

Regulatory frameworks: lessons learned and potential implications of the Credit Crisis

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The presentation which this draft note accompanies includes additional material on systemic risk and insurers that is not (yet) covered in this note.

Abstract

The recent credit crunch has highlighted vulnerabilities in the global financial system. The general view is that ‘something ought to be done’ to tackle these vulnerabilities, particularly in relation to banking regulation, but there is less consensus on quite what this ‘something’ should be. In this paper we summarise the main elements of the debate. We explore the purpose of regulation and we consider some of the potential implications of this debate for pension funds and insurers.

1. Introduction

The recent credit crisis has led to considerable soul-searching both inside and outside the financial community. A copious amount of material has been written about lessons to learn from it (although the amount written on this subject is still small compared to the amount of red ink that the crisis has strewn over firms’ balance sheets and P&L statements). It may take years for governments to repair the impact that their support of weak firms during the crisis has had on their own balance sheets, given the economic weakness that the crisis has engendered.

For now at least, the doomsters who predicted that the crisis would lead to widespread social or political unrest seem to have proved wide of the mark (except perhaps in countries whose sovereign creditworthiness has come under serious pressure). The crisis, whilst bad, does not appear to have morphed into a re-run of the Great Depression. Markets are relatively sanguine about the future. Banks that played their cards well during the crisis have generated record profits. Life seems to be returning to normality within the financial community if not within the public sector or the economy more generally.

At the heart of the debate is the question of whether and how to refine (financial) regulatory frameworks to reduce the vulnerability of the financial system to shocks like the recent credit crisis. In this paper we explore some of the ideas that have informed or have come out of this debate. We have tried to present a sufficient spectrum of opinions for readers to understand the breadth of views that different commentators have presented; the inclusion of such opinions does not necessarily mean that we endorse them. To the extent that we express our views on such matters, these views are the authors’ own personal views rather than those of their employers or of the Institute of Actuaries or of the Faculty of Actuaries. Illustrations of the range of opinions expressed have a bias towards those most relevant in the UK, given the location of the authors, although we have also sought to include a wider perspective where appropriate.

2. What is the intrinsic purpose of regulation?

Core to the debate is the question of what is the purpose of regulation. Even, perhaps especially, at this early juncture we run into differences of opinion or at least differences of emphasis.

At the very highest level, we have the issue of the extent to which society should or is seeking to adopt a 'command' (or 'collective') as opposed to a 'market' economy. For those favouring a 'command' approach, regulation may be viewed as just another means of ensuring that the right 'commands' get implemented in practice in the nuts and bolts of the economic process. Regulations might aim to prohibit or limit activities that those in power view as undesirable.

Classically, this topic might have been viewed through a Cold War perspective, with collective Soviet-style command economies deemed to be pitted against highly capitalist economies in which resources were exclusively apportioned according to market forces. In reality there are many shades in between (and there were even at the height of the Cold War). Often in practice at issue was emphasis. In nearly every major developed economy some sectors are nearly exclusively government controlled, e.g. the army and police force, and others are nearly exclusively in the private sector, e.g. retailing. For the latter types of sector, regulation is seen principally as a means of tempering some of the excesses or undesirable social consequences that exclusive focus on market forces might otherwise bring, e.g. there might be regulations requiring minimum standards of hygiene to limit public health risks.

Quite where *financial* regulation fits into this spectrum is a matter of debate. Traditionally, within the capitalist West, a relatively laissez-faire approach has been seen as appropriate, consistent with the Anglo-Saxon capitalism that seemed prior to the crisis to have been in the ascendancy. However, the financial crisis has led to a crisis of confidence in these economic norms, and by implication in the ways in which such economies handled their financial systems. This was perhaps most evident in the perceived incongruity of Hank Paulson prostrating himself before Congress seeking the authority (and money) from Congress to prop up the financial system in a country perceived as averse to government bail-outs of any sort. This theme has been picked up by more socialist orientated political systems, such as in China, who are now more fervently pushing the case for economic approaches that are less avowedly capitalist in focus.

With the benefit of hindsight, even the Anglo-Saxon laissez-faire approach could be viewed as a particular way of 'instructing' the economy to work in a particular manner and thus to achieve a particular economic end. For example, it can be argued that successive UK governments have strongly promoted London as an international financial centre, e.g. by promoting a relatively light touch regulatory framework that aimed to foster innovation and by introducing competition in the form of 'Big Bang' etc. Prior to the crisis, this was arguably proving a very successful economic strategy, contributing strongly to British GDP and hence to government coffers, if not necessarily to equality of incomes in London and South East England. Others, like Dubai, sought to emulate the UK's success, but not always as successfully. If UK government support for weak financial firms eventually ends up costing little, economic growth and globalisation trends return, and London remains one of the world's leading financial centres or even improves its position then the UK's navigation of the recent financial crisis may eventually be seen as inspired.

