perhaps the most likely reform to pass the political hurdle would be a requirement that at least X% of any bonus be paid in subordinated debt.

E) Reforms of Market Structures

Most organised financial systems and markets continued to operate smoothly and efficiently throughout the crisis. No settlement or payment system failed. Most organised markets worked efficiently, though the factors responsible for the ‘flash crash’ in US equity markets in May 2010 remain obscure.

Where there were problems was mostly to be found in the bilateral, over the counter, markets, including inter-bank markets. There were several short-comings. First, by their nature they were largely opaque, with insufficient information available to regulators, or to any other outsiders, on positions and risk concentrations. Second, they led to a build-up of inter-connectedness, and hence to potential systemic fragility amongst the major participants in these markets, primarily a small number of huge investment houses and universal banks. Third, since they were largely based on bilateral repetition and trust, they could often, under normal circumstances, operate on an unsecured basis but when suspicions of solvency worries in certain counter-parties emerged, especially in crisis conditions, such markets could rapidly close to some, perhaps most, or even all participants.

By exactly the same token, such disadvantages, from a systemic viewpoint, had certain major advantages for the individual participating bank intermediaries. The opacity allowed those central players, with inside information, to discriminate in pricing, to hide their own positions, and increase margins on average. The inter-connectedness of such markets generally made the main participating intermediaries too systemic to be allowed to fail; Lehman Bros. was the exception that proved the rule. The reliance on repetition and trust allowed the participants largely to dispense with expensive collateral and tiresome operational detail. Thus such OTC markets could, under normal conditions operate relatively cheaply, even for those more occasional (non-financial) end-users, against whom the insiders were discriminating in pricing.

So there were considerable advantages to the main participants in keeping the OTC status of such markets, even when the form of the financial contract became commonly used and largely standardised. But these markets operated best in fair weather, and their disadvantages became both more pronounced and more obvious in the recent crisis. As a result, there has been regulatory pressure to put all such standardised bilateral deals through a Central Clearing Party, where each deal will become novated with the CCP so that each party to the

transaction then faces the Central Clearing House as its counterparty. In turn the CCP is itself protected by initial margins, collateral calls on the party out-of-the-money, and specified loss-sharing arrangements, (plus the taxpayer as ultimate backup). The information accruing to the CCP could then be passed to the relevant regulator(s), improving their ability to assess risk. Counterparty risk and interconnectedness (too much so to fail) would diminish substantially. Such markets would be much less likely to become dysfunctional in a crisis.

Nevertheless the transfer of such standardised actions to a CCP would leave the negotiation of their terms bilateral and opaque, (except to the CCP and to the regulators). So, in the interest of greater transparency and greater economic efficiency, many have proposed that such transactions not only be put through a CCP, but also be undertaken in a public marketplace, exhibiting bids, offers and market prices to inspection. Most participants are resigned to the need to put standardized transactions through a CCP, but are still arguing against the need for the second step towards a public market. Which sets of transactions will now operate through a CCP, and which will move beyond that to a public exchange, has yet to be determined, and will probably be decided in future negotiations between the regulators and the large banks.

An emerging problem in this latter respect is that such financial systems, CCPs and markets, exhibit strong network economies of scale, whereas there are many regulators. Each regulator wants the CCP (or market) established in their own country. Assume, for example, that there are some six main financial participants operating in some five main bilateral markets in seven countries. With bilateral markets, the six main participants can net their positions over all these five markets with each of the other participants. If the regulators in all seven countries should then each demand separate stand-alone CCPs (markets) in all five markets on their own individual territories, the economies of scale, the ability to offset, the ease of operation and even the reduction in risk would dissipate. This problem was noted by Duffie and Zhu (200x). We have yet to see whether the regulatory authorities in various countries/regions can cooperate well enough to overcome the danger of establishing too many such separate markets. At the moment it look doubtful whether it will be possible to operate with fewer than two (European/North American) or even three (plus Asian) sets of markets, and how these will inter-link also remains to be determined.

Other Regulatory Proposals

(i) Credit Rating Agencies

There are a variety of perennial themes in the field of financial regulation, such as the importance of incentives, of measurement in a world of both limited and asymmetric information, and of leverage. Our capitalist system has sought to handle several of the information problems by delegating responsibility for the provision of information on credit risk to certain credit rating agencies. It is now common knowledge that they did not perform well in that role in the run up to the crisis.

My own interpretation is that the CRAs inevitably suffer from a chicken and egg dilemma. This is that no new financial market can easily develop unless the CRAs are prepared to rate the product. So they are under enormous pressure to do so. But since the market is new and untried, they cannot, by definition, have much experience of how it will operate in a severe market downturn. So they are being asked to do the impossible, and reliance on complex

quantified models simply disguises the fundamental fact that the future is uncertain, and not an ergodic, carbon copy of the past.

But perhaps I am being too charitable, (though I note that having lambasted the CRAs for being useless, the authorities still agonise about CRA judgements about sovereign risk). One criticism is that the CRAs are not sufficiently competitive (Moody's, S&P and Fitch); a more important criticism is that they were not sufficiently independent of the corporate institutions, whose (structured) debt they were rating. This valid emphasis on independence implies that proposals to enhance government-sponsored CRAs should be a non-starter, (though one such has now been established in China, and a European CRA has been mooted in Brussels).

