Preventing and managing future crises

New Regulation, Resolution Funds and Deposit Insurance as tools for European banking groups

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Introduction[1]

Nicola Forti

After the default of Lehman Brothers, the U.S. and a vast majority of European countries have launched systematic programs for financing their troubled and/or defaulted banks (see Masera 2009, chap. 1, 2 and 4 and Messori 2009, chap. 2 and 3). Together with various ad hoc policy interventions before and after such plans, this has led to an explosion of public deficits and a sharp rise in debt of these countries.

Today, the fragility of economic recovery and the fiscal vulnerability of the United States and of several European countries would make further actions to support the financial sector with taxpayers money impossible. In Europe major coordinated efforts have been enacted to ensure fiscal consolidation.

Yet the IMF has recently pointed out that banks' balance sheets in major countries still require significant write-downs to cope with potential losses arising from toxic assets (see IMF 2010, chap. 1 sec. C). Furthermore, the recovery of profitability registered by the major U.S. banks and some large European banking groups seems to be based mainly on those short-term trading activities that have fuelled the last financial crisis. Therefore, several banking groups, deemed 'too big to fail', continue to be exposed to high risks, and there is a possibility of a relapse in the financial crisis of 2007-09.

This danger helps explain why, in recent months, there has been acceleration in the effort to define new rules at international level. The plan supported by the Obama's administration to change the architecture of regulation and supervision in the United States has passed the most important steps in US Parliament. The European Union is developing a proposal for the new European supervisory and regulatory framework, by defining, at the same time, new standards for OTC transactions, ratings agencies, and banks' corporate governance.

In addition, in December 2009 the Basel Committee has published its proposal for the redefinition of the Basel 2 framework, by trying to cope with the main challenges posed by the financial crisis. Strengthened capital requirements and more robust requirements in terms of liquidity risk are the key elements of these proposals on which the Committee is actively working.

Alongside the introduction of the new prudential rules, the United States and some EU countries are now facing a problem no less important: how to be prepared in case of a new financial crisis?

Various proposals have been advanced, including the introduction of specific taxes paid by the financial sector to offer compensation (at least partially) for the cost of past government bailouts, and to create public funds for the management of potential future failures of Systemically Important Financial Institutions (SIFIs).

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[1] Preliminary versions of these papers were discussed and analysed in a seminar held at Assonime and chaired by Professor Micossi, "Tre proposte per una nuova regolamentazione Finanziaria", Rome March 31 2010.

Some of these initiatives, such as taxes on extraordinary managerial bonuses, respond to a general principle of fairness, but are not very significant in macroeconomic terms. Other proposals, like the introduction of the "Tobin tax", appear unrealistic, due to the problems of coordination and control over global markets. Still other initiatives, such as a specific ex post taxation of intermediaries which benefited from public support, are impractical because they infringe the contractual terms set when public financing was supplied.

A feasible hypothesis consists in the taxation of assets, or other fiscally relevant indicators of the banks. Even this assumption is not easy to translate into practice. The following alternatives can be considered: the tax could be applied to any international banking group, or could be restricted to the banks of a specific economic area or currency; it could lead to a uniform tax rate on bank assets or to variable rates (some equal to 0) depending on the cost of any systemic failure of each intermediary. The revenues from taxation may feed one or a few funds internationally or even result in an increase in revenue for national budgets.

Regardless of whether it is managed at national, European or international level, the creation of such funds could have positive effects on the resolution process of a financial intermediary 'too big to fail' if and only if carefully engineered.

A public fund, financed by a new tax on all banks, could in fact have negative repercussions, by providing an ex ante implicit guarantee of rescue to financial intermediaries which pose a systemic impact, by combining adverse selection and moral hazard problems. An ex ante funding could be an advantage for banks 'too big to fail' that have the worst risk profile. In this situation, banks with systemic impact and low-risk characteristics would have incentives to imitate behaviour of riskier institutions, worsening the quality of its assets (the first effect of adverse incentive). On the other hand, relying on an implicit guarantee of rescue by the State, all banks 'too big to fail' would have an incentive to increase the risk of their assets (depending on the effect of adverse incentive).

In the recent literature on this topic various positions have emerged. This e-book presents some of these positions: in particular, those expressed by Carmassi-Luchetti-Micossi (CLM), by Maino-Masera-Mazzoni (MMM) and by Lamanda.

According to some, to eliminate the problem of 'too big to fail', a reform of Basel 2 framework and /or the introduction of a Resolution Fund is not needed. According to this approach it would be sufficient to: *a)* define minimum capital requirements to the assets or liabilities of banks (such as the maximum leverage ratio), *b)* create a scheme able to supply an 'almost' complete insurance only for depositors, by removing any implicit or explicit guarantees to other bank creditors, *c)* establish a credible bankruptcy procedures for banks and other financial intermediaries posing a systemic impact, by strengthening the powers of supervisors (Carmassi, Luchetti and Micossi). The European Commission has recently proposed to harmonize schemes that member states have in place to guarantee bank deposits. The Commission is proposing to extend existing EU legislation that obliges all member states to have a scheme in place to guarantee deposits in the event that a bank becomes insolvent. This legislation has been in place since 1994, but was rapidly amended in March 2009. The current legislation requires the schemes to protect all deposits up to € 50,000, with this limit set to rise to € 100,000 at the end of 2010. The limit is calculated based on all the different accounts that a person has at a particular bank. The Commission is proposing to set a minimum EU-wide limit for how much money banks must contribute to the schemes. It wants national banking industries to make an upfront contribution to the scheme that is equivalent to 1.5% of eligible deposits in the country where they are based. This money would be held by the authorities managing the scheme, in case any bank gets into difficulties.

A second position, supported by Maino, Masera and Mazzoni, argues that an incentive-based system imposing risk-sensitive fees, that penalizes SIFIs with high contribution to systemic risk and high idiosyncratic Probability of Default, would represent a clear disincentive to excessive complexity and risk appetite of these intermediaries.

A third approach sees the institution of a resolution fund as a complementary instrument to a balanced review of Basel 2, as indicated by Lamanda.

The first of the three positions has the merit of highlighting that banks with systemic impact should not enjoy an implicit government guarantee ex post. To this end, besides proposing appropriate bankruptcy procedures and the full transfer of credit risk to creditors, it strongly supports the reinforcing of supervisory powers. This position is in line with the recommendation recently advanced by the Governor of the Bank of Italy (Draghi, 2010, p. 16). However, the question may be posed whether this approach provides sufficient guarantees for eliminating contagious knock-on and/or feedback effects in case of a crisis of one or more SIFIs.

It is therefore important to understand if it is possible to define a fund (public or public-private) to limit the probability of failure of banks with systemic impact, but not leading to adverse selection and/or moral hazard problems. Beyond the differences between the two contributions, MMM and Lamanda try to demonstrate that such schemes are possible.

MMM propose the introduction of a Resolution Fund completely financed through a system of private-risk-based fees that would be gradually put in place. Over time, the fund would accumulate a sufficient amount of resources paid by the financial industry to be used to cope with the systemic risk generated by SIFIs, without burdens on tax-payer money. The amount of fees paid by each institution would be a positive function of: *i)* its marginal contribution to systemic risk, *ii)* its Probability of Default (PD). The authors argue that the introduction of a flat fee/levy on SIFIs would not introduce an incentive to reduce SIFIs' attitude towards risk and it could penalize/discriminate less risky SIFIs, by imposing on them the same cost paid by riskier players.

The system envisaged in their paper may be depicted as a tax on financial intermediaries. But, contrary to certain official proposals, the resources collected would not enter the ordinary taxation channels and would not be related to the net results of financial institutions. Instead the fees would be ring-fenced and earmarked to provide a cushion to cover the costs of losses connected to early interventions and outright failure of a SIFI. In terms of public accounts they would represent a transparent counterpart funding of potential government liabilities. According to their approach the risk-sensitive fees would be known by the market and would therefore represent an early signal of excessive risk taking.

According to MMM, moral hazard is implicit in the very existence of financial institutions deemed "too big to fail" by bank managers, shareholders, bondholders and large depositors, on the one hand, and governments, supervisors, central banks, on the other hand: therefore it can never be completely eliminated. However, they believe that their proposal can reduce moral hazard: in their framework a SIFI could well be allowed to fail. The fund would act as a sort of ultimate buyer of troubled banks' assets, and should therefore be able to counter negative systemic spillovers.

In the proposal advanced by Lamanda attention is posed to the potential operation and implications of such a fund for all European banking groups with a systemic impact. In particular, he analyzes the introduction of a European Public-Private Fund (EPPF). In his approach the EPPF acts as a guard against systemic crises. In this proposal the EPPF should supply an early mid-term financing or other support measure (eg., purchase of assets or equity issues) for the SIFIs which are solvent but in a state of temporary illiquidity. In this scheme the EPPF should be funded gradually by participant banking groups. After the initial phase, this fund would be expected to

reach 2 billion euros and, when fully implemented, 20 billion. He proposes the possibility to use a lever with a maximum threshold of 10 and guarantees.

Not only in Italy the idea of introducing a recovery fund for SIFIs, based on voluntary contributions, has recently opened an interesting debate among market participants and financial/banking industry representatives. Supporters of a fund based on such contributions claim that this scheme could facilitate emergency medium-term funding support for temporarily distressed SIFIs. On the other hand, opponents argue that this approach does not eliminate moral hazard risks embedded in the support supplied to SIFIs. An obligatory resolution fund based on contributions related to systemic risk could represent a solution.

The problem of systemic risk generated by Systemically Important Financial Institutions is difficult to be analysed and solved. The three papers presented in this book represent an important contribution to the current debate on these issues.

Bancaria Editrice, the publishing house of the Italian Banking Association, has deemed it worthwhile to offer these papers to a wide international public through an e-book.

Jacopo Carmassi, Elisabetta Luchetti
and Stefano Micossi

Overcoming too-big-to-fail
A Regulatory Framework to Limit Moral Hazard and Free Riding in the Financial Sector

Report of the CEPS-Assonime Task Force on Bank Crisis Resolution

Centre for European Policy Studies Brussels

with contributions from
Daniel Gros and Karel Lannoo

with financial support
of Unicredit Group

BANCARIA EDITRICE

Overcoming too-big-to-fail. A Regulatory Framework to Limit Moral Hazard and Free Riding in the Financial Sector

Jacopo Carmassi, Elisabetta Luchetti and Stefano Micossi(*)

Preface

This report comes at crucial time. The acute crisis in financial markets seems to have passed and the authorities can switch their attention from the overriding task of avoiding a meltdown to more strategic considerations. The crisis has shown that the chaotic failure of large complex financial institutions can have very large costs. As this report argues convincingly, this implies that it will remain impossible to restore market discipline until some way can be found to allow even large institutions to fail in a less costly manner.

Following the chaos that followed the bankruptcy of Lehman Brothers, some have argued that the only solution is to break up all large financial institutions and that their risk-taking activities must be limited by law. Such actions are by no means necessary, however, and they may be hard to implement in practice and could entail large costs in terms of the availability of credit to the economy (e.g. if they reduced the ability of banks to hedge their credit positions). This report shows that alternative solutions exist that can achieve a more stable and resilient financial system without renouncing the benefits of multi-purpose financial institutions and innovative finance. These are predicated on effectively curtailing moral hazard and strengthening market discipline on banks' shareholders and managers by raising the cost of the banking charter to fully reflect its benefits for the banks, and restoring the possibility that all or at least most financial institutions could go bust, without triggering unmanageable systemic repercussions.

This report concentrates on how these issues can be dealt with in Europe where the cross-border aspects are abundantly in evidence. The quality of the report is due not only to the very detailed analysis of the authors, but also to the quality of the participants in this joint CEPS-Assonime Task Force, which received financial support from Unicredit and was composed of experts from large banks (and financial institutions), regulatory agencies and international organisations, bankruptcy judges and academics.

Daniel Gros
CEPS, March 2010

(*) This report is based on discussions in a Task Force on Bank Crisis Resolution, which was formed jointly by the Centre for European Policy Studies (CEPS), an independent policy research institute in Brussels, and Assonime, the Association of Joint Stock Companies incorporated in Italy. The members of the Task Force met three times between July 2009 and January 2010. A full list of members and invited guests and speakers can be found at the end of the report. Acknowledgements: The authors wish to thank for useful observations and suggestions Marcello Bianchi, Margherita Bianchini, Edward Bowles, Charles Case, Luc Delvaux, Carmine Di Noia, Achim Dübel, Andrea Enria, Eva Hüpkes, Rosa Lastra, Sergio Lugaresi, Rainer Masera, Barbara Matthews, Maria Nieto, Luciano Panzani, Jean-Luc Vallens and the participants in the Task Force meetings. They maintain sole responsibility for the content of the report, which does not necessarily reflect the views of each individual bank or Task Force member.

Summary of recommendations

All EU cross-border banking groups would be required to sign up to a new deposit guarantee scheme managed by the European Banking Authority (EBA). The scheme would be fully funded ex-ante by levying fees determined on an actuarial risk basis. Participating banks would undertake to provide all relevant information required for effective supervision to the EBA and the Colleges of supervisors.

All banking groups would be supervised and, in case of need, subjected to mandatory resolution procedures on a consolidated basis, under the law of the parent company. Subsidiaries chartered in separate jurisdictions, but unable to survive a crisis of the parent company on their own, would also fall under the same authority.

Banking groups would be free to set up fully stand-alone subsidiaries, under the law of the host countries, but the entities would then have to meet precise requirements of independence of capital, liquidity and other critical functions.

All national supervisors would have administrative powers to manage early corrective action and resolution, according to the principles outlined by the Basel Supervisors.

Supervision, early action and reorganisation would be managed by strengthened Colleges of supervisors, under the leadership of the parent company supervisor and a regime of full exchange of information amongst interested national supervisors. The Colleges of supervisors would make their proposals to the EBA, which would sanction them with its own decisions and would mediate disputes between national supervisors.

By offering all interested parties in a resolution procedure the full guarantee that they will be heard and treated fairly before an independent authority, the EBA would create the conditions in which jurisdictions other than that of the parent company will be ready to accept delegating to the latter the resolution of the entire banking group on a consolidated basis. Mandated action will also ensure that supervisory forbearance would not be used to favour national interests to the detriment of stakeholders from other jurisdictions.

1. Introduction

As the financial crisis subsides, the new regulatory structure for the financial system is starting to take shape, with a number of legislative proposals already tabled, and even approved, in the United States, the European Union and the United Kingdom – the latter of which is once again showing its readiness to act unilaterally without consulting its EU partners. What is striking about these developments is not only that responses are not coordinated between the main financial centres, but that new rules are proposed and enacted without a common understanding of the nature and causes of the financial crisis, raising the risk of excessive and inconsistent regulation.

For instance, while most analysts would agree that credit-rating agencies should be stripped of their public franchise granted by US legislation, under whose cover they sold misleading ratings in the interest of issuers of toxic assets, the EU authorities have introduced similar legislation in the EU. Similarly, while there is little evidence that hedge funds contributed to the financial crisis in any manner, the idea that they should be subject to regulation, and even prudential supervision like banks, has political support.

Most importantly, a lack of understanding of the causes and dynamics of the financial crisis is leading legislators to create a regulatory structure for large banks and other financial institutions that is based on misleading concepts of systemic risk and systemic instability and is likely to

augment moral hazard and the potential liabilities for taxpayers in countries hosting large financial centres.

Two fundamental truths should be recognised in this regard. First, herd behaviour by financial intermediaries and investors near the peak of a speculative bubble, both in the climb and the ensuing precipitous fall, wasn't a haphazard phenomenon due to uncontrollable psychological reasons. Rather, it was the result of destabilising monetary policy regimes in the leading financial centres – notably owing to the US Federal Reserve systematically intervening to prop up asset prices but never to counter their rise (Taylor, 2009; Carmassi *et al.*, 2009)[1]. To the extent that herd behaviour is due to destabilising monetary policy, building anti-cyclical brakes into banks' regulatory capital[2] will not eliminate instability as long as monetary policy rules aren't rectified.

Second, the fact that increasingly large, complex and interconnected financial institutions almost brought down the entire world financial system does not lead automatically to the conclusion that a new layer of regulation specifically addressing these financial institutions is required – a suggestion first advocated by the Group of Thirty (2009) that has subsequently found widespread support. For one thing, this approach would implicitly accept that the sources of systemic instability cannot be brought down to at least manageable proportions, and must therefore be accepted as a permanent feature of the financial system. This is by no means a warranted conclusion.

Explosive growth of financial intermediation was encouraged in the first place by asset inflation, which created opportunities for enormous gains from trading and speculative asset market positions. Within that context, institutional incentives were encouraging financial organisations to take reckless risks. The priority in regulatory reform should be to correct these distorted incentives, rather than forcing structural reorganisations and legal constraints on activities that may damage the efficiency of the financial system and hinder its ability to serve the credit needs of the economy.

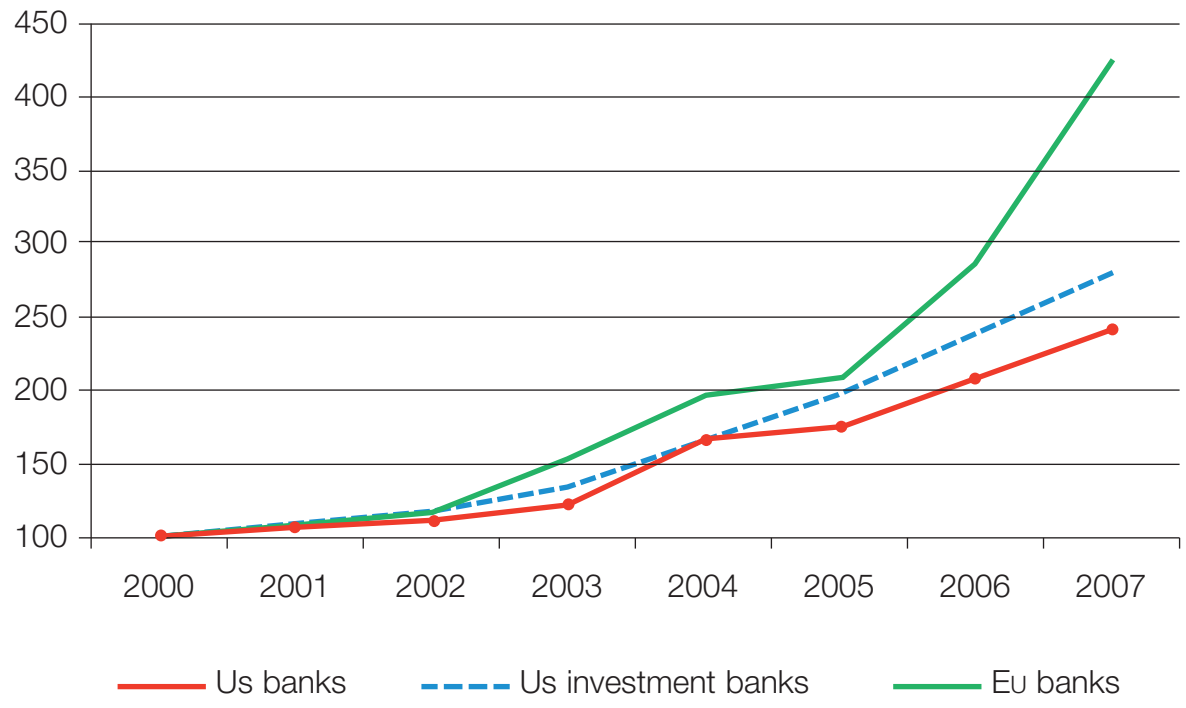
Back to basics, the explosive growth in financial intermediation (Figure 1.1) was fuelled by a massive increase in borrowing – leading to unsustainable leverage – which in turn was instrumental in a massive increase in open positions in high-risk securities of uncertain liquidity promising disproportionate gains. Much of the increase in financial intermediation took place within the financial sector itself (FSA, 2009a). The main source of funds for these asset market positions was the wholesale interbank market where large cross-border banks were the residual suppliers of liquidity for all the other players in the game (see Gorton & Metrick, 2009; Tucker, 2010). In practice, these banks were using their deposit base to multiply funds for speculation and generate a gigantic inverted pyramid of securities made up of other securities and yet again other securities. When asset prices started to fall, the house of cards fell back onto the banks, calling into question their ability to meet their obligations towards depositors and the very confidence in money. Without the money-multiplying capacity of the banks, the asset price bubble and the explosion of financial intermediation and aggregate leverage wouldn't have been possible.

The rapid growth of financial intermediation and risk exposures was driven by dramatic increases in profitability. The Economist estimated that in 2007 the financial sector represented some 10% of value added in the US economy, but some 40% of its profits. Alessandri & Haldane (2009) have

[1] Similarly, in the events leading to the Great Wall Street Crash of 1929, (the promise of) lax monetary policy was embedded in the gold standard monetary regime. On this, see Galbraith (1954) and Kindleberger & Aliber (2005).

[2] As advocated by the so-called 'Geneva Report' of the International Centre for Monetary and Banking Studies (Brunnermeier *et al.*, 2009).

Figure 1.1 - Growth of banks' total assets, 2000-07 (2000=100)(*)



(*) Us banks include Bank of America, Citigroup and Jp Morgan Chase. Us investment banks include Bear Stearns, Goldman Sachs, Lehman Brothers, Merrill Lynch and Morgan Stanley. Eu banks include Bnp Paribas, Deutsche Bank, Royal Bank of Scotland and Ubs.
Source: Own calculations based on annual reports.

shown that, after remaining stable at around 5-7% for several decades, the return on equity of large Uk banks tripled during the past three decades. The promise of ever-larger profits thus led to a major diversion of resources from productive investment to speculation in financial markets.

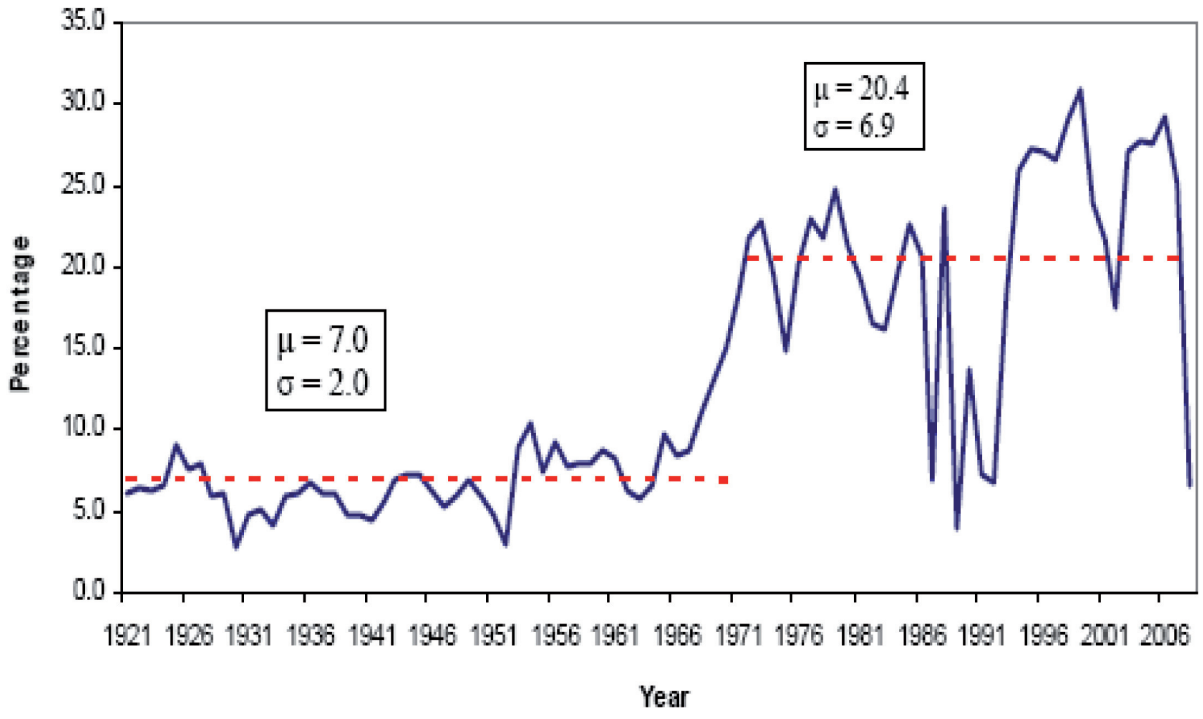
As one would expect, higher returns on equity were associated with higher return variability, indicating a sharply higher propensity to take risks (Figure 1.2). It appears that many financial institutions were behaving like 'plungers', rather than 'diversifiers', in James Tobin's classical terminology (Tobin, 1958): they were using all the levers of financial technology to achieve the largest possible return regardless of risk.

In turn, increasing returns were in the main achieved by leveraging own capital to unprecedented heights, increasing the share of proprietary assets in trading books, and taking bets on increasingly risky assets. As has been shown, these strategies have the effect of raising the sensitivity of banks' return on equity to aggregate market risk – in financial parlance, their β coefficient. Thus, what was trumpeted as shrewd management leading to higher institution-specific (α) returns, increasingly amounted to banks becoming exposed to similar risks, thus enhancing their exposure to common aggregate shocks (Alessandri and Haldane 2009)[3].

Such widespread use of extreme investment strategies by bankers indicates the presence of incentives affecting all banks, that is, the moral hazard created by the expectation that large banks

[3] As explained by Borio (2003), monitoring the financial system's exposure to aggregate shocks is precisely the main intended task for the new macro-prudential supervision that all the main regulatory systems are embracing as a panacea against a repetition of the horrendous events of 2008. Of course collecting the information can do no harm: but it does not explain, nor remove, the reasons why so many sophisticated bankers had earnestly pursued strategies that proved eventually to be so destructive for their organisations and their personal fortunes.

Figure 1.2 - Return on equity for Uk banks



Source: Alessandri & Haldane (2009).

will always be bailed out, owing to the feared consequences of their failure on overall financial stability. The downside in bankers' risk-return matrices was effectively truncated by public protections designed to preserve confidence in money and the banking system, which de facto entailed that banks could not fail. The events of the past two years have only aggravated the problem since the mishandled failure of Lehman Brothers convinced even more policy-makers and regulators that large financial institutions cannot be allowed to fail, effectively removing market discipline from large chunks of financial markets.

Thus, the debate on regulatory reform has been misled into concluding that there is no alternative to breaking up large financial institutions or limiting by law their risk-taking activities, as influentially advocated by Paul Volcker, former Chairman of the Federal Reserve and currently Chairman of the Economic Recovery Advisory Board under President Barack Obama[4]. However, this may be hard to do in practice[5] and could entail large costs for the availability of credit to the economy (e.g. if it reduced the ability of banks to hedge their credit positions).

We believe that such measures are by no means necessary: alternative solutions exist that can achieve a more stable financial system without renouncing the benefits of multi-purpose financial institutions and innovative finance. They are predicated on effectively curtailing moral hazard and strengthening market discipline on banks' shareholders and managers by raising the cost of

[4] See G-30 (2009), Recommendation 1b, pp. 27-28, and Volcker (2010).

[5] On this see Martin Wolf, "Why narrow banking alone is not the finance solution", *Financial Times*, 29 September 2008, and "Volcker's axe is not enough to cut the banks down to size", *Financial Times,* 27 January 2010. As has been argued, to an important extent risks were taken by banks indirectly, by financing positions formally in the books of other intermediaries through the interbank market. Therefore, placing constraints on banks' securities positions may not be sufficient to impede reckless risk-taking; on the other hand, the legal restrictions required to eschew all unwanted risk-taking may cripple the banks' ability to operate also in their normal commercial lending business.

the banking charter to fully reflect its benefits for the banks, and restoring the possibility to go bust for all, or at least most financial institutions, without unmanageable systemic repercussions. The new incentive structure for bankers should suffice to bring bloated finance back to normal proportions, relative to underlying economic activity, and make the financial system less exposed to systemic shocks[6].

The new regulatory architecture must correct an obvious pitfall in banking regulation, that is, reliance on capital requirements based on risk-weighted assets. This approach is flawed since asset risk cannot be assessed and measured independently of market conditions and market sentiment (Brunnermeier *et al*., 2009; Kay, 2009). As a result, the need for capital will always be underestimated under favourable market conditions, leading to balance-sheet fragility and precipitous asset sales when market sentiment turns around[7]. Empirical evidence has confirmed that many financial institutions that got in trouble had shown comfortable regulatory capital (IMF, 2009).

However, we are not ready to recommend that capital requirements be scrapped altogether, as advocated by Kay (2009). A capital buffer is needed because massive asymmetries of information between bank managers, on the one side, and investors and regulators on the other, make it easy for bankers to accumulate excessive risks, in the quest for higher returns, before markets become aware. The dependency of large banks on wholesale markets, where 'runs' may happen even where retail deposits are well protected, confirms the limitations of risk-based capital and the need to refer to total leverage[8]. By limiting maturity transformation, regulatory capital places an automatic ceiling on risk-taking; monitoring capital in relation to total exposure reduces the need for close monitoring of the quality of banking assets[9]. Thus, capital requirements should be set in straight proportion to total assets or liabilities of banking groups[10].

Fixing flaws in prudential capital rules does not remove moral hazard from the banking system, whose specific sources must be tackled separately, as will be discussed in the ensuing chapters. These are: *a)* the deposit-institution franchise, *b)* the implicit or explicit promise of bailout in case of threatened failure and *c)* regulatory forbearance.

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[6] There would also be less need to regulate non-bank financial institutions, such as (pure) investment banks and private pools of capital (Di Noia & Micossi, 2009). Insurance companies should be restrained by the general rules of insurance, which require that all risks should be covered by adequate reserves determined from the probability distribution of adverse events. Writing up indefinite amounts of credit default swaps (CDS) on unknown risks, as AIG managed to do through its Financial Product division (AIGFP), should be illegal under general insurance regulation, without creating another domain of prudential regulation.

[7] "In an uncertain world values will also be uncertain, and the margins of uncertainty are very wide. The measurement of capital is not, and will never be, simultaneously exact or objective, and economically meaningful. The risk associated with a given portfolio of assets is only loosely related to the aggregate value of the assets… And it is a basic principle of risk analysis that the aggregate risk of a portfolio cannot be measured by adding up the risks of individual elements." Kay (2009, p. 8). Building anti-cyclical capital buffers may at best attenuate, but will not resolve the problem: any regulatory definition of capital allowances for risk is bound to create profitable opportunities for circumventing the rule.

[8] This aspect was called to our attention by Maria Nieto.

[9] A separate question that goes beyond the scope of this report is whether regulatory capital requirements should also be imposed on non-bank financial institutions, as such not enjoying the banking charter benefits. A prudent answer, taking into account the lessons from the recent crisis, is that any institution raising funds from the money market to invest in capital market securities, hence undertaking significant maturity transformation, should be required to hold a minimum regulatory capital, as a backstop against the potential shocks generated by its losses for the lenders of its liquidity.

[10] The Basel Committee on Banking Supervision has already envisaged the introduction of a leverage ratio unadjusted for risk, but as a complement rather than a substitute of risk-adjusted capital requirements (BCBS, 2009a). There is also a need to simplify and harmonise the definitions of capital across jurisdictions, notably by restricting regulatory capital to cash and equity and scrapping the more exotic components of dubious value in case of crisis (Di Noia & Micossi, 2009).

The problem associated with the deposit franchise is well known (Rochet, 2008). Banks collect funds by offering to redeem deposits at par on demand; and make money by deploying the funds thus obtained in loans and investments with longer maturity; and keep (uncertain) capital to meet deposit redemptions. As long as depositors feel safe, they will not seek redemption of their deposits, but if they have doubts on the bank's solvency, they will all run for the exit, forcing rapid liquidation of banks' assets, possibly with large losses. A run on one bank may easily spread to other banks and endanger overall financial stability, as all banks scramble to recuperate liquidity by selling assets and calling back their credit lines in the interbank market[11].

Deposit insurance can be effective in calming depositors' fears, but it also mutes their incentive to monitor the management of their banks, since they no longer risk losing their money. More importantly, deposit insurance has evolved in most countries into a system effectively protecting the bank, or the entire banking group, rather than the depositors: when a bank risks becoming insolvent, rather than simply letting it fail and pay its depositors, supervisors often step in to cover its losses and replenish its capital so as to avoid any adverse repercussions on market confidence. Moreover, most deposit insurance systems are inadequately funded by insured institutions, entailing an implicit promise that taxpayers' money will make up the difference, notably when confronting failure of a large bank.

Therefore, offering deposit accounts generates the very important benefit, for the bank or banking group, that markets and ordinary people are led to believe that the organisation as a whole is safe. As a result, they are more inclined to do business with that organisation and take greater risks than would otherwise be prudent. The bank, thus, will feel less pressure to hold adequate reserves and will be encouraged to tap its liquidity and capital buffers to raise returns. Therefore, its deposit base – while a source of stable funding – creates the occasion and the incentives for the bank to overextend and take excessive risks.

In sum, while financial stability is indeed much strengthened by deposit insurance, existing schemes must go back to their origin and cover only depositors, and never again other creditors, shareholders or the bank itself; no bail-out or recapitalisation of banks should be allowed under deposit guarantee schemes. The incentive for all stakeholders to monitor closely management strategies and risk-taking in their bank would be very much strengthened.

A related aspect in re-establishing a proper price for the banking charter is that banks should carry ex-ante the full cost of deposit protection, determined so as to make sure that in most circumstances the guarantee fund would be adequate to reimburse depositors when individual banks fail. Of course, no fund could ever be sufficient to meet a general banking crisis; but a fund of an appropriate size would offer adequate protection in normal circumstances, with only a predictable share of banks going bankrupt. This would be sufficient to bring about a more stable and resilient banking system where the likelihood of a systemic crisis would be smaller, since each bank would be less prone to excessive risk-taking.

Individual banks' fees for the deposit guarantee should be determined on the basis of a careful

[11] For an illuminating description of the contagion mechanisms that almost brought down world banking following Lehman's failure in September 2008, see Freixas (2009). Tucker (2010) examines the various ways in which banks used instruments such as money market mutual funds, asset-backed commercial paper and off-balance sheet vehicles to apparently increase liquidity by off-loading loans and securities and reducing maturity mismatches in their balance sheets – which came back to haunt them when the markets for these instruments became illiquid. By booking activities outside their balance sheets, banks were creating 'shadow banks', which were not subject to banking prudential rules. The effectiveness of banking regulation is obviously predicated on the ability to prevent non-bank financial institutions from acting like banks – notably by promising redemption of their liabilities on demand and at par – without a banking charter.

probabilistic assessment of the likelihood of failure within the overall pool of deposits and risks of the banking system (within appropriately defined market jurisdictions). This is where the risk profile of banks' asset and loan portfolios can be taken fully into consideration, together with, more broadly, the quality of bank management and risk control, thus creating effective penalties for riskier behaviour. Appropriate weights could also be applied to excessive reliance on less stable sources of finance, such as the wholesale money market, doubtful liquidity of investments, or opaque and complex legal structures. Size itself could be appropriately penalized by higher fees that would incorporate a probabilistic price for the potential threat for systemic stability[12].

The second pillar required in order to greatly limit moral hazard in the financial system is removing credibly the promise that some financial institutions cannot fail. To this end, all main jurisdictions should establish special resolution procedures applicable to banks and banking groups, managed by an administrative authority, capable of tackling a bank crisis by acting early to correct emerging capital weaknesses, intervening decisively in promoting required reorganisations and, once all this failed, liquidating the bank with only limited systemic repercussions. Crisis prevention, reorganisation and liquidation would all be part of a unified resolution procedure managed for each bank or banking group in every country by an administrative authority with adequate powers, as will be described[13].

In order to make resolution feasible, all banks and banking groups would be required to prepare and provide to their supervisors a document detailing the claims on the bank and their order of priority, the full consolidated structure of legal entities that depend on the parent company for their survival, and may therefore produce liabilities for the parent company, and a clear description of operational – as distinct from legal – responsibilities and decision-making, notably regarding functions centralised with the parent company. This 'living wills' document may also comprise 'segregation' arrangements to preserve certain functions of systemic relevance even during resolution: for clearing and settlement of certain transactions, netting out of certain counterparties, suspension of covenants on certain operations (Bcbs, 2009b; Hüpkes, 2004).

In preparing their living wills, banks would be free to decide the structure and organisation of their business, notably regarding the decision to set up branches or subsidiaries in the foreign jurisdictions where they operate. However, separate resolution of subsidiaries, eschewing consolidation in the parent group, would only be allowed to the extent that they would be demonstrably fully independent of the parent company, would be unaffected by its liquidation and would not endanger its survival in case the subsidiary were wound up.

In sum, while we used to try and prevent bank failures, now the policy task should be to prepare for bank failures. Setting up such an apparatus requires that all national legislatures should adopt a set of common principles and administrative powers for early corrective action and resolution of a bank crisis, as has been recommended by the Basel Supervisors (Bcbs, 2009b), but does not require full harmonisation of national laws.

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[12] Maria Nieto has suggested that the quality of supervision should also be taken into account in pricing banks' risk (Hardy & Nieto, 2008; see Eisenbeis & Kaufman, 2010, for a similar approach). However, within the European Union such an approach does not seem feasible, due to the resulting stigma on national supervisors. A viable alternative could be to give real teeth to the peer review of national supervisors now envisaged in the proposals before Council and Parliament for strengthened supervision in the Eu. On a different line of argument, Achim Dübel has argued that it is not possible to have risk-based fees for deposit insurance without allowing for risk-based deductions from capital requirements – unless one is willing to envisage highly differentiated charges for deposit insurance. As we shall explain, this is precisely our approach.

[13] Masera (2009) stressed that there is a logical and operational continuum between crisis prevention and resolution and that it is hard to neatly separate the various phases of a banking crisis.

Finally, the third pillar of an effectively reformed financial system is a set of procedural arrangements that will strongly discourage supervisory forbearance, and indeed make it unlikely. To this end it is necessary to establish a system of early mandated action by bank supervisors ensuring that, as capital falls below certain thresholds, the bank or banking group will be promptly and adequately recapitalized. Should the bank fail to do so and capital continue to fall, then supervisors would be empowered to step in and impose all necessary reorganisation, including disposing of assets, selling or closing lines of business, changing management, ceding the entire bank to a stronger entity.

Should this also not work, then liquidation would commence. A bridge bank would take over deposits and other "sound" banking activities, thus ensuring their continuity. All other assets and liabilities, together with the price received for the transfer of assets to the bridge bank, would remain in the "residual" bank, which would be stripped of its banking licence. An administrator for the liquidation of the residual bank would be appointed to determine its value and satisfy creditors according to the legal order of priorities, based on the law of the parent company and other jurisdictions involved.

Supervisory discretion to postpone corrective action would be strictly constrained, so that bankers, stakeholders and the public would know that mistakes would always meet early retribution. Mandated corrective action has another attractive feature: asset disposals and change of management would normally take place well before capital falls to zero, so that losses for the insurance fund and ultimately taxpayers would be greatly limited.

Within the European Union, the approach that has been described could be implemented through appropriate modification of the Directives on Deposit Guarantee Schemes (94/19/EC, 2009/14/EC), Reorganisation and Winding Up of credit institutions (2001/24/EC) and Capital Requirements (2006/48/EC), as will be described. Required changes would concern the following four aspects.

First, all cross-border banking groups would be required to sign up to a new deposit guarantee scheme managed by the European Banking Authority (henceforth EBA). The scheme would be fully funded ex-ante – albeit perhaps a share of the money, say 25%, could be withheld by banks and made available on call – by levying fees determined on an actuarial risk basis. Participating banks would undertake to provide all relevant information to the EBA and the Colleges of supervisors.

Second, all banking groups would be supervised, subjected to mandated corrective action, reorganised and, should the need arise, liquidated on a consolidated basis, under the law of the parent company; subsidiaries chartered in separate jurisdictions, but unable to survive a crisis of the parent company on their own, would also fall under the same authority.

Third, all national supervisors would have administrative powers to resolve banking groups according to the common principles already outlined by the Basel Supervisors.

Fourth, resolution of banking group in crisis would be managed by strengthened Colleges of supervisors, under the leadership of the parent company supervisor and a regime of full exchange of information amongst all interested national supervisors. The Colleges of supervisors would report to the EBA, under creation following the de Larosière Report recommendations, which would sanction all proposals by the Colleges with its own decisions. These decisions would include the initiation of early corrective action and all subsequent steps, and the mediation of disputes between national supervisors.

Introducing these changes would be no small feat; however, their necessity has been amply demonstrated by the momentous events of 2008. A few jurisdictions have already adopted some of the legislative principles illustrated above.

Placing the EBA at the centre of the system is especially important, since only in this way would all national supervisors and private interested parties be guaranteed of fair treatment, and thus be ready to accept the delegation of resolution powers to another jurisdiction. Mandated action would also give them the guarantee that supervisory forbearance would not be used to favour national interests in the parent company's jurisdictions to the detriment of other stakeholders.

The remainder of this report is organised as follows. Chapter 2 focuses on deposit insurance: after analysing its rationale and describing the main features of various schemes around the world and in the European Union, it proposes a new European system of deposit guarantee. Chapter 3 discusses bank resolution regimes and identifies the requisites that a new EU system should possess in order to re-establish a credible threat of bankruptcy in the financial system. Chapter 4 describes the weaknesses of the current supervisory arrangements at EU level and proposes the establishment of a new system founded on existing national supervisory structures by entrusting all key decisions to the EBA.

2. A European system of deposit guarantee

Banks are 'special' financial intermediaries because they raise funds by accepting deposits redeemable on demand at par which perform, like currency, the functions of means of payment and store of value. The typically illiquid and longer-term nature of bank assets makes reimbursement of deposits difficult in case of sudden and simultaneous withdrawals by depositors; therefore banks are exposed to bank runs, which may be contagious and compromise trust in a main component of the money supply, endangering not only the banking system but the health of the entire economy.

