

# POST CRISIS CHALLENGES TO BANK REGULATION

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## INTRODUCTION

The current crisis has swept aside not only the whole of the US investment banking industry but also the consensual perception of banking risks, contagion and their implication for banking regulation. As everyone agrees now, risks were mispriced, they accumulated in neuralgic points of the financial system, and were amplified by procyclical regulation as well as by the instability and fragility of financial institutions.

The use of ratings as carved in stone and lack of adequate procedure to swiftly deal with systemic institutions bankruptcy (whether too-big-to-fail, too complex to fail or too-many to fail).

The current paper will not deal with the description and analysis of the crisis, already covered in other contributions to this issue will address the critical choice regulatory authorities will face. In the future regulation has to change, but it is not clear that it will change in the right direction. This may occur if regulatory authorities, possibly influenced by public opinion and political pressure, adopt an incorrect view of financial crisis prevention and management. Indeed, there are two approaches to post-crisis regulation. One is the rare event approach, whereby financial crises will occur infrequently, but are inescapable.

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The best way to think of it is to consider a crisis as an accident, a Poisson event that might on average occur every 80 years and all efforts should be made to reduce its **impact**. The alternative is to consider that crises are a manageable event and that all efforts should be made to avoid its **repetition**. As the debate has evolved this distinction between rare events and manageable events has never been explicitly made. The aim of our contribution is to clarify this choice and to argue that some of the regulatory reforms that have been agreed upon may not have been the most basic efficient ones and may lead to an inefficient banking industry. In particular, if bank crises are unavoidable, then we should structure clear cut provisions for banks bailouts that specify how the rights of each stakeholder are redefined, an issue that has implications regarding the amount of public and private bailouts as well as the incentives of bank's shareholders and their boards of directors.

In what follows, we will briefly consider the origin of the failure in banking regulation and then turn to regulatory reform. Section 2 considers the overall rationale for banking regulator. Section 3 is devoted to the key role of banks bankruptcy rules. This has implications regarding bank's corporate governance, an issue examined in section 4. Section 5 explores how the safety net should be modified to take into account the lessons of the current crisis. The implications regarding macro-prudential policy are briefly addressed in section 6. The problems of international coordination are addressed in section 7. Section 8 concludes pointing out the critical choices regulators have to face and their implications for the future of the financial industry.

## 1. BANKING REGULATION FAILURE

While the analysis of the crisis is not the aim of this paper, some of the aspects of the failure of the safety net must be considered as they are the reason for a drastic regulatory change. It is generally agreed that the social cost of banks' failure is not internalized by banks' management. This social cost reflects the non-pecuniary investments made by the firms in their relationship with the bank (relationship lending), the cost to financial stability and, first and foremost, the cost of a possible contagion to other banks. Prudential regulation is precisely aimed at limiting the externalities created by a bank failure. This could be done either by acting upon the probability of a bank's failure (as it happens with capital regulation) or by reducing its impact (as in deposit insurance). In the majority of countries, this is done through the creation of a safety net, consisting of 1) Supervision, 2) Deposit insurance, 3) Capital requirements, 4) A lender of last resort policy and 5) Orderly bail-out/liquidation procedures. The current crisis has put these five components under great strain, some resisting better than others its impact.

Although the mechanisms of deposit insurance and lender of last resort have been quite helpful in preventing a deepening of the financial crisis, prudential supervision, capital requirement and the adequate mechanism for orderly bail-out or liquidation of financial institutions did fail.

Prudential supervision failed to identify the high levels of risk and the sources of relevant risks (liquidity risk). Capital requirements were based on incorrect risk measurement models that failed

to take into account the risks associated with partial securitization, over the counter operations and the use of mark-to market accounting rules without adequate provisioning. Finally, the bail-out or liquidation decision was the inefficient result of a lengthy bargaining process with the bank's stake holders.

The inadequacy of the safety net was clear once the procyclicality of capital regulation (whether Basel I or II) was established with its consequences; the fact that banks were led to liquidate their assets at fire sale prices.

In addition, the transfer of banking risks to the non-banking financial industry, thus creating a so-called shadow banking system has led to a situation where banking risk has escaped the regulatory authorities. Finally, market discipline enthroned in Basel II third pillar, as a key principle, did not produce the expected results.