One step down from this high-level, we might subdivide the purpose of regulation in the financial community into several interrelated strands including the following. We use the term 'entity' here rather than firm, because later on we will want to include in our analysis organisations such as pension funds that are not necessarily subject to the same economic drivers as shareholder driven firms.

- (a) *What level of capital (and of what type) do we want entities to hold, individually and in aggregate, to limit the potential drain on the public purse (or loss to investors) in the event of the entities failing?*

Some of this discussion has focused on individual firms and sectors. Commentators have asked questions like: Were the Basel II capital adequacy standards applicable to banks set appropriately? How should liquidity risk best be measured and allowed for in such computations? Is Solvency II as currently formulated going to create a similar set of problems for the EU insurance industry some years hence (and, if so, how should it be refined)? How reliable are the mathematical models used to assess capital needs (or to price instruments)?

Others have focused on the aggregate position across multiple firms. Here buzz-words or topics that have gained a substantial airing include macro-prudential supervision, avoidance of pro-cyclicality and the relevance or otherwise of marking-to-market.

We explore these topics further in Sections 3 and 4.

- (b) *What sorts of behaviours do we wish to encourage/discourage entities within the financial sector to adopt within their own businesses/structures or in relation to how such entities interact with their customers?*

A particular worry that regulators have expressed is that there may be systemic features within the ways in which financial participants operate that can create vulnerabilities. Politically, this has at present coalesced (in the UK) around the topic of bankers' bonuses, whether it is reasonable for them to be as large as they currently are and whether the asymmetries potentially involved in how these bonuses are currently set might lead to an excess of risky behaviour within the financial community. By 'risky' is here typically meant behaviour that increases the risk or size of bail-outs as per (a). Conversely, those defending these behavioural patterns point to the substantial contribution the City has provided to the public purse and the economy more generally over many years. They may then argue that the last thing you should want to do is to kill the golden goose by driving talent elsewhere.

Less controversially, there is a perception that some of the firm failures during the crisis were due to organisational weaknesses, which improved risk management and/or governance disciplines would have helped to avoid. Thus part of the debate is on how these disciplines can best be nurtured.

The topic of how such firms should interact with their customers has also been highlighted. For example, Lord Turner, Chairman of the UK's Financial Services Authority, has expressed the view that much of the innovation generated by the financial sector over the last few years has had little ultimate economic benefit to society as a whole, see FSA (2009b). Special criticism has here been focused on complex structures or products that were deemed difficult to understand (and proved illiquid and/or difficult to value at the depths of the crisis).

We explore these topics further in Section 5.

As the above comments highlight, the epicentre of this debate has been the *banking* sector. This in itself is an important observation. It is, we think, linked to the particular role played by banks in *monetary* matters. This complicates our identification, in later Sections, of lessons that might apply to other financial market participants, such as pension funds and insurance companies, who play important but *different* roles within the financial system. However, the debate has not exclusively focused on banking; indeed one of the rationales for the EU’s proposed Alternative Investment Fund Managers directive is to catch within the regulatory net entities such as hedge funds that have previously been largely unregulated but are perceived as having contributed to the Lehman crash and hence to the crisis more generally.

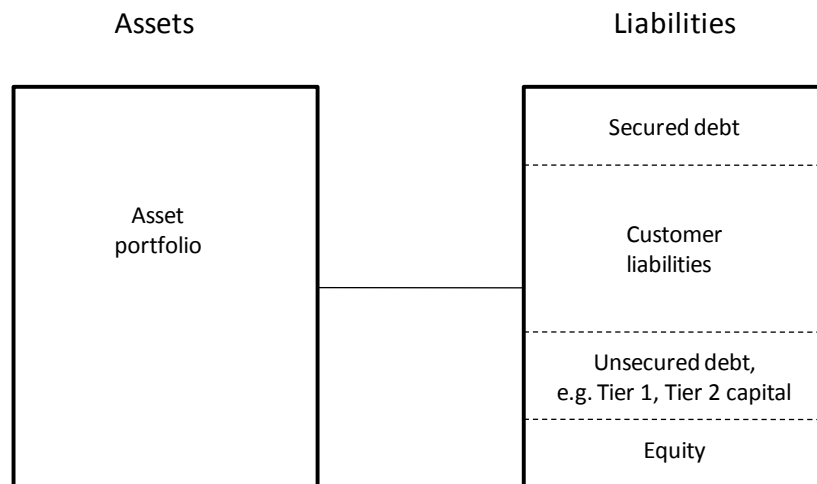
3. Capital adequacy – a conceptual framework