To resolve this problem deposit insurance came to life in the United States in 1933, following a dramatic wave of panic which forced at one point all banks to shut down[14]. By limiting the danger that massive deposit withdrawals force banks to undertake a fire-sale of assets, deposit insurance is meant to eliminate a main source of systemic instability from financial systems.

The example of the United States was later followed by most other countries: by 2009, almost 100 countries had introduced a deposit guarantee scheme (Alessandri & Haldane, 2009; see Figure 2.1).

Deposit insurance schemes have been effective in preventing bank runs – albeit not banking crises – the only exception in recent years being represented by Northern Rock[15]. However, it has its own drawbacks from the standpoint of financial stability since it weakens market discipline and creates moral hazard[16]. Depositors, reassured by the guarantee on the value of their deposits, have less incentive to monitor bank management and performance. Thus, management not only has greater room for undertaking risky activities, but greater inducement to risk depositors' money in the expectation that any losses will be covered by the insurance fund and eventually taxpayers, while they will be able to keep for themselves a large chunk of the profits from risky bets. As a result, banks pay less dearly for money, while also benefiting at the same time from an implicit state subsidy on their speculative investments.

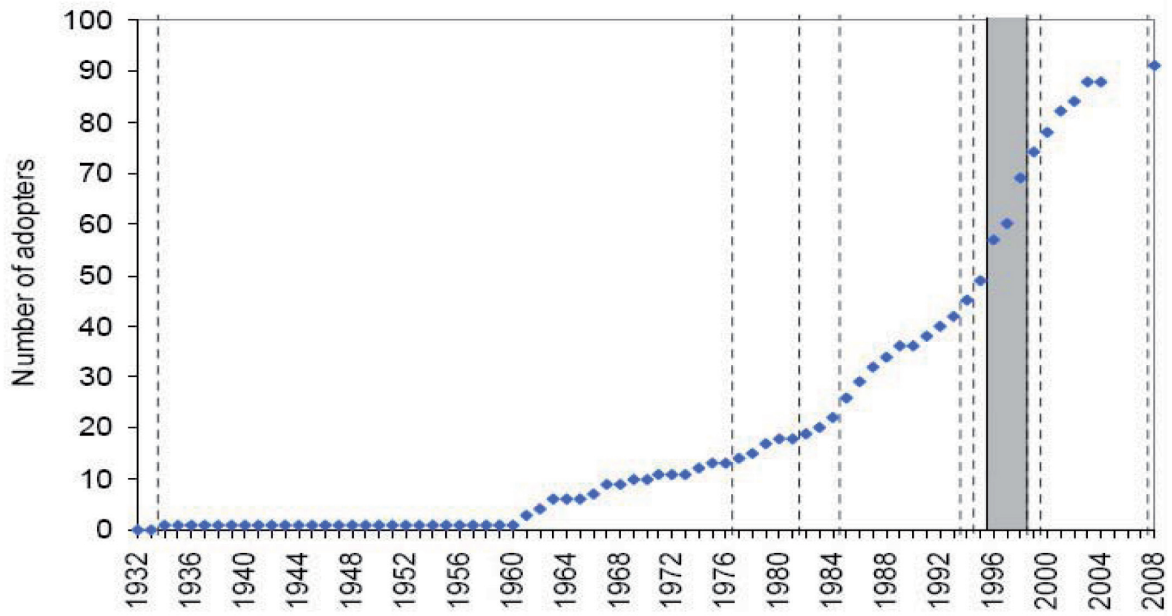
Thus, the design of an effective deposit insurance system involves a trade-off between conflicting objectives. On the one hand, insufficient protection may weaken depositors' confidence

[14] See Calomiris (2000) for a detailed historical study on the origins of deposit insurance in the United States.

[15] For a detailed study on the Northern Rock crisis, see Eisenbeis & Kaufman (2009) and Llewellyn (2009).

[16] Demirgüç-Kunt & Detragiache (2002) found empirical evidence that deposit insurance has an adverse impact on bank stability, the more so the higher the coverage, where the scheme is pre-funded and where it is run by the government rather than by the private sector.

Figure 2.1 - Adoption of deposit insurance and financial crises



Trigger events: 1934 – Great Depression (Us); 1977 – Banking crisis (Spain); 1982 – Banking crisis (Kuwait); 1985 – Banking crisis (Kenya); 1994 – Banking crises (Czech Republic, Uganda); 1995 – Banking crises (Brazil, Bulgaria); 1996 – Banking crises (Belarus, Lithuania); 1996-1998 – Asian crisis (Indonesia, Korea, Malaysia, Thailand); 1998 – Banking crisis (Ukraine).
Source: Alessandri & Haldane (2009).

and raise the danger of a panic; on the other hand, a blanket protection may exacerbate moral hazard and compromise market discipline[17].

In the United States, the crisis of the savings and loan (S&L) associations in the 1980s provided a startling example of how deposit insurance may remove the incentives for depositors to exercise proper monitoring of their banks and encourage management to free ride. S&L associations' shares had been granted deposit-like protection by the Federal Savings and Loan Insurance Corporation (FSLIC) in order to channel funds into mortgage lending. Cheap funding was used to acquire increasingly risky mortgages; and some S&L institutions also became heavily exposed to the high-yield 'junk' bond market (Chancellor, 1999). The sharp increase in interest rates of the early 1980s pushed large parts of the system over the brink. Rather than applying its regulatory powers to bring losses out in the open, the S&L regulator, the Federal Home Loan Bank Board (FHLBB), relaxed capital requirements to gain time. Supervisory forbearance was encouraged by the insufficient pool of resources available to the FHLBB to prop up troubled institutions. The combined cost of reckless bankers' behaviour and regulatory forbearance finally amounted to an astounding $150 billion and the FSLIC became insolvent and was shut down[18].

While policy blunders were probably responsible for precipitating the crisis, the run on Northern Rock in September 2007 has highlighted the risk of an ill-designed deposit insurance scheme. Northern Rock had aggressively expanded its balance sheet and built a large portfolio of mortgages[19] largely funded on the wholesale money market. The increase in interest rates and the seizing up of the securitisation market hampered its ability to roll over its short-term debt. The

[17] On the conflict between these opposing public policy goals and on an incentive compatible design of deposit insurance, see Beck (2004).

[18] On the S&L crisis, see Benston & Kaufman (1997) and Kane (1989, 1993).

[19] Total assets more than doubled from £42 billion in 2004 to £109 billion in 2007 and the bank's share in the Uk mortgage lending market increased from 6% in 1999 to 19% in 2007 (Bank of England, 2007).

news that the Bank of England was extending emergency liquidity assistance to Northern Rock triggered the first bank run in the Uk since 1866 (Overend & Gurney; see Kindleberger & Aliber, 2005; and Bruner & Carr, 2007).

However, a main reason for depositors' fears seems to have been the limited protection provided by the Uk deposit insurance scheme, characterised not only by a low coverage (deposits only up to £35,000), but also by a co-insurance mechanism whereby a percentage of losses (10%) would be borne by insured deposits above the minimum amount of £2,000 (Schich, 2008). There were also doubts about the adequacy of the insurance fund to cover potential losses on insured deposits, and fears that in all events payments would be subject to long and unpredictable delays, causing both credit and liquidity losses. In particular, co-insurance apparently failed in making depositors more aware of their risks, indicating perhaps that retail depositors cannot be relied upon as a source of market discipline (Eisenbeis & Kaufman, 2009).

Together with the importance of adequate funding, the crisis of Icelandic banks in October 2008 shed light on another critical feature of deposit insurance, i.e. cross-border arrangements. The three major Icelandic banks, Glitnir, Landsbanki and Kaupthing, had subsidiaries and branches in several European countries (including the Uk, the Netherlands and Germany) where deposits had grown out of proportion thanks to over-generous returns. Depositors were in principle protected by the Icelandic insurance which, however, had negligible resources relative to ballooning deposits. When depositors rushed for the exit, the banks could not meet their obligations; the Uk authorities froze the assets of Uk branches[20], while their parent companies were nationalised by the Icelandic government. Their losses represent such a high share of Iceland's GDP that repayment is unlikely.

In sum, deposit insurance is an effective system to eliminate bank runs from the financial landscape, but its rules and mechanisms must be carefully designed so as to tread a safe course between the opposite dangers of inadequate protection lacking credibility and excessive protection subsidising reckless risk-taking. Cross-border banking complicates the matter further by raising doubts about the effectiveness of protection and eventual responsibility for the losses.

2.1 Confidence, financial stability and deposit insurance

Deposit insurance schemes were introduced to protect banks and the integrity of certain functions, such as the payment system, at a time when the role of banks was substantially confined to deposit-taking and commercial lending. Since depository banks operate on the basis of a fractional reserve system, they perform a key function in the multiplication of monetary base and the transmission of monetary policy impulses.

In the last four decades, the forces of deregulation, conglomeration and globalisation have deeply transformed the role of banks in the financial system, eroding the barriers between banking, insurance and the securities business. Legal geographical and functional restrictions on banks have been removed, notably in the Us with the 1999 Gramm-Leach-Bliley Act and in the European Union with the Second Banking Directive (89/646/EEC).

As a consequence, the optimal design of deposit insurance has changed. In the traditional specialised environment, the protection of depositors and public trust in fiduciary money naturally

[20] Interestingly, the legal basis for the freezing was the 2001 Anti-Terrorism, Crime and Security Act, passed after September 11, 2001. See Buiter & Sibert (2008) for a detailed study on the Icelandic banking crisis.

coincided with the stability of banks: drawing the line within banks' balance sheets between what deserved protection and what did not was not an issue. With banks competing for non-bank business, the twin question arises: on one hand, should deposit insurance de facto protect the banks themselves or should it instead concentrate on the protection of depositors alone? On the other hand, should insurance also be extended to non-bank intermediaries issuing monetary liabilities (e.g. money market mutual funds and commercial paper)[21]? The critical aspect in deciding this issue is that, as has been discussed, any explicit or implicit guarantee may encourage reckless risk-taking. On the other hand, financial supervisors are even less keen on letting financial institutions fail in the wake of the disastrous consequences of Lehman Brothers' collapse.

The large exposure of non-depository financial institutions to banks gave governments and central bankers a strong reason to bail out troubled non-bank financial institutions in order to preserve the banks. This was the case for AIG, which had sold massive amounts of credit default swaps to European banks, which had bought them for regulatory capital relief and would have been hardly hit by the collapse of AIG[22]. Similarly, investment banks were over-exposed in the wholesale money market, where the main source of funds is constituted by very short-term bank credit lines (e.g. repos). De facto, all non-bank financial intermediation was 'banking' on the guarantee that banks would not be allowed to fail.

This spurious extension of deposit guarantee to non-bank activities was even more blatant within bank holding companies, which were channelling depositors' money to support their forays into high-yield market activities. Thus, complexity and interconnectedness were to a large extent the result of operations designed to spread the benefits of banking charters to most financial intermediation.

A proposed solution to overcome the moral hazard problem is to revert to narrow banking, in the most extreme versions by imposing the condition that all money raised as deposits could only be invested in safe assets (Kay, 2009). In practice this would be equivalent to a 100% reserve requirement on all deposits, entailing of course that the money multiplier mechanism would be removed from the financial system and credit would be made available only from existing savings – thus entailing a sharp contraction in lending. Also, a strictly narrow banking system would eliminate monetary policy since "public debt held by banks would set the money supply"[23]. Moreover, efficiency gains from diversification and economies of scale and scope might be lost[24].

It should be noted, at all events, that this approach does not require legal or structural separation of narrow banking from financial activities, but only that within each bank or banking group deposit-taking and associated portfolio investments are segregated functionally. All room for using deposit money for speculative capital market activities would be effectively removed from the system (for an overview of the pros and cons of narrow banking, see Box 2.1)[25].

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[21] In the United States in September and October 2008, the Federal Reserve introduced facilities of money market mutual funds and the commercial paper market (see Di Noia & Micossi, 2009).

[22] See Di Noia & Micossi (2009) and Gros & Micossi (2008). As stated in the AIG 2007 annual report: "Approximately $379 billion (consisting of the corporate loans and prime residential mortgages) of the $527 billion in notional exposure of AIGFP's super senior credit default swap portfolio as of December 31, 2007 represents derivatives written for financial institutions, principally in Europe, for the purpose of providing them with regulatory capital relief rather than risk mitigation."

[23] Martin Wolf, "Why narrow banking alone is not the finance solution", *Financial Times*, 29 September 2008.

[24] However, there is no clear evidence of these potential benefits related to financial conglomeration; see Laeven & Levine (2006) and Schinasi (2009).

[25] See Kay (2009) and King (2009). Di Noia (1994) provides an interesting variation of the narrow banking model, the 'narrow-narrow banking' model, according to which banks should only invest in safe assets the 100% of the positive difference between the total amount of deposit insured and the total compulsory reserves; the banking activity would thus be less restricted than in the classic narrow banking model.

Box 2.1 - Narrow banking

There is no unique and unanimously accepted definition of narrow banking. Conceptually, narrow banking entails restricting the activities that banks are allowed to perform so as to separate deposit-taking and, in some versions, commercial lending from all other activities, with a view to eliminating or strictly limiting any maturity mismatch and liquidity risk when investing depositors' money. In the strictest versions where deposit proceeds are invested in perfectly safe and liquid assets, deposit insurance becomes superfluous – except in the case of outright fraud.

- There are two broad categories of narrow banking restrictions, i.e. a) on assets maturity: only short-term safe assets or short-term as well as long-term safe assets; and b) on lending activity (prohibition or limitations).
- Three proposed models of narrow banking:
  a. Financial institutions draw a legal distinction between monetary service companies and financial service companies. Monetary service companies may accept deposits, provide payment services and are permitted to invest only in short-term, highly marketable and highly rated instruments, such as short-term Treasury securities (and perhaps top-rated commercial paper). Financial service companies can perform all other financial activities (Pierce, 1991).
  b. Financial holding company can operate banking subsidiaries and separately incorporated lending subsidiaries; banking subsidiaries can invest in short-term and long-term safe and highly liquid securities (Litan, 1987).
  c. Financial holding company with bank subsidiaries and lending subsidiaries: bank subsidiaries are allowed to invest in a wide range of safe assets and to engage in some form of commercial lending, e.g. loans to small firms. In this model the narrow bank is involved in credit creation (Bryan, 1991).
- All these versions of narrow banking are 'narrower' than the Glass-Steagall-style separation of commercial banking and investment banking. The narrow bank model separates lending and deposit-taking functions, even though this is softened when the narrow bank is part of a group that also performs lending activity through other subsidiaries.
- **Pros of narrow banking**: elimination or minimisation of liquidity and maturity risks; minimal capital needs; no need for further regulation or safety net; deposit insurance only for risk of fraud; no moral hazard for bankers and fully restored incentive for investors in investment banks and in other financial institutions to monitor management behaviour.
- **Cons** of narrow banking: no benefits from maturity and liquidity transformation; no efficiency gains and synergy effects from joint production of lending and deposit-taking; no money multiplier and limits to credit growth; in countries with sound public finances and low government debt, need to issue public debt in support of monetary and payment services; unsophisticated depositors only protected when they invest their savings in deposits; unknown implementing costs for lack of empirical evidence.

Some policy-makers and commentators consider that the only feasible solution to tackle moral hazard and the 'too-big-to-fail' problem is to cut down by decree all large financial organisations to a size that no longer threatens systemic stability, or legally separate commercial and investment banking, or make illegal proprietary trading by deposit banks. The US authorities have announced the introduction of a size limit that would cover all firms that control one or more insured depository institutions, as well as other major financial firms that are so large and interconnected as to fall within the new regime of consolidated, comprehensive supervision (White House, 2010; Wolin, 2010).

Paul Volcker (Volcker, 2010) has advocated that all FDIC depository institutions, as well as any firm that controls an FDIC-insured depository institution, should be prevented from engaging in proprietary trading, and from owning or sponsoring private equity funds or hedge funds (now commonly referred to as the 'Volker rule'). The rationale of this proposal is to prevent non-bank financial institutions from free-riding on the safety net provided by central banks and regulators to commercial banks in view of the essential functions they perform. The US government has now subscribed to the Volcker rule (White House, 2010; Wolin, 2010).

An alternative approach – in our view much preferable to narrow banking and the Volcker rule – would be to let banks continue to perform their broad range of functions but restrict insurance exclusively to depositors, which is needed to preserve confidence in money. In principle, this is precisely how US deposit insurance was meant to work.

Well designed deposit insurance capable of making depositors feel safe but leaving all other bank creditors out in the cold would in practice achieve the same result as narrow banking – while

avoiding its pitfalls. Of course, this approach would only be effective to the extent that explicit or implicit guarantee on any bank liability other than deposits were credibly ruled out – including short-term credit lines from other banks, bonds and shares. This principle should be embedded into legislation so that neither regulators nor national governments would be able to break or circumvent the rule.

Under this approach banks would be free to undertake capital market activities as they judged fit, while shareholders and lenders of the bank would have a much stronger incentive to monitor management and the bank's activities, since they would be fully exposed to the losses from excessive risk-taking, and they would know it. The preference granted to depositors would eliminate all uncertainty on the perimeter of the safety net.

This was indeed the philosophy underlying the FDIC system (see Box 2.2). It has failed in practice because some banks covered by the system were allowed to grow so large and undertake such massive risks that the available funds became irrelevant, relative to the size of emerging losses. The only alternative then was to extend a blanket guarantee to the financial institutions themselves.

Box 2.2 - The US Federal Deposit Insurance system

Deposit insurance was introduced in the United States by the Glass-Steagall Banking Act of 1933, which established the Federal Deposit Insurance Corporation (FDIC). The FDIC received an initial capital endowment of $289 million from the US Treasury and the Federal Reserve. Until 1990 the FDIC charged flat insurance fees of approximately 8.3 cents per $100 of insured deposits. In 1980 the deposit insurance fund was given a target range of 1.1% to 1.4% of total insured deposits, but the massive savings and loans losses depleted the fund. In 1989 the Financial Institutions Reform, Recovery, and Enforcement Act (FIRREA) mandated that premia be raised to bring the fund up to 1.25% of insured deposits.

In 1991 the Federal Deposit Insurance Corporation Improvement Act (FDICIA) introduced a system of risk-based fees, to be calculated on the basis of capitalisation and the supervisory rating: three capitalisation categories (well capitalised, adequately capitalised and undercapitalised) and three supervisory rating groups (rating of 1 or 2, rating of 3, rating of 4 or 5) were established. For large institutions in the lowest risk category other factors are also considered for risk-assessment, including the rating of long-term debt, market data, financial performance indicators, the ability of an institution to withstand financial stress and loss severity indicators (see FDIC, 2009). From 1990 to 2006, over 90% of banks were classified in the lowest risk category (well capitalised and with a rating of 1 or 2). Moreover, the FDICIA and the Deposit Insurance Act of 1996 decided that the banks in the lowest risk category should not pay deposit insurance fees if the fund reserves were above 1.25% of insured deposits, which was the case throughout the period 1996-2006. In this decade, therefore, most banks did not pay deposit insurance.

The FDICIA also introduced the system of prompt corrective action, which mandated the FDIC to intervene to impose recapitalisation on ailing banks well before full depletion of capital, with powers to close the institutions if they fail to do so. These interventions must respect the condition of least cost for the deposit insurance fund, unless a 'systemic risk exception' is invoked, which requires approval by at least two-thirds of the FDIC Board, two-thirds of the Federal Reserve Board, and the US Treasury Secretary after consultation with the US President.

The Federal Deposit Insurance Reform Act of 2005 substituted the 'hard' target of 1.25% of insured deposits with a 1.15% to 1.50% range, and decided that when the fund exceeds 1.35% of insured deposits, 50% of the surplus is restituted to the member; when it exceeds 1.50%, the totality of excess funds are restituted. On the other hand, when fund reserves fall below 1.15%, the FDIC must raise premia to a level sufficient to restore them to this minimum level.

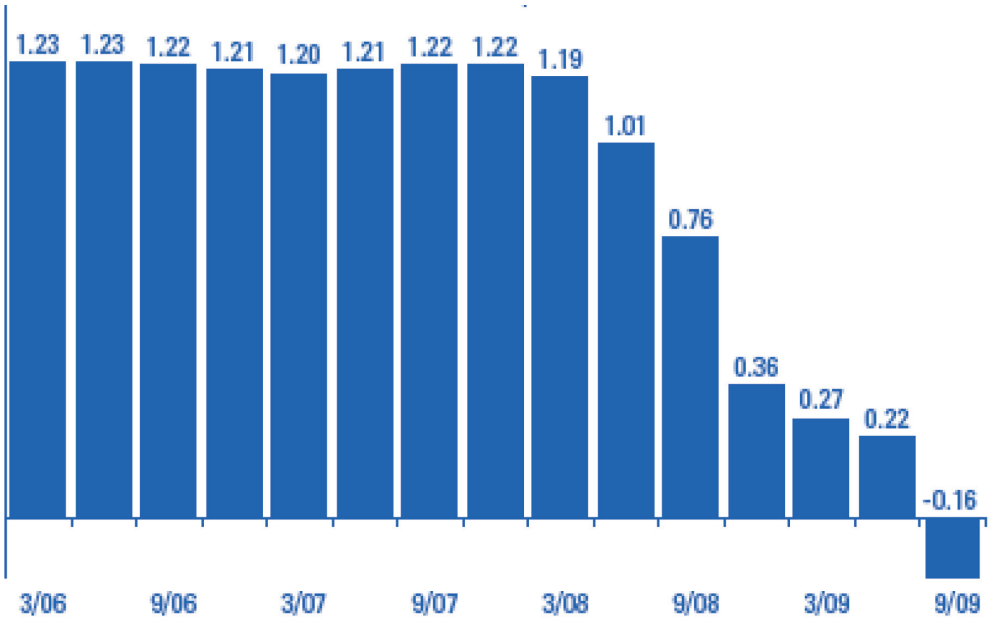
During the financial crisis of 2007-09, the deposit insurance reserves progressively fell, going down to 1.01% of insured deposits on 30 June 2008, to 0.36% in the last quarter of 2008, and to 0.22% on 30 June 2009; the deposit insurance fund reserve ratio even became negative, at –0.16% on 30 September 2009.

On 22 May 2009, the FDIC board approved a final rule that imposed a 5 basis points special assessment as of 30 June 2009 and on 29 September 2009 the FDIC adopted an Amended Restoration Plan to replenish the fund and raise the reserve ratio up to 1.15% within eight years. To this end, insured institutions were required to prepay their estimated quarterly risk-based assessments for the fourth quarter of 2009, and for all of 2010, 2011, and 2012. At the same time, the FDIC raised annual risk-based assessment rates by 3 basis points beginning in 2011.

In 2009 the FDIC also obtained an increase in the credit line from the US Treasury from $30 billion to $100 billion, which can be raised to $500 billion with the approval of the Federal Reserve and the US President.

(*continued*)

FDIC deposit insurance fund reserve ratio (2006-2009; % of insured deposits)



Source: FDIC (2009).

Overall, historical experience of the FDIC deposit insurance demonstrates on the one hand that flat deposit insurance fees are ineffective to ensure the protection of the fund and its viability when a crisis occurs, and on the other hand that a system of risk-based fees does not automatically solve the problems. In fact, it has to be carefully drafted to make the fund as resilient as possible to crises and actually able to perform its function of deposit protection. To this purpose, a key objective is to avoid the pro-cyclicality of the balance of the fund, whereby the fund is in good shape in good times, but is rapidly exhausted in bad times: the assessment of the risk profile of banks and the proper pricing of deposit insurance are the key tools.

Sources: Acharya, Santos and Yorulmazer (2009), FDIC (2009) and Pennacchi (2009).

2.2 Key ingredients of deposit insurance

In order to maintain market discipline and eschew moral hazard, the threat whereby the banks will not be rescued, only the depositors, needs additional foundation in the design of the deposit insurance system.

Market discipline may be enhanced and moral hazard contained by introducing certain limitations on depositors' coverage (BCBS & IADI, 2009). First, as has been indicated, protection should be granted only to retail depositors, while wholesale and interbank deposits would be at lenders' risk. Second, retail depositors should not enjoy full protection – albeit not so low as to compromise confidence – in order to keep them awake to the risk features of their banks. The amount set in the revised EU Deposit Guarantee Directive, €50,000 rising to €100,000, seems adequate[26]. As to co-insurance, it should not play a major role, since any positive effect on

[26] Directive 2009/14/EC of 11 March 2009. Article 1, 3(a) envisages an increase of the coverage from € 50,000 to € 100,000 by 31 December 2010, unless the Commission determines that "such an increase and such harmonisation are inappropriate and not financially viable for all Member States in order to ensure consumer protection and financial stability in the Community and avoid cross-border distortions between Member States".

depositors' willingness to monitor the bank's performance and management may be offset by adverse effects on their confidence, as highlighted by the run on Northern Rock.

A critical feature is the size and financing of the insurance fund. The 2007-09 financial crisis showed that deposit insurance schemes financed ex-post, that is only after the need materialises, lack credibility because the deposit insurance fund is likely to be undercapitalised. Only ex-ante financing, based on probabilistic assessment of the risk of failure for each insured bank, appears capable of ensuring at the same time that the fund has sufficient resources and that each insured bank pays a fee commensurate with its actual risk position, hence the potential cost of its failure, thus mitigating moral hazard (BCBS & IADI, 2009) and strengthening depositors' incentive to monitor the bank. Ex-ante financing is also less pro-cyclical than a call-when-needed system, which imposes higher costs when banks' profitability is falling[27].

The fund should be required to meet its funding targets within a specified time period; premia should be collected and the fund should continue to grow even after the funding target is reached. The US system of returning premia once the funding target has been reached appears logically flawed – one doesn't return insurance premia because the adverse event did not materialise – and is strongly pro-cyclical, with funds likely to be in excess in fair weather and insufficient in crisis (see Box 2.2).

Risk assessment must reflect institution-specific factors – including not only size and asset quality, but a wide range of factors such as capitalisation, liquidity and maturity transformation, the quality of management and risk control, interconnectedness, complexity, functions of systemic relevance such as being a major supplier of CDS or offering clearing services for significant market segments. Fees should also take account of the bank's exposure to systemic risks (based on stress tests) as well its likely impact on systemic risk in case of adverse macroeconomic shocks[28]. Higher fees, in this context, could be required from banks operating in 'overbanked countries', e.g. showing high ratios of bank liabilities over GDP or the total tax base as indicators of local ability to take emerging losses in a crisis.

It has been suggested in this context that the CDS spread already provides a synthetic measure of the default risk and therefore could be used directly to determine the insurance fee as a proportion of insured deposits. However, back-of-the-envelope calculations suggest that the resulting charge could be too onerous and wipe out all banking profits[29]. Therefore, while the CDS may well be one important element in the calculation, it appears preferable to set fees on the basis of several factors, also including sustainability of the banking system. It must be well understood, however, that a considerable reduction in bank profits is a desirable feature of the insurance scheme, since inordinate profits from speculation played a paramount role in diverting resources away from the productive economy and into unproductive speculative activities.

It should be stressed, in this context, that the objective of risk-based fees is not to penalise depository banks and banking groups for the deposit-taking activity itself. Rather, it is to make

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[27] A key point to be emphasised in this connection is that the deposit insurance fund should be designed to deal with bank crises in 'fair weather'; in the event of a systemic collapse no amount would suffice, short of full government guarantee (although the different components of the safety net should be capable of interacting through close coordination and information-sharing in such a crisis; see BCBS & IADI, 2009). Therefore, the size of the fund is much lower than the overall amount of insured deposits in a given country (e.g. between 1.15% and 1.50% in the United States; see Gros, 2009).

[28] Maino *et al.* (2009) propose a new approach to regulation and resolution of Systemically Important Financial Institutions (SIFIs) and argue that systemic risk should be covered by an ad hoc "insurance premium" for SIFIs, to be paid as fees to a specific Resolution Fund.

[29] John Kay, "Why 'too big to fail' insurance will not fix finance", *Financial Times*, 3 February 2010.

banks pay the appropriate price for the banking charter and the related benefits (deposit insurance, access to discount window, etc.), based on the overall risk profile of the bank[30].

To the extent that fees asked from large banks were adequate to deal with their failure, one main aspect of the too-big-to-fail syndrome, as identified by Acharya (2009) and Kay (2009), would be, if not eliminated, at least substantially reduced[31]. If appropriately designed, these fees would entail a strong disincentive against growing too large.

Risk-based deposit insurance seems to offer a superior tool for charging banks the correct price for their banking charter, regulatory protection and potential losses, also by taking into account immaterial factors that risk-based capital charges cannot reflect, but supervisors can fully consider thanks to their access to the whole of bank information[32]. It would overcome the problem of distinguishing between systemic and non-systemic banks since fees would gradually and continuously increase with risk (FSA, 2009b); there would be no need to set up a separate layer of regulation and charges for 'systemic' banks.

Banks would still be required to hold capital as general reserve against unexpected losses and restraint against excessive risk-taking by management. However, capital requirements should be set as a straight minimum ratio to total assets or liabilities – net of net worth – with no allowance for risk factors.

A key complement of deposit insurance is mandated corrective action by supervisors as bank capital falls below certain thresholds. Moral hazard and the potential costs for the fund are exacerbated if there is no mandated corrective action, because banks exploit the deposit insurance subsidy to engage in excessive risk-taking and will try to delay recognition of losses and to gamble for resurrection. Authorities could complacently favour such behaviour and even relax regulation in the hope of facilitating a recovery. Besides, the subsidised institutions are presumably those that are the least worth saving, so that forbearance produces the undesirable outcome of wasting taxpayers' money in the most inefficient manner[33].

Ultimately, gambling for resurrection and forbearance would amplify the losses for the deposit insurance fund and could deplete its financial resources and hinder its ability to protect depositors. Therefore, mandated corrective action is essential in order to ensure the credibility of deposit insurance[34].

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[30] The US Financial Crisis Responsibility Fee, recently announced in January 2010 by the US President to recover the public resources injected to rescue and stabilise the financial sector, is based on a different logic. It applies to banks and other categories of financial institutions with more than $50 billion in consolidated assets and will be levied for at least 10 years. The fee is calculated as a proportion (about 0.15%) of banks liabilities. Tier 1 capital and insured deposits are deducted from the computation, the latter being regarded as a stable source of funding and already paid for through deposit insurance fees. Thus, this fee would penalise those banks with a thinner deposit base and less capital. The underlying assumption is that a lower core capital buffer and higher reliance on non-deposit funding imply higher overall risk.

[31] For a discussion of systemic risk premiums versus the breaking-up of large financial institutions, see Acharya, Cooley, Richardson & Walter (2009).

[32] The US CAMELS ratings provide an interesting model usable for this purpose, whereby a bank risk profile is assessed on Capital, Assets, Management, Earnings, Liquidity and Sensitivity to risk. A question to be decided in this context is whether or not risk-assessments and deposit guarantee fees should be made public. Disclosure might enhance market discipline but also damage confidence in the bank. The US CAMELS are non-public information and property of the supervisory authorities.

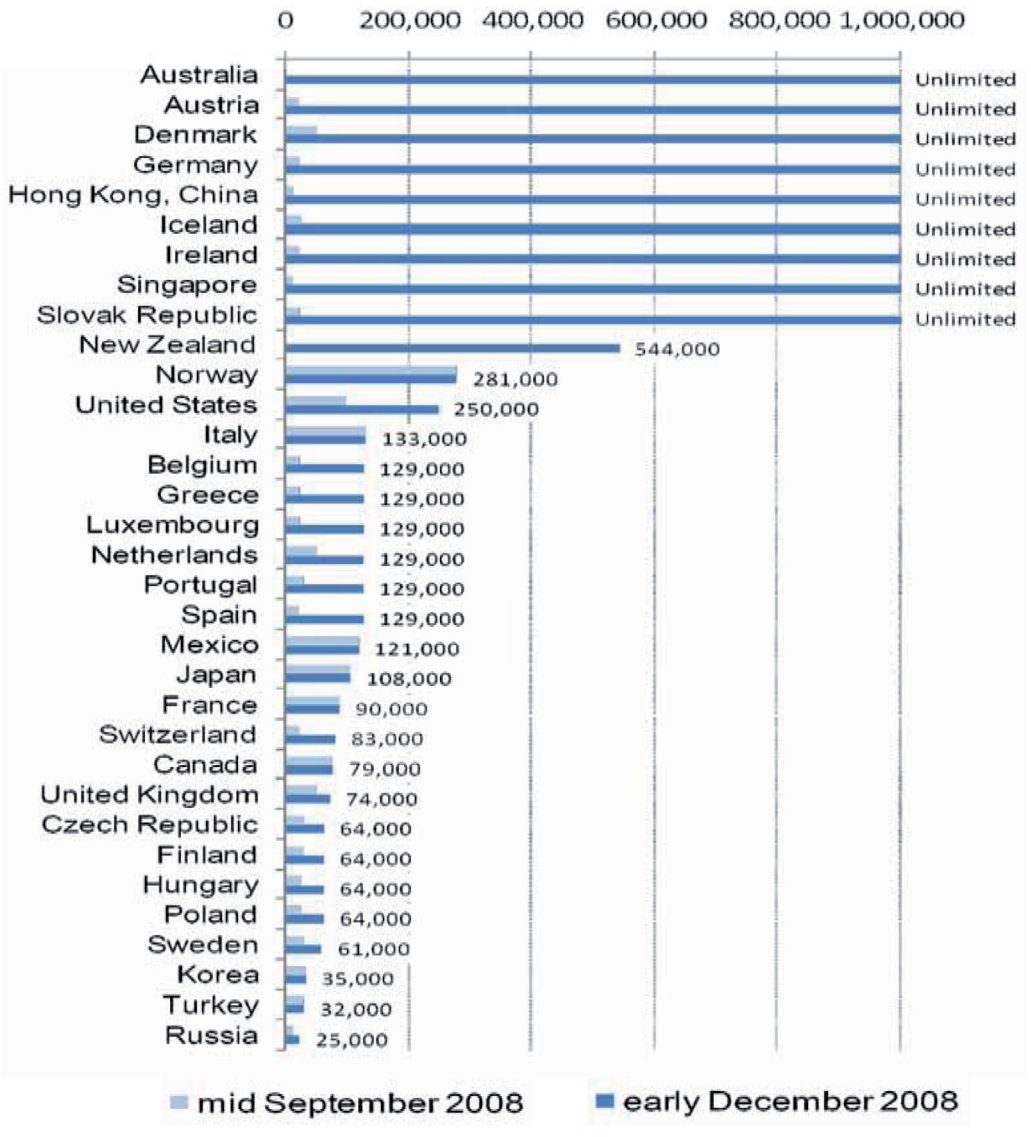
[33] For an analysis of the S&Ls crisis that reaches these conclusions, see Calomiris, Klingebiel & Laeven (2005).

[34] Benston & Kaufman (1988) first advocated the need for a system of early intervention in the United States, which was then introduced in 1991 by the Federal Deposit Insurance Corporation Improvement Act. See Chapter 4 of this report for an in-depth analysis of mandated corrective action with specific focus on the European Union.

2.3 An overview of deposit guarantee schemes

Deposit guarantee schemes came under enormous pressure worldwide in the wake of the financial crisis, which highlighted their weaknesses. In September 2008, Ireland decided – without consulting the European Commission, the European Central bank or any of the EU member states – to increase the statutory limit for the deposit guarantee scheme for banks and building societies from €20,000 to €100,000 per depositor per institution, with a 100% coverage for each individual deposit. Initially, it tried to cover only depositors at Irish banks but renounced this obvious discrimination almost immediately and offered the guarantee to certain subsidiaries of foreign institutions operating within its jurisdiction. Massive cross-border flights of deposits from neighbouring countries prompted an increase in coverage throughout Europe, in some cases with a formally higher coverage threshold, in others (e.g. Germany) with a political commitment to unlimited deposits protection (Figure 2.2). State guarantees were soon extended also to bank liabilities other than deposits (including bonds, interbank deposits, commercial paper).

Figure 2.2 - Coverage level of deposit guarantee schemes in selected countries (US $)



Source: Schich (2009).

More or less the same happened in the United States, where the FDIC deposit insurance was temporarily raised from $100,000 to $250,000 and guarantees were introduced on certain other bank liabilities. Australia and New Zealand also decided to introduce deposit insurance (Schich, 2009).

In November 2009 the International Association of Deposit Insurers and the International Monetary Fund presented a report to the Financial Stability Board (FSB) on the unwinding of deposit insurance arrangements adopted in response to the global financial crisis (IADI & IMF, 2009).

Their report shows that 46 jurisdictions have adopted some form of enhancement of depositors' protection: 18 countries introduced full deposit guarantees, while 28 raised coverage either permanently or temporarily (see Table 2.1).

Table 2.1 - Actions adopted to strengthen deposit guarantee schemes

Full depositor guarantees	Deposit guarantee coverage increase	
	Permanent	Temporary
Austria	Albania	Australia
Denmark	Belgium	Brazil
Germany[1]	Bulgaria	Netherlands
Greece[1]	Croatia	New Zealand[8]
Hong Kong, SAR	Cyprus	Switzerland
Hungary[1]	Czech Republic	Ukraine
Iceland[1]	Estonia	United States[4]
Ireland[7]	Finland	
Jordan	Indonesia	
Kuwait[3]	Latvia	
Malaysia	Lithuania	
Mongolia[3]	Luxembourg	
Portugal[1]	Kazakhstan[2]	
Singapore	Malta	
Slovakia[6]	Philippines	
Slovenia[3]	Poland	
Thailand	Romania	
UAE[5]	Russia	
	Spain	
	Sweden	
	United Kingdom	

[1] Political commitments by government.
[2] Increased from 700,000 to 5 million tenge but will revert to 1 million on 1/1/2012.
[3] Unlimited for banks operating in their jurisdiction.
[4] Unlimited for non-interest-bearing transaction accounts.
[5] Unlimited for local and foreign banks with significant presence in their jurisdiction.
[6] Unlimited for all physical persons and some categories of legal persons.
[7] Unlimited for seven specific banks representing 80% of the banking system.
[8] Full coverage up to NZ$1 million per deposit (retail deposits and non-bank deposit takers).
Source: IADI & IMF (2009).

In the European Union, the Deposit Guarantee Schemes Directive adopted in 1994 (94/19/EC) had established a minimum level of coverage per depositor equal to €20,000, leaving actual coverage to the discretion of member states, but at all events excluding interbank deposits. It included an option for member states to have co-insurance, with a minimum floor of 90%. Overall, the Directive did not manage to bring about sufficient harmonisation regarding coverage, funding, co-insurance, and who should operate the scheme (private agency versus public authority); as a result, national systems have remained highly heterogeneous. A largely common element is that at least in principle deposit insurance is financed by banks; however, the principle is negated by the weakness of funding arrangements that make the system credible only for small-size interventions.

Table 2.2 shows the main features of deposit guarantee schemes in selected countries as of 2007 (that is, pre-crisis): as may be seen, a majority of countries had premiums collected ex-ante (two main exceptions being Italy and the United Kingdom); co-insurance was present in less than half of the countries; in most cases deposit insurance fees were flat and not risk-based.

Table 2.2 - Main features of deposit guarantee schemes in selected countries (2007)

	Ex-ante collection of premia	Co-insurance	Risk-based deposit insurance fees
Austria	No	No	No
Belgium	Yes	No	Yes
Bulgaria	Yes	No	No
Cyprus	Yes	No	No
Czech Republic	Yes	Yes	No
Denmark	Yes	No	No
Estonia	Yes	Yes	No
Finland	Yes	No	Yes
France	Yes	No	Yes
Germany	ex ante and ex post	Yes	No
Greece	Yes	No	No
Hungary	Yes	Yes	Yes
Iceland	Yes	Yes	No
Ireland	Yes	Yes	No
Italy	No	No	Yes
Latvia	Yes	No	No
Lithuania	Yes	Yes	No
Luxembourg	No	No	No
Malta	ex ante and ex post	Yes	No
Netherlands	No	No	No
Norway	ex ante and ex post	No	Yes
Poland	ex ante and ex post	Yes	No
Portugal	Yes	Yes	Yes
Romania	Yes	No	Yes
Slovak Republic	Yes	Yes	No
Slovenia	No	No	No
Spain	Yes	No	No
Sweden	Yes	No	No
Switzerland	No	No	No
United Kingdom	No	Yes	No
United States	Yes	No	Yes

Source: Barth *et al.* (2008).

The European Commission had taken into consideration a review of the Deposit Guarantee Directive in the years preceding the 2007-09 crisis, but no substantial amendments had been proposed before the crisis struck in 2008. On 7 October 2008, the Ecofin Council agreed to raise the minimum level of deposit coverage to a minimum of €50,000 and up to €100,000. On October 15 the European Commission presented a plan to review Directive 94/19/EC whose main proposals were: *i)* to increase minimum coverage level to €50,000, and to €100,000 after one year[35]; *ii)* to abandon co-insurance and *iii)* to minimise the payout period (from the current three months, extendible to nine). These changes were introduced by Directive 2009/14/EC of 11 March 2009.

The responsibility for deposit guarantee amongst EU member states follows the home country principle: deposits at foreign branches of credit institutions headquartered in the member states

[35] About 65% of eligible deposits were covered under the previous regime; the new levels cover an estimated 80% (with coverage of €50,000) and 90% (with coverage of €100,000) of deposits.

are covered by the deposit guarantee scheme of the home country, while deposits at foreign subsidiaries are covered by the deposit guarantee scheme of the host country.

This allocation of tasks mirrors the division of responsibilities between home and host country for prudential supervision[36], whereas the consolidated supervision of banking groups is assigned to the home country, while the host country only supervises locally chartered subsidiaries on a 'solo' basis and has very limited oversight on branches (on liquidity). Moreover, if the level or scope of the coverage of the host country deposit guarantee scheme is higher than that provided by the home country, a foreign branch may voluntarily join the host country scheme for supplementary guarantee (topping-up). On the other hand, when the coverage offered by the home country is higher, an issue of competitive disadvantage for institutions chartered in the host country may arise.