A means of dealing with the independence, and possibly also the competitive, issues has been raised in the Franken proposed amendment to the Dodd-Frank Bill, a proposal that I understand emanated from some NYU academics. This is that the regulatory authorities should require all issuers of debts to be rated to accept (and treat on equal terms) one CRA which is to be chosen by the regulatory authorities, and not by the debt issuer (the issuers could, and would, also themselves appoint other CRAs). The authorities could choose smaller, up-and-coming, CRAs, thus lessening the problem of insufficient competition. Next, having been appointed by the authorities and not by the issuer, this CRA should be even more independent. This proposal did not get into the final Dodd-Frank Act, but the regulatory authorities have now been asked to come up with proposals, within a specified time-frame, (one year [Check]), either to adopt the Franken proposal or come up with equivalent/better mechanisms for reform of the CRAs. We shall see.

(ii) Leverage amongst end-users

In this Section we have focused primarily on credit/leverage cycles amongst financial intermediaries. The credit they extend in the boom period is equivalently the debt of other borrowers, notably of households, corporate and governments. Fortunately the corporate sector in most countries did not become over-extended, prior to 2007, and has remained financially quite strong. The issue of government, public sector, indebtedness has now come to the forefront, but is far too large a subject to be tackled here. That leaves the question of whether, and what, measures might be taken to lessen the build up of house-hold indebtedness during the expansionary phase of the credit cycle.

Most of this debt has taken the form of mortgage debt. In the expansionary phase of the credit cycle loan to value ratios are increased (i.e. down-payments are reduced), spreads of mortgage rates over official rates come down, and all requirements on borrower requirements (such as FICO scores in the USA) are down-played, all in the interest of competition over market share. This is often egged on by politicians keen to expand owner-occupation, especially amongst disadvantaged groups. Then, of course, it all goes into reverse in the eventual bust. There have been no less than three such major cycles in the UK since the 1970s.

Financial regulation is better adapted to checking the expansion (than reversing the bust, when the constraints will come from market pressures). This can be done. Maximum loan to value ratios, and perhaps loan to income ratios, can be required, and enforced by making any loans to the borrower beyond the LTV maximum not securable in law against the property. This has been done in countries such as Estonia, Hong Kong and more recently in Sweden. Such measures need to be adopted more widely.

Once again, a problem is that this will not be popular, taking away the punch bowl just when the party is starting, and will be condemned as unnecessary. So a policy of leaving such counter-cyclical measures to the discretion of the Central Bank, regulatory authority, will tend to mean that they are not used. A much better approach is to examine the empirical regularities of housing (and also commercial property) bubbles, and then use such results to design triggers that require the Central Bank/systemic regulator either to comply, for example in requiring lower maximum LTVs, or to explain in public why this will not be done on this occasion.

3. Crisis Resolution

A. Some Current Problems in Resolving Financial Crises

Whatever reforms and enhanced regulations are applied to the financial system, there will always be financial crises. There are three main reasons for this, somewhat pessimistic, viewpoint. First, it is human nature to respond to the unknown, and unknowable, future by cycles of optimism and pessimism, greed and fear. The concept of man, let alone woman, as a bloodless calculator, using rational expectations to decide how to respond to a future in which the probabilities of all future events can be accurately inferred from past history (an ergodic system) is, for better or worse, a fantasy. Second, any system, such as fractional reserve banking, which combines debt/leverage with maturity mismatch is quite largely dependent on confidence for survival. The first argument states that confidence will be subject to fluctuations. The second argument indicates that collapses in confidence can instigate crises. Third, the advantages of debt, and fractional reserve banking, are so great that attempts to constrain the extent of leverage by the imposition of regulation will lead to a, potentially massive, emigration of financial business from the regulated to the non-regulated sectors. This is the border, or boundary, problem, see Goodhart and Lastra (2010), Brunnermeier, et al, (2009).

The assumption must be that, whatever additional crisis prevention measures are to be put in place, financial crises will recur, so long as the capitalist system remains.¹ The next major problem in this area is that the mechanisms for such crisis resolution have been severely deficient. This was partly due to the unfortunate intellectual legacy of the Bagehot doctrine (Lombard Street, 1873). This was held to entail the following three propositions:-

1. That problems of liquidity shortage and insolvency could be separately identified;
2. That pure liquidity problems should be met by Central Bank lender of last resort action, but at a penal rate;
3. That insolvent banks should be closed and liquidated.

Most of these propositions are not in Bagehot's original book and none are fully justified in practice. In Bagehot's time, the Bank of England could not inspect other banks' books. Liquidity depended solely on the quality of the assets that the prospective borrower could

¹ There have been few financial crises under communism or other authoritarian regimes. Their financial problems are different. Similarly there were hardly any banking crises between 1935 and 1970, but this owed much to the prevalence of State control and direction of financial intermediation in those years in most countries.

supply as collateral for loans; the Bank of England could not itself differentiate between the overall liquidity and solvency of another bank. Nowadays, so long as wholesale markets are functioning normally, in the absence of an operational problem, a liquidity shortage in any bank almost implies by definition that other banks and wholesale lenders have some concerns about that bank's solvency.