Perhaps the part of the debate surrounding the crisis that has resonated most with actuaries is the relatively narrow issue of how much capital an entity or a firm should hold. Quantifying financial organisations’ capital needs has been a key part of actuarial practice for many decades.

To navigate through the many issues raised in this regard by the recent crisis it helps to have a clear conceptual framework capable of differentiating between the different aspects of and approaches to capital adequacy. Ideally it should be capable of incorporating the subtleties that exist in practice (e.g. the preference regulators and others might have for firms to use one sort of capital rather than another in addition to merely having a particular quantum of capital to hand).

Kemp (2009) describes such a conceptual framework. He argues that (absent future new business or capital raising) the balance sheet of any financial firm or organisation can be conceptually organised as per Figure 1¹.

Figure 1: Schematic representation of any financial organisation’s balance sheet



In this representation, ‘customer liabilities’ correspond to liabilities to depositors (for a bank), policyholders (for an insurance company) or beneficiaries (for a pension fund). There may be some liabilities that rank above customer liabilities (e.g. mortgages secured on particular assets), but usually most non-customer providers of the organisation’s capital have a priority ranking below that

¹ Incidentally, an essentially equivalent representation also applies to vehicles like Collateralised Debt Obligations (CDOs) and Structured Investment Vehicles (SIVs) that came in for harsh criticism from some quarters or generated large losses for some market participants during the crisis. This highlights that structure isn’t everything. Transparency in structure or in how a business model is being implemented may be as important if not more so.

of the firm's customers (i.e. in the event of default customers will be paid in preference to these capital providers).

Stand-alone entities may only be able to replenish capital ranked below customer liabilities by raising new capital from elsewhere. The entity's ability to do so will depend heavily on the extent to which it is expected by outsiders to have access to profitable new business flows in the future.

The same representation can also be used for a DB (or DC) pension fund even though such a fund does not have precisely the same profit-focused outlook that is typical of a commercial firm. Here, the elements of the capital structure corresponding to the unsecured debt or equity shown above may be any 'surplus' capital built up previously and held *within* the pension fund (much like the P&L account for a commercial firm) plus the implicit or explicit access that the fund may have to capital that is currently held on its sponsor's balance sheet. This latter part of the capital structure is usually termed the *sponsor covenant* and is akin to a contingent IOU that the fund may be entitled to call upon in times of trouble. If a DB pension fund has no sponsor (e.g. because the sponsor has defaulted) and therefore no sponsor covenant to fall back on then its position is akin to a stand-alone entity as above except that, not being commercial, it is unlikely to be able to raise much capital ranking below its own beneficiaries in the event of getting into trouble.

All other things being equal, the greater the amount of capital the organisation has ranking below its own customer liabilities the better protected are its customers against the organisation running into difficulties. Only after this capital cushion is exhausted would customers start to find their liabilities not being fully honoured. A corollary is that 'solvency' is never absolute. As long as there are some customer liabilities there will always be outcomes we can envisage that are severe enough to result in the exhaustion of this cushion and hence in customer liabilities not being honoured in full. For example, the organisation (or its sponsor, if the organisation is dependent on a sponsor covenant) might suffer a particularly massive fraud, be hit with a particularly large back tax or liability claim, suffer reputational damage which exhausts its future earning power, or just make the wrong business decisions and end up making losses which exhaust its capital base.

Kemp's innovation is to specify the problem of how much capital an organisation should hold to be 'solvent' in terms of the *yield spread* (versus risk-free)² that would or should apply to customer liabilities were they to be traded freely in the market place. Such a conceptual framework highlights a large number of the subtleties that arise in theory and in practice with solvency computations, e.g.:

- (a) All other things being equal, more capital provides greater protection for policyholders, but lower returns for the capital providers (unless it leads to greater access to profitability from new business).
- (b) The required target capital level depends on the extent to which assets match customer liabilities (since the greater the volatility in the difference the greater the likelihood of capital being exhausted).
- (c) The merits of capital that helps in a 'gone concern' as opposed to capital that merely helps in a 'going concern' situation become easier to appreciate, thus providing a clearer theoretical

² This yield spread might be equated with the fair CDS premium that a customer of the organisation would incur to eliminate exposure to the credit risk of that organisation (and if defined as such would be fully 'market consistent'). More practically, it can be viewed as an approximation to this, or an assessment of what this premium might be given the actual capital adequacy framework and capital base within which the organisation operates.

justification for different capital 'tiers' as per current UK regulatory regimes and under Solvency II.