This setting leaves host countries exposed to the banking risks that may arise from foreign branches and subsidiaries due to a crisis of the parent bank, without endowing them with adequate lines of defence. With regard to subsidiaries, their soundness critically depends on the home country authority responsible for consolidated supervision and on confidence in the soundness of the parent bank: thus, the host country deposit guarantee fund would have to bear the costs of a bank run on a foreign subsidiary, but the host country would face constraints in the prevention phase since its supervisory powers are confined to oversight on a solo basis[37]. Risks may be especially intense for branches with systemic relevance in the host country that however represent only a small operation for the parent bank and home supervisors: this asymmetry between defence instruments and exposure to risk and the misalignment of incentives give rise to potential conflicts between the home and host country (Eisenbeis & Kaufman, 2006; Herring, 2007).

2.4 The way forward: a European Deposit Guarantee System

The existing arrangements for deposit guarantee schemes in the European Union turned out to be insufficient and ineffective; and there was a misalignment between the national nature of deposit guarantee schemes and the cross-border dimension of large European banks. The different coverage of depositors, depending on the nationality of the bank, creates an uneven playing field and gives rise to potential competitive inequality, and the topping-up for branches does not appear a sufficient tool to address the problem. Besides, as observed by the de Larosière Group (2009), no national deposit guarantee scheme would currently be able to make reimbursements to depositors of any large EU cross-border financial institution without the involvement of public funds.

The de Larosière report underlined that the lack of sophisticated and risk-sensitive funding arrangements "involves a significant risk that governments will have to carry the financial burden … for the banks or worse, that the deposit guarantee scheme fails on their commitments (both of which were illustrated by the Icelandic case)". Moreover, they maintained that reliance on ex-post funding without risk-sensitive premiums entails moral hazard and is likely to distort the efficient allocation of deposits.

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[36] For a detailed analysis of the EU allocation of supervision and deposit guarantee tasks to home and host country see Mayes *et al*. (2007).

[37] A possible solution would be to limit cross-border banking through branches and to increase national powers to require 'subsidiarisation', as suggested by the Turner Review (FSA, 2009a): this solution, however, could compromise the EU internal market and would also restrict banks' freedom in the choice of their corporate structure.

The rational response is the creation of a European deposit guarantee scheme capable of protecting depositors of large pan-European banks without creating fresh room for arbitrage or distortions owing to the different features of national schemes. A new system should include all the elements of well-designed deposit guarantee, as have been described: protection limited to retail deposits, ex-ante risk-based financing of the deposit guarantee fund and mandated corrective action. All large EU cross-border banking groups[38] should join the new EU scheme, while other banks could remain with national protection schemes, if they so wished. The heart of the EU system would be a new European Deposit Guarantee Agency (EDGA), entrusted with the management of a European Deposit Guarantee Fund (EDGF). The EDGA and the EDGF should be established within the European Banking Authority; the EU Deposit Guarantee Directive[39] and the proposed EBA Regulation should thus be amended to incorporate the new body and its fund. A network approach – entailing the creation of a European System of Deposit Guarantee Schemes, modelled on the European System of Central Banks and having the EDGA at its centre – would also be an option.

The EDGF should be pre-funded, with risk-based fees collected by the EDGA. Fees should be calculated in a way that ensures the capacity and credibility of the fund in protecting depositors of large European banks in case of failure. However, the fund should be able to guarantee depositor protection in 'fair weather', not in a systemic crisis, which instead would have to be managed in a coordinated manner by all the components of the safety net. The calculation of the fees is the key: risk assessments should take into account both the individual risk profile of banks and their systemic relevance, as has been described.

All retail deposits of pan-European banking groups would have to be guaranteed under the EU scheme, regardless of their geographical location (i.e. including deposits outside the EU). Clearly, pan-European banking groups would not have to pay deposit guarantee fees twice, but only at the EU level. To avoid distortions and an uneven playing field between pan-EU and domestic-oriented banking groups, national deposit guarantee schemes should be organised on the basis of the same rules of the European scheme.

To ensure the effectiveness and credibility of deposit guarantee, a target ratio of the deposit guarantee fund balance in proportion of total insured deposits should be established. The target ratio might be chosen on the basis of historical data on banking crises and the estimated actuarial risk of bank failures. Rather than as a 'hard' limit, it might be conceived as a 'safety range' with fees for participating banks falling when the upper range limit is exceeded and rising when the lower range is trespassed. In any event, restitution of funds to the participating banks should be excluded since this would weaken the fund's ability to meet a rare crisis of a very large bank.

Another key feature of the proposed EU deposit guarantee system is that it should not have power to recapitalise or bail out failing institutions[40]. Open bank assistance instruments, like those

[38] Pan-European banking groups might be identified on the basis of a wide range of factors, including assets, revenues, net income, deposits, number of branches and subsidiaries.

[39] Directive 2009/14/EC of 11 March 2009 (new Article 12 of Directive 94/19/EC) required the Commission to present a report and, if necessary, to put forward proposals to amend the Deposit Guarantee Directive in regard of a range of issues which include possible models for introducing risk-based contributions. The Joint Research Centre (European Commission) published in June 2009 a report on possible models for deposit guarantee risk-based contributions (JRC, 2009).

[40] Bernet & Walter (2009) identified four possible models for deposit guarantee schemes, envisaging increasing powers for the deposit guarantee agency: *1)* the 'pay box' model, with functions limited to the payout of covered deposits; *2)* the "cost reducer' model, with the task of handling crisis and insolvency of guaranteed institutions with the lowest possible cost and externalities for the financial intermediation system, also with powers to intervene in the guaranteed banks and arrange preventive and corrective measures to protect deposits; *3)* the 'resolution facilitator'

that had been assigned in the United States to the FDIC, are not necessary: the assignment to EDGA of any of these instruments would be inconsistent with the philosophy of the proposed scheme, centred on protecting depositors and not financial institutions[41]. As a consequence, the revised Deposit Guarantee Directive and the EBA Regulation should exclude any role of EDGA in the rescue of distressed banks and banking groups, which would instead be performed by the new supervisory system as will be described.

Finally, as has been made clear by the preceding discussion, a deposit guarantee scheme not supported by a system of early corrective action would be exposed to the risk of regulatory forbearance, so that the fund and the guaranteed deposits would not be effectively and credibly protected. This is why an EU system of mandated corrective action is needed to complete the system: as set out in detail in Chapter 4, the new European Banking Authority should have adequate powers to prevent and manage the crisis of pan-European banks.

3. Bank crisis resolution

When serious cracks started to emerge in the financial system, the authorities in the main financial centres were taken by surprise and reacted somewhat erratically. In some cases, they extended government guarantees to some or all creditors; in others, they injected capital into the troubled institutions or took them over outright; and in one case, Lehman Brothers, they let them go bust.

This piecemeal approach is bound to magnify the disruptions to the financial system and the eventual costs to taxpayers, as well epitomized by the Lehman and AIG cases. The chaotic way in which Lehman Brothers was placed into bankruptcy led to uncertainty and contagious disruptions in financial markets, even if Lehman was not a deposit-taking institution, due to great uncertainty on exposures and the probability of recovery. Runs developed on money market funds that were believed to be invested in Lehman commercial paper, rapidly spilling over to corporate commercial paper markets, where liquidity evaporated. Lehman was also a large prime broker for many hedge funds, which lost access to their credit lines and were forced to liquidate their positions, as well as losing access to their collateral placed with Lehman. Bank equity prices fell sharply and the interbank markets collapsed.

The US government took the opposite decision to rescue AIG in order to avoid the disruptions that could derive from failure to honour their CDS liabilities. The initial financial support was $85 billion, but eventually ballooned to almost $200 billion without effectively resolving the situation[42]. Repeated injections of capital eventually adding up to enormous amounts were also a feature of many banking bail-outs in Europe, the prominent examples being the Royal Bank of Scotland and the German Hypo Real Estate.

Thus public authorities seemed caught between a rock and a hard place, i.e. disorderly failure with unpredictable consequences on one side, and an open-ended injection of public funds on the other. But this is only due to the absence of a special resolution procedure for banks, able to

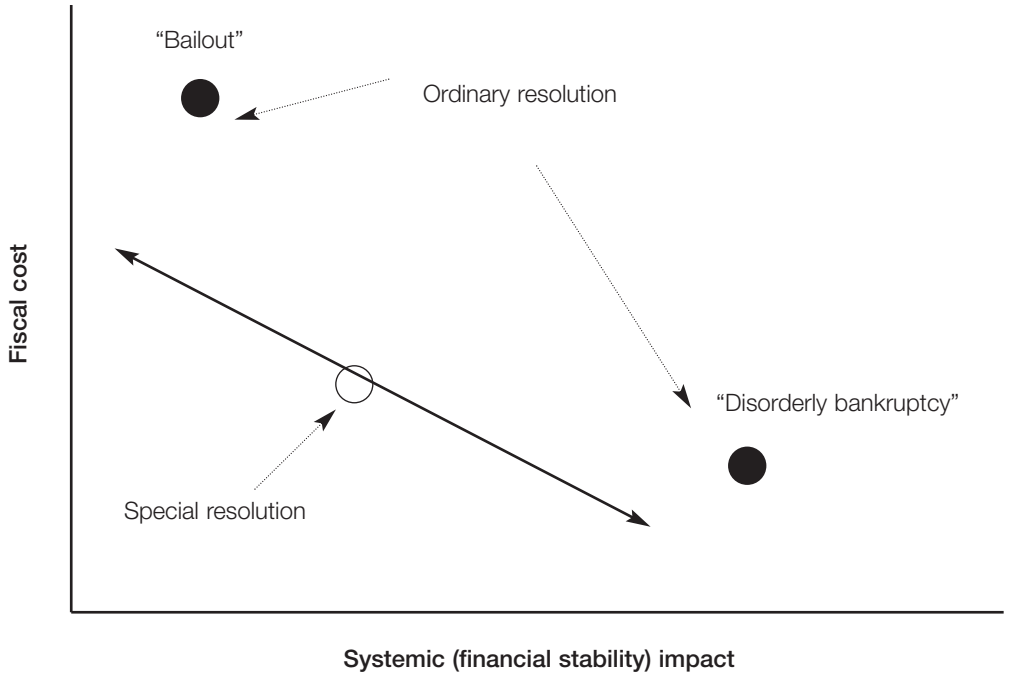
model, entailing a proactive support of troubled institutions and *4)* the 'supervisor' model, with direct supervisory powers. Our proposal is a mix of the pay box and the cost reducer model, since EDGA performs only the payout functions, while it is EBA that plays the "cost reducer" role (see Chapter 4).

[41] An alternative proposal envisages the creation of a Resolution/Stabilisation Fund, charged with crisis management and resolution, participated by EU member states and funded by EU cross-border banks (ABI, 2010).

[42] For a detailed review of the measures adopted to stabilize AIG see Baxter (2010).

effectively halt the confidence crisis from spreading and at the same time place tight limits on recourse to the public purse. Figure 6 shows graphically the two unpleasant outcomes together with a third possibility, which is superior to both, that is available when adequate resolution procedures for banks are in place before crisis strikes.

Figure 3.1 - Fiscal cost and systemic impact in resolution regimes



Source: Čihák & Nier (2009).

One additional consequence of the decision to let Lehman Brothers go bust, as has been mentioned, was that the authorities and analysts fell prey to the belief that large financial institutions cannot be allowed to fail. However, accepting that some financial institutions cannot fail must be wrong, since it entails that those financial institutions effectively operate with an open-ended guarantee that governments will intervene to rescue them from their mistakes. A financial system in which all the big financial institutions are guaranteed by the government entails massive moral hazard and is inherently unstable, since the fundamental check on reckless behaviour by bankers and financiers, the danger of going bankrupt, would be eliminated.

The correct conclusion should have been that existing resolution tools were not adequate to avoid or contain systemic spillovers. A fundamental problem in generating destabilising behaviour within the financial system was the lack of a credible threat of bankruptcy for its largest institutions. Building effective resolution procedures that will enable most, if not all, financial institutions to fail without disrupting the financial system becomes a key task in the endeavour to build a more stable financial system. The Damocles sword of 'too-big-to-fail' must be effectively removed from the system.

An effective system to manage banking crises must possess two features: it must be able to keep depositors safe, as well as reassure counterparties in the normal running of business on the continuity of basic functions – of systemic relevance – of the failing financial institution.

In this regard, time is of the essence. The forced sale of assets, under pressure from vanishing supply of funds, may destroy value beyond what is justified by the bank's capital position. This is why ordinary bankruptcy procedures will in general not do: because ordinary procedures, managed by courts, are unable to preserve viable relations with the bank's counterparties, since they typically involve a suspension of all claims on the bank and aim at protecting all creditors without regard to their relevance for the continuing viability of the financial system. Moreover, the formal declaration of insolvency – which at some stage is always required by general bankruptcy procedures – may hamper, rather than favour, rapid redress of troubled financial institutions (Brierley, 2009).

For this reason it is unavoidable to entrust resolution to special administrative procedures managed by banking supervisors, which can ensure the continuity of key banking relations while starting to sort out counterparties' positions and the capital effectively available to meet emerging losses. Their main purpose, as already mentioned, is to protect depositors and key functions with systemic relevance, while all other interests at stake are treated with lower priority: which does not mean that will be totally sacrificed, only that they will be dealt with in a subsequent resolution phase, which may well turn out to provide better value for all parties concerned.

The administrators should be capable of deciding all actions needed to recapitalise the bank and restructure its operations without leaving much room for shareholders or other creditors to interfere. Should all efforts to rescue the bank fail, liquidation procedures should be capable of preserving the continuity of fundamental banking relations with depositors and other key counterparties of systemic importance. When this happens, the performing assets should be conferred to a bridge bank, and the impaired assets should remain with the residual bank, to be subsequently liquidated.

3.1 National frameworks for bank crisis resolution

Most European countries apply ordinary insolvency procedures also to banks (*lex generalis*)[43], albeit often with certain adaptations. Corporate bankruptcy rules primarily aim at protecting all creditors, typically organised in classes of varying priority among which residual values are shared in the liquidation process. Many aspects of bank liquidation – such as the calculation of assets values, verification of claims, attribution of assets – are regulated as in the liquidation of any commercial company[44].

Ordinary bankruptcy proceedings are managed by judges in court proceedings; bank supervisors normally have limited control over actions taken by the judges and are not entitled to interfere with the aim of preserving financial stability. Court-administered procedures must resolve creditor claims "in an orderly and fair manner" while respecting *par condicio creditorum*: this principle is in direct conflict with providing privileged status to insured depositors.

General bankruptcy laws give the liquidator exclusive control over the assets and liabilities of the failed bank. As noted by Garcia *et al.* (2009), "by the time a court-administered procedure has commenced, judicial liquidation of a bank is… much more likely than rehabilitation". And indeed experience has repeatedly shown the potentially disruptive effects of applying normal bankruptcy procedures to banking, or bank-like, institutions, due to the destabilising effects of depositors and creditors trying to protect their claims.

[43] Hüpkes (2003).

[44] For a clear description of the legal systems, see IMF & World Bank (2009).

For this reason, some countries – e.g. Austria, Belgium, France, Germany and Luxembourg – had already, prior to the recent crisis, introduced special rules into their corporate insolvency law to deal with bank insolvency, notably by reserving the right to file for bankruptcy to banking supervisors and entrusting them with the management of the procedure.

In particular, in Belgium the Banking, Finance and Insurance Commission has the power to appoint a special commissioner whose consent is necessary for all acts and decisions taken by the decision-making organs within the bank, including the shareholders. All decisions assumed without authorisation of the special commissioner are null and void.

In France, bank liquidation may only be initiated with the opinion of the Commission Bancaire and is supervised by the courts. The Commission Bancaire appoints an official administrator and may obtain a court order for the transfer of bank shares. Liquidation is a proceeding with separate liquidators acting respectively under the control of the Commission Bancaire and the direction of the courts pursuant to the commercial code.

In Germany, the bank insolvency proceedings may only be initiated by the supervisory agency (BaFin) but are conducted under the corporate insolvency law and are overseen by the courts. The legal framework does not provide specific restructuring powers for the supervisory agency such as purchase-and-assumption transactions or bridge banks to facilitate prompt restructuring. A number of simplifications to speed up the procedure were approved in 2009, following the Hypo-Re crisis, with the Act on the further Stabilisation of the Financial Market[45] and the Financial Market Stabilisation Fund Act[46]. The former has provided for special powers to decide the dispossession and transfer of bank shares into public ownership; the latter has simplified the procedures for the acquisition of shares and risk positions of financial institutions by the Stabilisation Fund set up to recapitalise financial institutions.

Few countries, on the other hand, already have a special administrative regime for resolving bank insolvency (*lex specialis*), notably including the United States, with the FDIC resolution powers, and in the European Union, Italy and, as a newcomer, the United Kingdom[47]. Under these regimes the initiative and responsibility for managing the procedure belong to the banking supervisors, with an only marginal role of the judiciary – typically called upon ex-post to verify that all interested parties were treated fairly.

Under special resolution regimes, the resolution authority gives priority to maintaining depositor confidence and financial stability. Moreover the minimisation of the public costs of resolution is an explicit objective, and for this reason the resolution authority has powers such as that of transferring to a 'bridge bank' under temporary public ownership the par value of insured deposits, and the estimated recovery value of uninsured deposits and credit lines. The recent Uk legislative banking reform was influenced by similar considerations[48].

The involvement of banking supervisors is the key element, because authorities that have inspected the bank since the beginning of its activities until the crisis may be in the best position to estimate rapidly the recovery value of the institution as a whole or in parts. If the bank is to be

[45] Enacted on 20 March 2009.

[46] Adopted on 17 October 2009.

[47] The United Kingdom enacted new legislation introducing special procedures once the inadequacy of ordinary bankruptcy rules was exposed by the Northern Rock deposit run and the de facto insolvency of banking giants Royal Bank of Scotland and TSB Lloyds.

[48] Kaufman (2004) argues that insolvent banks are resolved efficiently when the sum of their aggregate credit and liquidity losses is at, or close to, zero; Eisenbeis & Kaufman (2006) affirm that the public policy objective of resolving banks should be to reduce costs (both public and private) and permit free entry and exit of failed banks at minimal cost to society.

sold, the immediate estimation and allocation of credit losses is of great importance. Even in a liquidation, supervisors have an informational advantage about the financial condition of the bank and its position as a counterparty to contracts with non-depository institutions.

Under the US procedure, the FDIC has a broad range of options for dealing with a bank failure including liquidation, purchase and assumption transaction with another institution, establishment of a conservatorship, provision of open bank assistance or creation of a bridge bank. A bridge bank is a temporary national bank created by the FDIC to take over and maintain banking services for the customers of a failed bank (Herring, 2003; Bliss & Kaufman 2007). It is designed to fill the gap between the failure of the bank and the final resolution. The limit of this procedure is that its application is limited to depository, FDIC-insured banks. No special regime for bank holding companies and other financial institutions (e.g. investment banks, insurance companies) is provided: in the failure of Lehman Brothers, the ordinary discipline for reorganisation (Chapter 11 of the Bankruptcy Code) was applied. Some reforms to the system are now considered by the US Congress to create a resolution process that could be applied to both banks and non-bank financial institutions, and their holding companies.

In Italy, the 'special administration' is normally commenced by the Minister for the Economy and Finance, by decree, acting on a proposal from the Bank of Italy, and brings the bank under the full control of these administrative authorities[49]. This procedure applies when serious administrative irregularities or violations of laws have lead to sizable capital losses. Special administration may last up to one year, and the Bank of Italy may propose all the needed restructuring measures, including transfer of the bank or part of its assets to another bank. Shareholders are deprived of some of their rights but any restructuring operation is normally subject to their approval. To the extent that no other solution is found, the Ministry for the Economy and Finance, on a proposal from the Bank of Italy, can withdraw the license of the bank and start compulsory liquidation.

In the United Kingdom, a new Banking Act was adopted in 2009; a Code of Conduct then clarified when the authorities can use their new powers and how to deploy them in emergency conditions. Three options are envisaged for the troubled bank: *i)* the Bank of England has the power to transfer all or part of a bank (either through a share or business sale) to a private sector purchaser[50]; *ii)* the Bank of England can transfer all or part of the bank (through a business sale) to a bridge bank owned and operated by the Bank of England; and *iii)* the Treasury can transfer the shares of a bank to a nominee or a company wholly owned by the Treasury[51].

In case of partial transfer of assets and liabilities to a commercial purchaser or a bridge bank, some assets and liabilities will remain with the 'residual bank' under administration. The procedure will try to rescue the residual bank as a going concern or, at any event, to achieve the best feasible outcome for creditors. The Bank of England plays the central role in the procedure since its agreement must be obtained by the administrator in the decisions to set up the residual bank – performing de facto the functions played in ordinary bankruptcy proceedings by the committee of creditors.

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[49] A request to place the bank in special administration may also be addressed by the governing board of the bank or an extraordinary general meeting of shareholders.

[50] It is a purely administrative action; in fact, there is no court involvement and no need to wait until a breach of a threshold condition has occurred. In practice it is possible for a bank that is still balance sheet solvent to be the subject of the special resolution tool.

[51] This tool is meant to be used only if the others tools available to the Bank of England have already been fully explored and found not appropriate. In particular it can only be used to protect the public interest and resolve or reduce a serious threat to the stability of the financial system.

In case of insolvency, a special court-based liquidation develops whose primary objective is to ensure that depositors with eligible claims under the Financial Services Compensation Scheme (FSCS) are paid promptly. The Bank of England, the FSA and the Treasury are all entitled to ask the court for a bank insolvency order; if the court finds that appropriate conditions are verified[52], she will issue a winding up order and appoint a liquidator. This procedure is only available for banks that have depositors with claims eligible for compensation from the FSCS.

As has been described, while some countries have a specific resolution regime for banks, others apply the ordinary corporate insolvency law. An effective cross-border resolution is all but impossible if the tools available under national law are not only different, but also mutually incompatible. For example if in one country an administrative authority has the power to transfer assets to a private buyer, while this is forbidden in a second country where only a judge could authorise it, a prompt common intervention by those two authorities to deal with affiliated banks in their jurisdictions just cannot happen.

As a consequence of their heterogeneous legal frameworks, in the recent crisis countries have tried to ring-fence national assets of cross-border groups and have applied national resolution measures at national level, rather than look for group solution. Ring-fencing local assets within a cross-border group may amplify the problem, rather than resolve it. The incentives for the states to coordinate and renounce to ring-fencing are strongly limited by their legal duty to protect the national stakeholders' interests (see Box 3.1 below on ring-fencing).

Box 3.1 - Ring-fencing in bank crisis resolution

It is by now a commonplace that banks grow internationally but die nationally. Inter-country cooperation between financial supervisors deteriorates rapidly in crisis conditions, basically owing to incentive conflicts between national authorities, which typically try to protect home operators, often at the expense of creditors and stakeholders in the countries hosting the foreign branches and subsidiaries of the banking group(1).

In this context, countries willing to host large foreign banking groups tend to require them to obtain a separate banking license in the country and set up a separate legal entity, a subsidiary, with adequate own capital and subject to full supervision by the host country. Should the parent company threaten to become insolvent, the natural response of local authorities is to try to 'ring- fence' local operations and, if need be, seize local assets of the bank in order to protect its local creditors and other stakeholders. The Fortis collapse provides a clear example.

On the positive side, the working group of the Committee of Basel Supervisors on Cross-Border Bank Resolution (CBRG) in its 2009 Report (BCBS, 2009b) has noted that effective ring-fencing and a territorial approach to crisis resolution can facilitate early corrective action by local authorities and ensure that local assets of the local branch exceed local liabilities. Moreover, the danger of separate resolution under local control puts pressure on the home jurisdiction of the parent company to share information and tackle decisively the problems besetting the institution. Ring-fencing can also contribute to the resiliency of the separate operations within host countries by encouraging the separate functionality of the local operating branch. Ring-fencing has occurred even where there were agreements between national jurisdictions providing for the allocation of responsibility for deposit insurance. For the host jurisdictions, ring-fencing is also attractive since it allows greater control on capital, liquidity and risk management of locally established banks; however, this kind of control can also impose costs on the host jurisdiction if cross-border institutions limit or reduce their operations in that country as a result.

More generally, the host-country authorities will have great difficulties in obtaining full information on the conditions of the parent bank from the home-country primary supervisor. Ring-fencing may not be sufficient to avoid the collapse of the local subsidiary and may well lead to a worse outcome for local creditors; it may also complicate the efforts to resolve the bank crisis short of liquidation (Krimminger, 2005), locally and for the whole group.

The parent bank and the home-country authorities, on their part, may be concerned by the potentially adverse repercussions of ring-fencing in a crisis, with local losses spilling over to endanger the entire group. Indeed, ring-fencing can also aggravate the difficulties of the group as a whole because of the resulting segregation of internal

(*continued*)

[52] Ground A: a bank is unable, or likely to become unable, to pay its debts; ground B: a winding up would be in the public interest; ground C: the winding up would be fair (Section 96(1) Insolvency Act 2009).

funding and liquidity flows. It may hamper orderly resolution by the home authorities on a consolidated basis by reducing the pool of assets available for intra-group transfer in order to meet emerging losses.
The recent crisis has also demonstrated that in a period of market instability there is little time to bring about cooperative cross-border agreements in managing bank crises. One noteworthy exception has been the agreement brokered by the IMF, together with the European Commission, between some Eastern European countries and major foreign banking groups active in those countries to recapitalise their subsidiaries and maintain credit flows. Significantly, capital requirements were determined with reference to local deposit collection[2].
In general, lacking an agreement between home and host jurisdictions on burden-sharing in case of crisis and resolution, national authorities are likely to fall back to territorial "ring-fenced" resolution. And indeed many national supervisors, notably including the British FSA, are making explicit their intention to do just that. The Basel CBRG has recommended a "middle ground" approach envisaging ring-fencing of systemically important functions performed by the bank, rather than the local legal entities. In their view this approach would limit moral hazard and promote market discipline by shifting a greater share of losses onto shareholders and other creditors. In fact, as noted by Hüpkes (2004), ring-fencing can operate as a particular form of detachment or ex-post separation of certain functions, regardless of their placement in branches or subsidiaries. This approach would require appropriate changes to national laws so as to facilitate continuity of key financial functions across nations.

[1] For a clear description of the agency problem, see Eisenbeis & Kaufman (2006).
[2] See for example European Commission & IMF (2009).

3.2 Ingredients of an effective resolution regime

It is now broadly agreed that in order to preserve financial stability and minimise the cost of bank crises, all countries should establish effective resolution procedures and that these procedures should be managed by banking supervisory authorities endowed with special powers rather than by judges in court. Special problems arise for cross-border banking groups that require supranational arrangements.

In their recent report (BCBS, 2009b), the special working group of the Committee of Basel Supervisors on cross-border bank resolution has listed the key ingredients that all resolution procedures should possess at national level in order to be effective. They notably include adequate administrative powers to deal with all types of financial institutions in difficulties (for a review of the main tools, see Box 3.2). National resolution authorities should also have legal authority to delay temporarily the operation of contractual termination clauses in order to complete the transfer of the contract to other entities or promote the continuity of market functions. And they are encouraged more in general to use risk mitigation techniques to enhance the resiliency of critical financial or market functions, e.g. enforceable netting arrangements, collateralisation and segregation of client positions. This end would be notably helped by encouraging the migration of derivative contracts to organised clearing platforms with central counterparty.

The Basel Supervisors also recommend the creation of a national framework to coordinate the resolution of legal entities of financial groups and financial conglomerates within each jurisdiction. The absence of a procedure for the coordinated resolution of the companies in a financial group limits the possibilities available to national authorities for crisis management and poses limits to the possible coordinated resolution of such cross-border groups. While other issues, such as the lack of time or inadequate information, may render any reorganising process complex, the absence of a coordinated resolution mechanism for the firms in financial groups may mean that the only alternative is a disorderly collapse or a bail-out.

In this connection, the Basel working group refers to the recommendations developed by UNCITRAL for the improvement of national group insolvency proceedings (to be finally adopted in 2010), which include the possibility of joint application and procedural coordination of

Box 3.2 - Special resolution tools

A*cquisition by a private sector purchaser*. When a financial institution is under stress, the desirable solution often is the sale of the institution as a whole to a strong private purchaser, ensuring continuity of services and ample protection of the interests of creditors and counterparties. To this end, the resolution authority needs to have power to conclude a private sale without the consent of shareholders, even if the sale conditions entail losses for them.
Assisted sale to a private sector purchaser. If the assets of the bank are difficult to value, the authorities can assist with a guarantee to the purchaser. Such a guarantee does not extend to shareholders or creditors, and therefore reduces moral hazard and preserves incentives for prudent risk management.
Bridge bank. The bank is split in two parts: a new licensed bank under the control of the banking authority to carry on the performing assets, including some or all of the deposits and other liabilities. The impaired assets and remaining portion of liabilities stay with the residual bank, which is subsequently closed and liquidated. If reorganisation of the bank fails, this technique allows operations to continue in the bridge bank, while the residual bank can be stripped of its charter and liquidated.
Partial transfer of assets, deposits and liabilities to a 'good bank'. When some of the bank's assets are doubtful, non-performing or difficult to value and it is difficult to find a buyer, the authority needs to have power to split the institution into two parts: a good part within easy-to-value or 'clean' assets and deposits, and a residual institution that will keep in its books all of the assets difficult to value or illiquid.
Temporary public control. As a last remedy, the government should have the power to take temporary public control (nationalisation) of the failing institution. This tool may be most appropriate where a significant amount of public funds are necessary to stabilise the failing institution, for example if the banking system is highly concentrated and there are few possibilities for a sale to a private purchaser.
Specific tools for banks' systemic functions (*). Banks and financial institutions perform some key systemic functions whose interruption might impair the good functioning of the financial system and eventually undermine financial stability. For this reason systemically relevant functions deserve particular protection. The preservation of their integrity and continuity can be obtained through the following specific tools:

a. the *replacement* of the failing institution as provider of systemically relevant functions to other financial intermediaries can reduce the impact of failure. The possibility to find an alternative provider depends on the nature of the function; it can work effectively for trading in securities, foreign exchange, money market instruments and deposit-taking. To find a replacement, one must consider the availability of alternative suppliers and the necessary infrastructure to exercise the function;
b. the *detachment* of systemically relevant functions consists of insulating the function from the winding down and permitting the performance of the function without disruption. The feasibility of detachment will depend on a number of factors, such as separability and transferability of the function and legal certainty. To facilitate resort to this tool, the authorities must consider developing contingency plans, including functions ring-fencing, which may help in realising the scope of this instrument by attaching strict conditions previously accepted by creditors. A statutory procedure to realise the detachment is the bridge bank;
c. the *immunisation* of the systemically relevant functions from failure may be achieved by collateralisation of counterparty claims, netting by reducing counterparty exposures from gross amounts to net values, carve-outs by statutory law or contractual agreements from insolvency law, and market structure measures providing strict rules of antitrust. Collateralisation and netting are commonly used to strengthen the financial infrastructure, such as the payments, clearing and settlement systems. A certain degree of immunisation can be achieved through statutory and contractual mechanisms.

(*) Hupkes (2004).

proceedings of different legal entities in a group, intra-group guarantees after insolvency proceedings have commenced, appointment of a single administrator, implementation of a joint reorganisation plan, extension of liability, or substantive consolidation (pooling of assets)[53].

Two further recommendations concern the reduction of complexity and advance planning for orderly resolution by the banks or financial conglomerate themselves. It is recommended that supervisors work closely with the management of financial groups to understand how group structures would be resolved in a crisis and, when they believe that these structures are too complex to permit an orderly resolution, they should encourage a reduction in complexity through regulatory and prudential requirements. In addition, all institutions of systemic relevance should be required to draw a contingency plan, "proportionate to the size and complexity of the

[53] For a clear and complete description of the UNCITRAL Legislative Guide on Insolvency Law, see Panzani (2009).

institution", to facilitate the rapid resolution or winding down in case of need. Such contingency plans should become a regular component of supervisory oversight.

Quite a few supervisory authorities and the Financial Stability Board (FSB, 2009) have now specifically endorsed these recommendations, which are likely to be adopted in the coming months. While they remain controversial within the financial community, they clearly offer a better alternative to straight regulatory interventions to modify the structure of financial conglomerates, as some governments are now starting to see as the sole viable solution.

Specific recommendations concern the supranational coordination of resolution proceedings. First of all, it is necessary that the different national authorities develop a clear understanding of respective responsibilities for supervision, liquidity provision, crisis management and resolution. They are encouraged to develop arrangements that allow for the timely and effective sharing of information both during the normal course of supervisory activities and on the occasion of crises. The Basel CBRG also recommends that, in order to promote better coordination among national authorities in cross-border resolutions, national authorities should consider the development of procedures to facilitate the mutual recognition of crisis management and resolution measures[54].

While representing considerable progress relative to the present situation, these recommendations do not resolve the critical issue of unitary management of resolution procedures for cross-border banks and financial conglomerates.

3.3 Legal hurdles in special resolution regimes

A critical feature in a special resolution regime is the balancing of the wide public interest to a solution that minimises systemic damage with the interests of private shareholders. Under existing legal systems, shareholders are only liable for any of the debts of the company up to the value of their capital stake. However, even when capital is largely or wholly depleted, their property rights confer upon them the right of ordinary and extraordinary decisions on company operations and activities. Special protections of property rights may be present in legal and even constitutional rules. Therefore, care is needed to ensure that actions that may be adopted under special resolution procedures either do not infringe these shareholders' rights or do so under appropriate exemptions from existing legal arrangements (Box 5).

In fair weather the room for conflict between the shareholders' interest in increasing the value of their shares and the depositors' interest in making sure that their money is safe, typically is small – and in the main is taken care of by prudential rules. Conversely, in a crisis situation, shareholders' interests may be in sharp contrast with those of depositors and the wider public. For instance, while depositors may want substantial injections of fresh capital, this would dilute shareholders, who are likely to resist. Actions needed to preserve the continuity of critical functions of an insolvent bank may well prejudice shareholders' interest in maintaining the unity of the business. If decisions are subject to the approval of shareholders, the needed actions may never be undertaken, to the greater damage of depositors and financial stability at large.

For this reason, many national resolution regimes contain provisions that suspend or limit shareholder rights. These measures can have various level of intrusiveness. Some suspend certain governance rights for a limited period, others have a deeper impact on shareholders.

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[54] UNCITRAL has adopted, on 1 July 2009, a Practice Guide on Cross-Border Insolvency Cooperation (UNCITRAL, 2009). The aim of the Guide is not to give any recommendation but to provide judges and stakeholders with information on existing practices in insolvency proceedings for cross-border coordination and cooperation.

Box 3.3 - Possible limitations of shareholders' rights*

Pre-packaged resolution. Authorities could require financial institutions to come to a private solution, instead of using their statutory resolution powers. Such agreements could set out contingency plans for circumstances in which the institution becomes financially troubled, including reorganisation measures, and a corporate structure that would facilitate a wind-down. For example, the bank's shareholders could approve a resolution giving the board power to bring in new investors rapidly without their approval. This option could be especially valuable for complex group structures in a cross-border context. The pre-packaged resolution would of course need to be drawn up in consultation with all relevant national supervisors. It should be noted, however, that such contractual arrangements can only be effective for early resolution, for afterwards they could be superseded by action under the insolvency law. For this reason, a pre-packaged solution is not a substitute for a statutory resolution regime.

Layering bank liabilities. An appropriate structuring of banks' liabilities would also facilitate private resolution of bank crises, and make the creation of a bridge bank workable. One suggestion that should be considered in this context is to require banks to issue minimum proportions to own capital of subordinated debt, convertible into equity when capital falls below or the CDS spread rises above certain pre-defined thresholds (Calomiris, 2000; Kay, 2009). The rationale is straightforward: the market will place a price on these issues that will be based on the estimated probability of conversion; and conversion will mean that bond-holders will share the risk of losing their investment, if the bank were to become insolvent, and shareholders will be diluted. Therefore, bond-holders would have a strong incentive to monitor the bank managers; and the latter would have a strong incentive to manage prudently, so as to obtain a low interest on their convertible bonds. Market discipline would thereby be strengthened. Achim Dübel has suggested that in general a tiered structure of bank (subordinated) liabilities would in practice be equivalent to pre-packaged resolution.

Temporary suspension of shareholders' rights. A temporary suspension of shareholders' rights to decide changes in the bank's capital structure could be provided by law in order to favour quick resolution of bank crises. A good example are the rules introduced in Germany in 2009 permitting to raise equity capital without a shareholder resolution and excluding subscription by existing shareholders.

Shareholders' divestiture. An extreme measure, provided by law, could be the total divestiture of shareholders in case of certain conditions. The bank and all its assets would be transferred to a trustee or receiver. This procedure would be a form of compulsory administration that ends the existence of the firm as a legal entity and extinguishes the shareholders' rights. However, if the bank still has positive net worth, shareholders should be paid an adequate compensation, which could consist of a monetary payment or take other forms that would give the former shareholders a claim on the future earnings of the bank.

Source: Hupkes (2009a).

For instance, in Belgium, the Banking, Finance and Insurance Commission can nominate a special inspector with extended powers to act. In France, the temporary administrator has full powers to administer and represent the institution. The German supervisory authority may suspend current management and appoint a temporary administrator but this leaves shareholder rights nearly unchanged. In Italy, when special administration is started the functions of the general meeting of shareholders are suspended.

In all these cases, the decisions relating to the capital structure remain within the competence of the shareholder meeting and require their support. As a consequence, restructuring measures would always need to be negotiated with shareholders. The notable exception is in the new Uk Banking Act, which empowers the authorities to act without the consent of the shareholders.

The content and scope of shareholder rights depend on legal traditions. Shareholder rights are more strongly founded in civil law in Europe than the Us. Us law requires the general meeting to approve only some decisions and leaves the division of powers up to the company; as a consequence, the board holds all powers that are not explicitly reserved to shareholders.

Under corporate law in most European countries, the shareholder meeting has all the powers not attributed by law to the board. Usually the firm charter or a shareholder resolution cannot assign to the board powers that are attributed to the shareholder meeting by the law. Shareholders must vote on various decisions relevant for crisis resolution, such as spin-offs and divisions, the increase or decrease of company capital, and the waiver of pre-emptive rights associated with an increase in capital funded by outside investors.

The hurdles created by this approach came into sharp evidence in the Fortis case, when Belgian shareholders objected to the government's decision to sell the group's activities to BNP Paribas and brought the case before the Belgian Commercial Court, maintaining that the sale required shareholder approval even if it had already been decided by contract. The Court of First Instance ruled that approval by shareholders was unnecessary; but the Court of Appeal decided the opposite and ordered a shareholders' vote. The shareholders voted unanimously against the sale, which was then renegotiated with the Belgian State and BNP, and was approved by a subsequent new meeting of shareholders.

Quite the opposite happened in the United States when Bear Stearns was acquired by JP Morgan Chase, and the structure of the contract explicitly excluded refusal by shareholders. In the AIG case the government was handed preferred stock issued without shareholder agreement under the New York Stock Exchange's Shareholder Approval Policy[55].

The Commission Communication on Crisis Management in the Banking Sector (European Commission, 2009) explicitly raises the possibility of adjusting Company Law Directives to balance shareholder rights with public interest so as to facilitate speedy interventions by the authorities to restructure a failing institution. The Second Company Law Directive (77/91/EEC) contains provisions mandating shareholder approval for any increase or reduction of capital as well as rules on shareholder pre-emption rights, which indeed may hinder or impede administrative resolution of an ailing bank. The Shareholders' Rights Directive (2007/36/EC) requires long leads for calling shareholder meetings which may slow down resolution decisions.

Another potential obstacle for effective administrative resolution of a failing bank is represented by legal actions by affected parties against the banking authorities' measures. Decisions taken by the banking authorities in the framework of insolvency proceedings are often challenged in court by shareholders or creditors, notably regarding the decision to commence insolvency proceedings or specific actions undertaken during the proceedings that may prejudge some interests. Even if banking authorities must be accountable for their actions, and the affected parties need to be legally protected, it is important to ensure that such actions do not undermine the efficiency of the insolvency procedures of the bank. Accordingly, the legal framework must specify the circumstances in which such challenges are legitimate and the remedies that affected parties may seek, in view of the need to preserve the certainty and credibility of the banking authorities' decisions.

Legal action against decisions in insolvency proceedings may actually consist of: *i)* judicial review of the banking authorities' actions assumed in the context of insolvency procedures and *ii)* legal action to obtain compensation from the banking authorities or their representatives, for damage caused by specific measures in the context of insolvency proceedings.

Judicial review of the banking authorities' decisions. In most countries the administrative law provides for court review of the measures taken by an administrative authority. The court will overturn their decision when the action is found to have exceeded legal authority. It is important to specify that the courts should not be able to stop resolution by the administrative authorities, but only review the legality of the procedure *post factum*. The review should not extend to the use of discretionary powers, except in case of manifestly gross mistake or abuse of power. In general, the court should not be allowed to substitute its own views for those of the administrative authority charged with managing the procedure.

[55] The preferred stock was issued without shareholder approval in application of an exception that can be invoked when the delay necessary to secure approval by shareholders would endanger the financial stability of the company.

Court reviews should be conducted rapidly and should not block the resolution proceedings. Where the actions of the banking authorities inflict damages on shareholders or other interested parties without adequate justification and it is impossible to restore the previous situation, the only effective remedy is compensation for damage; but legal rules may even allow for a close circumscription of the circumstances in which damages may be awarded.

Actions for damages against the banking authorities. Parties affected by the actions of the banking authorities in insolvency proceedings may also file a lawsuit for damages resulting directly from the banking authorities' behaviour, as a consequence of 'improper' conduct in exercising their powers. Most countries limit this kind of liability only to cases of negligence or bad faith. Again, a clear legal framework in such cases is essential for the effective functioning of resolution procedures.