Second, both the stigma effect of being seen to go to the Central Bank for last resort lending, and the 'penalty'² rates then charged, have the implication that banks will not approach the Central Bank until they have already pledged all their better assets to obtain secured loans in wholesale markets. As a result banks in trouble tend to approach the Central Bank far too late, often too late for help to be effective in securing survival. In the recent crisis, when wholesale markets shut and liquidity shortages became systemic, Central Banks not only jettisoned the concept of 'penal' rates, but also re-fashioned their techniques to avoid any potential stigma effect.³

Third, and for our purposes here most important, the closure of banks that become incapable of meeting their current obligations and/or are assessed as insolvent can cause, under present legal arrangements, severe widespread adverse economic and social effects, i.e. externalities. One major reason for such negative externalities is that the normal insolvency process, which was all that was available in most countries, *lex generalis*, was most unsuitable for banks. In particular, normal insolvency procedures take a long time to complete (years rather than months), whereas both the liabilities and assets of banks are frequently of a very short tenor, and can represent hedges against fast-moving assets and/or the liquid asset reserves needed for day-to-day management.⁴

Indeed, the problems for certain financial markets, such as OTC derivative markets, should a significant participant in such a market go bankrupt and have all their deals frozen, have been regarded as so severe, that there has been a world-wide agreement to allow a 'carve-out' from normal bankruptcy arrangements for handling such qualifying assets/liabilities. These can be settled in full, including those where the insolvent bank is a net debtor, (and/or novated completely to some other bank), before the rest of the creditors to the bankrupt bank get a chance to make their claim. While the argument that certain markets might collapse, in response to the bankruptcy of a major participant, unless such a 'carve-out' was put in place, has obvious force, it does also introduce distortions and discrimination between markets and creditors, which can have their own adverse consequences. The arguments, pro and con, having such a dividing line, and where it might be drawn, are arcane and not easy for a layman to follow.

Moreover, many of the mechanisms which economise on costs and collateral in normal times make outcomes worse when bankruptcy looms. Rehypothecation, whereby the prime broker (usually an investment house) can use the collateral placed with it by its (hedge fund) clients as if it was its own (i.e. not held in segregated form), reduces all-round costs in normal times,

² Bagehot never used the phrase 'penalty rate'; instead he talked about 'high rates' but the context implies 'high relative to rates in normal market conditions', which could be lower than market rates in the midst of a panic.

³ When normal (peace-time) conditions become re-established, Central Banks may need to think again about how to defuse the 'stigma' problem.

⁴ It is frequently forgotten that many bank customers rely on their unused/undrawn credit (overdraft) facilities for managing their future financing needs. Once a bank becomes insolvent, these are immediately frozen. It is not just existing creditors/depositors who suffer an immediate liquidity loss. Indeed, since deposits are insured, and unused overdrafts are not, net borrowers can be worse hit.

but causes huge problems should bankruptcy occur, as in the case of Lehman Bros in London. Even when lending is secured, as in the repo market, and control of the collateral passes to the lender, the collateralised asset involved may be of a kind that the lender may not be legally allowed to hold directly and/or which the lender fears could drop sharply in price in the event of a bankruptcy and resultant forced (fire-sale) liquidation. So borrowers, when suspected of potential future bankruptcy, may find even secured markets shut against them, or imposing sharply higher margins, despite holding what might seem to be a sufficiency of usable (collaterisable) assets.⁵

So, for a variety of reasons, the normal application of standard insolvency procedures, *lex generalis*, was and would be relatively disastrous in the case of banks and of other systemic financial intermediaries. Yet, in most countries there was no alternative, except for government recapitalisation through one route or another, or of official encouragement of merging the ‘bad’ bank into a stronger bank; (or both these latter two together, as in the case of Lloyds and HBOS and as was proposed for Lloyds and Northern Rock). Such encouraged mergers often have the effect of weakening the better bank severely, and almost by definition increase concentration in the industry, with potentially adverse effects on competition.

Moreover, the cleanest method for official recapitalisation of failing banks, as undertaken in the Nordic countries in their crises in the early 1990s, would be for the authorities to take over the bank, eliminate the shareholders and the current senior management, and, if necessary, imposing a hair-cut on existing subordinate debt holders, (new debt issues being naturally government guaranteed). The idea would be to sell the bank back to the private sector once the crisis was over and the bank’s business re-established. The proceeds would go first to any fixed interest creditors who had suffered a hair-cut and thereafter to the prior shareholders.

Thus ‘nationalisation’ was always perceived as a temporary exercise. Nevertheless the phrase ‘nationalisation’ carried such ideological and political baggage, and the process seemed so alien to the capitalist regime that it was hardly ever undertaken in this latest crisis, even by the UK Labour government. Also, there may have been a fear that the market response, with respect to the equity and bond prices of those banks not initially nationalised, could have been so severe that the government would have to end up nationalising most, or all, of the country’s banking system, as was done in the Nordic crisis of the early 1990s. Whether this latter fear is justified, or not, we simply cannot tell.