- (d) Treatment of liquidity risks becomes conceptually easier to visualise. If you were investing in paper ranking *pari passu* with policyholders how would the yield spread you would want be influenced by the liquidity characteristics of either assets or liabilities?
- (e) A yield spread, being ultimately a sum of outcomes over all possible scenarios includes the entire spectrum of outcomes, including ones in which the entity has defaulted, which would otherwise be ignored if the focus is merely on limiting ruin probability to a given level (for example a 1-in-200 1 Year VaR risk measure).
- (f) Given (e), the framework can also conceptually handle who bears any losses (and the sums involved) arising from entity default. It is these losses that arguably are the ones that have the most visible potential to flow through to governments and/or industry-wide protection schemes.
- (g) By referring to the spread that would otherwise apply on the open market, the approach can be formulated in a market consistent manner (even if in practice other 'off market', including 'real world', assumption sets might be used instead), and thus in a manner that limits scope for potential regulatory arbitrage.
- (h) Issues relating to pro-cyclicality and macro-prudential supervision can be accommodated by consideration of how we might want the target yield spread to vary through time (and between sectors) depending on economic circumstances.
- (i) The appropriate treatment of 'own credit risk' in solvency computations is clarified. It, in effect, no longer features in the calculation, since we are now solving for a given target level of own default risk rather than trying to work out how to take account of the actual level present³. The corresponding valuation of the capital ranking below the customer liabilities needed to achieve equivalence between assets and liabilities conceptually also allows us to include allowance for own credit risk in material for shareholders, to the extent that this is deemed relevant.
- (j) The framework is sufficiently rich to allow for more subtle issues. For example, it can frame a discussion of what, if any, allowance should be incorporated in regulatory capital computations in respect of sovereign default risk (not just of other sovereigns but also of the government of the jurisdiction in which the entity is domiciled). The definition of 'risk-free' against which the spread is measured can, for example, be set before or after allowing for this risk, depending on whether it is thought that customers would expect their liabilities to carry this risk. We do not explore this issue further in this paper.

Perhaps the biggest issues raised by this framework are the computational challenges and degree of subjectivity that it theoretically entails. To some extent, computational challenges are being addressed by developments in the technology underlying 'economic scenario generators', see e.g. Varnell (2009), which are making the underlying calculations more feasible to undertake (as long as it is possible to identify what would happen in different circumstances). Subjectivity arises because

³ A corollary is that this yield spread can also be thought of as the market consistent equivalent of an insurance policyholder credit rating. It may therefore be worth noting that credit ratings of, say, insurers' *debt* do not directly focus on the credit quality of *policyholder* liabilities but on the credit quality of specific debt instruments that the ratings agencies have been asked to rate.

the market consistent formulation of the framework requires assumptions about how a market would operate but customer liabilities are not always often traded in practice. We might, however, view this merely as a reflection of underlying reality. Arguably, any other way of framing regulatory capital regimes would include the same, if not extra, subjectivity (even if this subjectivity might not be apparent to end users because it might be principally occurring within regulatory organisations).

4. Capital adequacy – ideas proposed in the light of the Credit Crisis

A wide range of ideas have been proposed to ‘fix’ the financial system in the light of the recent Credit Crisis. Most of these have focused on the banking system. This, we think, reflects the focus on retaining confidence in money as a ‘medium of exchange’, i.e. a special good capable of being translated on demand into other goods, see also Section 6⁴.

Nearly all of the ideas proposed in relation to capital adequacy can be summarised as involving “more capital and more of the ‘right’ sort of capital”. Increasing the entity’s capital base reduces the likelihood of default and the customer loss given default, and hence the potential cost to the State of carrying the burden of these losses.