3.4 European legal instruments for cross-border banking groups

The introduction of special resolution regimes based on common principles in all the member states, as advocated by BIS supervisors and as has been described, would greatly improve the situation but would not suffice for cross-border banking groups. The recent crisis has once again shown the need for a special framework applicable to large cross-border financial institutions.

Large cross-border financial institutions are typically organised as groups with branches and subsidiaries, often with very complex structures[56]. The parent can be itself an operating firm or a holding company. Branches are not separate legal entities but simply operative extensions of the parent bank, which remains fully responsible for their liabilities. Subsidiaries, on the other hand, are separate legal entities with their own capital and company organisation. They are connected to the head company through complex ownership structures, which determine how the different entities are run and who is responsible for their liabilities; often, they are also connected to the head company and other entities in the group by myriad credit and other business relations[57].

The main issue here arises from the fact that legal structures – which are decided for legal, accounting, tax and other considerations – often do not reflect the real functional organisation and decision-taking (Hüpkes, 2009b). Typically, IT systems, liquidity management, risk control and other key functions are fully centralised: centralisation and integration of key functions bring considerable benefits but may blur the understanding on the part of the board, auditors and market analysts of the group's actual risk and financial position. For this reason, sometimes host countries impose burdensome restrictions on branches because of their limited power over them in supervision and crisis resolution (Cerutti *et al*., 2005).

Thus, the real problem of large cross-border financial institutions is their complexity and lack of correspondence of legal and functional structures. Both factors greatly complicate the allocation of assets and losses in a crisis and make it close to impossible to implement a quick and orderly reorganisation or wind-down.

There are two approaches to managing the crisis of a cross-border financial institution with subsidiaries and branches in different jurisdictions: the universal and the territorial approach.

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[56] See Herring & Carmassi (2010) for a detailed analysis of corporate structures of large and complex financial institutions and the implications for financial stability.

[57] Lehman Brothers was composed by more than 2,000 separate legal entities with intricate legal and economic relationships.

Under the universal approach, the resolution is based on the law of the country where the insolvent institution has its parent firm. The decisions of the resolution authority in the principal jurisdiction are applied to all the companies of the insolvent group, including those located in foreign jurisdictions.

Under the territorial approach each country applies its own law to companies placed in its jurisdiction so that each insolvent branch or subsidiary is governed by local insolvency law. It requires a declaration of insolvency in each country where the insolvent firm maintains operating units.

Within the European Union, the Directive 2001/24/EC[58] embraces the principle of universality for branches but not subsidiaries. Moreover, the directive does not try to harmonise national legislation on reorganisation and winding up of credit institutions. It establishes that any reorganisation or winding up of a credit institution with branches in different states must be initiated and carried out under a single procedure, by the competent authority of the home country of the parent company, and that the effects of these measures must be mutually recognised. Subsidiaries in foreign jurisdictions are not covered by the directive. Moreover the directive contains a number of conflict-of-law rules applicable to set-offs, property rights, netting and repurchase agreements[59]. Finally the Winding Up Directive provides procedural rules only with reference to each legal entity within a cross-border banking group.

This limited field of application does not take into account synergies within a group which may be in the interest of creditors in case of restructuring. A group-based approach to winding up and reorganisation can foster survival of subsidiaries and even the entire group by facilitating asset transfers and the unitary resolution of claims and counterparty positions[60].

However, subsidiaries constitute the principal legal form of European cross-border banks, holding assets of almost €4.6 trillion; subsidiaries of third countries' credit institutions in Europe hold assets of about €1.3 trillion (ECB, 2010). In the absence of a group-based EU legal framework, their crises would be managed locally under host country law, even if in reality those subsidiaries are not self-standing autonomous units. As a consequence, host countries intervene

[58] Directive 2001/24/EC of the European Parliament and of the Council on the reorganisation and winding up for credit institutions.

[59] In particular, under Article 10(2)(c), the law of the home member state shall determine the conditions under which set-offs may be invoked. Under Article 23 of the Directive "the adoption of reorganisation measures or the opening of winding up proceedings shall not affect the right of creditors to demand the set-off of their claims against the claims of the credit institution, where such a set-off is permitted by the law applicable to the credit institution's claim". This provision "shall not preclude the actions for voidness, voidability or unenforceability of legal acts detrimental to all creditors". Article 24 of the Directive establishes that "the enforcement of proprietary rights in instruments or other rights in such instruments the existence or transfer of which presupposes their recording in a register, an account or a centralized deposit system held or located in a Member State shall be governed by the law of the Member State where the register, account, or centralized deposit system in which those rights are recorded is held or located". Article 25 provides that "netting agreements shall be governed solely by the law of the contract which governs such agreements". Without prejudice to the above-referenced Article 24, "repurchase agreements shall be governed solely by the law of the contract which governs such agreements" (Article 26), and "transactions carried out in the context of a regulated market shall be governed solely by the law of the contract which governs such transactions"(Article 27). The provisions about set-off and netting should be read in conjunction with Articles 1, 2 and 7 of Directive 2002/47/EC of the European Parliament and of the Council of 6 June 2002 on financial collateral arrangements (Financial Collateral Directive), which requires member states to ensure that a close-out netting provision of a financial collateral arrangement (or an arrangement of which a financial collateral arrangement forms part) to which, inter alia, a credit institution is party can take effect in accordance with its terms notwithstanding the commencement or continuation of winding up proceedings or reorganisation measures in respect of the credit institution.

[60] Very few countries (e.g. Italy) have specific rules for reorganisation and winding up proceedings dedicated to banking groups.

to impose capital and other requirements on the subsidiaries under their control: but these measures would not preserve the subsidiaries from failure, should the parent company go under. The perception that their destiny depends on the parent company would thus make it impossible for the host country to impede a confidence crisis, or a run on its banks, as a result of events unfolding out of its jurisdiction and effective control.

3.5 A new EU framework for reorganisation of cross-border banking groups

The reorganisation of a cross-border banking group involves the application of resolution measures to group entities located in different jurisdictions. To realise a group-based approach, a common framework for coordinated action by the national authorities is needed, based not only on common tools in the member states but also agreed principles for the coordination of all actors and actions affecting the financial group (Hüpkes, 2009c)[61].

In principle, such a European solution can take two forms: fully consolidated resolution for all the entities in a group by the authority of the home country of the parent company, with appropriate arrangements for the delegation of powers by the countries hosting subsidiaries; or a fully centralised procedure under new legal powers entrusted to a new body created by EU legislation. We will argue that the best way to go is a pragmatic combination of elements of the two approaches, keeping to a minimum required changes in existing arrangements and building upon the recent Commission proposal for the reform of supervision.

In their recent consultation paper on the issue, the European Commission has recognised the need for a common framework "that will in future enable authorities to stabilize and control the systemic impact of failing cross-border institutions" (European Commission, 2009), but has not indicated which way to go. It has however put forth some common principles that broadly follow those of the BIS supervisors. In particular, it has stressed the need for all national supervisors to have adequate tools to identify problems in banks at a sufficiently early stage and intervene decisively to restore the health of the institution or wind it down. It has also underlined the importance of limiting the fall-out from failure of a cross-border bank on other banks and the financial system as a whole, among other things by finding solutions to the inconsistencies arising from territorial-separate entity approach to insolvency. And it has advocated the establishment of appropriate arrangements to share the fiscal cost of resolution[62].

In fact, all the elements of a solution at the EU level are there; they only need to be picked up and brought together. As already explained crisis prevention, reorganisation and liquidation would all be part of a resolution procedure managed for each banking group in all countries by the parent administrative authority with adequate powers.

The first step of resolution should be early mandated action by bank supervisors ensuring that, as capital falls below certain thresholds, the bank or banking group will be promptly and adequately recapitalised (as discussed in Chapter 4). If capital continues to fall national supervisors should have the power to intervene and impose reorganisation measures.

While full harmonisation of national laws is clearly not feasible, a revised Reorganisation and

[61] For a proposal of a collegial approach to bank resolution, see Mayes et al. (2007) and Garcia et al. (2009).

[62] The Commission staff working document, accompanying the Communication on the cross-border crisis-management in banking sector, focuses on the impact assessment and takes into consideration all the aspects of these problems.

Winding Up (framework) Directive could require the member states to adapt their legal system by introducing the required common resolution tools and resolving the legal hurdles that have been described (Box 3.2)[63].

Moreover, as recommended even by the Basel Supervisors (BCBS, 2009b), the new Directive should require the member states to establish a national framework for the resolution of legal entities of financial groups and financial conglomerates within each jurisdiction. The absence of a coordinated resolution mechanism for firms that are part of financial groups may entail that the only alternative is a disorderly collapse or a bail-out[64]. In this connection, policy-makers should take into consideration the recommendations developed by UNCITRAL for the improvement of national group insolvency proceedings[65].

In this spirit, a further modification of the Winding Up Directive should extend the 'universal' principle of resolution of cross-border banking groups not only to branches, but also subsidiaries that, besides not enjoying managerial autonomy, cannot effectively stand alone in case of default. Full universality across both branches and subsidiaries would better reflect the reality of integrated businesses; it would correspond to the already established principle of consolidated group supervision; it is essential in order to create an integrated system of deposit guarantee and mandated action for reorganisation and winding up[66].

The key principle is that subsidiaries that do not constitute autonomous entities, and therefore could not overcome on their own the failure of the parent bank, should be treated as branches when the institution has to be rescued under the EU system of mandated corrective action or dissolved. In other words, subsidiaries that are de facto branches should be treated as such also in case of insolvency, as they are in the normal conduct of business of the bank when things go well. Separate resolution of subsidiaries would only be allowed to the extent that they would be really independent of the parent company, would be unaffected by the group's liquidation and would not cause danger to the group's survival in case the subsidiary were wound up. In this way, economic function and legal form could be reconciled; the incentives to maintain and operate a complex structure without functional justification would be greatly reduced.

3.6 A new EU liquidation framework for cross-border banking groups

Consistent with the framework that has been developed for the resolution of cross-border banking groups within the EU, when the reorganisation of the bank or group in crisis fails, a bridge bank should be created to ensure continuity of 'sound' banking operations. In that precise moment the residual bank, stripped of its banking charter, should enter liquidation; from that moment

[63] For the introduction of "A resolution mechanism for financial institutions", see also the Recommendation 16 of "Financial Reform. A framework for financial stability" by the Group of Thirty (G-30, 2009).

[64] Italian legislation already contains a definition of banking group; in particular Article 60 of the 1993 Banking Law provides: "A banking group shall be composed of either of the following: *a)* an Italian parent bank and the banking, financial and instrumental companies it controls; *b)* an Italian parent financial company and the banking, financial and instrumental companies it controls, where such companies include at least one bank and the banking and financial companies are of decisive importance, as established by the Bank of Italy in compliance with the resolutions of the Credit Committee."

[65] See Chapter 3, Paragraph 3.2.

[66] Garcia *et al*. (2009) consider that it would also be necessary to agree on a common definition of insolvency. While this would obviously be of help to mark the beginning of liquidation, it is not always strictly necessary under a system – like the one existing in Italy – whereby the administrative resolution authority doesn't need to formalize the existence of a situation of insolvency in order to restructure or sell in pieces a failing institution.

onwards all residual rights of creditors and shareholders may be claimed only against the residual bank – whose assets will include the price paid for the assets transferred to the bridge bank. An administrator, appointed by the banking supervisors in charge of the reorganisation, should then take full legal control of the residual bank and manage the liquidation in front of eligible national courts, in accordance with the principle of equal treatment and applicable rules on claim priority.

In order to implement these principles, it is necessary to amend the Winding Up Directive to include the procedures for the creation of the bridge bank and hence the start of liquidation, the criteria and safeguards for the transfer of assets and claims to the bridge bank, the immediate withdrawal of the banking licence for the residual bank, and the duties of the administrator in charge of the liquidation. The administrator should be appointed by the EBA based on a proposal by the College of supervisors.

The primary purpose of the liquidation would be to preserve and optimise the residual bank assets for the satisfaction of creditors, and residual claims by shareholders. Accordingly, the liquidation discipline should include rules for: a suspension of all the claims against the bank ('moratorium'); the sale of the assets in an orderly and cost-effective manner; the distribution of the income to the various classes of creditors in an equitable and transparent manner, in respect of their priority; the immediate enforceability of close-out netting and collateral arrangements relating to financial transactions.

Local courts will remain charged with claims of local creditors and will resolve them on the basis of the local jurisdiction. The UNCITRAL's Practice Guide on Cross-Border Insolvency Cooperation already provides an effective framework for court collaboration[67].

3.7 Living wills

In order to make resolution possible with limited repercussions on systemic stability, all European banking groups would be required to prepare and regularly update a document detailing the full consolidated structure of legal entities that depend on the parent company for their survival, and a clear description of operational – as distinct from legal – responsibilities and decision-making, notably regarding functions centralised with the parent company.

The document should also include contingency plans describing possible recovery and winding up arrangements, also updated on an ongoing basis, taking account of key factors such as size, interconnectedness, complexity and dependencies (see BCBS, 2009b)[68]. Reorganisation and winding up arrangements should be conceived as a menu of options covering such things as: all the claims on the bank and their order of priority; possible segregation arrangements of certain functions to be maintained in case of resolution; ex-ante commitments to conversion of contingent capital into common equity; powers of management to bring in new investors quickly with no need of shareholders' approval; indication of which assets or divisions or subsidiaries might be sold to third parties in case of distress; group-wide contingency funding plan; the management strategy to de-risk the bank business in a short time and to deal with the failure of their largest counterparties (FSA, 2009b).

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[67] The Guide discusses cooperation in cross-border cases and is based upon a description of experience and practice. Even the "Guidelines applicable to Court-to-Court communications in cross-border cases", adopted in June 2001 by the American Law Institute in association with the International Insolvency Institute, can provide further guidance to create a cooperation framework.

[68] On the role of living wills as catalyst for action, see Avgouleas *et al.* (2010).

The document should be made available to supervisors and the EBA, but not to the broad public. This information disclosure requirement would be part of the deposit guarantee contract that cross-border banks covered by the EU deposit guarantee scheme would need to sign with the new European Deposit Guarantee Agency (see Chapter 2 and Chapter 4).

In preparing their living wills, banks would remain fully free to decide the structure and organisation of their business, notably regarding the decision to set up branches or subsidiaries in the foreign jurisdictions where they operate. A legal structure that would greatly facilitate consolidated resolution is offered by the European Company (*Societas Europea*). The SE is a public-limited liability corporation, regulated partly by EU law[69] and partly by the law of the member state, which allows a cross-border group to operate throughout the Union as a unitary group organised with a parent company and operational branches[70].

Even if this kind of *ex-ante* planning remains controversial within the financial community[71], it must be remembered that a number of regulatory authorities in the EU have already decided to impose such obligation on banks under their jurisdiction, notably including the Uk Financial Services Authority (FSA, 2009b)[72]. A recommendation to move in this direction has also been adopted by the Financial Stability Board (FSB, 2009 and FSF, 2009).

Improved disclosure through living wills would contribute to tackle the opacity of banks corporate structures, whose complexity might hamper effective supervision and resolution. The misalignment between legal forms and economic functions makes it extremely difficult for supervisors to have a clear and comprehensive picture of banks activities and for resolution authorities to disentangle functions in case of crisis and failure.

As has been mentioned (Box 3), the Basel working group on cross-border bank resolution (BCBS, 2009b) has suggested that full consolidation could be accompanied by partial ring-fencing to protect systemically significant functions in a crisis, but not the financial institution itself, with positive effects on market resiliency and confidence. However, extending this approach to subsidiaries and, as some have suggested, even branches of foreign banks in the host jurisdiction, would utterly undermine the universal solution, and should be rejected.

4. New supervisory arrangements at EU level

The financial crisis has confirmed that there is neither an optimal nor a superior financial supervisory structure. A wave of reform of supervisory models has swept through many countries in the last 20 years, either leading to a 'single regulator' model or to a regulatory architecture by objective.

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[69] The *Societas Europea* (Se) is regulated by the Regulation 2001/2157/EC and the Directive 2001/86/EC.

[70] See Dermine (2006) for a full analysis of the decision to expand banking activity abroad through branches or subsidiaries as against through the creation of a European Company (*Societas Europea,* SE) and a review of the case of the Scandinavian bank Nordea, which is not a SE yet because of financial stability and tax reasons.

[71] As affirmed by Ackermann (2009a), "detailed 'living wills'… that outline elaborate winding-down scenarios would not only be very theoretical, but would also lead to inefficient corporate structures that create trapped pools of capital".

[72] Under legislation now before Parliament, the FSA will require banks to compile two distinct documents: the recovery plan and the resolution plan. The first one will set out the firm's plan to respond to severe distress and should contain: i) a capital recovery plan and ii) a liquidity recovery plan. Once the bank moved into resolution, it would be for the supervisory authorities to decide the appropriate strategy on the basis of the resolution plan. The latter would explain the relationships between the different entities within the group and contingency responses in case of interruption of those relationships. The resolution plan will also be required to offer a detailed assessment of the potential obstacles to the use of resolution tools by the authorities. The bank will also need to identify the market and payment infrastructures to which they are connected and plan to disconnect itself from those systems in an orderly manner (FSA, 2009b).

These reforms were justified by the blurring of boundaries between intermediaries, which undermined the traditional regulation by sector of activities (banking, securities, insurance)[73] – in spite of some important persisting differences across sectors (Half & Jackson, 2002). At all events, no supervisory structure emerged as a clear winner in confronting the crisis; in the United Kingdom, coordination failures between the FSA and the Bank of England played a role in scaring Northern Rock depositors.

As was to be expected, regulatory and supervisory arrangements mainly organised along national lines proved especially inadequate in tackling the cross-border dimensions of regulation and supervision. Within the European Union the crisis has exposed large loopholes in the allocation of supervisory tasks and the absence of rules for burden-sharing in case of crisis of a large EU cross-border banking group. It has become all too clear that cross-border banking, while bringing remarkable benefits, also poses formidable challenges for financial stability.

Indeed, the EU authorities have been confronted with the 'trilemma' on how to reconcile the three objectives of financial stability, national supervision and integrated financial markets[74]. Only two of the three objectives may be achieved at the same time: with integrated financial markets financial stability requires at least some centralisation of supervisory powers for crisis prevention and crisis management at the EU level. However, not only have supervisory powers on large cross-border EU banking groups not been centralised at the EU level, but the allocation of tasks between home and host country authorities has created significant fragmentation in oversight.

A key principle introduced by the Second Banking Directive is home country control. In compliance with this principle, the Capital Requirements Directive (CRD, 2006/48/EC) assigns responsibility for the consolidated supervision of 'credit institutions', including branches and subsidiaries, to the home country authority; host country authorities supervise 'on a solo basis' locally incorporated subsidiaries and have limited oversight of branches (regarding liquidity, see Article 41 of the CRD)[75]. Supervisory arrangements mirror the allocation of tasks between the home and host country regarding deposit guarantee and winding up and reorganisation of credit institutions (see Table 4.1).

The architecture of supervision follows the legal structure of banking groups; however, Article 131 of the CRD provides that the host-country authority may choose to delegate its responsibility for the supervision of subsidiaries to the home-country authority. When the host-country supervisor delegates supervision, then the home-country supervisor has exclusive oversight over the entire group, both on consolidated and solo basis (Garcia *et al.*, 2009). Delegation has the great merit of permitting fully consolidated supervision, but encounters formidable challenges due to the conflicts of interest between the home and host authorities, as will be described.

The current structure of EU cross-border supervision entails a misalignment in incentives between home- and host-country supervisors when dealing with a faltering financial institution (Eisenbeis & Kaufman, 2006; Herring, 2007). In particular, host countries are exposed to the impact of a crisis of local entities of foreign banks without adequate instruments of defence, in regard of

[73] See De Luna Martinez & Rose (2003).

[74] On the trilemma of financial stability, see Schoenmaker (2009).

[75] However, Article 42a of the Capital Requirements Directive 2006/48/EC, inserted by Directive 2009/111/EC, has strengthened coordination and information-sharing mechanisms between the home and host authorities of systemically significant branches: host country authorities may request to the home country authority that a branch of a credit institution be considered significant on the basis of the deposit share of the branch in the host country (if higher than 2%); the impact of closure or suspension of operation of the branch on market liquidity and the payment, clearing and settlement systems in the host country; the size and the importance of the branch in terms of the number of clients within the banking or financial system of the host country.

Table 4.1 - Allocation to home and host country of supervision, deposit insurance and resolution functions in the European Union

	Prudential Supervisor	Deposit insurance regulators	Reorganisation and winding up authority
Banks locally incorporated			
Parent banks authorised in home country	Home country authorising parent bank (consolidated supervision – solvency)	Home country	Home country
Subsidiaries of parent banks headquartered in another EU country	Home country authorising parent bank (consolidated supervision – solvency) Host country authorising the subsidiary ('solo' basis)	Host country	Host country(*)
Branches			
Branches of banks headquartered in another EU country	Home country of head office (consolidated supervision – solvency) Host country (liquidity)	Home country (possibility of supplementing the guarantee by host country)	Home country

(*) While this is the formal legal arrangement, in practice the home country will also intervene in view of its responsibility for consolidated supervision.
Source: Mayes *et al.* (2007).

both locally incorporated subsidiaries and local branches (which do not even have a separate balance sheet and income statement, being included in the parent company's accounts). The vulnerability of host countries may be higher with regard to branches, since the host supervisor is unable to ascertain the real situation of the parent bank; the Icelandic crisis has shown vividly that the presumption of support by the parent company in case of need may be illusory.

Home/host conflicts are exacerbated by asymmetries in financial resources and human capital of supervisors, the financial and legal infrastructure, and above all risk exposures (Herring, 2007). Risk exposure for the host country is higher when the foreign subsidiaries is large within the country, but relatively small or functionally unimportant for the parent bank and the home country, as is typically the case in small countries with a strong presence of foreign banks. The agency problem is exacerbated by cross-border banking groups typically centralising key corporate functions (e.g. liquidity, IT, large corporate lending, etc.) – which is not an accident but a main source of competitive advantage related to size and globalised operations.

In case of crisis of a cross-border banking group, this structure of incentives entails strong home-country bias by national supervisors, which will give priority to national interests with little regard for repercussions in the host country. Home-country bias may also entail the promotion of national champions internationally (Eisenbeis & Kaufman, 2006), so that oversight of foreign operations tends to become more lenient. This may lead in turn to the parent bank undertaking excessive risks in its foreign operations with little effective oversight both by the home and the host authority. Competition within the EU market would also be distorted.

The division of labour in the supervision of cross-border groups is strictly related to the fiscal responsibility for losses generated by bank failures. Lack of burden-sharing arrangements is a crucial factor exacerbating the agency problem between home and host country authorities; without clear commitments each country will tend to follow a beggar-my-neighbour policy. For instance, in the Fortis crisis the memorandum of understanding (MoU) between the supervisory authorities was swept aside as soon as the bank's survival came into question, precisely because there was no agreement on burden-sharing. While the Belgian authorities were separately negotiating the sale of the bank's main assets to a French banking group, the Dutch authorities did not hesitate to seize all banking and insurance assets within their jurisdiction and break up the group.

4.1 Commission proposals for a new EU supervisory structure[76]

The new supervisory structure proposed by the European Commission, now under consideration by Council and Parliament, may have a strong bearing on bank resolution regimes in the EU, although they do not modify national bankruptcy systems *strictu sensu*.

On top of the new structure will be the European Systemic Risk Board (ESRB), which will give general risk warnings and recommendations on specific risks. It will specify the procedures to be followed by the European Supervisory Authorities (ESAs) – part in turn of the European System of Financial Supervisors (ESFS) – to act upon its recommendations. The ESAs from their side should use their powers to ensure the timely follow-up to recommendations addressed to one or more competent national supervisory authorities.

All new legislative measures are regulations, hence they will be directly applicable, with no need of transposition into national law. A political agreement on the different measures was reached in the EU Council in December 2009 under the Swedish presidency. The EU Parliament is currently considering the proposals but intends to go much further.

The ESRB will only be consultative but will supposedly derive its authority from its reputation and expertise. It will be run by the ECB and be largely composed of EU central bankers, with limited participation of supervisors, and one representative of the Economic and Financial Committee. The ESAs, on the other hand, will have legal personality, with power to impose binding agreements to effectively coordinate supervision of cross-border groups, and will be composed of national regulators and supervisors. An important limitation in its powers, however, is that such decisions could not impinge upon the fiscal responsibilities of the member states, hence the powers to liquidate a bank would remain at the home country level, in cooperation with the respective host countries.

The changes which are being discussed in the United States (House Wall Street Act of 11 December 2009) are different from the EU since they assign macro-prudential oversight mainly to the Secretary of the Treasury, who will chair the Financial Services Oversight Council (FSOC), bringing together the different supervisory authorities and the Federal Reserve. The chair of the FSOC could make a systemic risk determination with respect to a specific financial company, and could order that it be placed under resolution. Excess dissolution costs would be paid by a Systemic Dissolution Fund (SDF) run by the Federal Deposit Insurance Corporation (FDIC)[77].

The role of the ESRB. The ESRB will be at the centre of the new EU oversight system, even if this body will only be consultative. Its twelve-member Steering Committee is composed of the seven ESCB members (including the President of the ECBB), the three chairs of the European Supervisory Authorities, a member of the EU Commission and the President of the Economic and Financial Committee (EFC). The dominance of the central bankers in the governance of the new structure is even clearer in the General Board of the ESRB, which comprises, apart from the Steering Committee members, all central bank governors of the EU-27.

The ESRB will have its seat in the ECB and will rely on the analytical and administrative services and skills of this well-reputed and established institution. Thus, de facto it will be controlled by the ECB. The Finance Ministers have only one representative in the ESRB. Hence, notwithstanding the declaration of the Finance Ministers that they want to be in the driver's seat, the power on top of the new EU oversight system will reside with the central bankers.

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[76] This section was prepared by Karel Lannoo.

[77] For a comparison of the EU and US proposed reforms, see Schinasi (2009) and Lannoo (2010).

The ESRB should define, identify and prioritise all macro-financial risks; issue risk warnings and give recommendations to policy-makers, supervisors and eventually to the public; monitor the follow-up of the risk warnings, and warn the EU Council in the event that the follow-up is found to be inappropriate; liaise with international and third country counterparts; and report at least bi-annually to the EU Council and European Parliament.

The ESRB should have access to all micro-prudential data and indicators. It could request the ESAs to provide information in summary or collective form. Should this information be unavailable (or not made available), the ESRB will have the possibility to request data directly from national supervisory authorities, national central banks or other authorities of member states.

Crisis management is not mentioned as a task of the ESRB, but of the ESFS. This is a departure from the ad hoc agreement reached in the European Council in October 2008, whereby the President of the ECB (in conjunction with the other European central banks) formed part of a financial crisis cell, with the President of the Commission, the EU Council and the Eurogroup. The question thus remains to what extent the ESRB will be involved in micro-prudential matters. Would it, as the US Financial Services Oversight Council, be involved in recommending that a specific financial company poses a systemic risk, and order it to be broken up? This seems unlikely for the time being, given the sensitivity of member states with regard to fiscal powers, but is something that will need to be addressed sooner rather than later.

The role of the EBA. Under the proposed Regulation 2009/0142, the European Banking Authority will replace the Committee of European Banking Supervisors (CEBS), with a modified statutory role and broader powers in regulation and supervision at EU level, with also affects bank crisis resolution.

The EBA will be responsible for:

a. moving towards the realisation of a single rulebook and its enforcement, by developing technical implementation standards that will be given legal enforceability throughout the Union by Commission endorsement;
b. ensuring harmonised supervisory practices and peer review of national authorities;
c. strengthening oversight of cross-border groups, including by participating in supervisory colleges (albeit only as 'observer', see Article 12 of the proposed regulation establishing the EBA);
d. coordinating EU-wide stress tests to assess the resilience of financial institutions to adverse market developments;
e. establishing a central European database aggregating all micro-prudential information; and
f. ensuring a coordinated response in crisis situations.

The proposed reforms will not modify the current emphasis on home country control but should allow it to function better. The EBA will formally participate in the Colleges of supervisors of cross-border groups, albeit only with observer status – an element of weakness that can yet be corrected; it will have to ensure that Colleges of supervisors effectively function as colleges[78] and that information sharing works and, in case of disagreements, it will have formal powers to mediate between supervisory authorities. It will conduct regular peer reviews of supervisors with the goal of enhancing consistency in supervisory outcomes (Article 15). And under Article 13 of the proposed regulation, it "shall facilitate the delegation of tasks and responsibilities between competent authorities": this provision clearly applies to the delegation of powers for crisis resolution.

In emergency situations, the EBA shall facilitate and coordinate the actions taken by the

[78] Begg (2009) offers an in-depth review of the pros and cons of the college approach. On the functioning of Colleges, on the whole, he is fairly critical of present arrangements.

relevant national supervisory authorities, and may also take decisions requiring national supervisory authorities to take action to remedy an emergency situation (Article 10). The power to determine the existence of an emergency situation will be in the hands of the EU Council, following consultation with the Commission, the ESRB and the ESAs: a cumbersome procedure that may be inconsistent with the rapid decisions required in emergency – the EBA should be allowed to act independently in this regard, we believe. The EBA will also be charged with coordinating EU-wide stress test and, to this end, it will establish a central European database, thus being at the centre of information gathering and dissemination.

Article 10.2 provides that the EBA can call on national authorities to take action to address "adverse developments that may jeopardize the orderly functioning and integrity of financial markets or the stability… of the financial system"; in case the competent authorities failed to comply, the Commission proposal had also envisaged, under Article 10.3, that the EBA could directly address an individual decision to a financial institution "requiring the necessary action to comply with its obligations… including the cessation of any practice". These powers would be essential in resolving banking crises, but were eliminated in the ECOFIN compromise of December 3, 2009. In its draft report, the competent European Parliament Committee has restored the Commission text and has strengthened the role of the EBA, allowing it to appeal before national courts against decisions taken by national authorities.

The creation of the ESRB and the ESAs are a big step forward towards a more unified European regulatory and supervisory system, also for bank resolution regimes. However, many questions remain unresolved and can only gradually find an answer, as the new structures emerge. The biggest problem ahead will be to find a proper balance between the new European entities and the home and host country powers and structures. Some further steps forward feasible within the present Treaty structure are outlined below.

4.2 Supervisory powers for resolution of pan-European banks

Following the recent crisis, many countries advocated full ring-fencing of financial organisations operating within any given jurisdiction, which would then be subject to host authorities' full regulatory and supervisory powers in banking crisis resolution, as the only practicable solution. Host country powers would notably include the possibility to ring-fence the assets of branches and subsidiaries, or the option for the host country to impose the establishment of locally incorporated subsidiaries with own capital and liquidity, and adequately separate operating functions ('subsidiarisation')[79] – something that runs up against freedom of establishment but in practice has been happening already in jurisdictions with a large presence of foreign banks, e.g. in Eastern Europe.

This approach has started to look attractive also to the authorities in the main financial centres, most notably the Uk Financial Services Authority (FSA, 2009a) on grounds that this is the only solution in the absence of a complete EU framework. However, this approach obviously entails significant efficiency losses of reduced integration of banking and would damage the EU single market.

[79] Strauss-Kahn argued that since "major banks manage their funding and lending risks globally… [if they]… have to lock up pools of liquidity in every national jurisdiction, their capacity for intermediating capital across borders could fall, and their charges for doing so rise, to the detriment of the world economy" (Dominique Strauss-Kahn, "Nations must think globally on finance reform", *Financial Times*, 18 February 2010).

A viable alternative would be to maintain the current allocation of powers between home and host authorities, but concentrate certain supervisory powers at EU level, building upon the Commission proposals that have been described.

Strengthened obligations to cooperate at EU level in information sharing are already contained in the revised CRD (see Directive 2009/111/EC) and the proposed regulation for the establishment of the EBA. The revised CRD requires that the consolidating supervisor shall establish Colleges of supervisors to facilitate the exercise of powers in Articles 129 (information gathering and dissemination, and also planning and coordination of supervisory activities "in preparation for and during emergency situations") and 131 (delegation and written coordination and cooperation agreements), under guidelines for the operation of Colleges that will be issued by the EBA[80].

However, these coordination arrangements still seem to fall short of what is needed in case of crisis of a cross-border group, as was vividly shown by the fate of MoUs when crisis struck pan-European groups like Fortis. The key weakness in MoUs is that they do not provide host countries with strong and credible guarantees that their national interests and stakeholders will be treated fairly by the home country authorities, and that domestic financial stability will not be compromised by decisions taken abroad which they would be unable to influence.

Indeed, what is needed is arrangements that will make it possible to exploit the benefits of fully consolidated ('universal') supervision and resolution by the parent company's authorities and at the same time reassure host country authorities that their interests are fully and fairly taken into account, so that delegation of powers to the home country authority becomes acceptable. Otherwise, consolidation and delegation would not be acceptable: for the simple reason that the home country supervisor would be responsible for financial stability in the host country without being accountable to the host country government and taxpayers (Eisenbeis & Kaufman, 2006).

What is needed is an integrated system of supervision, deposit guarantee, crisis management and resolution capable of providing the host country with adequate protection and participation in the 'universal' consolidated supervision and resolution procedure. This system has three procedural building blocks: a new EU Deposit Guarantee Agency (EDGA) handling deposit guarantee for cross-border banking groups; a private contract between EDGA and guaranteed banking groups specifying their commitments and obligations on disclosure and living wills; an EU system of mandated corrective action for cross-border banking groups in difficulty effectively banning supervisory forbearance.

4.3 A new framework for supervision

The new European System of Financial Supervisors envisages a network of national and EU supervisory authorities, leaving supervision of financial institutions at the national level and entrusting coordination of cross-border groups to strengthened Colleges of supervisors led by the parent banks' home authorities. This solution is inadequate because it leaves ample supervisory gaps and room for conflict between national supervisors, and thus great uncertainty as to who is responsible for doing what. A step forward is needed.

[80] While the establishment of Colleges is compulsory, their decisions are not binding. The Omnibus Directive (2009/0161), proposed by the Commission in October 2009, amends Article 131a(2) to provide that EBA shall develop draft technical standards for the operational functioning of Colleges, and submit those draft technical standards to the Commission by 1 January 2014.

All pan-European banking groups should be supervised, subject to mandated corrective action and resolved on a consolidated basis under the law of the parent company. The universal principle should cover foreign branches and subsidiaries – with the sole exception of subsidiaries that could demonstrably survive as stand-alone entities even in case of dissolution of the parent company.

Under this new EU framework, supervision, mandated corrective action and resolution would still be managed by the strengthened Colleges of supervisors, under the leadership of the parent company supervisor: but it would the responsibility of the EBA to supervise the procedure, sanction all key decisions, resolve disputes, and ensure fair treatment of all interested parties. Colleges would bring all of their proposals to the EBA, which would give them legal power with its own decisions: including the start of mandated corrective action and forced recapitalisation, changes in management, selling assets, branches and segments of activity, or set up a bridge bank, and the resolution of disputes that may arise between national supervisors and individual stakeholders.

In this manner the benefits of using existing supervisory structures would be combined with the elimination of distorted incentives and conflicts of interests between national supervisors. Placing the EBA at the centre of the system of universal resolution thus is critical for its acceptance: this is the crucial step in order to sell centralised universal resolution to all stakeholders.

The proposed Omnibus Directive (2009/0161) already envisages that the consolidating supervisor shall inform the EBA of the activities of the Colleges of supervisors, including in emergency situations, and communicate all the information of particular relevance for the purposes of supervisory convergence. At all events, it seems also appropriate to have in the Colleges a full member designated by the EBA, as has been mentioned.

This new supervisory structure should have full power to manage mandated action and resolution of cross-border banking groups on a consolidated basis (Chapter 3). A new European Deposit Guarantee Agency should be set up as an EBA arm entrusted with the management of a new European Deposit Guarantee Fund, based on the principles and rules outlined in Chapter 2. Protection of depositors at national banks with no significant cross-border activities could remain with national systems, which of course would need much less funds than today.

All European deposit-taking financial institutions with significant cross-border deposits basis would be required to join the EU deposit guarantee scheme and, in order to do so, would be required to sign a contract with EDGA committing them to provide supervisors and the EBA with full information on group organisation, functional lines and counterparties – including 'living wills' detailing how the various creditors and stakeholders would be treated in case of failure (see Chapter 3).

4.4 A European system of Mandated Corrective Action

As has been argued, a system of mandated corrective action by supervisors acting early as banks under their surveillance show emerging signs of undercapitalisation and funding difficulties, is key to contain moral hazard created by the deposit guarantee and protect the guarantee fund. Mandated early action is also of the essence to inhibit regulatory forbearance.

The key issue is one of incentives. Benston & Kaufman (1988) argued that the introduction of a system of Structured Early Intervention and Resolution (SEIR) is necessary in order to make deposit insurance incentive compatible. Their model is based on capital thresholds, so that as capital ratios decline the regulator is allowed or obliged to impose corrective measures, which become progressively more pervasive with falling capital ratios. Reorganisation and liquidation are mandatory when capital falls below critical thresholds.

This was the model introduced in the United States for depository banks in 1991 with the Federal Deposit Insurance Corporation Improvement Act: a system of Prompt Corrective Action (PCA) for insured depository institutions was created to "resolve the problems of insured depository institutions at the least possible long-term loss to the Deposit Insurance Fund"[81]. As shown in Table 4.2, the PCA system introduced five 'capital zones' for insured depository institutions: well capitalised, adequately capitalised, undercapitalised, significantly undercapitalised and critically undercapitalised. The capitalisation ratios are calculated both on risk-adjusted and unadjusted basis. Corrective measures are in part compulsory, in part left to the authorities' discretion, and include a broad range of requirements and restrictions (e.g. suspension of dividend payments, restriction of asset growth, compulsory recapitalisation). When a bank is critically undercapitalised, authorities are obliged to close it, and this happens well before capital is depleted.

Following the US example, under the deposit guarantee system that we have outlined, the EBA should have full powers, and indeed be obliged to act to impose changes in management, recapitalisation and asset disposals of cross-border banks as capital falls[82]. Action must start well before net worth becomes negative, based on predetermined automatic triggers. It should be stressed that without mandated corrective action, rather than purging the system from moral hazard, the deposit guarantee will inevitably end up rescuing failing deposit-taking institutions, the fund will be rapidly depleted and taxpayers will be called in to foot the bill. There should be no doubts that the system of mandated corrective action is there to ensure the protection of the guarantee fund, not financial institutions.

A European system of Mandated Corrective Action (EMCA) must have three features[83]. First, in the United States PCA is based on uniformly defined capital and leverage ratios, based on US rules, so that no problem of geographic inconsistency arises. Conversely, the definition of capital across European countries is heterogeneous, due to the discretion left by the Capital Requirements Directive in national implementation. However, for the EMCA system to work properly, the definition of capital (total capital and Tier 1 capital) should be the same across European countries, to avoid geographic distortions and regulatory arbitrage. There is also a need to agree on uniform application of accounting principles for all pan-European groups, including those operating also in the United States with subsidiaries that may use US GAAP rather than the IFRS (see Box 4.1).

EBA, which is already charged with harmonising supervisory tools and practices, should also be entrusted with the task of standardising the triggers for early intervention. This implies an enormous workload, as even for quantitative measures, such as non-performing loans, no harmonised measurement exists in the EU at present. And it is even more difficult for qualitative measures, e.g. when and how to replace (parts of) the management or the board of a bank, sell businesses or create a bridge bank.

Second, in the US system intervention thresholds include reference to an absolute leverage ratio, while in the European Union leverage for regulatory purposes is calculated on a risk-adjusted basis. As we have argued, in practice risk-adjusted capital requirements are not only

[81] US Code, Title 12, Chapter 16, Section 1831o, Prompt corrective action, (a)(1).

[82] Unicredit Group (2009) proposed that EBA be empowered with the authority to nominate a task force for corrective action. The task force would have the objective of preventing nationally-based discrimination and ring-fencing; it would collect information, review management decisions and coordinate private solutions, regarding the group as a single entity and taking into account all possible externalities.

[83] For a proposal to introduce a system of corrective action in Europe see ESFRC (1998) and ESFRC (2005). Mayes *et al.* (2007) and Nieto & Wall (2006) analysed the preconditions and the desirability of a PCA system in Europe.

Table 4.2 - Summary of Prompt Corrective Action Provisions of the Federal Deposit Insurance Corporation Improvement Act of 1991

Zone	Mandatory Provisions	Discretionary Provisions	Capital Ratios (percent)		
			Risk Based		Leverage
			Total	Tier 1	Tier 1
1. Well capitalized			>10	>6	>5
2. Adequately capitalized	1. No brokered deposits, except with FDIC approval		>8	>4	>4
3. Undercapitalized	1. Suspend dividends and management fees 2. Require capital restoration plan 3. Restrict asset growth 4. Approval required for acquisitions, branching, and new activities 5. No brokered deposits	1. Order recapitalization 2. Restrict inter-affiliate transactions 3. Restrict deposit interest rates 4. Restrict certain other activities 5. Any other action that would better carry out prompt corrective action	<8	<4	<4
4. Significantly undercapitalized	1. Same as for Zone 3 2. Order recapitalization(*) 3. Restrict inter-affiliate transactions(*) 4. Restrict deposit interest rates(*) 5. Pay of officers restricted	1. Any Zone 3 discretionary actions 2. Conservatorship or receivership if fails to submit or implement plan or recapitalize pursuant to order 3. Any other Zone 5 provision, if such action is necessary to carry out prompt corrective action	<6	<3	<3
5. Critically undercapitalized	1. Same as for Zone 4 2. Receiver/conservator within 90 days(*) 3. Receiver if still in Zone 5 four quarters after becoming critically under-capitalized 4. Suspend payments on subordinated debt(*) 5. Restrict certain other activities				<2

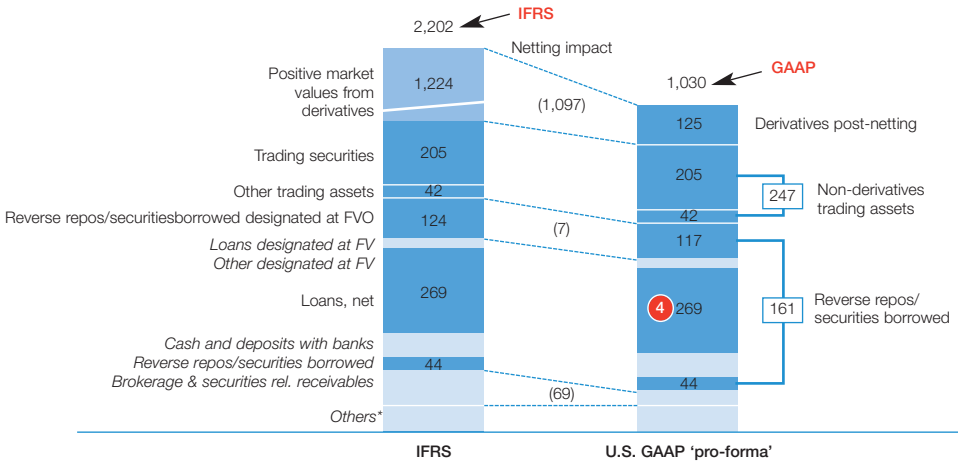
(*) Not required if primary supervisor determines action would not serve purpose of prompt corrective action or if certain other conditions are met.
Source: Eisenbeis & Kaufman (2006).