Be that as it may, full nationalisation was rejected in favour of equity injection, thereby diluting the equity of existing shareholders, leaving existing management in charge, and guaranteeing for a time new bond issues. This was seen, correctly, as being soft on management (and on shareholders and senior creditors) who had allowed their banks to get into such straits. In some cases, as with Fred Goodwin’s (RBS) leaving (pension) package, the authorities would have liked to be tougher, but found that such packages were part of a legal contract. But the process was also seen, to some large extent incorrectly, as being extremely expensive to taxpayers. The reason why I state that this is incorrect is that the economic and social costs of the only then available alternative, i.e. allowing the standard insolvency procedure to take place, would have been, as it was in the case of Lehman Bros, far worse. Furthermore it is likely that in most cases the capital injections will be sold off at a

⁵ Some large part of the argument about the US authorities’ actions with respect to AIG, Bear Stearns and Lehman Bros comes down to the question of the quality of the assets that the Fed could take from them as security against loans to them.

profit in future, and that the guarantees, for which a fee is charged, will never need to be used. There are some counter-examples, notably the GSEs and, perhaps, AIG in the USA, Allied-Irish bank and the Icelandic banks; but these were either outside the remit of the (banking) regulator, and/or extreme examples of prior regulatory failure.

Nevertheless the perception that Main Street bailed out Wall Street, not only at enormous cost to the taxpayer, but also allowing the ‘fat cat’ bankers off the hook has taken a deep hold. Indeed, for most observers the main requirement is to put an end to ‘Too Big (or too Interconnected or Systemic) To Fail’. Given, as asserted at the outset of this Section, that financial crises will continue to occur, this implies that ways must be found of trying to lessen the costs, and externalities of relying on the current insolvency process. One way of so doing is to move towards a Special Resolution Regime for banks, from a *lex generalis* to a *lex specialis*.

Before we get into the detail of what such an SRR might look like, a caution is necessary. The United States had already introduced such an SRR under the guise of the FDIC Improvement Act of 1991. Under this Act, the FDIC was meant to shut down any bank whose equity capitalisation fell below 2% of total assets (and could not quickly recapitalise itself). Such Prompt Corrective Action (PCA) was meant to insure that banks would be closed well before they became insolvent so that all creditors could be paid out in full without any recourse to the taxpayer. Patently PCA failed to protect the US taxpayer.

A main reason for this was that the epicentre of the crisis in the USA lay outside the banks subject to FDICIA, in the broker/dealer investment houses and GSEs. So Dodd-Frank and most Acts introducing SRRs elsewhere will now require all systemically important financial intermediaries (SIFIs) to be brought within the ambit of main prudential regulator. But how does one measure systemic importance? And what should a regulator do about intermediaries which are individually below the SIFI threshold, wherever that may be, but have systemic importance as a group, or herd?

Another reason for the failure of PCA in the USA was that it was based on accounting measures, which involve lengthy lags whereas markets move fast, and which accounting measures are capable of manipulation (Repo 105). Indeed, the capital ratios, at the last estimate, of failing banks often seemed better than those of banks that survived (IMF). Whereas the objectives of PCA were admirable, the mechanics appeared to have been flawed. Perhaps the numbers should have been much higher (say 5% for Tier 1 Core equity) and/or based on market, rather than accounting, valuations. One of the greatest dangers in the current regulatory framework, and apparent in Dodd-Frank, is that the power to close a SIFI before it enters insolvency will be left to the discretion of the macro-prudential authorities, rather than be subject to presumptive rules. The reason why this is a danger is that such discretion will hardly ever be exercised, at least not before it will already be too late. The ex ante uncertainty will be such, and the likelihood of legal suit so strong, that the macro-prudential authority is bound to hesitate.

B. Shift Resolution Costs from Taxpayers to Banks and their Creditors?

So not only will crises recur, but we cannot rely on the regulators to shut down failing SIFIs before a loss is incurred, which burden needs to be borne somewhere. So who is the candidate for bearing such a loss? The obvious answer is the banking system itself.

One line of attack, along the lines of PCA, is to try to force the bank(s) in difficulty to refinance themselves before they fail and a loss crystallizes. The leading proposal in this genre is to encourage, (or force), banks to issue conditional contingent bonds which transmute automatically into equity when some trigger (of weakness) is passed. Unfortunately the likely outcome depends sensitively both on the trigger mechanism and on the terms on which the transformation to equity is made. Under many possible versions the effect would actually be adverse. Even in those cases when the effect might be beneficial, for example by inducing shareholders to make new rights issues early rather than be diluted into insignificance, it would be a complex exercise, and it is far from clear that it would have any net social benefits relative to a simpler regulatory requirement for more equity capital. I have written on this at greater length, and this earlier paper is included as Appendix 1.

A common failing of this genre of proposal, to make the bank(s) bear the burden, is to ignore the effect on the other banks in the system, beyond the bank in difficulties. Let me take three examples. First, consider the Hart/Zingales (200?) scheme to force any bank whose Credit Default Swap (CDS) risk spread rises above a certain level either to raise new equity, or liquidate. For the initial bank coming under this requirement, this would be fine; and so it would also be if shocks to the banking system were idiosyncratic. But what would happen in the case of a systemic shock? All banks would tend to be under pressure. The requirement on the first bank to enter this process to raise new equity would sharply lower its own equity valuation. That fall, in the equity price, would spread rapidly to other banks and also drive their CDS risk spreads up. In other words the requirement would spread contagiously to other banks. The new issue market for bank equity could not cope and would dry up. Faced with the prospects of a large proportion of its banking system failing simultaneously, the government (taxpayer) would have to step in once again.