## **2. BANKING REGULATION REFORM**

Detecting the necessary changes to be made in order to redesign an improved financial regulation framework can be undertaken in two different ways. To begin with, one may be tempted to take as a starting point the flaws in regulation the previous section has uncovered. Alternatively, an overall perspective could be built by starting from the basic market failure financial regulation is supposed to address. We will follow this second approach not only because the majority of reports have adopted the first one, so that using the market failure approach should be more valuable in complementing them, but also because in fixing every single element there is a risk of omitting a whole area where regulatory reform might be required. In other words, it is also important to identify the mechanisms that did not exist and whose absence has, in fact, aggravated the crisis.

A second demarcation with respect to other reports on the current crisis is here necessary. It concerns the focus of our approach. We take the view that crises, although a rare event whether systemic or affecting a too-big-to-fail or a Large Complex Financial Intermediation will always be there, emerging from completely different reasons than the past ones, presumably the most unexpected ones. This implies emphasizing crisis management, and, in particular, emergency recapitalization. Many reports on the crisis seem to be excessively focused on the eradication of crises with the consequence that the importance of contingent planning for crisis management is implicitly played down. It is true that a good regulatory framework should reduce the probability of systemic crises but still, the lack of mechanisms in place to deal with them is particularly costly, as the current crisis has shown. Consequently, a proposal for financial regulatory reform will consist of both mechanisms to limit the probability of a crisis and mechanisms for crisis management once the crisis has settled.

### **2.1 Bank Bankruptcy Externality**

To provide a sound foundation for our analysis it is worth recalling that, in order to solve a market failure one, has to address the main externality it produces. In this case, the origin of the externality lies in the social cost of banks' bankruptcy and the mechanism of financial distress contagion among banks. Contagion, is more important for banks than for other industries because the very nature of banks role in the economy makes them holders of illiquid assets and liquid liabilities (see, e.g. Diamond and Dybvig, 1983), thus making them sensitive to financial fragility,

whether taking the form of bank runs or simply illiquidity crises. In turn, the failure of many banks threatens the well functioning of the banking industry ability to continue transferring property rights with legal certainty, a point critical for any transaction in the society.

## **2.2 Debt pricing Distortions**

As mentioned, the safety net is designed precisely to limit the probability of a bank bankruptcy and its worst effects on depositors. Yet, regarding prices, this implies that a distortion is introduced, as the safety net will protect from market risk. In particular, deposits remuneration is independent of risk both because of the existence of the safety net and because depositors do not lend to their bank as a result of a risk return computation but to gain access to the payment system. In addition, the existence of a safety net promotes the perception of a safe banking industry, that, for obvious reasons, neither the bank itself nor the regulator will contradict. Thus generating a possible understating of risk for all types of liabilities, whether insured or uninsured also, the perception that in case of a bank bankruptcy the bank will be bailed out and liability holders will be fully reimbursed (implicit guaranties) aggravates this understatement in the risk of bank's liabilities. This implies that banks will tend to hold too much debt (thus justifying a capital regulation) and that they will tend to use debt based hybrid instruments rather than core equity to cope with solvency regulation.

Regulatory reform should therefore try to reduce the pricing distortion, and this is related to the possible internalization by each agent of the externalities it generates. Such internalization will be possible, at least partially by a rigorous design of the banks' bankruptcy process as well as their corporate governance. This is why we will start by reviewing the necessary changes in banks' bankruptcy procedures, as this will reduce the price distortions that affect banks' liabilities. Bank's bankruptcy rules directly affect the banks' stakeholders' profits and losses and therefore shape the bank strategy, which depends on the risks the bank is taking. Corporate governance will define the ways in which shareholders set manager's incentives to create value for shareholders and should therefore be dealt with next, in order to take into account possible biases, such as short term orientation, excessive risk taking and fake alphas. Still, it would be deceptive to rely exclusively on these two mechanisms to restore market efficiency. It will therefore be necessary to turn to the safety net distortions and try to correct the deficiencies of prudential regulation, both at the micro and at the macro level. Finally, a special mention has to be made for international issues, as their complexity makes financial regulation design even more challenging.

## **3. BANK'S BANKRUPTCY RULES**

Theoretically if bank's bankruptcy rules were clearly set and duly enforced, the price of banks' liabilities would reflect their risk, thus leading to an efficient allocation. In order to do this, it is necessary, beyond efficient priced deposit insurance, that each type of liability holder knows the losses it is to face both in case of systemic risk and in case of its own bank bankruptcy. When, in addition, bankruptcy costs are present and, as mentioned before, renegotiation costs are huge, clear cut bankruptcy rules allow increasing the value of the banking firm by decreasing uncertainty and bargaining costs.