Box 4.1 - What is in a leverage ratio?

The leverage ratio (capital/total assets) should show the maximum (percentage) loss a bank can make on its assets before losing all of its capital. It has thus been proposed to add a crude leverage ratio to the standard risk weighted capital ratios under the Basel regime. However, this idea raises one practical and conceptual problem: a transatlantic comparison of leverage ratios is almost impossible given the different accounting principles used in the EU (IFRS) and the US (GAAP).

The key problem is that these two accounting systems yield in general similar results, but they present completely different pictures in the case of derivatives. Derivative exposure is reported gross under IFRS, but net under US GAAP. The case of Deutsche Bank shows what difference this can make. Under IFRS Deutsche Bank has a balance sheet (as measured by assets) of around €2 trillion. Deutsche Bank has published its own evaluation of how large its balance would be under US GAAP, arriving at only €1 trillion. Assuming Deutsche Bank knows how to apply US GAAP, this implies that its leverage would be halved if it were judged under US GAAP.

Total assets: analysis of major categories (in Eur bn, as of 31 Dec. 2008)



Source: Ackermann (2009b).

The key difference between IFRS and US GAAP is thus the treatment of the item called (under IFRS) 'Positive market values from derivatives', equal to €1.224 billion on Deutsche Bank's IFRS balance sheet. Under US GAAP this item would shrink to about one tenth, with only 128 billion appearing under 'derivatives post netting'. A similar observation applies to the liability side of the balance sheet. Under IFRS Deutsche Bank shows also over 1.2 in liabilities under 'market values of derivatives', which presumably would also be reduced by a factor of about 10 under US GAAP[1].

What is the reason for this huge difference in the way derivatives show up in the balance sheet? Here is an explanation from an accounting point of view: "IAS 39 Financial instruments is the core standard under IFRS for derivatives. It is a complex and somewhat controversial accounting standard that has been the subject of extensive debate. Essentially IAS 39 is based on a simple premise – derivatives must be recognized on the balance sheet at fair value. Historically, under many national GAAP, driven by a historical cost perspective, derivatives remained unrecognised as there is no initial cost, as in a swap, for example. The only recognition of their effect may be the matching of the relevant underlying with the derivative on settlement. Therefore a company could have an entire portfolio of derivatives at the year end with little or no recognition in the financials as there is no upfront cost as such"[2]. This passage suggests that under US GAAP most derivatives do not appear on balance sheets as there is no initial cost.

This difference between IFRS and US GAAP could resolve to some extent the mystery why the US authorities were surprised by the extent of the market reaction to Lehman: Lehman's balance sheet reflected US GAAP and thus did not show the extent of the exposure of other market participants. It is likely that the balance sheet of Lehman under IFRS would have been several times larger, thus giving a better picture of the importance of Lehman. An IFRS balance for Lehman would have given a better picture of the importance of this operator for the market.

Moreover, a balance sheet under IFRS would give a better picture of the exposure of the bank itself to counterparty risk. Assume a bank has a large amount of derivatives contracts outstanding, but without any net exposure. It could still make very large losses in case important counterparties fail.

[1] For other categories (loans, repos, etc.) the difference between IFRS and US GAAP are minor. This implies that transatlantic comparisons should still be possible for banks without a large derivatives exposure. However, this is not the case for investment banks (or the investment banking arms of EU universal banks). And in this crisis the problems arose often in the investment banking side.

[2] *Source*: http://accounting-financial-tax.com/2009/04/accounting-treatmentfor-derivatives-gaap-under-ifrs/. In the US unlisted investments available for sale are stated at cost whereas under IFRS they are recorded at fair value once a reasonably reliable measure can be established.

Source : Gros (2010).

easy to circumvent but also logically flawed, since risk cannot be measured independently of market sentiment, and therefore should be scrapped altogether. Be that as it may, for the purposes of early mandated action reference to absolute leverage is a must, as the only unquestionable indicator of capital strength not open to interpretation (at least to the extent that the accounting definition of capital is unambiguous).

The third requirement for an effective EMCA is that it should apply to deposit-taking banking groups at a consolidated level. The application of EMCA at the consolidated level is key to tackle the implicit guarantee for deposit-taking of which the entire group benefits and should aim at avoiding the concentration of excessive leverage in non-depository subsidiaries. The US prompt corrective action, for example, is an incomplete system, as highlighted by the financial crisis: in fact, it applies only to depository institutions and not to banking groups as a whole. As a result, the high leverage of the major bank holding companies was concentrated outside of their major deposit-taking subsidiaries: the lack of corrective action powers for non-depository financial institutions and for bank holding companies impeded the prompt intervention by the FDIC and other federal supervisors[84].

4.5 Burden-sharing arrangements

As has been described, the key problem with existing nation-based arrangements is that they do not incorporate the cross-border externalities that may be generated by the failure of a pan-European bank: hence, the authorities in the home country charged with the consolidated supervision of EU banking groups tend to disregard the negative spillovers that might occur in host countries from the crisis of the group or local subsidiaries. The resulting coordination failure in crisis management and resolution is aggravated by a lack of ex-ante agreements for sharing the costs of liquidation across countries, in case of bankruptcy of a cross-border financial group. Experience has confirmed over and over again that supervisory cooperation can hardly survive when a crisis occurs and losses have to be divided; in the absence of ex-ante burden-sharing criteria, beggar-thy-neighbour policies may prevail and make crisis management and resolution more complex and costly (Herring, 2007).

This issue cannot be resolved here and is only examined cursorily for the sake of completeness. The system of deposit guarantee cum early mandated action that we have outlined goes a long way towards reducing the eventual burden for taxpayers of a banking crisis, but it cannot eliminate it altogether.

Therefore, it might be advisable to create a last line of defence through the creation of a fund for the liquidation of emerging losses from a banking crisis that cannot possibly be borne by creditors and shareholders; ideally, such fund should be privately financed, i.e. by the financial system itself. Proposals for such a 'resolution fund' have been put forth recently by authoritative spokesmen for the banking system. However, these proposals have one fundamental weakness: since banks have declared their unwillingness to finance it ex-ante, and propose that funds be raised from capital markets, a public guarantee will inevitably be required to convince investors to buy those securities. Therefore, the possibility of an eventual fallout onto taxpayers still looms large.

[84] The US financial reform currently being examined by the Congress envisages the extension of prompt corrective action to systemically important financial institutions.

An alternative would be to create a straight public fund. Goodhart & Shoenmaker (2009) have proposed the creation of a 'general fund' to be managed by the ECB[85] or by the European Investment Bank, entrusted with the recapitalisation of large EU banks in case of crisis. This fund is an example of 'generic' burden-sharing by countries proportionate to the size of the participating countries: the burden is apportioned between countries, regardless of the location of the failing bank. Alternatively, a 'specific' burden-sharing might be envisaged, whereby only countries in which distressed banks are present should bear the cost of support. Along these lines, a proposal for a European Financial Protection Fund has been put forth by the Rapporteur of the Economic and Financial Committee of the European Parliament, Garcia-Margallo, in his draft report on the regulation establishing the EBA (see his proposed Article 12a). The fund aims at protecting European depositors and reduces the cost for taxpayers of a systemic financial crisis; it would be financed by European financial institutions and by issuance of debt guaranteed by the member states. In exceptional circumstances and in a systemic crisis, should these resources be insufficient, the affected member states would bear the cost according to burden-sharing arrangements based on a combination of criteria, including assets, deposits, revenues and share of the payment system.

Overall, in any burden-sharing model the key problem is the objective determination of the costs falling on each country: a mix of complementary indicators might be identified by the EU Council based for instance on the size and geographical distribution of banking assets and liabilities, and perhaps other factors such as income and employees.

As already mentioned, however, the circumstances when the fund would be authorised to intervene must be carefully circumscribed, since otherwise moral hazard would re-enter the system from the back door and market discipline would be weakened once again. Intervention by the fund should only be permitted as a last resort, to cover liquidation losses for clear public-interest reasons, and never for shareholders. At all events, a key obstacle related to ex-ante burden-sharing with public resources is that parliaments in the member states would in all likelihood resist the idea of setting aside resources in national budgets to bail out private firms.

Perhaps, the only viable solution, entailing minimum distortions to private incentives, would be for the member states to decide a key for allocating residual losses between themselves, and rely on the EBA and supervisory mechanisms that have been described to minimise any such residual losses. The key would also apply in case a new systemic crisis called again for massive government interventions.

[85] See also Goodhart & Shoenmaker (2006).

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Reform of the Risk Capital Standard (RCS) and Systemically Important Financial Institutions (SIFIs)

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Reform of the Risk Capital Standard (RCS) and Systemically Important Financial Institutions (SIFIS)

Renato Maino, Rainer Masera and Giancarlo Mazzoni(*)

1. Introduction and Summary

One of the major proximate causes of the financial crisis of 2007-09 was the interaction of what we define "the faulty triad": the banks' capital paradigm, the accounting standard and the credit rating agencies. The design and operation of these frameworks need fundamental review. This paper addresses specifically the issue of regulatory and supervisory repair of the Risk Capital Standard (RCS).

The design of an improved regulatory system of banks' capital requirements cannot, however, be made in isolation. It is necessary to look into the global deep roots of the crisis, and the complex interaction of market failures, inadequate corporate governance, global financial and monetary imbalances, poor macro and micro prudential oversight and inappropriate regulation.

The fundamental underlying factors which made the crisis possible can be identified as: *(i)* excessive liquidity creation and the related too low interest rates which prevailed, notably in the US, since the mid-nineties; *(ii)* the philosophy of efficient and self-corrective markets and intermediaries in the Global Financial System (GFS), with the consequent acritical support for financial innovation and deregulation; *(iii)* the perverse interaction of opaque, complex securitised instruments, Originate-to-Distribute (OtD) models in banking, and OTC derivatives.

Factors *(ii)* e *(iii)* concurred in making it possible for large complex cross-border financial intermediaries to emerge. They greatly and rapidly expanded their activities globally in corporate finance and investment banking activities for firms and for their own account (notably, prop trading) and in private wealth management and insurance for households, at the expense of less lucrative traditional credit activity.

Behemoth multi-activity financial groups (apparently) prospered, albeit with clear instances of regulatory capture and conflicts of interest. These institutions became so important and concentrated that, when the crisis came, they could not be allowed to fail, because of the negative externalities on the domestic and the world economy of their bankruptcy. The implicit guarantee led to speculative short-term risky investments.

With the benefit of hindsight, it is now clear that supervisory authorities, policy makers and political authorities must look, beyond idiosyncratic risk, also at the systemic risk to the broader financial system that certain very large financial firms (Systemically Important Financial Institutions – SIFIS) pose, as witnessed by recent statements of President Obama.

The Basel capital standard and internal risk models of the large banks were developed around

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(*) Opinions and ideas expressed in this paper are those of the authors and do not engage in any way their respective Institutions.

The Authors accept joint responsibility for the paper. Chapters 2, 4 and the stochastic model outlined in the appendix are the responsibility of R. Masera and G. Mazzoni while Chapter 3 is the responsibility of R. Maino.

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the concept of idiosyncratic risk (capital cushions against unexpected loss, with a given degree of statistical confidence).

A fundamental question thus emerges: in the regulatory repair of the RCS, could and should the new system be redesigned to cover simultaneously for idiosyncratic and systemic risk, for instance by introducing appropriate capital surcharges for the latter type of risk?

This paper attempts to give an answer to the above questions by offering an analytical framework to address the issue of the overall redesign of the regulatory risk-capital model.

The following section gives an overview of the main - ultimate and proximate – causes of the crisis and the lessons to be drawn in terms of reform of the RCS. Section 3 reviews the official approach to the repair of the Basel capital framework, in the context of the overall re-examination of the banking and finance regulatory approach. Section 4 addresses the issue of the revision of the RCS with specific reference to regulation, supervision and resolution of SIFIS: the analysis developed leads us to the conclusion that the RCS should not be overburdened with the problem of systemic risk. Section 5 is devoted to the analysis of the Euro sovereign debt crisis in early 2010. Concern about rising government deficits in some countries in Europe (including Greece, Ireland, Spain, and Portugal) led to a crisis of confidence as well as the widening of bond yield spreads and risk insurance on credit default swaps between these countries and other EU members, most importantly Germany, by creating alarm in financial markets.

In the final Section, some concluding remarks are offered on the desirable revision of the RCS and on the introduction of a Resolution Fund for SIFIS. The analytical framework and the conclusions are not institutionally constrained: indeed the argument is made that the new surveillance approach should be consistent on both sides of the Atlantic. Specific considerations are, however, developed with regard to the European case, which is complicated because no Federal fiscal authority exists to underpin bankruptcy of a SIFI.

2. Lessons of the 2007/2009 crisis

2.1 The Global Financial System (GFS)

The Global Financial System (GFS) is an essential infrastructure to support the global economy, a central network to achieve the economy's potential at world level. The integration of emerging markets and the full exploitation of growth opportunities depend on a stable, well functioning GFS. Implied capital flows are massive, the need for economic policies' harmonization is crucial (particularly for monetary creation/allocation and for Central Banks' reserves mobilization and absorption).

Supranational official financial institutions, globally and regionally, are fundamental in extracting value for all contributors, applying a collective discernment to the GFS management. In the crisis aftermath, their role should also consist in fostering sound, sustainable growth, coping with market liquidity problems, to avoid new markets' collapse, disruption, and failures.

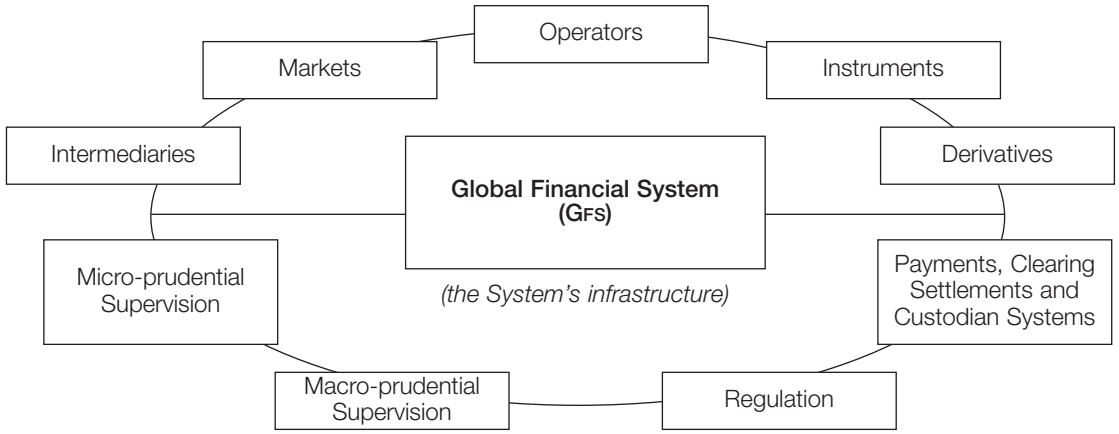
The GFS is a world-wide integrated dynamic innovative network of interactive components: intermediaries, securities (products), markets, operators, derivatives, regulation and supervision, payments, clearing & settlements systems.

The analytical and policy mistake at the turn of the New Millennium was to believe that financial innovation and "technical" market efficiency (information, allocation, stability) implied a fundamental break with the past (the New Economic Era), and notably that:

– markets became self-correcting, market failures became irrelevant; financial markets were

more efficient than intermediaries in assessing and managing risks (complete and efficient markets);
– intermediaries, intrinsically based on asymmetric information and delegated monitoring, had, in any event, developed very potent risk management and control techniques; hence the paradigm of (short-term) shareholder value creation;
– in this framework, the capital standard for regulated intermediaries (banks and insurance companies) was regarded as a pillar change (the New Corner Stone) for regulation and supervision, which was complemented by the new international accounting principles, and supported by the working of rating agencies.

Chart 1 - GFS: main components



2.2 Lessons of the 2007/2009 crisis

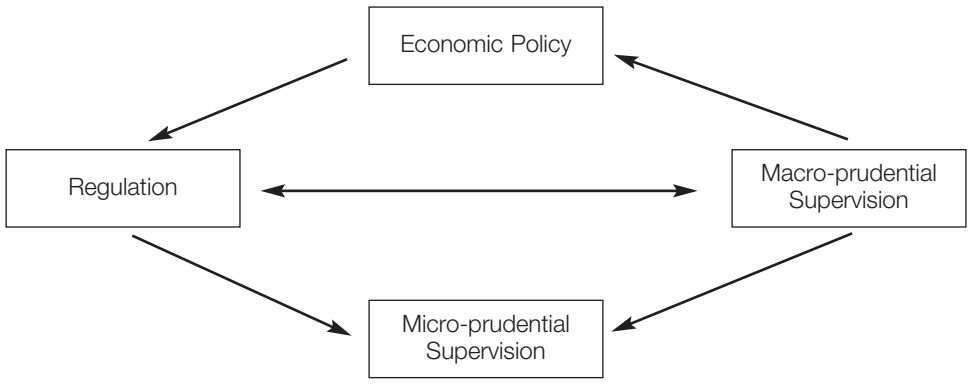
The lessons of 2007/2009 crisis show that all the points mentioned in the previous section contained some grains of truth, but were fundamentally wrong:
– the market price is not always right (market failures);
– markets are not self regulating, but, as in the past, are always prone to speculative bubbles;
– market efficiency and investors' rationality cannot be taken for granted;
– the advances in risk management were flawed because of the inappropriate treatment of the assumptions behind the underlying models, based on derivative stochastic structures, which replaced traditional actuarial models (VaR models are a clear example). Even the assumption of independence between the government risk free rate and the private risk premiums must be questioned. During the summer of 2008 the crisis of Eastern Europe countries and in recent months, the sovereign debt crisis of Greece and other PIGS (see Section 5) clearly show that the hypothesis of orthogonality (independence) between government bond rates (generally considered risk free) and the creditworthiness of private issuers (with their own risk premium) can no longer be considered a general axiom. In the event of systemic crisis sovereign risk and credit sovereign became mutually dependent because of: *a)* increased risk aversion and *b)* general fear of contagion;
– flawed corporate governance models did not allow adequate checks and balances between risk takers and risk controllers, but developed wrong short term incentive and remuneration systems;

– the workings of the GFS require good regulation and effective supervision, also as a result of its important and wide range externalities. The Basel capital standard, the IASB accounting standard and the credit rating agency approach were instead affected by fundamental weaknesses, notably their pro-cyclicality; this is partly related to the analytical framework just described (as evidenced by the very high leverage ratios reached by many "well capitalized" European banks in the upward face of the cycle);
– additionally, the Basel 2 internal models allowed systemically important global financial groups to take advantage of apparent diversification of risk across a broad range of markets, products, instruments in the false belief that the increasing size and complexity of these financial institutions was adequately managed by the innovative risk management tools. This resulted in significantly reduced capital buffers, and hence dangerously increased leverage ratios;
– beyond regulation and supervision, sound and sustainable economic policies are required to contain market failures and to control cyclical developments. Here again the false myth that "the cycle is dead" was exploded;
– the functioning of the global financial system requires consistent supervisory, regulatory and economic policy frameworks (and hence strong cooperative arrangements) among major countries;
– price stability does not lead automatically to financial stability;
– liquidity and funding risks were inadequately treated by the Basel standard;
– prudential and capital requirements on individual institutions represent a necessary but not sufficient condition for financial stability;
– micro and macro prudential regulation and supervision must be coordinated to avoid fallacy of composition.

In sum, a fully developed GFS is very sensitive and therefore potentially unstable. This is, by no means, a novel conclusion, but the lesson was largely forgotten in the past decade, when recognition of that instability was regarded both an analytical and a policy mistake. The contrary view that the system was fundamentally self-correcting, through competition and an invisible hand approach, had become the (nearly) common wisdom.

Finally the distinction between regulation, macro and micro prudential supervision (Chart 2) was not taken into account. This did not allow taking into account the fallacy of composition in imposing increasing capital requirements in the downward phase of the cycle and in a mark-to-market approach. In conclusion, to assure a good regulatory and supervisory framework, major changes must be made to the Basel standards.

Chart 2 - A New Approach to Regulation and Supervision



2.3 The "Faulty Triad": Basel capital standard, IAS accounting standard/ mark-to-market principle and Credit Rating Agencies

As argued in the previous sections, the regulatory framework behind the crisis was based on three interrelated elements (capital rules, accounting standards based on mark-to-market principle and credit rating agencies' ratings) which were fundamentally flawed, and which require urgent, fundamental review.

The Basel 1 approach did not address the issue of risk emanating from securitized instruments. In fact, it prompted regulatory arbitrage, by encouraging off balance sheet operations. Basel 2 offered only partial correction and, in any event, it did not apply to investment banks. Regulatory requirements (accounting standards and capital rules) created feedback loops, which enormously amplified the inherent procyclicality of the system (the dynamite model: nitric acid plus glycerol). Mark to market accounting of trading books of financial institutions pushed up profits, reserves and bonuses during the bull run, but required huge write downs in the bear phase, when important instances of market failures manifested themselves. Banks where forced to sell further assets and / or to reduce loan volume to try to maintain capital levels (the fallacy of composition).

The Basel 2 framework needs fundamental review. It underestimated some important risks and over-estimated banks' ability to handle them. The perceived wisdom that distribution of risks through securitisation took risk away from the banks turned out, on a global basis, also to be incorrect. These mistakes led to too little capital being required. This must be changed. The pre-crisis Basel methodology was too much based on recent past economic data and good liquidity conditions.

Liquidity issues are important in the context both of individual financial firms and of the regulatory system. In this new framework, supervisors need to pay greater attention to the specific maturity mismatches of the firms they supervise, and those drawing up capital regulations need to incorporate more fully the impact on capital of liquidity pressures on banks' behaviour.

A reflection is also needed with regard to the reliance of Basel 2 on external ratings. The use of ratings should never eliminate the need for those making investment decisions to apply their own judgement. A particular failing has been the acceptance by investors of ratings of structured products without understanding the basis on which those ratings were provided.

The use by sophisticated banks of internal risk models for trading and banking book exposures has been another fundamental problem. These models were often not properly understood by board members (even though the Basel 2 rules increased the demands on boards to understand the risk management of the institutions). Whilst the models may pass the test for normal conditions, they were clearly based on too short statistical horizons and this proved inadequate for the recent exceptional circumstances.

Future rules will have to be better complemented by more reliance on judgement, instead of being exclusively based on internal risk models. Supervisors, board members and managers should understand fully new financial products and the nature and extent of the risks that are being taken; stress testing should be undertaken without undue constraints; professional due diligence should be put right at the centre of their daily work.

2.4 The de Larosière Report recommendations to repair the "Faulty Triad"

According to the De Larosière Report, the review of the Basel 2 framework should be articulated around the following elements:

– The crisis has shown that there should be more capital, and more high quality capital, in the banking system, over and above the present regulatory minimum levels. Banks should hold more capital, especially in good times, not only to cover idiosyncratic risks but also to incorporate the broader macro-prudential risks. The goal should be to increase minimum requirements. This should be done gradually in order to avoid procyclical drawbacks and an aggravation of the credit crunch.
– The crisis has revealed the strong pro-cyclical impact of the capital and the accounting standards and their concrete applications, stemming in particular from the interaction of risk-sensitive capital requirements and the mark-to-market principle in distressed market conditions[1]. Instead of having a dampening effect, the rules have amplified market trends upwards and downwards - both in the banking and insurance sectors, and highlighted a fallacy of composition problem between micro and macro stability prudential targets (Masera *et al.*, 2009).
– To reduce the procyclical effect of Basel 2 on the banking book, it is important that banks, effectively assess risks using "through the cycle" approaches which would reduce the pro-cyclicality of the present measurement of probability of losses and default.
– With respect to the trading book of banks, there is a need to reduce pro-cyclicality and to increase capital requirements. The present statistical VaR models are clearly procyclical (too often derived, as they are, from observations of too short time periods to capture fully market prices movements and from other questionable assumptions). If volatility goes down in a year, the models combined with the accounting rules tend to understate the risks involved (often low volatility and credit growth are signs of irrational low risk aversion and hence of upcoming reversals). More generally, the level of capital required against trading books has been too low relative to the risks being taken in a system where banks heavily relied on liquidity through "marketable instruments" which eventually, when liquidity evaporated, proved not to be marketable. In particular, if banks engage in proprietary activities for a significant part of their total activities – thereby becoming *de facto* also a hedge fund –, much higher capital requirements will be needed.
– More generally, regulation should introduce specific counter-cyclical measures. The general principle should be to slow down the inherent tendency to build up risk-taking and over-extension in times of high growth in demand for credit and expanding bank profits. In this respect, the "dynamic provisioning" introduced by the Bank of Spain appears as a practical way of dealing with this issue: building up counter-cyclical buffers, which rise during expansions and allow them under certain circumstances to be drawn down in recessions. This would be facilitated if fiscal authorities would treat reserves taken against future expected losses in a sensible way. Another method would be to move capital requirements in a similar anti-cyclical way.
– Measuring and limiting liquidity risk is crucial, but cannot be achieved merely through quantitative criteria. Indeed the "originate-and-distribute" model which was developed hand in hand with securitisation has introduced a new dimension to the liquidity issue. That dimension has not sufficiently been taken into account by the existing framework. The assessment by institutions and regulators of the "right" liquidity levels is difficult because it much depends on the assumptions made on the liquidity of specific assets and complex securities as well as secured funding. Therefore the assets of the banking system should be examined in terms not only of their levels, but also of their quality (counterparty risk, transparency of complex instruments…)

[1] The analytical pitfall of the IASB/FASB approach to the translation of the fair value approach in mark-to market accounting, also in conditions of market failures have being widely recognized, with no practical impact on the accounting rule setters. On these points see Masera (2001, pages 36-40).

and of their maturity transformation risk (e.g. dependence on short term funding). These liquidity constraints should be carefully assessed by supervisors. Indeed a "mismatch ratio" or increases in liquidity ratios must be consistent with the nature of assets and the time horizons of their holdings by banks. There should be stricter rules for off-balance sheet vehicles. This means clarifying the scope of prudential regulation applicable to these vehicles and determining, if needed, higher capital requirements. Better transparency should also be ensured. A common and comprehensive definition of own funds must be defined at international level. This definition should in particular clarify whether, and if so which, hybrid instruments should be considered as Tier 1. This definition would have to be confirmed at international level by the Basel committee and applied globally. Consideration should also be given to the possibility of limiting Tier 1 instruments in the future to equity and reserves.

The De Larosière Report stressed the importance that such recommendations could be quickly adopted at international level by all the relevant authorities who should define the appropriate details.

In particular, the Basel Committee of Banking Supervisors (BCBS) has been invited to urgently amend the rules with a view to:

– gradually increase minimum capital requirements;
– reduce pro-cyclicality, by e.g. encouraging dynamic provisioning or capital buffers;
– introduce stricter rules for off-balance sheet items;
– tighten norms on liquidity management;
– strengthen the rules for bank's internal control and risk management, notably by reinforcing the "fit and proper" criteria for management and board members.

Furthermore the de Larosière Report highlighted the importance of adopting a common definition of regulatory capital, clarifying whether, and if so which, hybrid instruments should be considered as tier 1 capital. This definition should be adopted at EU level and confirmed by the Basel Committee.

Concerning the regulation of Credit Rating Agencies (CRAs), the de Larosière Report recommends that:

– within the EU, a strengthened CESR should be in charge of registering and supervising CRAs;
– a fundamental review of CRAs' business model, its financing and of the scope for separating rating and advisory activities should be undertaken;
– the use of ratings in financial regulations should be significantly reduced over time;
– the rating for structured products should be transformed by introducing distinct codes for such products.

It is crucial that these regulatory changes are accompanied by increased due diligence and judgement by investors and improved supervision.

With respect to accounting rules the de Larosière Report considers that a wider reflection on the mark-to-market principle is needed and in particular recommends that:

– expeditious solutions should be found to the remaining accounting issues concerning complex products;
– accounting standards should not bias business models, promote pro-cyclical behaviour or discourage long-term investment;
– the IASB and other accounting standard setters should clarify and agree on a common, transparent methodology for the valuation of assets in illiquid markets where mark-to-market cannot be applied;
– the IASB further opens its standard-setting process to the regulatory, supervisory and business communities;
– the oversight and governance structure of the IASB should be strengthened.

3. How to tackle The "Faulty Triad". The main regulatory issues: 2007-2009

In this section we will offer a synthesis of the main regulatory innovations and proposal advanced in 2009 after the Lehman Brothers' default.

3.1 The overall framework

Last year after the April G20 meeting, the FSB, in coordination with the BCBS, issued a series of recommendations on the main banking and financing regulatory problems raised by the crisis:

– *The bank capital framework*. These recommendations are intended to mitigate the risk of transmission of financial shocks to the real sectors. The development of a countercyclical capital buffer and a supplementary non-risk based measure to contain bank leverage was also advocated.
– *Bank loan loss provisions*. The earlier recognition of loan losses could have dampened cyclical moves during the crisis. These recommendations on accounting and capital standards were aimed to encourage sound provisioning practices and enhancing.
– *Leverage and valuation*. These recommendations were intended to reduce procyclicality deriving from the interaction of leverage, funding mismatches and fair value accounting. A clear and comprehensive picture of aggregate leverage and liquidity, by using quantitative indicators and/or constraints on leverage and margins as macroprudential, was advocated.. Accounting standard setters were encouraged to improve approaches to valuation and financial instruments, in cooperation with prudential supervisors, so as to dampen adverse dynamics potentially associated with fair value accounting.

After the September G20 meeting, the FSB presented its indications focused in the following aspects:

– strengthening the global capital framework;
– making global liquidity more robust;
– reducing the moral hazard posed by systemically important institutions;
– strengthening accounting standards;
– improving compensation practices;
– expanding oversight of the financial system;
– strengthening the robustness of the OTC derivatives market;
– re-launching securitization on a sound basis;
– increase in the adherence to international standards, in particular for tax havens and offshore financial centres.

The Financial Stability Board (FSB) developed three reports to cope with all these aspects:

– Policy measures for improving financial regulation. This report identified critical reforms underway in the above-mentioned nine areas.
– Implementation Standards for the FSB Principles for Sound Compensation Practices. This document advanced specific proposals on compensation governance, structure and disclosure to strengthen adherence to the FSB Principles, issued in April 2009. The FSB should periodically review actions taken by firms and by national authorities to implement the FSB Principles and these standards and propose additional measures as required no later than March 2010;
– Progress in implementing the London Summit recommendations for strengthening financial stability. This report provides an overview of progress since April 2009 with a view to creating a more disciplined and less pro-cyclical financial system that better supports balanced sustainable economic growth.

Table 1 - The overall setting of crisis management, enhancing regulation and supervisory coordination (of end of December 2009)

Financial Industry – Technical issues	FSF (today FSB)	– Strengthening the global capital framework, prudential oversight, liquidity and risk management – Enhanced transparency and valuation (particularly for fair value accounting), strengthening accounting standards reducing the moral hazard posed by systemically important institutions, improving compensation practices, – Changes in the role and uses of credit ratings – Strengthening the authorities' responsiveness to risks, particularly to systemic risks (macro-prudential oversight) – Robust arrangements for dealing with stress in the financial system – Strengthening the robustness of the OTC derivatives market – Re-launching securitization on a sound basis	← Contributions, advices, recommendations	Senior Supervisors Group, March 6, 2008 G30, Financial Reform, A Framework for Financial Stability, January 15, 2009 - The De Larosière Group Report, February 24, 2009 - OECD, Policy Framework For Effective And Efficient Financial Regulation, December 3rd 2009
	↳ ↕ ↱	**<u>Tasks attributed to</u>: BCBS, IOSCO, IAIS, Joint Forum, IASB, IMF, BIS** **Need for harmonization (in charge of G20, with IMF and FSB support)** **<u>Recommendations and coordination for</u>:** governments and public authorities, Central Banks, IMF and supranational institutions		↕
Political aspects of public and institutional actions, economy's control and recovery	G20	– Framework for Strong, Sustainable, and Balanced Growth – Modernizing Global Institutions to today's Global Economy needs – Reforming the Mandate, Mission and Governance of the IMF and of Development banks – Assuring an Open Global Economy Specifically, on financial aspects: – strengthen financial supervision to prevent the re-emergence of excess credit growth and excess leverage, mitigating regulation's inherent "pro-cyclicality"; undertake macro prudential and regulatory policies to prevent asset price cycles from becoming forces of destabilization – implement coordinated fiscal policies, undertake monetary policies consistent with price stability (reflecting underlying economic fundamentals), while actively rejecting protectionist measures – revising and improve "global accounting standards", with particular reference to complex products, to market disruption situations, respecting interests of all stakeholders – enhancing transparency and market resilience of derivative markets, including the operational platform of over-the-counter markets and central clearing – revising compensation and incentives systems, aligning to medium term objectives, proportionate to risk taken and to the potential impact on public resources – improving mandates, governance and skill requisites for the SIFIS; and – defining the regulatory environment for "systemically important institutions", establishing the right level of rules and supervision	←	Declaration of the Summit, Washington, November 15, 2008 Declaration on Strengthening the Financial System – London, April 2nd, 2009 Leaders' Statement: The Pittsburgh Summit September 24-25, 2009

Last November the G20 Finance Ministers and Central Bank Governors met in St Andrews (Uk) to prepare the 2010 agenda. The discussion turned mostly on macroeconomic issues. Nevertheless attention was also devoted to financial problems. The G20 working group confirmed its view on the necessity:

– <u>to strengthen prudential regulation.</u> The need for the Basel Committee to develop stronger standards by end-2010 was highlighted, to be phased in as financial conditions improve and the economic recovery is assured (the aim is to implement by end-2012). Supervisors were also

encouraged to ensure that banks retain, as needed, a greater proportion of their profits to build capital to support lending;
– to ensure that compensation policies and practices support financial stability and align with long-term value creation. It was deemed urgent to incorporate the FSB standards in national legislations. Firms will be called to implement these sound compensation practices immediately. The FSB will start assessing implementation without delay and report back with further proposals, as required, by March 2010;
– to assess the systemic importance of financial institutions, markets and instruments, by reducing the moral hazard posed by these institutions.

It is worth to noting that the FSB was asked to develop a work program with a view to proposing by the end of October 2010 possible approaches to address the "too big to fail" (TBTF) problems associated with Systemically important financial institutions (SIFIS).

With reference to the implementation of the FSF Principles for Cross-border Cooperation on Crisis Management, the FSB Cross-border Crisis Management Working Group prepared a list of the main elements to be included in contingency planning discussions. Planning will cover contingency funding and de-risking: attention was focused on:
– potential actions to scale down activities or sell non-core business lines with a view to ensuring the continuity of critical financial services, as well as;
– actions to achieve an orderly resolution or wind-down by the authorities, should de-risking measures not be feasible, fail or prove insufficient to preserve the firm as a going concern.

In October 2009, the IAIS adopted a supervisory guidance on the use of supervisory colleges.

In June IOSCO launched a Supervisory Cooperation Task Force, which will develop principles for cooperation in the supervision and oversight of cross-border securities market participants. This Task Force will produce its final report for the Technical Committee early in 2010.

The FSB will review whether there is merit in having a broad set of principles setting out good practices in the operation of colleges and information sharing that would apply on a cross-sector basis.

3.2 The first corner of the "Faulty Triad": the Basle II revision

As indicated, the Basle Committee on Banking Supervision – BCBS addressed its efforts to three main points: raising capital requirements, enhancing capital base and reducing intrinsic regulation pro-cyclicality. More in detail, the following recommendations have been advanced[2]:
– strengthening the risk capture of the Basel II framework (in particular for trading book and off-balance sheet exposures);
– enhancing the quality of Tier 1 capital;
– building additional shock absorbers into the capital framework that can be drawn upon during periods of stress and dampen pro-cyclicality;
– evaluating the need to supplement risk-based measures with simple gross measures of exposure in both prudential and risk management frameworks to help contain leverage in the banking system;
– strengthening supervisory frameworks to assess funding liquidity for cross-border banks;
– strengthen risk management and governance practices;

[2] See annex XX.

– strengthening counterparty credit risk capital, risk management and disclosure;
– promoting globally coordinated supervisory follow-up exercises to ensure implementation of supervisory and industry sound principles.

These objectives can be pursued by introducing a number of fundamental reforms to the international regulatory framework. The underlying principle is still to ensure that large, internationally active banks are put in a better position to absorb losses, levering on the capital framework. These enhancements are also intended to reduce the risk that shocks are transmitted from one institution to the next. Moreover, the introduction of a leverage ratio has been proposed as a supplementary measure to the Basel II risk-based framework with a view to migrating to a Pillar 1 treatment based on appropriate review and calibration.

The Committee promotes more forward looking provisioning based on expected losses, in coordination with the IASB, in order to capture actual losses more transparently and less pro-cyclically than the current "incurred loss" provisioning model. Finally, the Committee tackles liquidity and funding issues by adopting a global minimum liquidity standard for internationally active banks that includes a 30-day liquidity coverage ratio requirement, bolstered by a longer-term structural liquidity ratio. The framework also includes a common set of monitoring metrics to assist supervisors in identifying and analyzing liquidity risk trends, at both the bank and the system wide level.

The Committee is aware of the deep (and potentially unpredictable) changes induced by these rules on banks' behaviours and announced a comprehensive impact assessment of the capital and liquidity standards proposed in consultative documents. The impact assessment will be carried out in the first half of 2010.

On the basis of this assessment, the Committee will then review the regulatory minimum level of capital in the second half of 2010, taking into account the reforms proposed in this document to arrive at an appropriately calibrated total level and quality of capital. The calibration will consider all the elements of the Committee's reform package. The Committee assures that the exercise will not be conducted on a piecemeal basis. The fully calibrated set of standards will be developed by the end of 2010 to be phased in as financial conditions improve and the economic recovery is assured, with the aim of implementation by end-2012. Within this context, the Committee also will consider appropriate transition and so called "grandfathering" arrangements.

In the meanwhile, the BCBS recommend supervisors to require banks to strengthen their capital base through a combination of capital conservation measures, including actions to limit excessive dividend payments, share buybacks and compensations. Supervisors will also ensure that the capital plans for the banks in their jurisdiction are consistent with these principles.

3.2.1 Revised capital requirements for market risk

Looking more in detail to the market risk framework for the trading book capital charge, the internal models approach for market risk would be subject to relevant changes. In particular, a firm that has an internal model for specific risk would be subject to an incremental risk capital charge. The BCBS has decided that the incremental risk capital charge should capture not only default risk but also migration risk.

For modelling incremental risks for unsecuritized products, the BCBS has not yet agreed that currently existing methodologies used by banks adequately capture incremental risks of securitised products.

More generally, the improvements in the Basel II Framework concerning internal value-at-

risk models would require banks to justify any factors used in pricing which are left out in the calculation of value-at-risk. They would also be required to use hypothetical backtesting at least for validation, to update market data at least monthly and to be in a position to update it in a more timely fashion, if deemed necessary. Furthermore, the BCBS would clarify that it is permissible to use a weighting scheme for historical data that is not fully consistent with the requirement that the "effective" observation period must be at least one year, as long as that method results in a capital charge at least as conservative as that calculated with an "effective" observation period of at least one year.

3.2.2 Strengthening Capital adequacy

Key measures to strengthen the supervision and regulation of the banking sector[3] were decided in the Pittsburgh meeting. In particular the definition of capital will have to be harmonized across jurisdictions and all components of the capital base will have to be fully disclosed, to allow the comparisons across institutions. Appropriate implementation standards will have to be developed to ensure a phase-in of these new measures that does not impede the recovery of the real economy. The Committee also agreed to assess the need for a capital surcharge to mitigate the risk of systemic banks. Appropriate implementation standards will have to be developed to ensure a phase-in of these new measures that does not impede the recovery of the real economy. Government injections will be grandfathered.

3.2.3 Pro-cyclicality

The Group of Central Bank Governors and Heads of Supervision reached agreement on 7 September 2009 to introduce a framework for countercyclical capital buffers above the minimum requirement. The BCBS agreed to develop concrete proposals to reduce the pro-cyclicality of Basel II and introduce a counter-cyclical buffer mechanism. The Basle Committee is acting at two levels:

– achieve the IASB effort to introduce less cyclical risk measures, substituting the "incurred loss model" with the "expected loss model". In this way cyclicality will be reduced, not eliminated;
– define regulatory measures able to determine a countercyclical capital buffer.

With reference to the latter point, the BCBS is reviewing a number of additional measures and is conducting an impact study on the proposal to use "downturn PDs", adopting two possible proxy definitions:

1. Highest average PD estimate applied by a bank historically to each of its exposures classes, or,
2. Average of historic PD estimate for each exposure class.