Our second example is the bail-in of bank bond-holders, proposed for example by AFME (2010) and several others. Suppose a SIFI fails, with losses that go beyond wiping out shareholders. Then, impose a haircut on other creditors, from the most junior up, sufficient not only to meet losses, but also to recapitalise the SIFI and maintain it as an ongoing institution. Again fine for the initial bank (ignoring technical legal problems), and also if the shock is idiosyncratic; but what about a systemic shock? Once again the process is likely to bring about a sharp weakening in bond prices, not only in that bank but in all of the many similar banks. The likelihood is that the market for new bank bond issues would either close, or only absorb new issues at extremely high rates. Most large banks have continual regular maturing debt issues that need rolling over. The bail-in process would make such rollovers, let alone new funds, difficult if not impossible.

In practice the authorities have, entirely correctly, gone in exactly the opposite direction to the ‘bail-in’ proposal by guaranteeing (for a fee) the future repayment of new bonds for all banks. It would be possible, on the first occasion, to combine a bail-in on all old unguaranteed bonds, together with a blanket guarantee (for all banks and SIFIs) on all new bonds. Whether, and when, such guarantees could then be dropped would be unsure. A two-tier market, for guaranteed and un-guaranteed bonds would develop. Whether governments would want to continue such guarantees and whether the unguaranteed market on its own would be broad enough both to meet banks’ funding needs and the potential bail-in requirements would remain to be seen.

The final example is the ex post tax on surviving banks contained in the Dodd-Frank Act. The idea is that an Orderly Liquidation Authority (OLA) takes over a failing SIFI, and together with the Systemic Oversight Regulatory Committee, decides on the most efficient

way to deal with that SIFI. In the short run it can tap government funds, by borrowing, but in the medium to longer term it recoups all its expenses by imposing a tax/levy on surviving banks (and SIFIs), pro rata to assets beyond a certain threshold (to benefit politically powerful small banks). This has several obvious flaws. It taxes the good guys, not the bad; just at the moment when the taxed are least able to bear the burden, i.e. it is most procyclical. Being an ex post tax, it cannot shift bankers' behaviour in a preferred direction.

Perhaps the main objection to an ex ante tax was 'moral hazard'; that having paid towards a bail-out, it would increase the probability of such a bail-out being delivered. Like most moral hazard arguments, it is often grossly overstated, being akin to preventing burial clubs because they might encourage suicide. Perhaps a stronger argument is that the quantum of any ex ante tax necessary to meet the cost of crisis resolution is unknowable in advance. If the ex ante tax was too low it would need to be topped up with an ex post supplement and if too high would be a net burden on channels of bank intermediation.

Ideally the extra marginal cost of an ex ante tax should equal the marginal social benefit in reducing the incidence and intensity of financial crises. But no one can assess where that optimum may be. This harks back to the discussion of bank taxation in Section 2(B) on Crisis Prevention. Perhaps the best that could be done, under both headings, Prevention and Resolution, would be to have a much higher, fully satisfactory, core equity ratio, perhaps as high as 20% of total assets, and say 12% of risk weighted assets, with a progressive scale of tax requirements as capital fell below that level, and a similar scheme for liquidity.

The message is that attempts to make the banking system bear the burden after the event of a crisis are largely self-defeating. Often they will make the systemic problem worse, not better. Moreover, the idea that the burden will fall on a few fat cat bankers is wrong. The cost will, once again, fall primarily on society (including taxpayers) in the shape of increased spreads and reduced credit expansion in the downturn following the crisis. Instead the way to proceed is to increase core equity requirements very sharply, preferably in a counter-cyclical manner, and impose a progressive tax on short-falls from that level. Getting from here to there, the transitional problem, will require time, but, if we know where the end-destination should be, a sensible compromise could be worked out.

Perhaps the common mind-set has been wrong. Regulation is too often perceived as helping to mop up after a crisis. But in practice regulation is largely ineffectual, or sometimes downright damaging, in the bust. Instead the market provides the constraint at that time. Instead the purpose and objective of regulation should be to constrain the boom, in contrast and in opposition to the market, not an easy exercise, and one that will not be done effectively if it rests on the discretion of the regulatory authorities.

C. Special Resolution Regimes and 'Living Wills'

The *lex generalis* of standard insolvency procedures do not meet the urgent requirements of a financial crisis. Instead we need to devise a special resolution regime (SRR) to handle such an event. Clearly there are two requirements for such an SRR, which are proper coverage and speed of response. Proper coverage should require that all SIFIs are included. The Dodd-Frank Act scores well in that respect; the British law of 200? less well, see Lastra? There obviously remains an acute problem for both the regulators and for academics, which is how to assess and measure what is systemic. At present our only techniques for so doing depend on the use of market prices; thus if a market price (equity or CDS usually) of bank i,

or set of all institutions, move by X%, what is the likely effect on bank j, or the set of all other banks? While we can get some way by so doing, we do need much more data on interconnectedness, crowded trades, concentration of risk, etc. The shift of derivative trading into CCPs should help. Nevertheless, in the run-up to the last crisis, the massive increase in leverage and credit/debt, its focus in many countries on housing, property and construction, and the reliance of the housing market on there not being a sharp downwards break in prices was hardly obscured from sight by data limitations.