For example, the BCBS (2009), the Basel Committee’s Consultative Document on “Strengthening the resilience of the banking sector”, groups its proposals into four main strands:

(i) *Improve quality, consistency and transparency of capital base*

By ‘quality’ is meant type of capital. Regulators are keen to increase the proportion of overall capital bases formed by equity capital as well as overall quantum. This is because equity capital and its equivalents are more effective in a ‘gone’ concern situation than some other types of capital. In the parlance of Section 3, the yield spread is driven by probability of default **and** loss given default. Increasing the quantum of equity capital at the expense of other sorts of capital ranking below customer liabilities may not reduce probability of default (as far as customers are concerned), but may reduce their loss given default depending on the characteristics of capital that the equity capital replaces. Put another way, regulators and governments have discovered that the bulk of the costs they incurred arose in ‘gone concern’ situations. They want balance sheets to be as resilient as possible in such circumstances and not just in situations where the entity limps on as a going concern.

(ii) *Strengthen risk coverage of the capital framework*

This involves fixing existing weaknesses that have become clear as a result of the Credit Crisis, e.g. inadequate current capital requirements for counterparty credit risks and securities financing activities.

(iii) *Introduce leverage ratio limits to supplement existing risk-based framework*

Banks have typically become more leveraged over the last half century. This is widely viewed as having played a part in their lack of resilience. Leverage ratio limits are arguably a crude way of tackling this issue but are seen as a way of limiting the model risk implicit in current

⁴ The Credit Crisis also created some dramatic movements in asset valuations. These are generally considered to have been a symptom of the economic crisis, not its root cause. As a result, fewer ideas for change have been floated linked to money’s other main use, as a ‘store of value’. However, some commentators have suggested that central banks should be more willing to burst asset bubbles before they grow too large (to the extent that it is possible to identify them developing)

(or future) risk-based regulatory frameworks (or perhaps, more importantly, to limit the scope for banks to game these frameworks, whether wittingly or unwittingly).

(iv) *Introduce counter-cyclical capital buffers (including contingent capital arrangements)*

A wide variety of ideas have been floated, e.g. for organisations to be required to have additional capital that kicks in whenever a stressed situation develops (e.g. partly paid securities or hybrid equivalents invested in by long-term investors such as sovereign wealth funds or pension funds), see e.g. Dickson (2010). In this category the Basel Committee also include 'better' (i.e. more forward-looking) provisioning of loan losses and other accounting topics, even though these might not necessarily prove counter-cyclical in practice.

Some commentators are sceptical about the practicality of such arrangements. In a global crisis there may be no organisations other than governments able to provide such funding lines to banks. However, in more limited forms these types of ideas become more clearly practical. For example, the Basel Committee is suggesting mechanisms to limit banks from paying dividends away (and thus depleting their capital base) just as a stressed situation starts to develop (as does seem to have occurred). They are also exploring ways of requiring banks to replenish their capital bases more quickly as stresses ease (a topic that is also linked to the topic of bank bonus policies).

(v) *Introduce enhanced liquidity standards*

The Basel Committee sees strong capital requirements as a necessary condition for banking sector stability but not by themselves sufficient. One particular change that it is keen to promote is better liquidity management, see Section 5(f). More generally, regulators are keen for banks to adopt business models that involve a more diversified range of funding sources.

A large number of other, more contentious, ideas have also been proposed. For example, some have argued in favour of abandoning (or reducing) the current focus on marking-to-market, primarily because it is perceived as promoting undesirable pro-cyclicality. Kemp (2009), amongst other commentators, is sceptical about this proposal, arguing, for example, that:

- Investors and customers etc. seem to place increasing emphasis on mark to market perspectives in times of stress (irrespective of accounting conventions the firms themselves might like to use), presumably believing them to provide a more transparent (and hence more 'accurate') assessment of any given entity's 'true' status; and
- Abandoning mark-to-market principles is likely to lead to a less fair allocation of government support across different market participants. 'Better' (i.e. fairer) would be to retain marking-to-market but to build in counter-cyclicality in other ways, e.g. by mimicking a framework in which the aggregate target yield spread on customer liabilities (as per Section 3) for the industry as a whole moves up or down in an appropriate counter-cyclical fashion.

Perhaps the most contentious set of ideas (proposed by some politicians and by no less a body than the International Monetary Fund) involves imposition of new taxes on the banking sector. The logic is that if the sector is prone to being supported every so often by governments then it should contribute extra to the public purse to recompense for this support. These taxes might include additional taxes on profits, a tax on bank transactions (a Tobin Tax, as proposed by Gordon Brown, the then UK Prime Minister) or, in one White House proposal, a "financial crisis responsibility fee"

fee of 0.15% of liabilities (excluding deposits and regulatory capital), see Crook (2010). Not surprisingly, the banking sector strongly disagrees with these sorts of ideas, according to the FT (2010), claiming that “they would hit profits hard, would not reduce the risk of future failures and were at odds with other plans to clean up the industry”. A particular challenge here would be to agree a consistent global approach, to avoid the business activity moving to a different tax jurisdiction. Some countries, particularly ones which did not need to bail out their banking systems during the recent crisis, are less convinced about the merits of such proposals.