It is not clear yet whether *i)* these PDs have to be adopted at individual borrowers' level or at portfolio aggregated level *ii)* they will enter directly in the computations for Pillar 1 capital requirements or will be introduced under a Pillar 2 approach (as recently proposed by the CEBS).

The Committee proposes also to establish a capital buffer range above minimum requirements, by introducing capital conservation rules (in the form of capital distribution constraints on dividends, shares buy back, staff bonus payments) when capital levels fall within this range.

[3] Based on documental support agreed on 7 September 2009 by the Group of Central Bank Governors and Heads of Supervision, under the oversight of the BCBS.

According to the Committee "it is not acceptable for banks which have depleted their capital buffers to use future predictions of recovery as justification for maintaining generous distributions to shareholders, other capital providers and employees". The Committee proposal will then limit the discretion of banks which have fallen short of capital buffers to further reduce them through generous distribution of earning and high pay-out ratios.

Furthermore, it has been proposed "to ensure that the buffer created can be drawn down, the capital used to comprise the buffer needs to be capable of absorbing losses on a going concern basis" and therefore the buffer will be made out of Tier 1 capital with a "predominant" component of common equity (minimum capital requirements and additional capital buffers should be basically of the same quality).

This buffer range has not been established yet. Its level and the degree of restrictions imposed within the buffer range on capital/earnings distribution need to be calibrated accordingly. In any case "the buffer must be large enough to enable banks to remain above the minimum requirement in the face of losses expected to be incurred in a feasibly severe downturn". Even though the Committee asserts that it is not willing to impose excessively restrictive constraints to avoid the range being viewed as an additional capital requirement, this risk seems difficult to be ruled out.

The Committee is also in the process of reviewing a regime which would adjust the capital buffer range, when there are signs that credit has grown to excessive levels. The idea here is to promote the building up of countercyclical capital buffers in periods of excess credit availability, by expanding the size of the capital conservation buffer.

3.3 The second corner of the "Faulty Triad": accounting principles

Accounting standard setters are also taking corrective actions. The IASB worked together with supervisors in key areas, including provisioning and valuation. In addition, supported by the FSB, the IASB held a meeting with senior officials and technical experts of prudential authorities, market regulators and their international organizations to discuss financial institution reporting issues.

To date, the International Accounting Standards Board (IASB) published in May 2009 an exposure draft (proposed accounting standard) on fair value measurement to better identify inactive markets and determine whether transactions are orderly. The final standard is expected in 2010. Also, in June 2009 the IASB published a discussion document on the effects of fair value gains arising from deterioration in a company's own credit risk. Based on its review of comments the IASB decided to address this issue in its standard or guidance on fair value measurement.

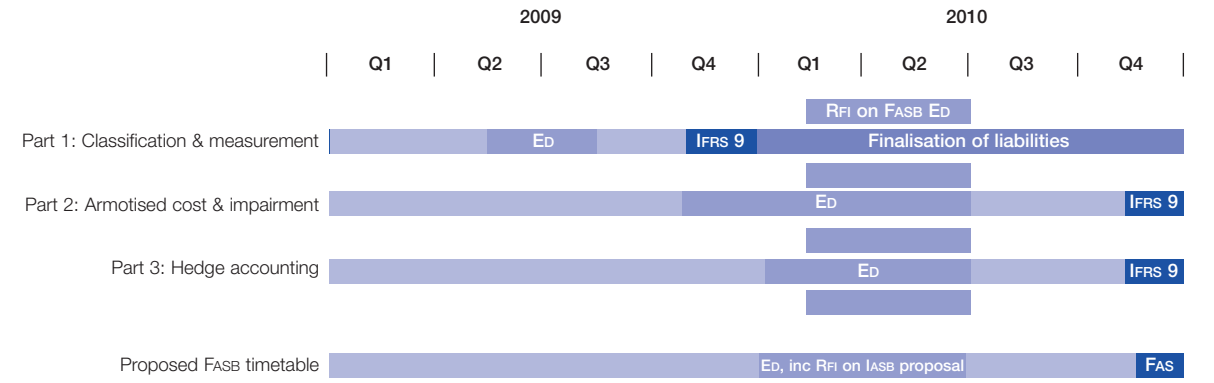
Last July the BCBS proposed to the IASB high-level principles for replacement of IAS 39.

The IASB released proposals split on three steps[4]:

– Phase 1 - Recognition and Measurement with a new standard – IFRS 9 Financial Instruments.
– Phase 2 - Impairment methodology for financial assets,
– Phase 3 - Hedge accounting.

Planned reform of financial instruments accounting is the following.

[4] At November 12th the IASB issued the new IAS 39 related to Financial Instruments Classification and Measurement; at November 6th an Exposure Draft on Impairments and Amortizing Cost was issued as well. IAS 39 establishes the principles for recognizing and measuring financial assets, financial liabilities and some contracts to buy or sell non-financial items. IAS 39 includes provisions about the classification of financial instruments, their ongoing measurement (including when impairment is required), when financial instruments should be recognized and derecognized and hedge accounting requirements.



The first phase is aimed to reduce complexity of accounting standards for financial instruments. The first exposure draft (ED) proposes to reduce the number of categories of financial assets and liabilities to two (fair value and amortised cost). Recently a number of changes have been made by the IASB in recent Board meetings on classification and measurement of financial instruments. This final standard has been published by the IASB at end-November.

The IASB decided not to finalize requirements for financial liabilities in IFRS 9 (expected issue during 2010). IFRS 9 requires entities to classify financial assets on the basis of the objective of the entity's business model for managing the financial assets and the characteristics of the contractual cash flows. It points out that:

– the entity's business model should be considered first;
– the contractual cash flow characteristics should be considered only for financial assets that are eligible to be measured at amortized cost because of the business model.

As a consequence the number of classification and measurement categories has been reduced and there is a clearer rationale for the new categories. The complex and rule-based requirements in IAS 39 for embedded derivatives have been eliminated by no longer requiring that embedded derivatives will be separated from financial asset host contracts. The 'tainting rules' that forced entities to reclassify to fair value all instruments in a class that had been classified as held to maturity in the event that one of those instruments is sold have been eliminated, and there is a single impairment method for all financial assets not measured at fair value, and impairment reversals are permitted for all assets, eliminating the many different impairment methods used by IAS 39 and its inconsistent requirements on impairment reversal. Reclassifications between amortized cost and fair value classifications when the entity's business model changes are required.

Today, when a loan is made, the risk of default is supposed to be included in calculating the interest on the loan. Therefore accounting assumes that the loan will be repaid in full unless, at some point during the loan's life, evidence is provided to the contrary. Loans may be impaired only when a trigger event is available, otherwise the full contractual interest is recognised as revenue.

When a trigger event occurs, the impairment is recorded, resulting in an abrupt adjustment in the income statement (P&L).

The IASB is proposing to move from the current incurred loss impairment method to one based on expected losses that requires an entity:

– to determine the expected credit losses on a financial asset when that asset is first obtained;
– to recognise contractual interest revenue, less the initial expected credit losses, over the life of the instrument;

– to build up a provision over the life of the instrument for the expected credit losses;
– to reassess the expected credit loss each period;
– to recognise immediately the effects of any changes in credit loss expectations.

The proposed IFRS would apply to all financial assets measured at amortized cost. The discount rate excludes changes in liquidity and risk premiums (not intended to be a fair value approach).

With reference to hedge accounting the Board decided:
– to simplify today's hedge accounting requirements by replacing fair value hedge accounting with an approach that is similar to cash flow hedge accounting;
– to further simplify the existing cash flow hedge accounting model to reduce complexity;
– to address general hedge accounting first before considering the implications on portfolio hedge accounting;
– to consider separately any implications on hedge accounting for net investments in a foreign operation;
– to replace fair value hedge accounting, by introducing an approach similar to cash flow hedge accounting.

The Board analysed also the eligibility of financial instruments managed on a contractual cash flow basis in a fair value hedge. It confirmed that financial instruments managed on a contractual cash flow basis are eligible hedged items of a fair value hedge (not withstanding that cash flow hedge accounting mechanics would apply).

Through-the-cycle approaches are admitted, whereby an entity estimates impairment on a portfolio of financial assets using statistical parameters derived from historical credit loss data that cover a full economic cycle or several economic cycles. In fact, the objective of financial reporting is to present useful information to users of financial statements. For information to be useful, it must be neutral and portray the economic characteristics of the recognized financial assets. Recognizing an allowance for losses solely on the basis of conditions that may not be predictive of future credit losses amounts to reporting something other than the economic characteristics of the financial assets being measured.

Recognizing a loss on initial recognition of the financial asset for financial reporting purposes even though there is no economic loss from the asset in question would result in unfaithfully representing the underlying economic phenomenon.

3.4 The third corner of the "Faulty Triad": Rating Agencies

National and regulatory initiatives are ongoing to strengthen oversight of credit rating agencies (CRAs), in line with the London Summit recommendation to establish a CRA regulatory oversight regime by end-2009.

IOSCO published in March 2009 a report assessing the degree to which credit rating agencies (CRAs) have adopted codes of conduct that reflect the updated provisions of the IOSCO Code of Conduct Fundamentals for Credit Rating Agencies (CRAs). The report found that a larger proportion of the CRAs reviewed had taken steps to incorporate the provisions of the IOSCO CRA Code into their codes of conduct than when they were previously surveyed for IOSCO's first implementation review in 2007.

The BCBS presented proposals in December 2009 to address a number of inappropriate incentives arising from the use of external ratings in the regulatory capital framework.

3.5 New rules and its timing: criticisms of the new regulation

The overall set of new rules and proposals described in this section raises many criticisms both for its content and the timing of its implementation.

3.5.1 Capital adequacy and systemic risk

Despite criticism, Basle II regulation is still the core instrument for the banking sector. Therefore the understanding of the proposed amendments is fundamental to assess the new banking scenarios in the coming years. Banks will be submitted to additional capital buffers and measures designed to reduce pro-cyclicality, potential leverage constraints, and a new and narrower definition of Tier 1 capital. Additional Pillar 2 capital requirements determined by regulators, including the potential impact of new stress tests, are likely to add another capital burden. Potential requirements for additional liquidity buffers and other regulatory changes, as well as changes to the accounting standards, need to be considered jointly with capital requirements, especially for the effects that they will probably have on cost structures and funding strategies. Capital in the financial industry will be a key resource, scarce and even more highly contended; the ability to manage risks (and consequent capital base) will be enhanced, not reduced.

The main part of the new Basle II Accord is not yet revealed because is subject to the calibration exercise that will be conducted in the first part of 2010. Nonetheless, issued documents introduce some important changes in the current regulation, which are, however, apparently mutually inconsistent:

– At a first glance, Pillar II seems to be reinforced. The second Pillar could be the new focal point of checks and compliance with regulatory requirements. The Internal Capital Adequacy Assessment Process – ICAAP could become the *true* pinpoint for scrutiny on the management and the governance of banking groups . The risk must however be avoided that a "mechanical" implementation of rules on capital buffers would emasculate the valuation process on the adequacy of economic capital.
– A second look gives an opposite perception: stringent Pillar I requirements are set in computation of risk weighted assets, by applying tighter capital scaling factors, running stress tests and fixing a maximum leverage ratio. In so doing, Pillar II could be largely emptied and relegated to a sort of compliance analysis through the Supervisory Review Evaluation Process (SREP).

This potential inconsistency between Pillar I and Pillar II may reduce the flexibility in the application/interpretation of the regulation. After the first attempt to enhance the capital base and capital structure, inflexible applications could increase cyclical effects because of rigid capital floors over the credit cycle. This context is particularly worrying in order to ensure viability and comparability across banking systems and SIFIS, because of the details of many new requirements (leverage ratio, pro-cyclical buffers, liquidity profile and so on), as well as accounting issues and international harmonization. This high level of regulation complexity requires careful checks and calibrations, taking into account the global forthcoming effects of the Basel II framework's proposed changes.

3.5.2 Accounting rules

The aforementioned BCBS first proposal (September 2008) carefully avoided potential overlaps between supervisory rules and accounting principles:

– supervisory measures are based on risk metrics, are forward looking, statistical based on specified time horizons, accounted to the internal governance (processes, procedures, controls). The reference point is the internal MIS;
– accounting is charged for reporting in term of P&L and A&L financial statements. The approach is inevitably point in time, market based, actual or estimated through valuation models. The reference point is the Financial Report and is accounted for transparency to the market and to investors.

The BCBS provided a sort of bridging between the two approaches, based on

– sound valuation procedures (responsibilities, governance, tools and controls);
– inclusion of valuation methods among the ICAAP topics and assessments, submitted to the SREP;
– giving a mandate to the ATF – Accounting Task Force, established as an internal working group, to reconcile and harmonize the two approaches, mainly in market risk matters.

The BCBS was charged by the G20 (April meeting held in London) to review these "minimal" positions in order to address more aggressively the reconciliation between accounting and supervisory rules, reaching an effective integration, in order to avoid pro-cyclicality, to enhance the hedging use, to give meaningfulness to marked-to-market valuations and to avoid too uncertainty on impairment assessments.

Reconciliation is today mainly the responsibility of individual banks that have to demonstrate (in the ICAAP) the link between accounting and internal risk metrics.

In the mentioned BCBS proposal, moreover, a very crucial point is raised «… For a broad and deep risk management culture to develop and be maintained over time, compensation policies must not be unduly linked to short-term accounting profit generation. Compensation policies should be linked to longer-term capital preservation and consider risk-adjusted performance measures. In addition, a bank should provide adequate disclosure regarding its compensation policies to stakeholders. Each bank's board of directors and senior management has the responsibility to mitigate the risks arising from remuneration policies in order to ensure effective firm-wide risk management».

This approach is to be shared but doesn't solve the issue if the different regimes (for supervisory purposes or accounting purposes) are not harmonized. The suspect is that, if a manager has to be accounted on marked-to-market basis, his incentives remain short term in nature, despite principles or recommendations. An unsolved reconciliation could harm moral hazard and threaten future tension to medium term objectives and efficiency. Moreover, this unsolved reconciliation could hinder any effort to overcome pro-cyclicality behaviours.

Moreover, the G20 pressure on harmonizing accounting principles and capital standards is highly understandable. A final view on credit reserves and dynamic provisioning approaches has yet to be reached.

Nevertheless it has to be highlighted that the proposal needs clarification. On one side, there is an increasingly widespread view on limits to how much correction of pro-cyclicality can be expected from accounting provisioning per se. A "through-the-cycle expected loss" provisioning approach is not countercyclical *per se*. It might well provide a useful degree of countercyclical buffer over the cycle but cannot be expected to provide a full correction of pro-cyclicality, given that provisioning will be related to expected or actual losses rather than sudden or unexpected economic shocks. Only a dynamic approach could provide a countercyclical effect, because it implies more-than-expected provisions in good times and the reverse in bad times. Another element clearly to be defined is the accounting nature of the buffer: if reserves and/or regulatory

capital[5]. Provisions will be more readily usable if treated as reserves (that is, not included in regulatory capital). According to this view the present limited use of provisions in capital should not be expanded and it is, of course, essential that provisions – as with any capital buffers or related reserves – actually be usable against incurred losses. Another solution could be to impose an active dynamic provisioning allowing to consider part of (or the whole) extra-buffer like regulatory capital. Any solution should be designed to allow provisions to be usable without accounting, regulatory, or market impediments. Therefore, consideration should be given to excluding provisions from capital altogether, as a way to make provisions usable and also limit capital volatility. The last aspect regards the impact of countercyclical provisioning on P&L statement and on fiscal charge.

In terms of market risk and impairments valuation the FASB principles, recently set out, go in the right direction and IASB, based on G20 prescriptions, is going likely to adopt the same line.

Recently (September 2009) G20's leaders declared «We call on our international accounting bodies to redouble their efforts to achieve a single set of high quality, global accounting standards within the context of their independent standard setting process, and complete their convergence project by June 2011. The International Accounting Standards Board's (IASB) institutional framework should further enhance the involvement of various stakeholders». This attention to "involvement of various stakeholders" is an innovation and a very challenging task. Many observers (starting from the specialized press, like The Economist[6]) noticed that this approach might leave room for future inclusion of the prudential as well as the securities regulators in the governance of the IASB, because of the accounting standard relevance in value representation and report, also at social level. On the other side, government interventions were needed during the crisis with an unmanageable urgency, in respect to the past experiences, just to cover losses due to market disruptions that were directly mirrored in the balance sheets by new fair value based accounting standards.

Last but not least, proposed amendments to IFRS could be in serious contrast with G20 recommendations, in particular establishing:

– possibility to expected credit loss re-evaluations at each financial period end,
– application of expected loss method to all banking books (i.e. non-trading books). A joint application of these first two rules could enhance (not reduce) cyclicality,
– extension of mark-to-market valuations also to unlisted stakes that enlarge the scope of market price valuations. However, the BCBS states that the IASB proposal is a step in the right direction towards reducing accounting pro-cyclicality for the financial industry. As already indicated, EU Commission is not of the same opinion. A step ahead could be made if Expected Cash Flow should be set at transaction inception, assuming a stringent discipline in triggering events for EL re-evaluation.

These accounting choices could introduce a new subtle way to enlarge valuations marked-to-market instead of limiting them only to items directly exposed to market risk, generating new sources of cyclical dependencies.

Anyway, to reach a cycle neutral (or, better, a countercyclical) provisioning behaviour, new steps have to be made. In particular, regulators (FSB, BCBS, and Supervisors) should accompany accounting rules with a flexible system of capital ratios during the business cycle. Higher capital requirements would apply in the favourable phase of the business cycle and the reverse would

[5] In this perspective reconciliation with accounting principle could be even more problematic.
[6] The Economist, Regaining their balance, A new chapter for the world economy, maybe, September 26th 2009.

take place during the downward phase. Moreover, the role of the new ESRB (and IMF if the G20 proposal will be endorsed) is essential in:
– defining conditions of tightening/loosing capital needs and requirements;
– setting the overall financial industry safety guards;
– establishing driving rules for supervisors' decision in fixing bank's specific provisioning policies, above all when individual financial stability conditions are not met (according with Basle II, Pillar II principles)[7].

Regarding the counter-cyclical proposals, another controversial point is the use of credit risk measures sensitive to credit cycle. In our opinion it would be better to let banks free to use internal rating models proven to be fundamentally capable of evaluating risk and hence to express PD estimates that are appropriate and sufficiently risk sensitive. It would make much more sense to introduce at Pillar 2 level (i.e. at the level of bilateral negotiation between each bank and supervisory authorities) additional capital buffers based on specific stress test in order to adjust, for example, the reduction of PDs generating capital requirements during benign credit conditions, or by using stress scenarios which can correct for the cycle PD estimates that might be considered by supervisors as too "point in time".

It should be reminded however that the expected loss model for countercyclical provisioning only allows for a relatively slow accumulation of resources in good times; its effectiveness is therefore very much dependent on the pattern of the business cycle[8]. Therefore, more conservative and thus more countercyclical dynamic provisioning approaches may be considered as more adequate to strengthen banks' ability to deal with recessionary conditions. This is the philosophy behind the so called "dynamic provisioning model"[9], that allows for a higher and quicker accumulation of resources in good times. There are various alternative options for implementing a system of dynamic provisions. The Spanish system was already discussed before. Another interesting method is suggested by the Fsa in the Turner Review[10]. According to this proposal the flow of dynamic provisions would be calculated applying an expected loss rate to the stock of loans outstanding at the beginning of each year.

3.5.3 Timing of the new regulation

The timing of the new regulation could pose problems and inconsistencies. Many actions are to be taken in 2010 but new requirements' introduction could be delayed to 2012/2013, both for capital standard and accounting principles. FSB Chairman Draghi declared on many occasions difficulties in reaching adequate consensus to new rules adoption. Recent Volcker's proposal, strongly supported by President Obama, raised new perspectives in financial architecture, moving the landscape from capital standard to absolute regulatory limits to banking activities in range and scope. At the moment the regulation scenery is uncertain and incomplete, subject to many checks and calibrations, under a serious threat to be uneven in implementation and application.

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[7] See, for instance, on this matter, the recent contribution of Burroni M., Quagliariello M., Sabatini E., Tola V., (2009), Dynamic Provisioning: Rationale, Functioning, and Prudential Treatment, Questioni di Economia e Finanza, Banca d'Italia, Numero 57.

[8] We refer again M. Buroni, M. Quagliariello, E. Sabatini and V. Tola, cit.

[9] Adopted today by the Banco de Espana, the only example available among supervisory jurisdictions.

[10] Financial Services Authority (2009), The Turner Review: A regulatory response to the global banking crisis, March.

Uncertainty is the worst enemy for financial markets. Large complex international banking organization could be seriously threatened by these fuzzy regulatory perspectives.

4. Regulation, Supervision, Resolution of Systemically Important Global Financial Institutions (SIFIS) and the New RCS

4.1 SIFIS pros and cons

A critical problem highlighted by the recent financial turmoil is the role played by Systemically Important Financial Institutions (SIFIS).

Basel 2 allowed Systemically Important global financial groups and Institutions to take advantage of apparent diversification of risk. Instead: no true diversification was achieved; complexity and management diseconomies prevailed, as indicated by Bair (2009).

It is important to analyze the fundamental issue of whether there are economic benefits to having so large and Complex Financial Institutions that their failure can result in systemic issues for the economy. Unless there are clear benefits to the financial system that offset the risks created by systemically important institutions, taxpayers have a right to question how extensive their exposure should be to such entities.

A number of arguments have been advanced to justify LCFIS. These reasons include being able to take advantage of economies of scale and scope, diversifying risk across a broad range of markets and products, and gaining access to global capital markets. In particular, it has been argued that the increased size and complexity of these organizations could be effectively managed using innovations in quantitative risk management techniques. Not only did institutions claim that they could manage these new risks, they also argued that often the combination of diversification and advanced risk management practices would allow them to operate with markedly lower capital buffers than were necessary in smaller, less-sophisticated institutions.

Indeed many of these concepts were inherent in the Basel II Advanced Approaches, resulting in reduced capital requirements. Unfortunately, it is now clear that the international regulatory community over-estimated the risk mitigation benefits of diversification and risk management when they set minimum regulatory capital requirements for large, complex financial institutions.

The academic evidence suggests that benefits from economies of scale are exhausted at levels below the size of today's largest financial institutions. Also, efforts designed to realize economies of scope have not lived up to their promise. LCFIS permitted by the Gramm-Leach-Bliley (GLB) Act (1999) – which largely dismantled the Glass Steagall Act (1932 &1933, Baley Act) failed to realize anticipated economies of scope. Studies that assess the benefits produced by increased scale and scope find that most banks could improve their cost efficiency more by concentrating their efforts on improving core operational efficiency.

There also are practical limits on an institution's ability to diversify risk using securitization, structured financial products and derivatives. Over-reliance on financial engineering and model-based hedging strategies increases an institution's exposure to operational, model and counterparty risks.

The main justification for LCFIS can be found in their ability to move and control very large flows of funds, at international level, overcoming markets and formal negotiations. "Big ticket investments", and emerging economies financing could be tackled partly exploiting the market and partly leveraging on strong banking partners' support. Financial costs will be also partly based

on market conditions and partly on banking internal transfer prices, helping to cope with ever larger project sizes and/or M&A transactions. Anyway, information asymmetries are also large and imply conflict of interest problems, transparency and moral hazard issues, not yet effectively explored and solved at institutions, supervisors and political economy levels.

Two distinct aspects are relevant here. They are intertwined, but they should be analysed separately.

i. The first one refers to size, concentration and market power; this aspect can be dealt also with statutory limitations on market share. In the United States such limitations are in operation. The Riegle-Neal Interstate Banking and Efficiency Act of 1994 impose a 10 per cent nationwide cap on domestic deposits, which prevented concentration in the Us domestic deposit industry. The main considerations in this respect are posed by economies of scale vs. effective competition; beyond a certain threshold, the issue of "too big to fail" also becomes relevant.

ii. The second point is epitomised by the combined activity of investment and retail banking (which may entail also asset management and insurance activities, within the same financial group Allfinanz, and the interplay of securitisation and OtT models).

As indicated above, limitations in this area were repealed in the United States[11] and softened, where in place, in Europe.

In this respect, economies of scope are relevant; counterarguments are represented by conflicts of interest, consumer protection, risk concentration, procyclicality through prop trading, and diseconomies of management and supervision because of complexity.

4.2 SIFI: the crisis PMR process and the RCS

As the 2007-09 crisis demonstrated, beyond a certain critical threshold, a financial institution is deemed to be "too systemic to fail" (SIFIs).

This creates moral hazard because it: *(i)* encourages higher risk-profile businesses and behaviour; *(ii)* distorts market and operators incentives to monitor the actions of such firms. More broadly, a properly functioning market cannot rule out the possibility of firms becoming insolvent and exiting the market.

Instead, on the basis of experience in 2007-2009 SIFIs may expect that, in the resolution phase of a crisis, the "home" government prevents their failure, by providing public money, to avoid the external diseconomies of a bankruptcy.

This implies a major microprudential accountability issue: the supervisor would be ultimately required to activate taxpayers' money, and cannot therefore be independent from the respective Treasury. A dilemma opens up: central banks may well have a "Ricardian" information advantage as microsupervisors of SIFIs, but this creates a conflict in terms of independence from Treasuries.

A fundamental issue currently under debate is whether the desirable alignment of incentive structures and prevention of excessive risk taking should be sought by means of *(i)* an adaptation of the RCS, through capital surcharges or *(ii)* systemic insurance premiums, to be paid as fees to a centralized Fund.

[11] It must be underlined, however, that President Obama has recently (Obama, 2010) indicated to Congress his intention to reintroduce separations, according to a proposed "Volcker rule": banks should no longer be allowed to own, invest, or sponsor hedge funds, private equity funds, or proprietary trading operations for their own profit, unrelated to serving their customers.

As indicated, an even more drastic approach consists in reinstating a Glass-Steagall distinction, by limiting public guarantees to narrow banking institutions, and by imposing caps on bank deposits.

The neat separation of the various phases (prevention/management/resolution - PMR) of a banking crisis is more an academic exercise than a stylized fact.

As the current crisis confirmed, the escalation from one phase to the other can be very rapid, in particular liquidity problems can transform themselves into a solvency issue

There is a logical and operational continuum between crisis prevention and the resolution phase for the negative outcomes.

An appropriate framework must therefore be built to deal with negative externalities of SIFIS, without offering an implicit guarantee that they would be saved in cases of crisis.

As indicated, the ultimate responsibility for managing the resolution of banking crises generally requires fiscal action. When taxpayers' money is at stake, Government/Parliament responsibility is called for. At what stage of the crisis management process the Government (s) must be brought into the picture is an open question. In any event, microprudential supervisory authority needs to be aligned with fiscal responsibility. The home/host division of responsibilities has an obvious bearing on these issues. With no EU budget available and in sight, this represents a significant factor limiting the extent to which European national supervisors can devolve responsibility for the supervision of firms to a centralized body. In this respect, we are confronted with a major difference vis-à-vis the US, whose implications must be brought to the fore. The need for alignment of supervisory and fiscal responsibilities is one of the principal reasons why the de Larosière Report considered it inappropriate to entrust microprudential responsibilities to the ECB for large cross-border banks, in spite of some obvious pros.

4.3 The traditional European approach to systemic impact

In Europe the question has been addressed so far mainly in terms of the "heat map" framework, which takes however the opposite roadmap. The framework produces a list of systemically relevant situations, not of systemic institutions. It helps authorities to cope with the implications of a financial crisis affecting one or more institutions, markets and infrastructures. It is suitable for idiosyncratic and sector-wide shocks and can reflect country- specific financial sector set-ups. The heat map framework was developed in 2007 and adopted as part of the EU's financial crisis management toolkit in the Memorandum of Understanding (MoU) on cooperation between the financial supervisory authorities, central banks and finance ministries of the European Union on cross-border financial stability that was signed on 1 June 2008.

4.4 The new approach to systemic risk: identification of large complex systemically important firms (SIFIS)

As previously explained, SIFIS perform important functions for the European and the global economy; however their size, complexity and systemic relevance create also external diseconomies.

The issues are *(i)* to identify systemic risk institutions and measure their systemic relevance and *(ii)* to establish an appropriate (dis) incentive system to avoid the growth of excessively large and complex financial institutions. The coVaR approach - the value at risk of the financial system

conditional on institutions being under distress, developed by Adrian and Brunnermeier (2009), is a very interesting possible solution. This approach lacks however a microanalytic foundation - which is offered in this paper - and, in our view, overburdens the RCS.

The new scheme to cope with systemic risk is predicated upon the experience of 2007-09, where many institutions were "saved", because it was felt that their failure would entail a systemic impact.

The pendulum should not swing from one to the other extreme. A flexible and comprehensive approach should be based upon the recognition that both situations and institutions can produce a systemic outcome. Also inappropriate fiscal and monetary policies can ignite systemic dangers and should be subject to early monitoring. This is perhaps the main reason why the de Larosière Report proposed the creation of a Systemic Risk Board, in order to identify early enough such dangers to the system.

Jacques de Larosière recently stressed the fact that the explosion of credit was a major factor behind the crisis, and that there is a risk that overextension may happen again (de Larosière, 2010). We emphasise here the danger of repeating the mistake of trying to maintain the interest rate on government debt below the growth rate of GDP, with the government inter-temporal budget constraint not being satisfied.

We recognize that failure of certain financial institutions can produce a systemic impact *per se*. Financial institutions refer to banks and non-banks. The focus is on banking firms, given their relative importance and their peculiar role in liquidity provisions and funding. The model advanced here specifically refers to the banking sector but it could be easily expanded to cover other non-baking institutions, notably the insurance sector and very large investment/hedge funds, and, above all, large complex financial conglomerates, which are evidently characterized by diseconomies of management.

Any SIFI can therefore initiate a process posing a systemic impact through the traditional five channels: *i)* on other financial institutions, *ii)* on financial markets, *iii)* on financial infrastructure, *iv)* on consumers, *v)* and, more generally, on the real economy.

Although the distinction may be blurred in practice, in our proposal the concern of the Resolution Fund Authority should be of preventing the case that an idiosyncratic driver can trigger systemic consequences. The issue of systemic situations, also within the financial sector, that may produce systemic impact is of course highly relevant, but it should be more specifically addressed and hopefully solved by the interaction of macrosupervisors and national microsupervisors. Instances of the latter case are provided by the saving and loans crisis in US, the crisis of Icelandic banks and the crisis of the monoliners industry.

4.5 Reform of the RCS and SIFIs: three preliminary questions

To analyse the reform of the RCS and the role played by SIFIs three preliminary questions must be posed:

- Should SIFIs be saved as a (non-written) rule?
- Should the RCS be used for crisis PMR purposes?
- Should the RCS be adapted to SIFIs by introducing capital surcharges, to cover their systemic risk?

The common answer to the first question is that ways and means should be found to avoid the implicit guarantee of government support to avoid default.

Also the second question receives a broadly affirmative answer: the RCS is precisely based on

the premise that unexpected risk is assessed (for instance through the VaR approach) and capital is the cushion to maintain a financial institution viable, at a predetermined degree of confidence, in case of crisis. Adaptations are however necessary for both SIFIs and non-SIFIs to improve the current capital standard

The answer to the third question is in our view, more complex. Apparently, consensus is building towards enacting specific capital surcharges for SIFIs to cope with their systemic risk

Our position is instead that *(i)* alignment should be maintained in terms of internal bank models and supervisory charges to cover idiosyncratic risk. *(ii)* Systemic risk should be covered by introducing an ad hoc "insurance premium" for SIFIs, to be paid as a fee to a specific Resolution Fund.

We see two main advantages in this approach. First, according to the classic Tinbergen principle the two objectives of individual and systemic risk control would be dealt with through two instruments. Second, the advantages of a PPP (private-public-partnership) risk pool, to cover exposure to sudden and severe losses caused by large-scale catastrophic events, could be exploited. In the appendix we present three funding options for the Resolution Fund, by introducing also the possibility to define a partial reinsurance mechanism with private reinsurers[12].

The issue of deposit insurance for non-systemic commercial banks and in respect of deposit liabilities of SIFIs is not specifically addressed in this paper. Our position is that all deposit-taking financial institutions should be covered by a deposit insurance scheme. This scheme is already in existence in United States and it also applicable in Europe albeit within the framework of national legislations. Efforts have been made to insure consistency across countries. It might however be preferable to create a European deposit insurance fund at EU level as indicated by Carmassi *et al*. (2010).

The issue of systemic risk in insurance and the concrete application of our model to an analysis of insurance, financial stability and our proposed guarantee scheme are not specifically addressed in this paper. The model developed may however be extended into this direction. This development is facilitated by a very recent report of the Geneva association. (March 2010).

4.6 Our proposed resolution regime for SIFIs

A special resolution authority for systemically relevant financial firms should be enacted. A fee-based system would be imposed on these firms to pre-fund the resolution authority. Insurance fees would thus cover systemic risk and would be decided in a coordinated way by the microsupervisor and the macrosupervisor. The fee system would necessarily reintroduce pro-cyclicality features in the system. It is therefore necessary to enact a framework based on a through the cycle approach.

Supervisors, to limit the distress of the financial system as a whole and in order to protect the overall economy from significant losses in real output, would thus be enabled to impose an insurance fee covering these risks Clearly a multilateral accord through appropriate legislation would be required in these bank rules. Inconsistency of different countries actions would have to be avoided through coordinated action.

The introduction of a new Resolution Authorities requires in most countries changes in bankruptcy laws to create special legal instruments for the bank resolution authority – either a

[12] The analogy is with systems adopted in Europe (notably in France, Germany and Spain, albeit with significant differences), to cope with natural catastrophic risks.

new specialized administrative authority or the existing bank supervisor, but not the regular bankruptcy court – to take measures as described above. This legislation will apply to banks only (Ruding, 2010).

While risks to the financial system can in principle arise from the failure of one financial institution alone, if it is large enough in relation to the country concerned and/or with multiple branches/subsidiaries in other countries, important global systemic risk arises also from a common exposure of many financial institutions to the same risk factors.

Macro-prudential insurance fees therefore should cover risks deriving from shocks and to other parts of the financial system and to the real economy that could trigger contagious knock-on or feedback effects. The ERF/ERA would specifically address the issue of provisions of contingent capital to complement the main sources of support to an impeding crisis through primary capital and emergency secured medium-term financing[13].

A strong case for an ERA was recently made by the Managing Director of the IMF (Strauss-Kahn, 2010). We find this proposal consistent with our suggested scheme. However, while we agree on the need for a European solution, we wonder whether a global scheme, under the auspices of the IMF itself, would not be preferable in principle. While it is difficult to envisage a new set of Bretton-Woods legal agreements, the need for real international law solution is very clear and should be actively considered[14].

The overall proposed system for banks would therefore be based on accumulated reserves of two separate funds, to insure appropriate resources and the credibility of the overall resolution structure. The first fund would be modelled on the basis of the Federal DIF in the United States, and would cover all deposit taking institutions, including SIFIS in respect of their deposit liabilities. Insurance would be given on deposits, within certain limits, to guarantee their safety. To recall, the FDIC (Federal Deposit Insurance Corporation) was established, within the Banking Act of 1933, by President Franklin D. Roosevelt. In particular, this legislation separated commercial and investment banking (Glass- Steagall Act) and provided an initial funding to the FDIC, to offer deposit insurance to commercial banks, through the US Treasury and the Federal Reserve.

The system was significantly revised by the Federal Deposit Insurance Reform Act (FDIRA), which was signed into law in 2006 by President George Bush. A key point of this law was the merger of the Bank Insurance Fund (BIF) and the Savings Association Insurance Fund (SAIF) into the Deposit Insurance Fund (DIF). The DIF is maintained by the FDIC through an insurance premium paid by banks and based on insured deposits and the degree of risk. Resolution of insolvent banks is generally based on two methods (purchase & assumption, payout).

In a *payout*, the insolvent bank is liquidated and ceases to exist. The FDIC pays off its insured depositors. It then sells the bank's assets and uses the proceeds to pay off the bank's creditors. These include the owners of uninsured deposits and the FDIC itself. The FDIC becomes a creditor by purchasing the insured deposits. The creditors share pro rata in whatever proceeds are realized from the liquidation.

On the other hand, in a *purchase and assumption* (P&A), the FDIC arranges for another bank to purchase the failed bank and to assume it liabilities. Banks interested submit bids in an auction process. There are two versions of P&A. In a *clean-bank* P&A, the successful bidder takes over the liabilities but not the assets. The FDIC pays the bank the cash value of the liabilities less the

[13] On operational model of this type of fund is provided by the Swedish Financial Recovery Fund (www.riskgalden.se).

[14] On these points we refer to the position of the Italian Treasury Minister on an international legal standard and to Matthews (2010).

amount of the bid. It then liquidates the assets and keeps the proceeds. In a *whole-bank* P&A, the successful bidder takes over the assets as well as the liabilities. The FDIC pays it the value of the liabilities less the market value of the assets, less the amount of the bid. The net cost to the FDIC is the same in both versions, but the whole-bank version ties up less of its resources because it does not have to take on and liquidate the loans. As the amount of the assets the FDIC has under liquidation has soared, it has increasingly leaned toward the whole-bank version.

The second fund would apply only to SIFIS and would gradually build up sufficient financial resources to cope with the failure of one of these institutions, mainly through the recalled purchase and assumption and payout methods.

The purpose of this specific fund is two-fold.

To start with, it would overcome the current double moral-hazard standard, whereby: *(i)* SIFI managers may take excessive risks and *(ii)* large depositors view savings held with there institutions as a safer interest than deposits with smaller banks, because of the implicit government guarantee on the full amount of deposits and other liabilities of "too big to fail" financial institutions[15].

The second purpose would be to maintain the focus of the capital standard on idiosyncratic risk

The taxpayer would be protected by the operation of the two bodies. International agreements on global/pan European resolution policies would be required to cope with internationally active organizations, which were born nationally, prosper as cross-border, but, eventually, become again national in death, under current legal frameworks.

Arguments have been raised against an insurance resolution fund for banks (Barnier 20.05.2010).

This position is predicated on the likelihood that the insurance fund would give rise to renewed moral hazard.

The very existence of such fund, with money earmarked for future rescues, would prompt banks'risky behaviour, in the assumption that, in the event of losses leading to a possible default, bail-out would be guaranteed, ultimately at the expense of taxpayers' money (Micossi 2010 Ruding 2010).

The issue is obviously relevant, and requires careful consideration, also to avoid possible confusion.

The first point to be reiterated is that moral hazard is implicit in the very existence of financial institutions deemed "too big to fail" by bank managers, shareholders, bondholders and large depositors, on the one hand, and governments, supervisors, central banks, on the other hand.

This belief was confirmed by the crisis, also in the aftermath of the Leman default.

The second point refers to the nature and the workings of the resolution fund. The approach suggested here is one of a fund owned and run by governments/central banks; it would be gradually funded trough fees (not taxes) paid by the banks which pose a systemic risk and graded according to their contribution to systemic risk. The risk – sensitive fees would be known by the market and would therefore represent an early signal of excessive risk taking.

The fund would therefore act as a sort of ultimate buyer of banks' assets, and should therefore be able to counter negative systemic spillovers, thereby indicating to markets and operators that a Sifi could well be allowed to fail. In our view, the fund should be accompanied by legislative changes which would allow it to intervene, before the default itself. The fund would be given

[15] In Us the current insurance limit on bank deposits in $ 250.000. The increase was decided in 2008, and is due to expire December 31, 2013, when it should go back to $ 100.000. In Europe there are different insurance limits.

ample powers for early interventions, such as removing bank management, adopting ad hoc measures for risk mitigation and for capital enhancement, such as mandatory conversion of bonds into capital. Early intervention would minimize losses and costs of a crisis.

More generally the fund would also be responsible for supervision to overcome the knowledge problem: availability of knowledge and skills dispersed through the financial industry. In this perspective effective supervision is equally important as good and relatively simple rules. The quality, and the remuneration, of the management and the staff is therefore of vital importance, also to avoid regulatory capture.

The fund would obviously be accountable to Governments/Parliaments.

4.7 The operational definition of SIFIs

In order to make the SIFI Fund operational, it is necessary to define SIFIs and to assess each institution's contribution to systemic risk. The model outlined in the Appendix allows identifying SIFIs; the A&B DCoVaR approach measures risk spillovers[16]. This measurement provides a metric to determine the fees which each institution would have to pay to the Fund.

The model that we analytically propose in the appendix defines the stochastic asset process followed by the generic bank *i*

$$\frac{dA_i}{A_i} = \alpha_i^{'}\mu_i dt + \alpha_i^{'}\Sigma_i dz_i = m_i dt + \sigma_i dz_i$$

and the stochastic asset process followed by the whole financial system

$$\frac{dA_s}{A_s} = s^{'} m dt + s^{'}\sigma dZ = M dt + V dZ$$

This framework allows to derive both the banking system unconditional VaR:

$$VaR(A_s, q, T) = A_s\left[1 - \exp\left(\left(s^{'}m - \frac{1}{2}\left|s^{'}\sigma\right|^2\right)T + N^{-1}(q)\left|s^{'}\sigma\right|\sqrt{T}\right)\right] =$$

$$= A_s\left[1 - \exp\left(\left(M - \frac{1}{2}V^2\right)T + N^{-1}(q)V\sqrt{T}\right)\right]$$

and the banking system's CoVaR:

$$CoVaR(A_s, q, T)|i = A_s\left[1 - \exp\left(\left(M - \frac{1}{2}V^2\right)T + \frac{V}{\sigma_i}\rho_{is}\left(N^{-1}(q)\sigma_i\sqrt{T}\right) + N^{-1}(q)V\sqrt{T}\sqrt{1-\rho_{is}^2}\right)\right]$$

[16] A model-based approach to the identification of SIFIs appears to us a necessary condition for their objective treatment. It should not be inferred from this statement that the utilization of the model would be the only instrument used by policy makers and supervisors in their analysis and treatment of SIFIs. Other indicators may well complement the information provided by the proposed analytical framework.