Nor, if we are to be honest with ourselves, were regulatory instruments to counter-act the boom entirely lacking, though they were certainly insufficient. Mervyn King's claim that all the Bank of England could do was "to compose sermons and to conduct burials" [reference?] is a lovely quote, but a slight exaggeration. Under Basel II each country's regulatory authority could, at its own discretion, under Pillar II raise the CAR of its own banks. Certainly in the UK the FSA, not the Bank, had the responsibility for activating Pillar II, but the Bank could have requested that it do so, and could have made that request public knowledge. Moreover, the Bank could have proposed the application of maximum Loan to Value ratios in the housing market, steps already taken in Estonia and Hong Kong and recently (2010) in Sweden, and/or measures similar to the Spanish dynamic pre-provisioning requirements. While additional macro-prudential measures to limit credit expansion and asset (housing) price bubbles would be desirable, the real problem has been the mind-set of the regulators and their determination to operate a discretionary system, rather than one constrained by presumptive rules. What is needed is an equivalent Taylor rule for macro-prudential policy.

Crises tend to occur suddenly. When problems develop, all those involved tend to state, in order to bolster such confidence as remains, that everything will be alright, until suddenly it is not. So, usually, there will be little fore-warning of insolvencies. How then can proceedings be put in place rapidly, as is necessary, to deal with a sudden, unforeseen collapse. In this respect one of the best ideas to come out of the latest crisis is the requirement for all SIFIs to prepare a 'living will' in advance. The idea emerged, so I believe, from Tony Lomas of Price Waterhouse Coopers (PWC) as a direct result of his personal experience of being pitched into becoming the liquidator of Lehman Bros, London. There had been no prior planning for this bankruptcy, and the initial conditions were chaotic. If crises are going to recur, as they will, and if the treatment of such failures is not going to involve potentially massive social and economic costs (externalities), there has to be some pre-planning for such a potential failure, in any SIFI. This is where 'living wills' or 'funeral plans' come in.

The current plan is that 'living wills' should have two parts (Huertas 2009 (a)(b) and (c)). The first part is a recovery plan. If the reputation and/or the perceived solvency of the SIFI becomes severely damaged, say by presumed losses of asset values, a rogue trader, or fraud, what immediate steps could it take to shore up its position, e.g. by selling non-core assets and businesses, drawing on pre-arranged credits, etc., etc? The second part involves a review of procedures to be followed, should the SIFI transmit from being a 'going concern' to a 'gone concern', and become unsalvageable. Above all else, this must involve information, a data room, on legal structures, on location of assets and liabilities, and on whom within the institution has the relevant knowledge and responsibilities. As a generality the resolution of a SIFI will be less traumatic if key parts of it can be wound down gradually in an orderly fashion, rather than everything just stopped cold at a point of time. How can one identify in advance how this can be done, and the nature of the operational structure that will allow this

to be done? For example, without functioning computers (IT) everything will physically come to an immediate halt. Does that mean that the IT section of any SIFI, or subsidiary of a SIFI, needs to be legally structured so that it is legally immune from the bankruptcy of its parent?

Basically the conduct of this part of a ‘funeral plan’, or ‘living will’, is akin to a ‘war game’ in which those involved play-act the demise of the SIFI, assess how to minimize the adverse effects of such a failure, and require its liquidation to be carried out more smoothly. There must be a hope that some of the early exercises of this approach will lead to the adoption of some general principles, since doing such an exercise is likely to be hideously labour-intensive, and the idea that this be done quarterly for all SIFIs in each country would seem unrealistic; though each SIFI would have to maintain its core data-room on a regular, ongoing basis.

‘If you want peace, prepare for war.’ If you want to avoid a systemic financial crisis, prepare to handle the collapse of any SIFI, however large and complex. This is a valuable precept. However it is difficult to know in advance quite how useful and valuable such an exercise will be, since they have yet to happen.

Perhaps the main problem, both with crisis resolution and the conduct of ‘living wills’ is that a systemically important financial intermediary (SIFI) is almost always at the same time a cross-border, international institution. In our global financial system, such SIFIs are ‘international in life, but national in death.’ When a cross-border SIFI fails, its various national subsidiaries immediately become subject to national insolvency laws, and such laws are different and inconsistent with each other. This takes on to the final part of this Section.

D. Cross-Border Resolution Mechanisms

Of course, if a cross-border SIFI never becomes insolvent, there is no problem. The purpose of the increased CARs, described in Section 1, along with the proposals for transforming CoCos into new equity capital, and/or bail-ins, is precisely to ensure that all SIFIs remain going concerns. But the lesson of history is that financial crises are endemic in the capitalist system, and that (over) regulation in one corner of the financial system (e.g. narrow banks) will lead inexorably to, just as severe, financial crises popping up (unexpectedly) elsewhere. It would be wishful thinking to assume that our crises prevention mechanisms have become so effective that we can ignore problems in (cross-border) crisis resolution mechanisms.

Some countries, e.g. Germany and Sweden, have not yet introduced any Special Resolution Regimes (SRRs) for their SIFIs and still operate under a, *lex generalis*, insolvency regime. There is, however, now pressure, both within the EU and more widely, for all major countries to introduce a *lex specialis*, an SRR, for their own banks, and I expect such pressure to be effective.

The remaining problem, however, is that each such SRR, *lex specialis*, is set up under national law, and these national laws, given different histories and traditions, are not consistent, indeed often conflict. In particular there are differences between the universal principle of the treatment of creditors in bankruptcy, whereby all are treated alike irrespective of location, and the territorial principle, wherein national creditors have their claims satisfied first from available assets, as practiced by the USA and Australia. But this is far from the only example of legal differences, though probably the most important. Thus the question of

what assets/liabilities can be offset against each other (netted) in a bankruptcy proceedings differs often from country to country.