5. Organisation and governance

Regulators are quick to argue that additional capital is not necessarily the most practical or even the most appropriate way to protect customers against risk. Instead they often seek to place a strong emphasis on firm behaviour, including governance practices and organisational structures (and corporate culture).

A further dimension is added at a macro-prudential level. Firms might happily agree to promote some deemed desirable behavioural characteristic but only if it is implemented by their competitors at the same time, e.g. for fear of losing clients or talented staff to their competitors.

We have seen these factors very much at work within the debate and policy response surrounding the crisis, e.g.:

(a) *Restricting the size of systemically important organisations*

Some commentators (and some politicians) have argued that banks should be ‘cut down to size’ to limit the cost of financial support that governments might incur if they were to run into trouble. The rationale is that the larger an entity is the more difficult it becomes for the government not to stand behind it in the event of distress, i.e. the more likely it is to be ‘too big to fail’.

However, a weakness of this argument is that if the cause of the distress is systemic (which is more likely if the distress is widespread) then the government may feel that it needs to stand behind a class of organisations rather than just particular large individual organisations, so the size of any individual organisation that might need bailing out becomes less relevant. The issue of whether governments should seek to limit the aggregate sizes of *sectors* deemed systemically important in this way (and hence liable to be bailed out from time to time by governments) is discussed further in (b) below.

(b) *Limiting the types of activity that regulated entities can undertake whilst simultaneously also being able to access deposits benefiting from implicit (or explicit) government guarantees*

Quite a few commentators have suggested limiting the types of activities that organisations implicitly or explicitly benefiting from government guarantees on deposits should be able to undertake. The rationale is that the perceived need to support the banking system was to avoid a crisis of confidence in the use of money as a means of settling transactions, but many of the causes of the crisis stemmed from other activities that the relevant banks undertook.

In practice this idea is usually linked with the decoupling of investment banking and/or proprietary trading from commercial banking, e.g. the recent Volker proposals for US

banking reform⁵. An issue that would then need addressing is how to define these different activities (and how to stop organisations from circumventing the rules that would need to be put in place). Different jurisdictions may also have different views. For example, some commentators perceive that the position of New York as a financial centre (vis-a-vis, say, London) was handicapped by inappropriate segregation of this type during part of the time the Glass-Steagall Act was in force in the USA⁶. Thus, the UK might be less receptive to this policy prescription than the US.

(c) *Facilitating changes to market structures perceived likely to reduce systemic risks*

An example of this sort of policy response is the suggestion that banks (and other organisations) should have to trade particular types of instruments through centralised exchanges rather than over-the-counter (OTC) between themselves.

Those in favour of such approaches argue that this would aid transparency and limit systemic risks posed by large interconnected counterparties (e.g. Lehmans and AIG), This could increase the size needed for an entity to have become 'too big to fail', see (a), and hence reduce the likelihood and/or quantum of government bail-out that might thus occur. Those arguing against such approaches may point to the increased risk arising with the central counterparty itself (would we merely be putting 'all our eggs into one basket?') and/or that there may be good reasons (e.g. uncompetitive pricing by central counterparties) why the earlier, more diffuse, market structure had developed.

Another issue has also been highlighted in the debate. Clearing houses linked to exchanges ought to offer advantages in terms of collateralisation arrangements. However, the effectiveness of these arrangements depends on features like daily marking-to-market and margin transfers. Some large non-financial organisations active in derivatives markets (who can be thought of as examples of end customers of the financial system) have lobbied against such proposals because they are worried that they also might be forced to post margin daily, and they think that this would hinder their mainstream business activities.

There are also some commentators who argue that certain market activities are intrinsically inappropriate and should be banned, e.g. banning entering into naked CDS positions or banning the provision of mortgages for more than the underlying value of the property. Others would argue that any type of market activity, as long as it is not promoting illegal activity, should be allowed, because to do otherwise will harm the ability of markets to achieve effective price discovery, transparency and other attributes deemed intrinsic to well-functioning market places. This rapidly leads on to a replaying of the sorts of arguments mentioned at the start of Section 2 concerning whether a focus on market economics is or is not the 'best' way to run an economy.