Bank i 's DeltaCoVaR (i.e. its contribution to systemic risk) is given by:

$$\Delta CoVaR(A_s,q,T)|i \equiv CoVaR(A_s,q,T)|i - VaR(A_s,q,T) =$$
$$= A_s\left[1-\exp\left(\left(M-\frac{1}{2}V^2\right)T+\frac{V}{\sigma_i}\rho_{is}\left(N^{-1}(q)\sigma_i\sqrt{T}\right)+N^{-1}(q)V\sqrt{T}\sqrt{1-\rho_{is}^2}\right)\right]-$$
$$-A_s\left[1-\exp\left(\left(M-\frac{1}{2}V^2\right)T+N^{-1}(q)V\sqrt{T}\right)\right]$$

In our proposal, the DeltaCoVaR metric is used to determine the amount of the insurance fee. In particular, with the insurance fee, δ, being continuously paid if the bank in not bankrupt the condition for deriving optimal insurance premium value δ_i^* is the following:

$$I_i \equiv \frac{\delta_i^*}{r}\left[1-\left(\frac{A_i}{A_{id}}\right)^{-2r/\left|\alpha_i'\Sigma_i\right|^2}\right] = m\times\Delta CoVaR(A_s,q,T)|i$$
$$= A_s\left[1-\exp\left(\left(M-\frac{1}{2}V^2\right)T+\frac{V}{\sigma_i}\rho_{is}\left(N^{-1}(q)\sigma_i\sqrt{T}\right)+N^{-1}(q)V\sqrt{T}\sqrt{1-\rho_{is}^2}\right)\right]-$$
$$-A_s\left[1-\exp\left(\left(M-\frac{1}{2}V^2\right)T+N^{-1}(q)V\sqrt{T}\right)\right]$$

where m represents a scaling factor that can be used by the official supervisors for graduating the cost of the insurance to avoid an excessive burden on SIFIS in the short term. It therefore follows that optimal insurance premium δ_i^* paid by SIFI i will be equal to

$$\delta_i^* = m\times\frac{r}{\left[1-\left(\frac{A_i}{A_{id}}\right)^{-2r/\left|\alpha_i'\Sigma_i\right|^2}\right]}\left(\begin{array}{l}A_s\left[1-\exp\left(\left(M-\frac{1}{2}V^2\right)T+\frac{V}{\sigma_i}\rho_{is}\left(N^{-1}(q)\sigma_i\sqrt{T}\right)+N^{-1}(q)V\sqrt{T}\sqrt{1-\rho_{is}^2}\right)\right]-\\ -A_s\left[1-\exp\left(\left(M-\frac{1}{2}V^2\right)T+N^{-1}(q)V\sqrt{T}\right)\right]\end{array}\right)$$

Following our proposal, the Fund, in perspective, could insure microeconomic surveillance and supervision of SIFIS. This hypothesis is predicated on the basis of the intimate knowledge and the information advantages of combining the two functions.

A strong counterargument has been advanced by Bair (2009), on the ground that the Resolution authority should be independent of the institutional regulator, because of conflicts of interest between the regulator and the decision to resolve a SIFI (Terminator vs. Guardian Angel). An appropriate balance should in our view be found in terms of corporate governance of the SIFIRF (SIFI Resolution Fund).

The issue of microsupervision of SIFIS has specific features in Europe. In the first place, the very definition of the SIFI trigger point should be made with regard to the European financial market. Additionally, the issue of consistent and unitary surveillance is especially relevant: in this respect, an added dimension is posed by the likely enactment of leverage ratios on banks and financial groups.

In any event, the Resolution Fund (RF) would not be based on a mutualistic approach. The initial funding and the ultimate liabilities would continue to fall on the relevant authorities. The

corporate governance of the RF might however allow for appropriate interactions, for instance through independent directors with banking and financial experience.

4.8 The RCS and the leverage ratio

The previous considerations let us to return on the role and the regulatory consequences of a maximum leverage ratio, already discussed from other point of views in our opens (see § 3.13).

An intrinsic property of the RCS should be to push banks towards low-risk activities, with low capital absorption, and thus to high leverage ratios in absolute terms. As a result of the 2007-09 crises it is likely that prudential ratios will be introduced, with a view to ensuring that financial institutions do not become excessively leveraged, especially through recourse to high-rating structured exposures.

An added advantage of the leverage ratio lies in its apparently simple implementation, irrespective of the RCS regime adopted in any jurisdiction.

The operation of the leverage ratio would thus represent a useful backstop against regulatory competition: i.e. creeping supervisory concessions.

In sum, the argument is often made that a leverage ratio could represent a useful complement to the RCS.

We do not deny this, but we draw attention to two points.

To start with, the technical complexity requires careful design and calibration of the leverage and capital mechanisms. As we show in the Appendix, there is otherwise a risk of making the RCS non binding.

Care must be taken in ensuring internationally consistent and conform methods of leverage ratio calculation. Otherwise, scope for competitive cross-border regulatory arbitrage would re-emerge.

A more general consideration should also be made. If, in the correct objective of avoiding an excessive consolidation of the financial system, the main emphasis is posed on *(i)* caps on deposits, *(ii)* Glass-Steagall rules, and *(iii)* leverage ratios, we would go back to what we had before the RCS[17].

5. 2010 European sovereign debt crisis

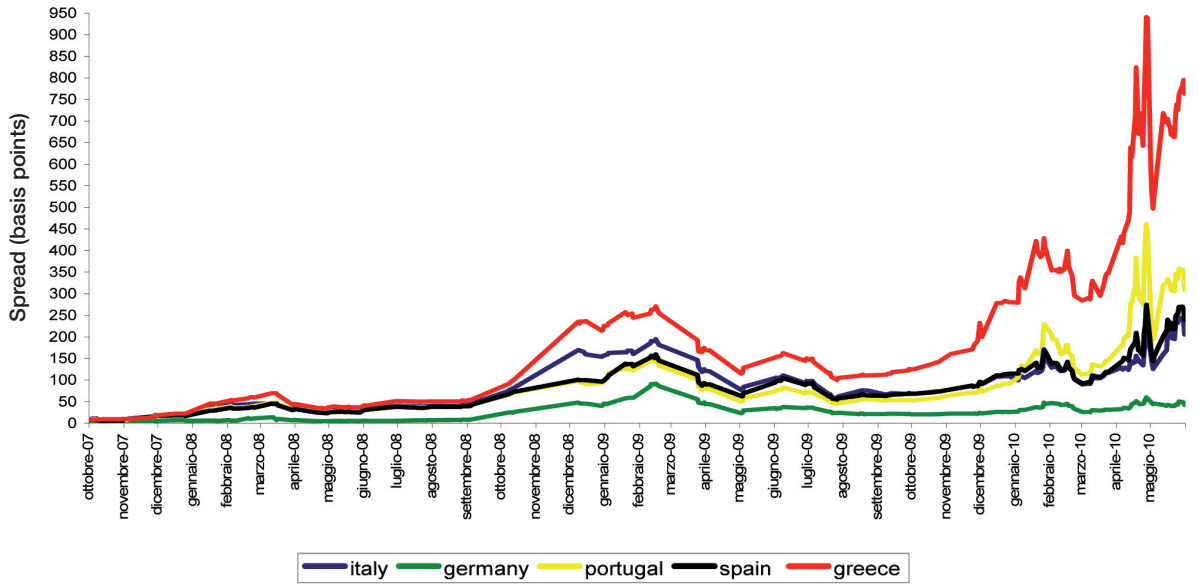
In early 2010 fears of a sovereign debt crisis concerning some countries in Europe (Greece, Ireland, Spain, and Portugal) led to a crisis of confidence as well as the widening of bond yield spreads and risk insurance on credit default swaps between these countries and other EU members, most importantly Germany.

Concern about rising government deficits and debt levels together with a wave of downgrading of European Government debt has created alarm in financial markets. The debt crisis has been mostly centered on recent events in Greece, where there has been concern about the rising cost of financing government debt. The revelation last fall that the Greek government's deficit for 2009 was likely to be several times larger than previously thought – it is now estimated at near 14 percent of gross domestic product (GDP) – and that its debt would significantly exceed 100 percent

[17] These points are addressed in the mathematical appendix of the paper.

of GDP exacerbated the fears in the markets. In response, the Greek government announced substantial fiscal consolidation plans involving sizable increases in revenue and sharp wage cuts for government workers. However, concerns about the plan's feasibility, especially as growth prospects worsened, combined with what financial market participants took to be inconsistent signals from other European countries about the possibility of support, undermined the market's belief in an implicit guarantee.

Euro zone CDS spread



For years many market participants had assumed that an implicit guarantee protected the debt of euro-area members. This presumption may have led to a systematic underpricing of risk, which made debt cheaper to issue than it probably should have been. Although strictures against excessive fiscal deficits and debts were built into the Maastricht Treaty, the European Union (EU) has had relatively weak mechanisms to enforce them, as EU officials themselves have recently acknowledged. Little provision was made for fiscal transfers across members of the euro area in the event that financial support for members became necessary. The global financial crisis created an environment in which the presumed EU guarantee was more likely to be tested.

On 5 March 2010, the Greek parliament passed the Economy Protection Bill, expected to save € 4.8 billion through a number of measures including public sector wage reductions. Passage of the bill occurred amid widespread protests against government austerity measures in the Greek capital, Athens. On 23 April 2010, the Greek government requested that the EU/IMF bailout package be activated.

On 27 April 2010, the Greek debt rating was decreased to 'junk' status by Standard & Poor's amidst fears of default by the Greek government. Yields on Greek government two-year bonds rose to 15.3% following the downgrading. Some analysts question Greece's ability to refinance its debt. Standard & Poor's estimates that in the event of default investors would lose 30-50% of their money.[29] Stock markets worldwide declined in response to this announcement.

Following downgradings by Fitch, Moody's and S&P, Greek bond yields rose in 2010, both in absolute terms and relative to German government bonds. Yields have risen, particularly in the

wake of successive ratings downgrading. As of 6 May 2010, Greek 10-year bonds were trading at an effective yield of 11.31%.

On 2 May 2010, the Eurozone countries and the International Monetary Fund agreed to a € 110 billion loan for Greece, conditional on the implementation of harsh Greek austerity measures.

On 9 May 2010, Europe's Finance Ministers approved a comprehensive rescue package. The European leaders announced the establishment of a European Financial Stabilization mechanism that would be based on up to € 60 billion in European Commission funding and a special purpose vehicle that could raise up to € 440 billion in additional funds in capital markets with guarantees provided by member state governments. Moreover, the IMF stated that it stood ready to cooperate with the EU, in accordance with established IMF lending programs and procedures, if requested by euro-area members. According to the EU, total available support through loans and credit lines, including potential bilateral IMF loans to member countries, could be as large as € 750 billion (approximately $900 billion). In addition, the EU and the IMF announced final approval and funding for the earlier announced Greek rescue package in an effort to assuage concerns about the country's financing needs.

Another set of initiatives addresses market liquidity. Specifically, the European Central Bank (ECB) announced that it was prepared to purchase government and private debt securities to ensure the depth and liquidity of euro area debt markets that were considered dysfunctional. In addition, the ECB expanded its liquidity provision facilities, including offering full-allotment operations for three- and six-month loans. Finally, as I will discuss in more detail later, to forestall an emerging shortage of dollar liquidity, the Federal Reserve reopened temporary U.S. dollar liquidity swap lines with the ECB and other major central banks.

The effect of the announcement on bond markets was immediate. Bond spreads for the peripheral European countries narrowed substantially, at least partly reflecting purchases of government securities by euro-area central banks. The ECB's enhanced liquidity provisions, including dollar credit from the liquidity swaps, have contained stresses in the European interbank market and provided an important backstop for these markets. Stock markets also initially rebounded strongly following the announcement of the European package; however, their declines over the last weeks serve as a reminder that investors are aware that this package cannot ultimately relieve the need for real, and likely painful, fiscal reforms in some euro-area countries.

As pointed out by Ruding (2010) "Europe today is confronted with two major, almost simultaneous financial crises: a bank crisis and a sovereign crisis related to highly indebted national governments", and as correctly stressed by Rogoff and Reinhart (2009) international banking crises are almost invariably followed by sovereign debt crises.

6. Concluding Remarks

In the aftermath of the financial crisis of 2007-09, the issue of reform of the RCS has become intertwined with the problem of regulation, supervision and resolution of SIFIS.

The Basel standard allowed SIFIS to take advantage of apparent diversification of risk. The argument was that large multi-activity financial groups were able to exploit economies of scale and scope and to diversify risk across a broad range of markets and products, thereby gaining access to, and fostering the growth of, global capital markets, the increased size and complexity could be effectively managed using innovations in quantitative risk management techniques – notably internal risk/capital models – and in derivative instruments.

The Basel 2 Advanced Approaches inherently endorsed these concepts, by reducing capital requirements for these institutions, with respect to smaller, less sophisticated banks.

It is now clear that the international regulatory community not only underestimated the procyclicality of the Basel capital standard, but also overestimated the risk mitigation benefits of diversification and risk management for large complex financial groups.

However, with the benefit of hindsight, the major mistake consisted in not recognizing the systemic risk implications of these institutions, which made them "too systematically important to fail". This encouraged excessive risk-profile businesses and behaviours and distorted market and operators' incentives to monitor effectively the action of SIFIS.

The pendulum is now swinging in the opposite direction, again with the risk of excesses.

Some suggest a course of action consisting of reinstating/activating: *(i)* mandatory separation of investment banking/commercial banking activities; *(ii)* quantitative limits on deposit growth; *(iii)* strict leverage ratios. As is shown in the paper, this risks throwing the baby (the capital standard) with the dirty water.

Others maintain that the new RCS should address directly also the issue of systemic risk, by introducing capital surcharges to cope with such risk, for example in terms of a VaR, coVaR analytical framework, developed by Adrian and Brunnermeier (2008).

The model developed here is consistent with the A&B approach; it can indeed provide a microfoundation for such scheme. We show, however, that the framework need not lead to the conclusion of a simultaneous treatment of idiosyncratic and systemic risks.

The case is made that there are advantages on focusing the revised RCS on idiosyncratic risk, while systemic risk would be dealt with through the creation of a SIFI Resolution Fund, based on insurance principles.

The analytical approach developed here would allow the supervisory authorities to determine an appropriate threshold in terms of size and complexity, which permits to identify SIFIS, and introduce incentives to constrain the size and complexity of such financial firms.

A Resolution Authority/Fund for systematically relevant institutions would be put in place: it would be funded by an initial allocation of public funds, and over time, through the imposition of fees, quantified in a coordinated way by the micro and the macrosupervisors.

Macroprudential insurance fees would represent disincentives to excessive complexity and market power of financial firms and help cover risks from institutions that can trigger contagious knock-on and/or feedback effects.

The risk capital standard, streamlined and revised according to the indications outlined in the paper, would not be overburdened with other tasks. It would therefore maintain its desirable property of intrinsic alignment between regulatory and internal bank models, to deal with institution-specific risk. This approach would be facilitated by the recently made, appropriate, changes in accounting standards, which, as indicated in section 3, would allow expected losses to count in terms of bank provisions, and thus strengthen the nexus unexpected losses/capital cushions.

The importance to introduce specific rules for SIFIS, by defining a bank resolution mechanism in case of crisis has been recently stressed by Governor Draghi (2010). The EU Commissioner Barnier (2010) pointed out that "a resolution fund should be used in order to finance the orderly resolution of a bank. It shoud ensure that tax payers' money is not the first line of defence. But it should never be an insurance fund for banks.

Finally, the need should be stressed for a gradual phasing in of both the fee-based approach, and the additional capital and liquidity requirements[18].

[18] As indicated throughout the paper what is necessary is better regulation and supervision, not more and more onerous rules/taxes. According to recent estimates offered by Mc Kinsey the overall value of EBITDA world-wide

We indicated in 2008, Masera (2009) that the capital increases imposed upon banks in the short run would employ a fallacy composition, with the consequence of aggravating the crisis. We fear that a similar situation may be developing now. According to highly reliable estimates, the additional capital and liquidity requirements which would be the outcome of the proposed regulatory changes, outlined here in Section 3, could be, for Eurozone banks, in the order of Euro 500 billion and 1,5 trillion, respectively. This would be independently of the extra capital requirements for SIFIs. Furthermore, Prime Minister Gordon Brown recently affirmed that[19] the large economies were close to agreeing a global tax on banks that could cost the financial sector billions of pounds a year. The Uk prime minister said "the scene is set for a "global responsibility levy". Britain, France and Germany should now broadly agree on the need for a levy, and hopefully the Us would come on board". In this framework the danger of over kill is very real.

stemming from regulation is now in the region of USD 3.6 trillion a year, of which nearly one trillion is applicable to banking and insurance (Nuttall and Sandoval 2010).

[19] Financial Times, April 4th 2010.

Appendix

A1. A stochastic model for bank behaviour and ALM decisions

In this appendix we present a stochastic model for bank behaviour that can be used to derive micro-funded results for Asset and Liabilities Management (ALM). This framework will be used to analyze and obtain formal results for the main issues and thesis presented in this paper.

The contribution of each bank to systemic risk, measured in terms of CoVaR, is analytically derived. We will present closed-form results both for computing capital surcharges and risk-based fees for systemic risk. A formal analysis on the main differences between capital surcharges and risk-based fees on bank's ALM decisions will be presented.

Finally, we will study the implications of a leverage ratio on ALM decisions. The problem of coherence between leverage ratio and capital requirements will be investigated.

A1.1 The dynamics of bank's assets and VaR measures

A bank can invest its assets in traditional lending activity, L or in investment banking business, IB.

$$A = L + IB \tag{1}$$

Each asset class is characterized by the following stochastic returns:

$$dR_L = \mu_L dt + \sigma_L dz_L \tag{2}$$

$$dR_{IB} = \mu_{IB} dt + \sigma_{IB} dz_{IB} \tag{3}$$

With the Brownian motions of lending and investment banking returns given respectively by:

$$\mathrm{dz_L} \sim N\left(0, \sigma_L \sqrt{dt}\right)$$

$$\mathrm{dz_{IB}} \sim N\left(0, \sigma_{IB} \sqrt{dt}\right)$$

It derives that banks assets have the following stochastic behaviour:

$$\frac{dA}{A} = \alpha' \mu dt + \alpha' \Sigma dz \tag{4}$$

With:

$$\mu \equiv \begin{bmatrix} \mu_L \\ \mu_{IB} \end{bmatrix}$$

$$\Sigma \equiv \begin{bmatrix} \sigma_L^2 & \sigma_{LIB} \\ \sigma_{IBL} & \sigma_{IB}^2 \end{bmatrix}$$

$$dz \equiv \begin{bmatrix} dz_L \\ dz_{IB} \end{bmatrix}$$

$$\alpha \equiv \begin{bmatrix} \alpha_L \equiv L/A \\ \alpha_{IB} \equiv IB/A \end{bmatrix}$$

And

$$\alpha_{IB} \equiv 1 - \alpha_L$$

In this framework assets' returns are normally distributed.

$$\ln(A_T) - \ln(A_0) \sim N\left(\left(\alpha' \mu - \frac{1}{2}\left|\alpha' \Sigma\right|^2\right)T, \left|\alpha' \Sigma\right|\sqrt{T}\right) \tag{5}$$

By defining VaR as:

$$VaR(A,q,T) = \inf\{Loss \geq 0 : \Pr(A_0 - A_T \geq Loss) < q\} \tag{6}$$

Its analytic formulation is easily obtained

$$VaR(A,q,T) = A\left[1 - \exp\left(\left(\alpha' \mu - \frac{1}{2}\left|\alpha' \Sigma\right|^2\right)T + N^{-1}(q)\left|\alpha' \Sigma\right|\sqrt{T}\right)\right] \tag{7}$$

A1.2 The pricing of bank liabilities

To price all the liabilities "written" on bank's assets we have to consider the risk-neutral measure, *Q*. Under this measure the stochastic process followed by banks' assets may be rewritten as:

$$\frac{dA}{A} = rdt + \alpha' \Sigma dz^Q \tag{8}$$

In this framework any generic claim (liability), *F*, written on banks' assets must satisfy the following partial Differential Equation (PDE):

$$rA\frac{\partial F}{\partial A} + \frac{1}{2}A^2\left|\alpha' \Sigma\right|^2 \frac{\partial^2 F}{\partial A^2} + \frac{\partial F}{\partial t} - rA = 0 \tag{9}$$

To simplify our analysis we assume that bank fund its assets (with equity and debt) issuing only perpetual claims (this assumption can be easily relaxed without changing the main implications of this model). Issuing perpetual claims as bank's liabilities implies that:

$$\frac{\partial F}{\partial t} = 0$$

We can therefore rewrite PDE (9) as:

$$rA\frac{\partial F}{\partial A}+\frac{1}{2}A^2\left|\alpha'\Sigma\right|^2\frac{\partial^2 F}{\partial A^2}-rA=0 \tag{10}$$

This is now an Ordinary Differential Equation (ODE) and its general solution is the following:

$$F=aA+bA^{-2r/\left|\alpha'\Sigma\right|^2} \tag{11}$$

By imposing appropriate boundary conditions liabilities values can be easily obtained. In particular, if we consider a perpetual debt, B, paying continuously a coupon, D, equity value, E, is represented by:

$$E=A-\frac{D}{r}\left[1-\left(\frac{A}{A_d}\right)^{-2r/\left|\alpha'\Sigma\right|^2}\right]-A_d\left(\frac{A}{A_d}\right)^{-2r/\left|\alpha'\Sigma\right|^2} \tag{12}$$

where assets' default trigger is given by:

$$A_d=\frac{2r}{2r+\left|\alpha'\Sigma\right|^2}\frac{D}{r}$$

A1.3 Bank's capital holdings

The floor of capital held by the bank is represented by the capital requirements:

$$E^{CR}\equiv c\times A\left[1-\exp\left(\left(\alpha'\mu-\frac{1}{2}\left|\alpha'\Sigma\right|^2\right)T+N^{-1}(q)\left|\alpha'\Sigma\right|\sqrt{T}\right)\right] \tag{13}$$

with c being the capital requirements' rate. Capital holding of the bank is composed of capital requirements and potential extra capital buffers CB.

$$E=c\times A\left[1-\exp\left(\left(\alpha'\mu-\frac{1}{2}\left|\alpha'\Sigma\right|^2\right)T+N^{-1}(q)\left|\alpha'\Sigma\right|\sqrt{T}\right)\right]+CB=E^{CR}+CB^{EC}+CB^{\eta} \tag{14}$$

Potential extra-capital buffer drivers are: *i)* economic capital (when unexpected loss computed in this framework is higher than capital requirements), *ii)* a particular credit ratings target η^*

$$CB\equiv CB^{EC}+CB^{\eta} \tag{15}$$

A1.4 Bank's ALM problem

By using equity valuation equation (12) and the capital holding equation (14) we obtain a two-equation system in two equations that can be used to define ALM problem faced by the bank for its investment and financing decisions:

$$\begin{cases} E = A - \dfrac{D}{r}\left[1 - \left(\dfrac{A}{A_d}\right)^{-2r/\left|\alpha'\Sigma\right|^2}\right] - A_d\left(\dfrac{A}{A_d}\right)^{-2r/\left|\alpha'\Sigma\right|^2} \\ E = c \times A\left[1 - \exp\left(\left(\alpha'\mu - \dfrac{1}{2}\left|\alpha'\Sigma\right|^2\right)T + N^{-1}(q)\left|\alpha'\Sigma\right|\sqrt{T}\right)\right] + CB \end{cases} \tag{16}$$

Bank has to decide its investment-funding policies by solving this two-equation system for the two variables α (the unknown is a scalar) and D which represent respectively the assets' mix between lending and investment banking activities and the level of the debt (more precisely the level of the coupon and consequently the level of the perpetual debt issued).

Assuming that economic capital is a generic function f of the variance of bank's assets for a given time horizon T^*:

$$UL(T^*) \equiv f\left[\text{var}\,iance\left(A_{T^*}\right)\right] = f\left[A\exp(rT^*)\sqrt{\exp\left(\left|\alpha'\Sigma\right|^2 T^*\right) - 1}\right] \tag{17}$$

potential extra-capital buffer due to assets unexpected loss (i.e. economic capital computations) is given by:

$$\begin{aligned} E^{CR} + CB^{EC} = \max\Bigg[& f\left(A\exp(rT^*)\sqrt{\exp\left(\left|\alpha'\Sigma\right|^2 T^*\right) - 1}\right); \\ & c \times A\left[1 - \exp\left(\left(\alpha'\mu - \frac{1}{2}\left|\alpha'\Sigma\right|^2\right)T + N^{-1}(q)\left|\alpha'\Sigma\right|\sqrt{T}\right)\right]\Bigg] \end{aligned} \tag{18}$$

In other word, extra-capital due to economic capital can be considered as call option written on bank's assets' variance for a given time horizon with a strike price equal to capital requirements payed:

$$\begin{aligned} CB^{EC} = \max\Bigg[& 0; f\left(A\exp(rT^*)\sqrt{\exp\left(\left|\alpha'\Sigma\right|^2 T^*\right) - 1}\right) \\ & - c \times A\left[1 - \exp\left(\left(\alpha'\mu - \frac{1}{2}\left|\alpha'\Sigma\right|^2\right)T + N^{-1}(q)\left|\alpha'\Sigma\right|\sqrt{T}\right)\right]\Bigg] \end{aligned} \tag{19}$$

To determine potential extra-capital due to a given debt rating target, η^*, we have to consider that for a given debt value B, the following equation must be satisfied:

$$B(\eta^*) = \frac{D}{r + \eta^*} \tag{20}$$

It therefore follows that potential extra capital buffer due to a target debt rating is given:

$$E(\eta^*) = A - B(\eta^*) = A - \frac{D}{r + \eta^*} \tag{21}$$

Consequently equity holdings are:

$$E = E^{CR} + CB^{EC} + CB^{\eta} = \max\left[E^{CR} + CB^{EC}; A - \frac{D}{r+\eta^*} \right] \tag{22}$$

and also this "slice" of potential extra capital can be considered as call option written on a particular transformation of bank's assets, $\left(A - \frac{D}{r+\eta^*} \right)$ with a strike $\left(E^{CR} + CB^{EC} \right)$.

$$CB^{\eta} = \max\left[0; \left(A - \frac{D}{r+\eta^*} \right) - \left(E^{CR} + CB^{EC} \right) \right] \tag{23}$$

We are now able to restate our ALM problem (16) as:

$$\begin{cases} E = A - \dfrac{D}{r}\left[1 - \left(\dfrac{A}{A_d} \right)^{-2r/\left|\alpha^{'}\Sigma\right|^2} \right] - A_d \left(\dfrac{A}{A_d} \right)^{-2r/\left|\alpha^{'}\Sigma\right|^2} \\ E = E^{CR} + CB^{EC} + CB^{\eta} = \max\left[E^{CR} + CB^{EC}; A - \dfrac{D}{r+\eta^*} \right] = \\ = \max\left[\max\left[f\left(A\exp\left(rT^*\right)\sqrt{\exp\left(\left|\alpha^{'}\Sigma\right|^2 T^*\right) - 1}\right); c \times A\left[1 - \exp\left(\left(\alpha^{'}\mu - \dfrac{1}{2}\left|\alpha^{'}\Sigma\right|^2 \right)T + N^{-1}(q)\left|\alpha^{'}\Sigma\right|\sqrt{T} \right) \right] \right]; A - \dfrac{D}{r+\eta^*} \right] \end{cases} \tag{24}$$

now an explicit solution for α and D can be obtained.

A.2 Systemic risk: capital surcharges vs. risk based fees for a Resolution fund

To formalize the problem of choice between a capital surcharges and a risk based scheme used to finance a Resolution Fund we present a generalization of the model presented in the previous section.

A2.1 The dynamics of banking system's assets, VaR and CoVaR measures

Banks' assets values in the system are represented by the following for $(n \times 1)$ vector:

$$A \equiv \begin{bmatrix} A_1 \\ \cdots \\ \cdots \\ A_i \\ \cdots \\ A_n \end{bmatrix}$$

Banks' relative size vector is the following

$$s \equiv \begin{bmatrix} s_1 \equiv A_1 / A_s \\ \dots \\ \dots \\ s_i = A_i / A_s \\ \dots \\ s_n = A_n / A_s \end{bmatrix}$$

Obviously aggregated banks' assets values in the system are given by

$$A_s = 1' A$$

The stochastic asset process followed by the generic bank *i* is

$$\frac{dA_i}{A_i} = \alpha_i^{'} \mu_i dt + \alpha_i^{'} \Sigma_i dz_i = m_i dt + \sigma_i dz_i \tag{25}$$

with

$$\alpha_i \equiv \begin{bmatrix} \alpha_{L(i)} \equiv L(i) / A_i \\ \alpha_{IB(i)} \equiv IB(i) / A_i \end{bmatrix}$$

$$\mu_i \equiv \begin{bmatrix} \mu_{L(i)} \\ \mu_{IB(i)} \end{bmatrix}$$

$$\sigma_i \equiv \left| \alpha_i^{'} \Sigma_i \right|$$

$$\Sigma_i \equiv \begin{bmatrix} \sigma_{L(i)}^2 & \sigma_{L(i)IB(i)} \\ \sigma_{IB(i)L(i)} & \sigma_{IB(i)}^2 \end{bmatrix}$$

$$dz_i \equiv \begin{bmatrix} dz_{L(i)} \\ dz_{IB(i)} \end{bmatrix}$$

The stochastic asset process for the whole system is

$$\frac{dA_s}{A_s} = s^{'} m dt + s^{'} \sigma dZ = M dt + V dZ \tag{26}$$

with

$$M \equiv s^{'} m ; V \equiv s^{'} \sigma$$

$$m \equiv \begin{bmatrix} m_1 \equiv \alpha_{'1}^{'}\mu_1 \\ \cdots \\ \cdots \\ m_i \equiv \alpha_{'i}^{'}\mu_i \\ \cdots \\ m_n \equiv \alpha_{'n}^{'}\mu_n \end{bmatrix}$$

$$\sigma \equiv \begin{bmatrix} \sigma_1^2 \ldots\ldots\ldots\ldots\sigma_{1i} \ldots\ldots\ldots\ldots\sigma_{1n}. \\ . \\ . \\ \sigma_{1i} \ldots\ldots\ldots\ldots\sigma_{ij} \ldots\ldots\ldots\ldots\sigma_{in}. \\ . \\ . \\ \sigma_{n1} \ldots\ldots\ldots\ldots\sigma_{ni} \ldots\ldots\ldots\ldots\sigma_n^2. \end{bmatrix}$$

$$dZ \equiv \begin{bmatrix} dZ_1 \equiv \alpha_1^{'} dz_1 \\ \cdots \\ \cdots \\ dZ_i \equiv \alpha_i^{'} dz_i \\ \cdots \\ dZ_n \equiv \alpha_n^{'} dz_n \end{bmatrix}$$

Banking system assets' return are normally distributed

$$\ln\left(A_s(T)\right) - \ln\left(A_s(0)\right) \sim N\left(\left(s^{'}m - \frac{1}{2}\left|s^{'}\sigma\right|^2\right)T, \left|s^{'}\sigma\right|\sqrt{T}\right) = N\left(\left(M - \frac{1}{2}V^2\right)T, V\sqrt{T}\right) \tag{27}$$

Defining banking system unconditional VaR as

$$VaR\left(A_s, q, T\right) = \inf\left\{Loss \geq 0 : \Pr\left(A_s(0) - A_s(T) \geq Loss\right) < q\right\} \tag{28}$$

Banking system unconditional VaR can be easily obtained

$$\begin{aligned} VaR\left(A_s, q, T\right) &= A_s\left[1 - \exp\left(\left(s^{'}m - \frac{1}{2}\left|s^{'}\sigma\right|^2\right)T + N^{-1}(q)\left|s^{'}\sigma\right|\sqrt{T}\right)\right] = \\ &= A_s\left[1 - \exp\left(\left(M - \frac{1}{2}V^2\right)T + N^{-1}(q)V\sqrt{T}\right)\right] \end{aligned} \tag{29}$$

And the banking system conditional assets return distribution (conditioned to the losses of bank for *i* being equal to bank's *i* VaR) is

$$\ln\left(A_s(T)\middle|\left(-\Delta A_i = VaR(A_i)\right)\right) - \ln\left(A_s(0)\middle|\left(-\Delta A_i = VaR(A_i)\right)\right) \sim$$
$$\sim N\left(\left(M - \frac{1}{2}V^2\right)T + \frac{V}{\sigma_i}\rho_{is}\left(N^{-1}(q)\sigma_i\sqrt{T}\right), V\sqrt{T}\sqrt{1-\rho_{is}^2}\right) \tag{30}$$

We can now determine banking system's CoVaR as:

$$CoVaR(A_s, q, T)\middle|i = A_s\left[1 - \exp\left(\left(M - \frac{1}{2}V^2\right)T + \frac{V}{\sigma_i}\rho_{is}\left(N^{-1}(q)\sigma_i\sqrt{T}\right) + N^{-1}(q)V\sqrt{T}\sqrt{1-\rho_{is}^2}\right)\right] \tag{31}$$

where ρ_{is} represents the covariance between the assets of bank *i*' and the whole system.

Bank *i*'s DeltaCoVaR (i.e. its contribution to systemic risk) is given by:

$$\Delta CoVaR(A_s, q, T)\middle|i \equiv CoVaR(A_s, q, T)\middle|i - VaR(A_s, q, T) =$$
$$= A_s\left[1 - \exp\left(\left(M - \frac{1}{2}V^2\right)T + \frac{V}{\sigma_i}\rho_{is}\left(N^{-1}(q)\sigma_i\sqrt{T}\right) + N^{-1}(q)V\sqrt{T}\sqrt{1-\rho_{is}^2}\right)\right] - \tag{32}$$
$$- A_s\left[1 - \exp\left(\left(M - \frac{1}{2}V^2\right)T + N^{-1}(q)V\sqrt{T}\right)\right]$$

By using the same approach followed in the previous section we can now solve the ALM problem for bank *i* by considering the effects of capital surcharges for systemic risk based on its DeltaCoVaR.

A2.2 The pricing of banking system's liabilities

Bank *i* equity value is given by

$$E_i = A_i - \frac{D_i}{r}\left[1 - \left(\frac{A_i}{A_{id}}\right)^{-2r/\left|\alpha_i'\Sigma_i\right|^2}\right] - A_{id}\left(\frac{A_i}{A_{id}}\right)^{-2r/\left|\alpha_i'\Sigma_i\right|^2} \tag{33}$$

With a default trigger

$$A_{id} = \frac{2r}{2r + \left|\alpha_i'\Sigma_i\right|^2}\frac{D_i}{r}$$

A2.3 Banking system's capital holdings

Bank *i* capital holdings are given by

$$E_i = c_i \times A_i\left[1-\exp\left(\left(\alpha_i^{'}\mu_i - \frac{1}{2}\left|\alpha_i^{'}\Sigma_i\right|^2\right)T + N^{-1}(q)\left|\alpha_i^{'}\Sigma_i\right|\sqrt{T}\right)\right] + \tag{34}$$

$$+ c_s \times \left(\begin{array}{l} A_s\left[1-\exp\left(\left(M-\frac{1}{2}V^2\right)T + \frac{V}{\left|\alpha_i^{'}\Sigma_i\right|}\rho_{is}\left(N^{-1}(q)\left|\alpha_i^{'}\Sigma_i\right|\sqrt{T}\right) + N^{-1}(q)V\sqrt{T}\sqrt{1-\rho_{is}^2}\right)\right] - \\ - A_s\left[1-\exp\left(\left(M-\frac{1}{2}V^2\right)T + N^{-1}(q)V\sqrt{T}\right)\right] \end{array}\right)$$

$$+ CB_i = E_i^{CR} + CB_i^{EC} + CB_i^{\eta}$$

with c_i and being c_s respectively the idiosyncratic capital requirements rate and the systemic capital requirements rate.

In this framework capital requirements are given by:

$$E^{CR} \equiv c_i \times A_i\left[1-\exp\left(\left(\alpha_i^{'}\mu_i - \frac{1}{2}\left|\alpha_i^{'}\Sigma_i\right|^2\right)T + N^{-1}(q)\left|\alpha_i^{'}\Sigma_i\right|\sqrt{T}\right)\right] + \tag{35}$$

$$+ c_s \times \left(\begin{array}{l} A_s\left[1-\exp\left(\left(M-\frac{1}{2}V^2\right)T + \frac{V}{\left|\alpha_i^{'}\Sigma_i\right|}\rho_{is}\left(N^{-1}(q)\left|\alpha_i^{'}\Sigma_i\right|\sqrt{T}\right) + N^{-1}(q)V\sqrt{T}\sqrt{1-\rho_{is}^2}\right)\right] - \\ - A_s\left[1-\exp\left(\left(M-\frac{1}{2}V^2\right)T + N^{-1}(q)V\sqrt{T}\right)\right] \end{array}\right)$$

While potential extra-capital buffers are determined by:

$$CB_i \equiv CB_i^{EC} + CB_i^{\eta} \tag{36}$$

A2.4 Banking system's ALM problem

We are now in the position to define bank *i* ALM problem:

$$\begin{cases} E_i = A_i - \dfrac{D_i}{r}\left[1-\left(\dfrac{A_i}{A_{id}}\right)^{-2r/\left|\alpha_i'\Sigma_i\right|^2}\right] - A_{id}\left(\dfrac{A_i}{A_{id}}\right)^{-2r/\left|\alpha_i'\Sigma_i\right|^2} \\ E_i = c_i \times A_i\left[1-\exp\left(\left(\alpha_i'\mu_i - \dfrac{1}{2}\left|\alpha_i'\Sigma_i\right|^2\right)T + N^{-1}(q)\left|\alpha_i'\Sigma_i\right|\sqrt{T}\right)\right] \\ c_s \times \left(\begin{array}{l} A_s\left[1-\exp\left(\left(M-\dfrac{1}{2}V^2\right)T + \dfrac{V}{\left|\alpha_i'\Sigma_i\right|}\rho_{is}\left(N^{-1}(q)\left|\alpha_i'\Sigma_i\right|\sqrt{T}\right) + N^{-1}(q)V\sqrt{T}\sqrt{1-\rho_{is}^2}\right)\right] - \\ -A_s\left[1-\exp\left(\left(M-\dfrac{1}{2}V^2\right)T + N^{-1}(q)V\sqrt{T}\right)\right] \end{array}\right) \\ + CB_i \end{cases} \tag{37}$$

Variance on bank *i* assets is given by:

$$UL_i(T^*) \equiv \text{var}\,iance(A_i(T*)) = A_i\exp(rT^*)\sqrt{\exp\left(\left|\alpha_i'\Sigma_i\right|^2 T^*\right)-1} \tag{38}$$

Potential extra-capital buffer due to assets unexpected loss (i.e. economic capital computations) is given by:

(39)

$$E_i^{CR} + CB_i^{EC} = \max\left[\begin{array}{l} f\left(A_i\exp(rT^*)\sqrt{\exp\left(\left|\alpha_i'\Sigma_i\right|^2 T^*\right)-1}\right); \\ c_i \times A_i\left[1-\exp\left(\left(\alpha_i'\mu_i - \dfrac{1}{2}\left|\alpha_i'\Sigma_i\right|^2\right)T + N^{-1}(q)\left|\alpha_i'\Sigma_i\right|\sqrt{T}\right)\right] \\ c_s \times \left(\begin{array}{l} A_s\left[1-\exp\left(\left(M-\dfrac{1}{2}V^2\right)T + \dfrac{V}{\left|\alpha_i'\Sigma_i\right|}\rho_{is}\left(N^{-1}(q)\left|\alpha_i'\Sigma_i\right|\sqrt{T}\right) + N^{-1}(q)V\sqrt{T}\sqrt{1-\rho_{is}^2}\right)\right] - \\ -A_s\left[1-\exp\left(\left(M-\dfrac{1}{2}V^2\right)T + N^{-1}(q)V\sqrt{T}\right)\right] \end{array}\right) \end{array}\right]$$

Also in this case extra-capital due to economic capital can be considered as a call option written on a function of bank's assets' variance for a given time horizon with a strike price equal to capital requirements payed:

(40)

$$CB_i^{EC} = \max\left[\begin{array}{l} 0; f\left(A_i \exp(rT^*)\sqrt{\exp\left(\left|\alpha_i'\Sigma_i\right|^2 T^*\right)-1}\right) - \\ \left(\begin{array}{l} c_i \times A_i\left[1-\exp\left(\left(\alpha_i'\mu_i - \frac{1}{2}\left|\alpha_i'\Sigma_i\right|^2\right)T + N^{-1}(q)\left|\alpha_i'\Sigma_i\right|\sqrt{T}\right)\right] \\ c_s \times \left(\begin{array}{l} A_s\left[1-\exp\left(\left(M-\frac{1}{2}V^2\right)T + \frac{V}{\left|\alpha_i'\Sigma_i\right|}\rho_{is}\left(N^{-1}(q)\left|\alpha_i'\Sigma_i\right|\sqrt{T}\right) + N^{-1}(q)V\sqrt{T}\sqrt{1-\rho_{is}^2}\right)\right] - \\ -A_s\left[1-\exp\left(\left(M-\frac{1}{2}V^2\right)T + N^{-1}(q)V\sqrt{T}\right)\right] \end{array} \right) \end{array} \right) \end{array} \right]$$

To determine potential extra-capital due to a given debt rating target, η_i^*, we have to consider that for a given debt value B_i, the following equation must be satisfied:

$$B\left(\eta_i^*\right) = \frac{D_i}{r+\eta_i^*} \tag{41}$$

It therefore follows that potential extra capital buffer due to a target debt rating is given. Consequently equity holdings are:

$$E_i\left(\eta_i^*\right) = A_i - B\left(\eta_i^*\right) = A_i - \frac{D_i}{r+\eta_i^*} \tag{42}$$

and also in this case the slice of potential extra capital can be considered as a call option written on a particular transformation of bank's assets with a strike $\left(E_i^{CR} + CB_i^{EC}\right)$.

$$E_i = E_i^{CR} + CB_i^{EC} + CB_i^{\eta} = \max\left[E_i^{CR} + CB_i^{EC}; A_i - \frac{D_i}{r+\eta_i^*}\right] \tag{43}$$

$$CB_i^{\eta} = \max\left[0; \left(A_i - \frac{D_i}{r+\eta_i^*}\right) - \left(E_i^{CR} + CB_i^{EC}\right)\right] \tag{44}$$

We can now state the ALM problem for bank *i* as:

(45)

$$
\begin{cases}
E = E_i = A_i - \dfrac{D_i}{r}\left[1-\left(\dfrac{A_i}{A_{id}}\right)^{-2r/\left|\alpha_i'\Sigma_i\right|^2}\right] - A_{id}\left(\dfrac{A_i}{A_{id}}\right)^{-2r/\left|\alpha_i'\Sigma_i\right|^2} \\
E = E_i^{CR} + CB_i^{EC} + CB_i^{\eta} = \max\left[E_i^{CR} + CB_i^{EC}; A_i - \dfrac{D_i}{r+\eta_i^*}\right] = \\
= \max\left[\max\left[\begin{array}{l}
f\left(A_i \exp\left(rT^*\right)\sqrt{\exp\left(\left|\alpha_i'\Sigma_i\right|^2 T^*\right)-1}\right); \\
c_i \times A_i\left[1-\exp\left(\left(\alpha_i'\mu_i - \dfrac{1}{2}\left|\alpha_i'\Sigma_i\right|^2\right)T + N^{-1}(q)\left|\alpha_i'\Sigma_i\right|\sqrt{T}\right)\right] \\
c_s \times \left(\begin{array}{l}
A_s\left[1-\exp\left(\left(M-\dfrac{1}{2}V^2\right)T + \dfrac{V}{\left|\alpha_i'\Sigma_i\right|}\rho_{is}\left(N^{-1}(q)\left|\alpha_i'\Sigma_i\right|\sqrt{T}\right) + N^{-1}(q)V\sqrt{T}\sqrt{1-\rho_{is}^2}\right)\right] - \\
-A_s\left[1-\exp\left(\left(M-\dfrac{1}{2}V^2\right)T + N^{-1}(q)V\sqrt{T}\right)\right]
\end{array}\right)
\end{array}\right]; A - \dfrac{D}{r+\eta^*}\right]
\end{cases}
$$

We note that if $CB_i^{EC} > 0$ the capital surcharge for systemic risk is not binding (no more capital is raised for systemic risk).