With Dirk Schoenmaker and Emiliós Avgouleas, I have been proposing that the present trend towards getting all countries to introduce an SRR might be extended to getting them all to establish an exactly common legal basis for their SRRs, so that the insolvency process for SIFIs would become universal. The purpose is to try to prevent national haggling over who bears the burden of failure, national asset grabs, and slow and incoherent national responses to failures, or potential failures, of cross-border SIFIs, such as disfigured the insolvency process in almost all cases in the recent crisis, with Lehman Bros, the Icelandic banks, Fortis, Dexia, etc., being notorious examples.

The objective of trying to obtain an international legal basis for a global financial system is not outlandish. In order to allow the global market system for derivatives to function smoothly, international acceptance of ISDA master agreements were obtained. In a non-financial context, the law of the sea has been commonly agreed.

But we are not optimistic. Getting global agreement on a common legal basis for handling the insolvency of SIFIs would involve too many large countries, with veto powers, accepting conditions for the insolvency of such SIFIs that would run contrary to their own national legal traditions. It would be likely to be blocked.

If one cannot move towards a common (legal) basis for managing cross-border crises, arising from a failure of a cross-border SIFI(s), the obvious logical alternative would be to give much more crisis management powers, both for crisis prevention and crisis resolution, to the local host country, e.g. giving the host country the right to require subsidiarisation of all SIFI local presence and to apply local, host country, CARs and liquidity requirements. The effect would be to introduce frictions into the global financial system. This would be most unpopular in the EU, which is trying to introduce the single European financial area (SEFA), and to most (though not all) cross-border universal banks who see economic advantages in centralised management. It will not happen.

So, there will not be any general mechanism for handling cross-border financial crisis resolution. Instead, we shall have to move forward on a rather messier, case by case basis, in which each cross-border SIFI is examined by a ‘College of Supervisors’, probably as a key aspect of the Living Will process. In each case the idea would be to handle each insolvency in as universal a method as possible, a form of ‘modified universalism’, in which agreements not only on procedures but on methodologies for burden sharing are agreed in advance, wherever possible. The proposals for doing so amongst Scandinavian countries [Dirk: Reference please?] are a good example of what might be done.

There are not an enormous number of such crucial SIFIs, probably less than 50. With any luck, it might be possible to carry out the ‘living will’ exercise for each of them, and use that to agree in advance how any such cross-border failure would be prevented, and then handled if prevention was unsuccessful, before the next financial crisis hits.

4. The Administrative Structure for Implementing the New Financial Architecture

The new financial architecture will incorporate several new instruments, both for crisis prevention and crisis resolution. Their purpose is to maintain systemic financial stability, and

they are generally described as macro-prudential in form. What institution(s) should then wield these?

In his paper on ‘How Central should the Central Bank be?’, (JEL, 2010, 48:1, 123-33), Alan Blinder concludes that “the Central Bank should monitor and regulate systemic risk because preserving financial stability is (a) closely aligned with the standard objectives of monetary policy and (b) likely to require lender of last resort powers.” Indeed the provision, and control, of liquidity in the system is central to the functions of the Central Bank in maintaining both price and financial stability, (Goodhart, 2010). Moreover, most Central Banks have been charged with some generalised responsibility for the maintenance of overall financial stability, even when they have at the same time lacked any instruments, beyond issuing public warnings in Financial Stability Reviews, for achieving this.

There are, at least, two further arguments that support the case for allocating the responsibility for systemic risk control to the Central Bank. The first is professional expertise. Systemic risk arises from market inter-connections, the province of economists. So macro-prudential management needs to be monitored and managed by economists. Consumer protection, conduct of business and to some extent micro-prudential oversight of individual institutions, is undertaken more by lawyers and accountants. Amongst micro-prudential supervisory institutions, such as Financial Supervisory Authorities (FSAs), the bulk of the work tends to fall into the field of consumer protection, and the institution tends to become dominated by lawyers and accountants, whereas the Central Bank’s staff are nowadays dominated by economists.

The second argument concerns independence. The Central Bank tends to be better resourced, usually from seignorage, than an FSA, and is thus less subject to budgetary pressures, either from politicians or from the banking industry. Moreover, the application of counter-cyclical macro-prudential measures, ‘taking away the punch bowl just when the party gets going’, e.g. toughening Loan to Value requirements in a housing boom, tends to be very unpopular, both with politicians and the industry. So the proper conduct of such a mechanism requires a high degree of independence. Central Banks have developed a tradition of such independence, more so than any other supervisory institution; their financing, their historical roles and the academic support for Central Bank Independence gives them better protection, against outside interference, for the conduct of macro-prudential measures than any other institution in the field.

In practice, these arguments have won the day. Even where the reputation of the Central Bank has suffered most, in the recent crisis, as in the USA,⁶ Congress there still allocated responsibility for macro-prudential systemic risk to the Fed, (subject to an Oversight Committee), in the Dodd-Frank Act. In the EU the newly established European Systemic Risk Board is managed by the ECB and the voting power dominated by Central Banks. In the UK the incoming Coalition Government has handed all the macro-prudential powers, and most of the micro-prudential oversight, back to the Bank of England.