(d) *Limiting the scope of others to profit from a firm's weakness and hence to increase the cost to the government of bailing it out*

A special case of (c) involves situations where the government itself is involved. During the crisis, governments sought to limit the opportunities that other organisations potentially had

⁵ These proposals would require banks not to own, invest or sponsor hedge funds or private equity funds, as well as banning proprietary trading for their own profit, unrelated to serving customers.

⁶ The Glass-Steagall Act, introduced in the USA in 1933 in the aftermath of the Wall Street Crash of 1929 and the ensuing Depression, required separation of commercial from investment banking. It was eventually repealed in the 1990s.

to profit from bank discomfort at the expense of governments by placing restrictions on the shorting (by hedge funds and others) of systemically important banks and other financial institutions. Most governments introduced such bans. The economic rationale for shorting is that it facilitates efficient market operation and hence price discovery. One can see why governments might seek to restrict the effectiveness of the market in this respect (if they expected it to be at their own expense), but whether this policy actually achieved its desired goal is unclear.

Presumably, such a policy response has most logic actually during times of stress, although this has not stopped some commentators from proposing that markets in, say, sovereign CDS instruments should be curtailed more permanently.

(e) *'Living wills' and changes to winding up procedures*

One proposal that seems difficult to fault, except from the perspective of those who have to create them, is the idea that firms should set out how, if necessary, they could be wound down in an orderly fashion in the event that they became distressed.

From governments' perspective, such documents, if soundly drawn up, should simplify the process of bailing out a company. The process of drawing them up might also highlight weaknesses in group structures which would add complexity in such situations but which would be relatively simple to rectify in the meantime. Conversely, firms caught by such requirements have argued that their (possibly complex) group structures are there for a purpose, and to unravel them in the meantime may be costly (and possibly counterproductive). Some of the cost angles relate to tax efficiency and therefore may get entangled in the fine dividing line between regulatory activities and other more general government activities (here tax raising).

Whilst technically these documents are called 'recovery and restitution plans' by the Bank of England (2009), the analogy with wills is perhaps a good one. Most people can identify with the complications (for others) that can arise when a person dies without a will (or with a defective one). Arguably, it is churlish to assume that companies won't die; indeed they may on average have a higher mortality rate per annum than humans!

There have also been proposals to simplify the winding up of failed financial institutions, and/or to place more of the burden in such situations onto equity holders (and, some have argued, onto any type of unsecured creditor), see e.g. Bänziger (2010).

(f) *Improving liquidity risk management requirements*

Although the recent financial crisis is most commonly referred to as a *credit* crisis, it could perhaps be better described as a *liquidity* crisis. The banks that failed were disproportionately ones that relied on the wholesale markets for their funding. It was when these funding sources dried up that they ran into problems, because they were unable to use other assets they had to source the liquidity that they needed in order to continue as going concerns.

This fact has not been lost on regulators. Nor have some of the weaknesses that existed in Basel II in relation to liquidity risk. Basel II arguably paid relatively little attention to liquidity risk compared to, say, market and credit risk. This has led to a rash of proposals and policy responses aimed at moving liquidity risk up the agenda, e.g. FSA (2009a).

One might expect this issue not to be of great importance to insurers and pension funds. Indeed, at first sight we might even view insurers and pension funds as possible net ‘suppliers’ of liquidity to ‘consumers’ such as banks. However, in Section 6 we will see that appropriate treatment of liquidity risk may also be highly relevant to some insurers and, indirectly, to (DB) pension funds.

(g) *Improving overall risk management processes*

Most commentators and regulators consider that it would be desirable to improve the quality of risk management of regulated firms. The desired focus ties in well with the increasing emphasis being placed on ‘enterprise’ risk management (or ‘entity-wide’ equivalents for institutions like pension funds that do not necessarily see themselves as ‘enterprises’ per se).

6. Implications of banking policy remedies for pension funds and insurance companies

Some of the more general ideas set out above will resonate with pension funds and insurance companies. Others (e.g. bankers’ bonuses) seem more oblique.

Kemp (2009) explores further the differing purposes of regulation that apply to banks as opposed to longer-term investing institutions such as insurers and pension funds. He argues that banks major on the use of money as a ‘medium of exchange’, which is essentially short-term in nature. In contrast, insurers and pension funds are arguably more aligned with its other main use, which is as a ‘store of value’. Thus banking regulation is particularly geared towards soundness of money whilst insurance/pension fund regulation focuses more on ensuring that the providers in question ‘honour their promises about how they are going to behave’⁷.