A3 Risk based scheme for the financing of a Resolution Fund

Risk based fee, δ, is continuously paid if the bank in not bankrupt
Condition for deriving optimal risk based fee δ_i^* is the following:

$$I_i \equiv \frac{\delta_i^*}{r}\left[1-\left(\frac{A_i}{A_{id}}\right)^{-2r/\left|\alpha_i^{'}\Sigma_i\right|^2}\right] = m \times \Delta CoVaR\left(A_s, q, T\right)\Big|i$$
$$= A_s\left[1-\exp\left(\left(M-\frac{1}{2}V^2\right)T+\frac{V}{\sigma_i}\rho_{is}\left(N^{-1}(q)\sigma_i\sqrt{T}\right)+N^{-1}(q)V\sqrt{T}\sqrt{1-\rho_{is}^2}\right)\right]- \quad (46)$$
$$-A_s\left[1-\exp\left(\left(M-\frac{1}{2}V^2\right)T+N^{-1}(q)V\sqrt{T}\right)\right]$$

m represents a scaling factor that can be used by the official supervisors for graduating the cost of the fee to avoid an excessive burden on SIFIS in the short term. It therefore follows that optimal insurance premium δ_i^* paid by SIFI *i* will be equal to

(47)

$$\delta_i^* = m \times \frac{r}{\left[1-\left(\frac{A_i}{A_{id}}\right)^{-2r/\left|\alpha_i^{'}\Sigma_i\right|^2}\right]}\left(\begin{array}{l} A_s\left[1-\exp\left(\left(M-\frac{1}{2}V^2\right)T+\frac{V}{\sigma_i}\rho_{is}\left(N^{-1}(q)\sigma_i\sqrt{T}\right)+N^{-1}(q)V\sqrt{T}\sqrt{1-\rho_{is}^2}\right)\right]- \\ -A_s\left[1-\exp\left(\left(M-\frac{1}{2}V^2\right)T+N^{-1}(q)V\sqrt{T}\right)\right] \end{array}\right)$$

We define the vector δ

$$\delta \equiv \begin{bmatrix} \delta_1 \\ \dots \\ \dots \\ \delta_i \\ \dots \\ \delta_n \end{bmatrix}$$

representing the risk based fees continuously paid by all the *n* SIFIS (conditioned on the non bankruptcy of SIFIS), and the vector *I*

$$I \equiv \begin{bmatrix} I_1 \\ \dots \\ \dots \\ I_i \\ \dots \\ I_n \end{bmatrix}$$

representing the present value of the risk based fees continuously paid by all the *n* SIFIS (conditioned on the non bankruptcy of SIFIS). The total amount of fees continuously paid to the special resolution authority (SRA) is given by:

$$1'\delta = \textit{total fees receives continously paid}$$

In this framework we are able to determine the value of the special resolution authority's assets

$$I^s = 1'I = \textit{total special resolution authority's assets}$$

A first solution could be represented by a SRA completely owned and controlled by official supervisors. In this case Assets and Liabilities of the SRA will be simply given by:

ASSETS	LIABILITIES
I^s	***Pub***

Another option could be represented by a private-public partnership (PPP), with SIFIS participating in the Fund. Cash raised by the private participants (*Priv)* could be invested in risk-free and/or low risk assets *B*. The corporate governance of the fund would reflect the joint public-private participation. In this case Assets and Liabilities of the SRA will be given by:

ASSETS	LIABILITIES
I^s	***Pub***
B	***Priv***

Finally, a third option could be represented by the reinsurance of a portion of the risk faced by the SRA. If the SRA sells a fraction α of the risk it faces by paying a fraction of the fees it receives as systemic insurer to a third reinsurer, its new capital structure will be represented by

ASSETS	LIABILITIES
$(1-\alpha)I^s$	***Pub***

We obviously assume that the premium paid to the reinsurer is proportional to the risk transferred (represented by the VaR of the system. It therefore follows that the condition for the pricing of the reinsurance will be given by:

$$\alpha I^{s} = ins\left(VaR\left(A_{s}, q, T\right)\right) = ins\left(A_{s}\left[1-\exp\left(\left(M-\frac{1}{2}V^{2}\right)T+N^{-1}\left(q\right)V\sqrt{T}\right)\right]\right)$$

where *ins()* represents the insurance cost function priced by the reinsurer.

Coherence of leverage ratio with capital requirements

If a leverage ratio is introduced simultaneously with capital requirements, we have that equity holdings, E, of a given bank must simultaneously satisfy:

$$\begin{cases} E \geq \dfrac{1}{lev\_ratio} \times A \\ E \geq c \times A\left[1-\exp\left(\left(\alpha^{'}\mu-\dfrac{1}{2}\left|\alpha^{'}\Sigma\right|^{2}\right)T+N^{-1}\left(q\right)\left|\alpha^{'}\Sigma\right|\sqrt{T}\right)\right] \end{cases}$$

this implies that for

$$lev\_ratio \leq \frac{1}{c \times \left[1-\exp\left(\left(\alpha^{'}\mu-\dfrac{1}{2}\left|\alpha^{'}\Sigma\right|^{2}\right)T+N^{-1}\left(q\right)\left|\alpha^{'}\Sigma\right|\sqrt{T}\right)\right]}$$

capital requirements are no more, and never, binding.

ANNEX I: LAST BCBS documents since crisis beginning (August 2007)

30 Dec 2009	LGD floor for claims secured by residential mortgages
17 Dec 2009	International framework for liquidity risk measurement, standards and monitoring - consultative document
17 Dec 2009	Strengthening the resilience of the banking sector - consultative document
5 Oct 2009	Trading book quantitative impact study by the Basel Committee: results
29 Sep 2009	Joint Forum final report on Special Purpose Entities
17 Sep 2009	Report and recommendations of the Cross-border Bank Resolution Group
7 Sep 2009	Comprehensive response to the global banking crisis
27 Aug 2009	Guiding principles for the revision of accounting standards for financial instruments
28 Jul 2009	Papers on operational risk
13 Jul 2009	Announcement by the Basel Committee of Basel II capital framework enhancements
18 Jun 2009	Core Principles for Effective Deposit Insurance Systems: paper issued by Basel Committee and IADI
15 Jun 2009	Joint Forum final paper on Stocktaking on the use of credit ratings
20 May 2009	Sound stress testing principles
14 May 2009	Working paper on the interaction of market and credit risk
12 May 2009	Guidance on cross-border wire transfer messages
30 Mar 2009	Initiatives in response to the crisis by the Basel Committee
8 Jan 2009	Steps to strengthen implementation of supervisory standards and guidance
6 Jan 2009	Consultative paper on Principles for sound stress testing
2 Dec 2008	External audit quality and banking supervision
28 Nov 2008	Consultative Paper on Assessing fair value practices
25 Sep 2008	Global bank supervisors' strengthened sound practice standards for liquidity risk management and supervision
17 Jun 2008	Principles for Sound Liquidity Risk Management and Supervision

ANNEX II: EUROPEAN LEVEL

Last CEBS, CEIOPS, CESR documents since end of consultation periods

06 January 2010	revised framework on Common Reporting (COREP)
22 December 2009	guidelines on operational risk mitigation techniques
21 December 2009	draft guidelines on the management of operational risk in market-related activities
17 December 2009	Draft Guidelines for the operational functioning of colleges
15 December 2009	revised guidelines on financial reporting
14 December 2009	draft revised guidelines on stress testing
11 December 2009	draft guidelines on concentration risk
11 December 2009	guidelines on the revised large exposures regime
11 December 2009	guidelines on common reporting of large exposures
10 December 2009	guidelines on hybrid capital instruments
09 December 2009	guidelines on liquidity buffers
03 December 2009	agenda for public roundtable on pillar 3 convergence
30 November 2009	comments on part 2 of the iascf constitution review proposals for enhanced public accountability
24 November 2009	comments on the iasb's exposure draft improvements to ifrss
03 November 2009	advice on the effectiveness of a minimum retention requirement for securitisations
30 October 2009	scope and internal control requirements of the financial conglomerates directive
15 October 2009	3 level 3 committees compendium paper on the supervisory implementation practices of the third money laundering directive
05 October 2009	comments on the european commission's consultation on the adoption of international standards on auditing - isas
28 September 2009	comments on the iasb's ed/2009/5 fair value measurement
17 September 2009	consultation paper on the extension of cebs's supervisory disclosure framework
08 September 2009	compendium of supplementary guidelines on implementation issues of operational risk
27 August 2009	guidelines on passport notifications
21 July 2009	revised peer review methodology
17 July 2009	position paper on a countercyclical capital buffer
24 June 2009	reports on assessment of banks' disclosures
22 June 2009	liquidity identity card
10 June 2009	second advice on options and national discretions
28 May 2009	proposed solutions to address some issues noted in the financial conglomerates directive
20 April 2009	principles on remuneration
17 April 2009	report on custodian banks' settlement internalisation and ccp-like activities
15 April 2009	consultation on guidelines on operational risk mitigation techniques
09 April 2009	implementation of the guidelines on validation
08 April 2009	high-level principles for risk management
02 April 2009	good practices paper on the functioning of colleges of supervisors for cross-border banking groups
18 March 2009	interim report on liquidity buffers and "survival" periods
06 March 2009	report mapping supervisory objectives and powers across eu member states
05 February 2009	analysis of the supervisory implications of national stabilisation plans
27 January 2009	revised template for written agreements between supervisors for the functioning of colleges.
27 January 2009	ten principles for the functioning of supervisory colleges

State of the art in Capital Requirement Directive revision[20]

The Capital Requirements Directives were adopted in 2006 and are currently under review.
Milestones:

- June 2006: Capital Requirement Directives adopted
- January 2007: The Directive came into force
- October 2008: The European Commission proposed a review of the Capital Requirement Directives
- April 2009: The European Commission proposed a new review of the Capital Requirement Directives to take into account risks related to trade books, securitisation and managers' remunerations
- May 2009: The European Parliament adopted the 2008 review of the Capital Requirement Directives

The current EU regime is contained in two directives: Directive 2006/48/EC on the "taking up and pursuit of the business of credit institutions" and Directive 2006/49/EC on the "capital adequacy of investment firms and credit institutions".

The European Commission in October 2008 presented a review of the rules in place. The proposed changes request banks to hold a higher amount of capital against the risk of failure and introduce a new coordinated, although cumbersome, supervisory process for cross-border EU banks. According to EU official figures, in October 2008 there were in Europe 44 cross-border institutes, holding two thirds of total EU bank assets.

The proposal has been agreed by the European Parliament in May 2009 and later by the Council. Even before the vote in the Parliament, the Commission proposed a new review of the directives to take into account risks related to trading books, securitization and managers' remunerations.

While the initiative still waits for a green light from member states, the Council has proposed tougher rules for granting loans in periods of economic growth, in order to allow banks to have higher "liquidity buffers" in new crisis.

EU official documents:

- Eur-Lex: Directive relating to the taking up and pursuit of the business of credit institutions (2006/48/EC) (14 June 2006)
- Eur-Lex: Directive on the capital adequacy of investment firms and credit institutions (2006/49/EC)(14 June 2006)
- European Commission: Proposal to review the Capital Requirements Directives (1 October 2008)
- European Commission: Memo on review the Capital Requirements Directives (1 October 2008)
- European Parliament: Vote on 2008 review of the Capital Requirements Directives (6 May 2009)
- European Commission: Informal proposal on CRD review on remuneration policy (29 April 2009)
- European Commission: Informal proposal on CRD review on trading book and re-securitisations (29 April 2009)
- EU Council: Conclusions of Financial Ministers on pro-cyclicality (7 July 2009)

[20] As end of September 2009.

Abbreviations used in the text

ABCP	Asset-backed commercial paper
ALM	Asset Liability Management
BCBS	Basle Committee on Banking Supervision
BIF	Bank Insurance Fund (US)
BIS	Bank of International Settlements
CBRG	Cross-borders Banking Resolution Group
CCPS	Central counterparties
CCR	Counterparty credit risk
CDS	Credit default swap
CRA	Credit Rating Agency
CRD	Capital Requirement Directive
CRM	Credit risk mitigation
CVA	Credit valuation adjustment
DIF	Deposit Insurance Fund (US)
EAD	Exposure at default
ECB	European Central Bank
EL	Expected Loss
ESFS	European System of Financial Supervisory
ESRB	European Systemic Risk Board
FASB	Financial Accounting Standard Boards
FDIC	Federal Deposit Insurance Corporation
FDIRA	Federal Deposit Insurance Act
FIRB	Foundation internal ratings-based approach
FSB	Financial Supervisory Board
FSF	Financial Supervisory Forum
GFS	Global Financial System
IAIS	International Association of Insurance Supervisors
IASB	International Accounting Standard Boards
ICAAP	Internal Capital Adequacy Assessment Process
IFRS	International Financial Report Standards
IIF	Institute of International Finance
IMF	International Monetary Fund
IOSCO	International Organization of Securities Commissions
IRB	Internal ratings-based
IRC	Incremental risk charge
LCFI	Large Complex Financial Institution
LGD	Loss given default
MTM	Mark-to-market
ODE	Ordinary Differential Equation
PMR	Prevention-Management-Resolution
RBA	Ratings-based approach
RCS	Risk Capital Standard
SAIF	Saving Association Insurance Fund (US)
SFT	Securities financing transaction
SIFI	Systemically Important Financial Institution
SIFIRF	SIFI Resolution Fund
SREP	Supervisory Review Evaluation Process
TBTF	Too Big to Fail
VAR	Value-at-risk

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Carmine Lamanda

A proposal on European Crisis Management

BANCARIA EDITRICE

A proposal on European Crisis Management

Carmine Lamanda

1. European banking groups: a source of market integration and financial stability

European banking groups have reinforced the Single Market and integrated financial markets across the European Union. Their Internal Capital Markets (ICMs) have been an effective tool to support foreign affiliates in times of distress.

It is a matter of fact that economic growth in Central and Eastern Europe (Cee) has been boosted in the last decade by the presence of European groups. Recent economic contributions[1] not only demonstrate the stabilising role played by European banking groups in Cee under times of idiosyncratic stress but also during the last crisis, notwithstanding its systemic nature. In the last crisis, European banking groups, in coordination with international financial institutions and European bodies, were a source of stability in Cee by sheltering the region from extreme outflows of foreign direct investment[2].

It has also been demonstrated that the stabilising effect of the ICM has been particularly large within the EU integrated financial market.

2. The cost of inadequate supervision and crisis management

The successful implementation of the Single European Market and the introduction of the Euro have been enormous boosts to financial integration and economic growth. However, the European supervisory framework failed to keep pace with market developments. Financial markets require proper supervision and regulation. Market confidence in uncoordinated European supervision suffered during the last crisis and European banking groups' equity value came under more pressure than banks which operated in a single jurisdiction.

Uncoordinated crisis resolution increases the costs to the European taxpayer and the economy. Fortis was broken up along national lines without regard to the group's business model and activities. Unilateral action and ring fencing are against the very philosophy of market integration. They would simply translate into additional costs for the banking group and potentially for customers with no additional benefits in terms of stability.

The lack of an adequate supervisory framework should not be dealt with by reverting to national barriers and ring fencing, but through a new European banking framework in which stronger prudential supervision should be envisaged.

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[1] Barba *et al.*, *Multinational Banking in Europe: Financial Stability and Regulatory Implications Lessons from the Financial Crisis*, March, 2010.

[2] For more see the EBRD Transition Report 2009, *Transition in Crisis?* and also the European Bank Coordination Initiative, also known as the 'Vienna initiative', in which parent companies of banks in Cee undertook to maintain their exposure in Cee.

The existing arrangements have proven to be inadequate, making both national and cross-border bank failures difficult to handle effectively and more costly then [sic] they need to be… The difficulty of finding agreement across borders led to a likely costly break-up of Fortis along national lines. And taxpayers in many countries are paying the price for crisis management and resolution frameworks that insufficiently protected their interests[3]. (Dominique Strauss-Kahn 2010)

3. The need for a new supervisory framework

In particular, the recent crisis has clearly shown that there is the need for **stronger prudential supervision enforced by a supra-national, well-informed, credible and prestigious authority (the "Authority"). Such an Authority needs to be empowered *ex-ante* with a coordinating, authoritative role and be legitimate to settle disagreements with a final say and binding powers**. In the European Union, until integrated European supervision is in place, all supervisors need equivalent powers and tools and to be properly coordinated to jointly oversee a banking group. The European System of Financial Supervision (ESFS) is a positive step forward. The European Banking Authority (EBA) should be a full participant in each college to ensure consistency, settle disagreements and to make sure that supervisory standards throughout the system are high. The single rulebook and EBA's standard-setting, guidance and enforcement should make certain the level playing field. It is urgent to put in place a European regulatory and supervisory framework along these lines. Efficient and effective prudential supervision is, in fact, an essential foundation to crisis management.

Under the new institutional framework, the new, empowered Authority should be in the best position **to act quickly and effectively, to deliver a strong message to the market and to prevent a crisis from degenerating into contagion**. As the recent crisis has shown, authorities' delayed crisis intervention, **due to the lack of adequate tools** and/or because of excessive concern about moral hazard, has been extremely counterproductive. During a situation of distress, rapid action is of paramount importance. As Caballero, a distinguished MIT economist, stressed:

Antimoral hazard policy simultaneously hampers the private sector's ability to solve the crisis and exacerbates the likelihood of further panics[4]. (2010)

The Authority is in the best position to act quickly and effectively provided it is equipped with an effective early intervention mechanism and a tool for emergency funding. At the same time, those mechanisms and tools should be designed in such a way as to avoid moral hazard. This is the optimal policy response to the recent crisis. Neither de-leveraging nor increasing capital requirements are optimal responses. Such policy proposals do not distinguish between micro and macro risk. Managing microeconomic risk, which is the core business of banks, requires much less capital than managing macro or systemic risk. There might even be the risk that banks become overcapitalised with respect to their main activities but undercapitalised with respect to extreme aggregate shocks. Tailoring capital requirements to macro risk would impose an excessive and wasteful burden on banks. Rather, macro or systemic risk should be dealt by Governments[5].

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[3] Dominique Strauss-Kahn, *Crisis Management Arrangements for a European Banking System 'Building a Crisis Management Framework for the Single Market'*, Speech, Brussels, March 19, 2010, http://www.imf.org/external/np/speeches/2010/031910.htm

[4] Caballero, Ricardo, *Crisis and Reform: Managing Systemic Risk*, MIT and NBER, February 13, 2010.

[5] «The optimal policy response is not to increase capital requirements, as the current fashion has it, but to remove

4. The newly created supervisory Authority: role, powers, administrative action and financial interventions

4.1 Definition of a crisis

The **definition of a crisis** is when the market has lost confidence in a banking group and is no longer willing to provide it with liquidity and funding, even if the group is still solvent.

4.2 Crisis management: the Authority's role and its main objectives

Hard triggers[6] and thresholds can be circumvented and be late in identifying a crisis. **Effective supervision is best able to assess the emergence or occurrence of a crisis. The Authority should be credible and be able to act quickly to avoid panic** spreading in the market. It faces **the crucial dilemma of either supporting the bank in difficulty by arranging for medium term financing or leading the orderly resolution process in the public interest**. The decision-making process is crucial and should be rapid in order to restore confidence. As proved recently, a crisis can be, to a large extent, a crisis of confidence which leads to a liquidity shock.

If confidence recovers, the resources to support the recovery are abundant and ready. (Caballero 2010)

A special administrator

The Authority should announce a crisis publicly to trigger crisis management powers. If required, in the overall public interest, the authorities should appoint a special administrator at parent company level and in the subsidiaries affected by the crisis. The parent company has the primary responsibility to make sure the group is stable and to recover it from an emergency situation[7].

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the aggregate risk from systemically important leveraged financial institutions' balance sheets. […] This should be done by public private partnerships whereby the government explicitly assumes most of the macro risk, while the private sector provides the capital necessary to deal with microeconomic risk and small aggregate shocks». This would avoid «crippling the financial industry with the burden of brute-force capital requirements» (Caballero 2010). Also: «The problem of going the Basel III route is that capital requirements are already used for multiple goals: they are supposed to act as a buffer against unexpected loss as well as limit risk taking. These two goals are not necessarily compatible. In addition there are proposals to use capital requirements to control liquidity risks and finally they also have to control systemic risk. The result is a system with three to four goals and only one instrument. This will inevitably involve trade-offs, lead to a system of capital requirements, which is highly complex, intransparent and prone to manipulation, constant re-interpretation and forbearance. The danger is that such a system violates all criteria for effective tools». (Weder Di Mauro, Taxing Systemic Risk: Proposal for a Systemic Risk Levy and a Systemic Risk Fund, Feb 2010).

[6] It may be true that hard triggers can incentivise authorities to intervene in a crisis however this is based on the assumption that authorities are reluctant to act. The inverse may also be true that the need to wait for a trigger may delay the authorities from intervening.

[7] The G20 and FSB have recognised the parent company's importance to the group through Recovery and Resolution Plans. The parent company understands best the group's business model and structure, can best identify what business activities are vital or systemically significant and how to preserve those activities independently of their geographic location. The parent company should be responsible for the collection of data and information. However, recognition of the parent company's duties should also be accompanied with recognising the parent company's powers. To this end, the parent company should be the single entry point to implement the ESFS's decisions. The parent company, under proper European prudential oversight, should also be able to decide how to allocate resources (e.g. assets, liquidity and capital) across the European banking group.

4.3 The rationale for intervention

The guide to managing the trade-off between stability, competition and stakeholder rights in a crisis period is through **the crisis management objectives**. These should be:
- to preserve financial stability.
- to insulate the economy from the impact of the crisis.
- to maintain public confidence in the banking system.
- to minimise the use of taxpayer money.

The system's overriding objective ought to be cost-effectiveness, in a broad sense-minimizing contagion, collateral damage to the economy, losses to depositors, and costs to government budgets. (Dominique Strauss-Kahn, 2010)

During the last crisis, banking groups had sufficient assets to post as collateral for their medium-term funding requirements. Nevertheless, the markets were unstable as a result of uncertainty and panic and banking groups could not access public tools for emergency medium-term funding. Central banks could only provide short-term liquidity and had to broaden their liquidity facilities extraordinarily (and the ECB its collateral eligibility criteria) in an attempt to cover the medium/long-term needs. The authorities' strategy was to flood the market with liquidity in the hope that this would re-start market funding to the banks. The strategy probably smoothed the negative "fall-out" of the crisis. However, it was not successful in restoring market confidence in several large groups, which risked becoming insolvent. Moreover, the excess liquidity still needs to be mopped up to avoid possible inflationary pressures.

Ultimately, in many countries, extraordinary Government intervention was needed to provide group-specific support through funding guarantees and rescue packages. The resulting damage to the public finances has been significant, the final burden to the taxpayer is yet to be known and the costs to banking groups' reputations has been considerable.

5. A European Fund as an effective crisis management tool

5.1 The objectives of a European Fund

In the public interest, when private funding is absent or insufficient, European Authorities need **a new tool to provide an alternative source of secured emergency medium-term funding under market conditions**. A mechanism is also needed **to prevent a fire-sale and downward spiral in asset prices**.

… the cost-effective resolution of a failing bank is likely to require significant gross financing. A failing bank will almost certainly be cut off from private funding sources, and once a bank is deemed to have a solvency problem, ELA [emergency liquidity assistance] is no longer appropriate. Hence, the European Resolution Authority should have access to readily available sources of large-scale financing… (IMF 2010)[8]

[8] IMF, *Crisis Management and Resolution for a European Banking System*, WP 10/70, March 2010.

5.2 The rationale of a public-private partnership

Insurance is best suited to cope with independent non-correlated risk. The law of large numbers is the mainstay of insurance. The larger the pool of independent risks in an insurance pool, the lower the cost of insurance. For highly correlated (systemic) risks the law of large numbers does not apply. In fact, banks bear the costs of insurance against idiosyncratic (non-correlated) risks through minimum capital requirements. However, they cannot bear alone the costs of insurance against systemic or macro risks, which are highly correlated. The cost of full insurance would have a crippling effect on the cost of banking and also on economic growth.

Usually, if an insurance programme to cope with catastrophe risk is required, some form of Government involvement is needed to keep the cost manageable. This is because Governments have the ability to access funds at the lowest costs through either borrowing or taxes. As a result, they should be able to offer the least expensive catastrophe insurance.

In the case of liquidity shocks, financial institutions which are solvent may require early intervention due to difficulties in raising funding on the markets.

There are two obstacles preventing the bank from using the private capital markets to protect itself from the liquidity shock: a coordination failure, whereby a single investor cannot ensure that the bank will survive but many of them together can; and secondly Knightian uncertainty, which essentially means that investors believe expected losses from the liquidity shock will be greater than the "true" assessment. (Caballero 2010)

Governments do not have an interest in rescuing a bank entirely through recourse to public money due to moral hazard considerations. However, Governments are responsible for ensuring the well-functioning of the financial system. Hence, Governments have an interest in supporting private capital and enhancing tools to facilitate better crisis management. Furthermore, public support for private funds, which implies risk sharing at an early stage of intervention, can often imply a lower overall cost to manage a crisis.

Therefore, a convergence of interests (private and public) exists to develop a mechanism which, in situations of stress, would support private sector funds thus enhancing crisis management. By coordinating resources, under the convergence of interests, agents would reduce their overall costs and financial stability would be preserved.

A European Financial Recovery and Resolution Fund (the "Fund") is the mechanism to provide emergency medium-term funding and finance crisis management built precisely on the premise of a convergence of public and private interests.

The financial system of the future should be built on public-private partnerships where, for a premium, the government explicitly assumes most of the tail aggregate risk, while the private sector provides the capital necessary to deal with microeconomic risk and small aggregate shocks.

The most effective antidote for the devastating role of uncertainty [macro risk] in financial markets is some form of public insurance or guarantee. (Caballero 2010)

5.3 The European Financial Recovery and Resolution Fund

The Fund would be established at EU-level and would be additional to national deposit guarantee funds rather than replacing them. This framework would make the Fund a tool to deal with major events affecting European financial firms. At the same time it would avoid the full exposure of national deposit guarantee funds.

The Fund would be **partially pre-funded** (just its equity component). The top 20 European banking groups and public authorities would contribute to the Fund's equity base. The Fund can leverage on its equity in the markets to provide medium-term financing in the form of fully collateralised loans. Thus, the Fund can either guarantee a syndicated loan or issue bonds to finance or recapitalise an ailing financial institution.

In the event of a risk materialising in the Fund, the European banking groups will bear the first loss through their contribution to the equity. If authorities agree to burden-sharing, the Fund's equity can also participate in the agreement. The Fund's participation in crisis management should be conditional on previously agreed recovery measures with the European authorities (EBA and the college of supervisors).

Public authorities also have an interest in managing a systemic event. To assist the Fund's leverage, public authorities can contribute to *tier-2* capital (such as hybrids and subordinated loans). Furthermore, management of the Fund by a credible public European body, such as the European Investment Bank, would enhance market confidence.

The French Société de Financement de l'Economie Française (SFEF) and the Spanish Fondo de Reestructuración Ordenada Bancaria (FROB) are two examples of public-private cooperation and capital contribution.

As with the SFEF, FROB and European Investment Bank, such a private-public Fund would be able to raise significant amounts of debt at reasonable rates in times of financial stress.

As much as possible, the system should be pre-financed by the industry-including through deposit insurance fees and any levies on the relevant financial institutions.

To be robust, such a system needs access to financing and a fiscal back-up mechanism for any net resolution costs. (Dominique Strauss-Kahn 2010)

The European Financial Recovery and Resolution Fund's chief policy strengths include:

- the private sector participates in raising resources for crisis management;
- the Fund can provide a forum for authorities to manage crises;
- the Fund's early intervention in idiosyncratic shocks can prevent a systemic event;
- the Fund avoids a fire-sale, risk contagion and maintains central bank independence by accepting collateral;
- it is a mechanism to reduce the impact on public finances;
- allows the banking sector to participate in burden sharing.

The functioning of the Fund for early intervention

The Fund would become active on the decision of competent authorities:

- Supervisory authorities should assess that there is a crisis situation and evaluate that the crisis can be managed.
- The management (or special administrator in the bank) requests the Fund's intervention, in the light of a comprehensive plan.
- The Fund carries out an independent assessment of the crisis intervention and, on positive assessment, goes to the market to raise the necessary finance by leveraging on its equity.
- The Fund can intervene by: supplying finance and covered loans, providing guarantees and taking part in a recapitalisation. Financing and guarantees could be granted using collateral from the banking group in distress.
- Regardless of the type of assistance from the Fund, it should be provided at market rates and in compliance with EU competition rules. If it is judged necessary to provide assistance at a more favourable rate, measures should be taken to prevent shareholders from benefitting financially from the intervention (e.g. warrants).
- If a risk materialises in the Fund, the first loss should be covered by the equity provided by the banks.
- Once a crisis has been managed, the financial assistance should be returned to the Fund.

5.4 Size of the Fund

A European Financial Recovery and Resolution Fund **needs resources to manage a limited number of idiosyncratic crises which, if unmanaged, could put the entire system at risk**. It would not intervene to rescue insolvent institutions unless Governments have already agreed to do so.

According to a Deutsche Bank paper, a plausible dimension for a European Fund is € 150 bn. The overall resources provided by Member States during the recent crisis amounted to approx € 200 bn (the Uk provided € 76 bn). **With a leverage ratio of 10, the Fund's equity size should be € 20 bn.**

Member States should participate with about 33% of the Fund's overall equity. Therefore, the total equity contribution from Member States would be € 6.5 bn. The 27 EU Member States which already subscribe to the European Investment Bank's capital should participate in the Fund. Assuming the 27 Member States share the contribution to the Fund's equity according to the same proportion as their current holding in the European Investment Bank, the major countries (Germany, France, the Ul and Italy have a 16.17% share each) would each contribute in total € 1bn. This means a corresponding annual contribution of € 200mn over 5 years. National deposit guarantee funds could contribute to the respective Member State's participation in the Fund. Deposit guarantee funds would be interested in avoiding a crisis from requiring their intervention at the national level. As such, national deposit guarantee funds' contribution could be conceived as a reinsurance premium.

Assuming a time span of 5 years, the average individual annual contribution from each of the top 20 European banks would be approximately € 135 mn. As the average assets of the 20 banks amount to € 916 bn, these contributions would be equivalent to 0.015% of assets. Of course, the larger the contribution base (number of contributing financial institutions) and/or the longer the period, the lower the annual rate. Financial institutions' contributions should be accounted for as equity investments. Once the Fund's equity size is reached, annual contributions will not be needed. However, further contributions may be required to replenish the Fund in the case of losses.

5.5 Winding down complex trading positions[9]

Certain banking activities, such as complex trading, are problematic to unwind because they require dynamic hedging to maintain value (typically derivatives book). In a crisis, counterparties may not be available and liquidity can be scarce. Furthermore, the period to wind down a complex derivatives portfolio can take years rather than months. The option to carry out a liquidation in such circumstances may not be available. As such, it has been proposed that the authorities finance the winding down of complex trading positions. However, the risk of public loss would be relevant and the period of time needed to finance the wind up of the whole book would be lengthy.

In this specific situation, the Fund could carry the risk and finance the closure of the trading position over the prolonged period. Thus the Fund would continue to operate, even after the crisis period has passed.

[9] This issue was identified by Paul Tucker at the European Commission's Conference on Crisis Management, Brussels, Belgium, 19th March 2010.

5.6 The essential requirement for risk-sharing

The pre-requisite for any agreement on crisis management is trust that supervisory standards will be assured. Trust from the markets, the banks and also between authorities. National supervisory standards impact on the probability of a crisis occurring and the ability to manage a crisis properly. The costs linked to supervisory failure cannot be subsidised.

Thus, there can be no agreement between authorities, and neither support from the banks, unless the quality of supervision throughout the entire European System of Financial Supervision is guaranteed. This is why a framework for efficient, effective, high-quality European oversight is vital.

6. Insolvency

The national dimension of insolvency laws makes it extremely problematic to adequately deal with European banking structures at European level. Insolvency laws are intimately connected to other areas of law (commercial law, civil law and procedure, constitutional law) which go back to each country's legal traditions. At European level, the Winding Up Directive (2001/24/EC), which deals with European banking groups organised into branches, gives the option to adopt the home country legislation in the case of insolvency.

Notwithstanding the application to the winding up of ailing firms under general private law principles, it is common that during the liquidation phase shareholder rights and asset transfers are limited. However, striking differences between substantive national insolvency rules and the tools available to resolution authorities make the current, nationally based insolvency process unsatisfactory. A special procedure to wind up European banking groups should therefore be established. If necessary, it should derogate from national insolvency procedures.

Two alternative approaches to put a legal framework for European insolvency in place are: a European directive that harmonises national insolvency laws; or a European regulation that would make the relevant rules for European groups directly enforceable in all EU Member States. In order to avoid differences due to national discretion in the adoption of a directive, a European regulation could be the better option[10].

6.1 The need for an orderly resolution

An orderly resolution is one that is carried out in a controlled manner in order to limit the cost to creditors, public funds and other systemic disruption.

[10] In March 2009 a Forum of economic and legal experts, brought together by the Institutional and Regulatory Strategic Advisory of UniCredit Group, produced a paper on European financial supervision and regulation. This paper outlined the importance of recognising "the group" and the benefits the group concept provides not only in prudential supervision but also in crisis management. With the group concept in mind, banking groups can be managed and resolved as single entities. The free distribution of resources across the group would enhance stability and facilitate recovery. In the event of a failure, the distributed resources can be reset through the use of claw-backs. The claw-backs would be dependent on two factors: the time period, previous to the failure, in which the claw-back is applicable; the use of claw-backs in the case of criminal intention. The proposal has clear merits. However, within the context of the European Commission's framework, this paper on European Crisis Management will not address the group concept.

Usually, general insolvency procedures for non-financial companies allow stakeholders adequate time to reach an agreement which, if necessary, may include an amount of public support. In any case, when sufficient time is available, an agreement is easier to reach and there is less risk to revert to an inefficient liquidation.

However, three factors distinguish bank-specific proceedings from general corporate insolvencies. First, banks' liabilities are essentially short-term and highly liquid. Bank creditors cannot accept a long, drawn-out resolution process to wait for their claims. Second, banks' systemically important business activities (such as market-making and payment systems) cannot be disrupted. Third, the number of bank creditors makes coordination and reaching a rapid insolvency agreement extremely difficult. Thus, bank insolvencies require speed yet lack a swift procedure to reach a creditor agreement.

When a shock hits a bank's assets and totally wipes out its equity, an orderly resolution needs to be carried out. A sound competitor may be willing to take over the failed bank. However, the loss may be too great or there may be uncertainty concerning the real value of the assets and the actual size of the losses. The result, at present, is that either a bank goes into liquidation or the entire bank is fully bailed out (through a subsidy to the private buyer or temporary nationalisation). On one hand, liquidation destroys value, is time consuming and can have enormous consequences for the system and the economy. Uncertainty and the time needed to prove and compensate claims may negatively impact on financial markets' confidence and create contagion effects in other financial institutions. Liquidation may also spread and/or amplify the consequences of a crisis if systemically relevant financial activities are disrupted. On the other hand, a total bail-out can involve an unacceptable cost to the taxpayer and generate moral hazard.

6.2 Achieving an orderly resolution

Currently, it is problematic for authorities to maintain systemic functions while, at the same time, applying losses to equity holders and unsecured creditors. In our view, a mechanism to rebalance the amount of liabilities (excluding depositors and secured creditors) to reflect the current value of total assets would be useful. In this way, the authorities can carry on the systemically vital activities and preserve the bank's prudential requirements and value until a final solution is found (e.g. private purchaser, "bridge bank", transfer of systemic functions, etc.).

One option can be for the contracts of different classes of bondholders to specify that haircuts can be imposed on unsecured creditors in a crisis. This would allow authorities to reduce the liabilities and restore the bank's solvency long enough for authorities to decide on a resolution.

Another alternative is a type of "moratorium". This would involve two steps. The first step, on the declaration of a crisis, the authorities have the right to temporarily suspend creditors' claims but to allow a partial payment on creditors liabilities (excluding depositors and secured creditors). This suspension period stabilises the bank. In the second step, the authorities and creditors must reach a final agreement (which could change the original terms of the first step).

6.3 The issue of burden sharing

Burden sharing is one of the most difficult issues for European crisis management. Explicit burden sharing (ex-post or ex-ante) would increase moral hazard. Before the last crisis there had

been a widespread consensus that the private sector should be left with enough uncertainty concerning the probability of a bail-out to induce prudence. However, the strategy of "constructive ambiguity" has failed.

It became a "destructive certainty" that all financial institutions are too important to fail. The failure to commit to a burden sharing between the private and public sector and between affected countries has lead to the worst outcome, namely a full scale takeover of the risks be [sic] the public sector. (Weder Di Mauro 2010)

Therefore, as an *extrema ratio* tool, burden sharing should be contemplated. The redistribution of taxpayer money across Member States is not, *per se*, always controversial. European Structural and Cohesion funds have been in place since the implementation of the Single Market.

Currently in Europe the issue of redistributing taxpayer money between Member States in a financial crisis has not been explicitly addressed, '*as if one pretends that there was none and that the national rescues "worked"'* (Weder Di Mauro 2010). This fails to recognise that there is evidence of implicit redistributions across borders. For instance through the ECB's "lender of last resort" function and through the ECB extended swap lines to non-Eurozone countries such as Sweden and Switzerland. In addition, the Austrian financial support package to its banks allowed taxpayer money to be used to support Austrian groups' subsidiaries in Cee. Furthermore, euro area fiscal support for Greece has set an explicit precedent to transfer taxpayer money between Member States in the interest of overall financial stability, despite the risk of moral hazard.

Since a redistribution of taxpayer money already occurs, a burden sharing agreement is not insurmountable. An explicit arrangement on burden sharing can only improve on the present *ad hoc* situation.

An *ex-ante* agreement on burden sharing is based on the premise of a convergence of interests, not only between authorities but also the public and private sector, that collective action would lead to a more advantageous outcome overall. An *ex-ante* agreement could also reduce the probability of the need to recourse to taxpayer money. Private finance in crisis management would be more readily accessible due to greater certainty over a public backstop. Furthermore, Governments' individual exposure, and the related costs, to systemic risk would be more limited, compared to the current situation. Thus, there would be less incentive to take unilateral action. Instead, the cooperation and coordination between the crisis management authorities would be enhanced. To avoid moral hazard, European banking groups should also be party to the burden sharing agreement. In this proposal they can participate in burden sharing through the Fund.

EU Finance Ministers have already recognised the value of an *ex-ante* agreement to facilitate crisis management. In April 2008 they signed a Memorandum of Understanding on financial stability arrangements at the informal ECOFIN meeting in Brdo.

EU member states have already agreed to the principle of burden sharing for such costs, but have yet to make it operational and binding. (Dominique Strauss-Kahn 2010)

Criteria underlying the sharing should reflect the following principles: justice, fairness and solidarity. The fact that each state shares responsibility for the prudential oversight of a banking group means that each state is also accountable in the case of a failure. Therefore, burden sharing criteria should align the interests of national authorities and be proportionate to their responsibilities.