A consensus is now developing that responsibility for monitoring and managing financial stability should indeed rest with the Central Bank. But, beyond that, there remains a great

⁶ Blinder, *op cit*, footnote 13, gives two examples:-

“First, the thirty votes against Ben Bernanke in January 2010 were the most in history, by a wide margin. Second, a July 2009 Gallup poll found that the public judges the Fed to have done the worst job among nine federal agencies tested – a list that included Homeland Security, the CIA, and the IRS!”

3. Take the work of the Central Bank beyond its traditional focus and expertise into areas such as insurance regulation, consumer protection and conduct of business, thereby changing its ethos;
4. Represent extreme ‘mission creep’ and potentially extend the Central Bank’s ‘safety net’ too far;
5. Increase reputational risk and, with that, threats to its continued independence.

In the case of some small countries there are efficiency arguments, (e.g. few skilled economists and regulators), for doing all financial supervision in the Central Bank, and it has been done (Masciandaro and colleagues). But as a generality this has not been the preferred route. Examples and experience, including current experience, show that most countries leave supervision of non-SIFIs and non-banks to specialist supervisory bodies; and also leave consumer protection/conduct of business either to yet another specialist institution or to the specialist micro-prudential supervisory body. There is no consensus, or agreed best practice, on exactly where to draw such lines.

Perhaps, though this is advanced tentatively, the best approach might be a supervisory body connected with the Central Bank, but physically separate with a different remuneration scale, with an overlapping Board or Policy Committee, both chaired by the Governor, and with some, but not all, common members. In addition, there could be a separate consumer protection body, preferably entirely separate from the Central Bank, and perhaps yet another body to regulate/supervise the insurance industry. This might be described as the Finnish or French model, towards which recent reforms have also taken the UK and Germany.

The above discussion has focused on the relationship between the Central Bank and separate specialist supervisory bodies in the context of crisis prevention. Exactly the same debate can be undertaken in the field of crisis resolution. Again it is possible to consider the extremes. At a minimum the Central Bank could put some general proposals to a specialised resolution authority on a comply or explain basis, and would have full access to the ‘living wills’ of all SIFIs, but otherwise would leave everything to a specialist resolution authority, such as the FDIC in the USA or NDO in Sweden. The maximum would involve the Central Bank doing everything in house.

In the case of crisis resolution the case for greater separation seems stronger than in the case of crisis prevention. There are three reasons for this. First, crisis resolution can require fiscal assistance, in the shape of capital injections, debt guarantees, etc. The government is much more likely to need to be involved. Central Bank independence is then less at risk if the government is primarily interacting with a separate resolution body. Second, under the proposed new architecture, the regulators will likely intervene much more into property rights, for example in the conduct of bail-ins and CoCos. The potential for reputational risk and extended legal battles could rise sharply. A Central Bank might be well advised to out-source such risks to a separate body. Third, but overlapping with the previous arguments, both the preparation for crisis, notably in establishing ‘living wills’ for cross-border SIFIs in a context of ‘modified universalism’, and in the actual resolution of crises are going to require specialist legal and accounting expertise, which normally Central Banks do not fully possess.

A counter-argument is that crises, fortunately, occur rarely. Most of the time a specialist resolution authority would have nothing to do. So it could find it difficult to attract, motivate

or retain staff, whereas a Central Bank could switch staff between roles as required. While there is some force in this argument, there are also responses to it. First, if the preparation of 'living wills' becomes the responsibility of the resolution authority, as would seem sensible, this would give it on-going regular duties. Second, staff could, if necessary, be temporarily seconded from the Central Bank to the resolution authority in a crisis as required.

To conclude, it has become clear that the Central Bank will be given responsibility for monitoring and managing systemic risk, and will be allocated powers to adjust some new instruments for that purpose. On the other hand the question of where the dividing lines may be drawn between the Central Bank and specialist supervisory agencies, both for crisis prevention and crisis resolution, remains unresolved.

CFS Working Paper Series:

No.	Author(s)	Title
2011/11	Xavier Freixas Christian Laux	Disclosure, Transparency, and Market Discipline
2011/10	Reint Gropp Christian Hirsch Jan P. Krahn	Is Rated Debt Arm's Length? Evidence from Mergers and Acquisitions
2011/09	Hélena Beltran-Lopez Joachim Grammig Albert J. Menkveld	Limit Order Books and Trade Informativeness
2011/08	Joachim Grammig Erik Theissen Oliver Wünsche	Time and the Price Impact of a Trade: A Structural Approach
2011/07	Tullio Jappelli Mario Padula	Investment in Financial Literacy and Saving Decisions
2011/06	Carolina Achury Sylwia Hubar Christos Koulovatianos	Saving Rates and Portfolio Choice with Subsistence Consumption
2011/05	Gerlinde Fellner Erik Theissen	Short Sale Constraints, Divergence of Opinion and Asset Values: Evidence from the Laboratory
2011/04	André Betzer Jasmin Gider Daniel Metzger Erik Theissen	Strategic Trading and Trade Reporting by Corporate Insiders
2011/03	Joachim Grammig Erik Theissen	Is BEST Really Better? Internalization of Orders in an Open Limit Order Book
2011/02	Jördis Hengelbrock Erik Theissen Christian Westheide	Market Response to Investor Sentiment

Copies of working papers can be downloaded at <http://www.ifk-cfs.de>