At first sight, therefore, we might expect the main implications to relate to the impact that the credit crisis had on investment markets, e.g.:

- Impact on the market prices of bank equity and debt (including hybrid debt such as Tier 2 debt where economic incentives led to a change in bank behaviour regarding conversion options on such instruments);
- Impact on the wider economy and through it to market expectations and valuations placed on all main asset types; and
- Impact that some of the market structure suggestions described in Section 5 might have on operational processes.

However, we do see two particular areas where additional implications are likely:

(a) *The desire for improved risk management disciplines*

This trend seems strong and is already gathering pace within insurers and pension funds. For example (in the UK) there have been proposals for enhancements to risk disciplines, risk functions and risk management processes across the financial industry as set out in the

⁷ For example, life insurers need to ensure that their unit-linked funds follow their investment mandates, but do not necessarily have to worry explicitly about whether the unit price is rising or falling (if the policies do not include guarantees).

Walker Review, see HM Treasury (2009), and in FSA Consultation Paper CP10/3, see FSA (2010). Enhancements will be required for insurers at an EU level under Solvency II, e.g. the requirement for insurers to carry out Own Risk and Solvency Assessments (ORSAs) and to have a risk management function. It seems likely that when eventually the EU tackles EU-wide regulation of pension funds similar trends will be evident, even if the aims, objectives and precise legal frameworks that pension funds operate under will require some interpretation of these trends to their specific structures.

(b) *Liquidity risk*

Although pension funds and (life) insurers might seem a world away from some of the liquidity risks that banks have faced during the credit crisis, such a view may be over-simplistic. Liquidity risk does have potentially important ramifications for some insurers (and as a consequence for some pension funds).

Some life insurers have material exposures to liquidity risk in their annuity books. Annuity liabilities are typically viewed as very illiquid (the policies concerned cannot normally be cancelled by the policyholders and can extend over long periods of time). As a result some life insurers have felt it justifiable to 'match' this illiquidity in the liabilities by investing in illiquid corporate bonds of corresponding durations. These bonds appear to carry an illiquidity yield premium. The question then arises how this illiquidity yield premium should be allowed for, if at all, in the solvency computation of such entities. This in turn can be expected to influence the prices of annuities (including bulk annuities that pension funds might seek to purchase on a buy-out). Even small yield differences can accumulate to large value differences for long-term liabilities.

This topic was highlighted during the Solvency II consultation process when originally CEIOPS (the EU-wide grouping of regulators) proposed discounting liabilities for solvency capital computation purposes using 'risk-free' rates that excluded such yield premiums. Some large annuity providers objected vehemently, arguing that such a stance would be catastrophic for annuity buyers and would be over-prudent. CEIOPS established a Task Force on the Illiquidity Premium, see CEIOPS (2010). Several of the issues raised echo subtleties like those raised in Sections 3(c) and 3(e) that do not appear to be particularly well catered for in existing insurance regulatory frameworks, see e.g. Kemp (2010).

(c) *Living wills*

Further cross-over from the banking sector also seems likely in the area of 'living wills' (i.e. recovery and restitution plans) and on better winding up processes for failed institutions. Arguably, some of these mechanisms already exist with insurers and pension funds. However, we can envisage increased regulatory focus on such organisations exploring further what to do in a trajectory in which assets continue to decline relative to liabilities.

More generally, policy responses to the interconnectedness of the financial system, and hence its susceptibility to systemic risk, may also create pressures to transplant ideas principally targeted at banks onto longer term investing institutions such as pension funds and insurers, see e.g. Besar et al (2009).

7. Insurers, pension funds and systemic risk

[To be completed]

8. Conclusions

A very large number of potential policy responses, some of them conflicting, have been proposed to 'solve' the issues raised by the recent financial crisis. Some of them are quite micro in nature, whilst others touch the broadest features of how economic systems should be structured, highlighting the importance that money plays in economic affairs.

Exactly which policy responses will eventually get enacted (and exactly how) will inevitably involve a lot of politics, both at a micro and at a macro level. Whether those that are actually implemented prove to be viable longer term solutions (or whether they will end up merely being gamed by the firms and individuals they are supposed to constrain) is thus difficult to tell at this juncture, but will no doubt keep professional advisers (and commentators) gainfully employed in the meantime.

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