The simplest way to think of bankruptcy rules is to consider the Modigliani-Miller (1958) perfect capital market hypothesis. The results are then quite surprising because the lack of conflicts between the different claim holders in such an environment contrasts with the dramatic conflicts between the different types of debt holders that are witnessed during a banking crisis.

As emphasized by Lander and Ueda (2009), an orderly bankruptcy procedure should not be costly to taxpayers, because when the perfect capital market of Modigliani Miller is considered as a first approximation, it is clear that a debt equity swap does not change the value of the firm, nor the value to debt holders and equity holders as it leaves the total value of the firm unchanged. In addition, if we depart from the standard-no taxes- no bankruptcy costs, a bank in distress is facing high costs because of the high expected bankruptcy costs the market forecasts. A debt equity swap in this case reduces the expected bankruptcy costs and increases the value of the firm. So, conflicts of interest could be the result of either 1) free riding by one type of claimholders on another, as, for instance, a debt for equity swap for junior debt holders will benefit senior debt holders, 2) asymmetric information or 3) the stakeholders expectations to be rescued by taxpayers. In any of these cases, defining ex ante contracts that impose a restructuring of all debtors' rights in case of distress reduces the contractual costs, both of renegotiation and of bankruptcy.

As mentioned, protecting financial stability and the security of transactions through the preservation of the payment system implies a speedy resolution of banks' financial distress which puts pressure on the Treasury to bail out banks. Renegotiation of **stakeholders'** claims leads to delays and additional costs, as the bank management decisions may be impaired by its possibly negative net equity position. The inefficiency of the standard bankruptcy procedure calls therefore for the design of a special bankruptcy code for banks. Such a specific bankruptcy procedure should 1) provide for speedy recapitalization implying a reduction in debt that generates common equity 2) cope with the bank difficulties whether they are originated by the inability of the bank to fulfil its payment commitments or by negative equity and 3) ensure that the resulting bank (a "good bank") has a sufficiently low risk to be acceptable by its peers, in particular in the interbank market. Of course, the development of such a scheme will still leave open the complexities of bankruptcy for non-banking institutions that are systemic but part of the "shadow banking", as the current crisis has revealed.

These general characteristics can be achieved in different ways depending on how, once a bank is declared critically undercapitalized, the claims of its stakeholders are redefined. Consider three examples: 1) The simplest one, advocated by Flannery, is the funding of banks through reverse convertibles that automatically become equity once the value of equity hits a critical level. 2) A mandatory debt equity swap 3) The good bank/bad bank resolution, (See box 1) which has been often used in the resolution of a banking crisis (Sweden, Mexico). For each banks the liabilities are classified depending on whether they are fully insured (or whether they will be fully repaid) or not, their maturity and their seniority. Regarding the assets, for each bank, the separation concerns information sensitive assets. Those assets that are either safe or have a well identified cash flow distribution and, therefore, whose valuation is accurate should be distinguished from those that are subject to high uncertainty on the underlying cash flows. Assets in the first category will constitute the "good bank"; those in the second will be acquired by an Asset Management Company that will either sell them to the market or hold them to maturity. The fully insured liabilities will be

liabilities on the good bank and the deposit insurance company will inject the funds necessary to make the good bank well capitalized.

**Box 1****The good bank/bad bank separation in the Swedish experience**

The Swedish banking crisis of the nineties is considered exemplary in terms of the low cost it implied and of the good practices that were implemented. There are lessons to be learnt from the management of the Sweden rescue plan. The general principle is to get uncertainty out of the system by ring fencing the bad assets.

The good bank/bad bank scheme was implemented in combination with the extensive use of Asset Management Corporations (AMCs). The “bad bank” part of the bank was transferred to the asset management corporations at carefully assessed market values. The AMC proceeded then to regroup the assets and offer them to potential buyers. Because all the pressure associated with the preservation of banking stability and the well-functioning of the payment system had vanished, “fire-sale” of the assets was avoided. The Government, (later confirmed by Parliament), issued an unlimited guarantee to all depositors and counterparties to Swedish credit institutions, which came at a cost to the tax payers. Still, this made it clear that shareholders were excluded from this guarantee and avoided any delay in renegotiating with the other claimholders. From that perspective, it could be argued that all the benefits from the good bank/bad bank scheme were not obtained.

The Bank Support Authority, was in charge of deciding which banks to reconstruct and which to liquidate. His mission was disclosed to the general public. The measures were designed to minimise costs for the Government and the risk of moral hazard. The credibility, political support and independence of the Bank Support Authority was a key element in the swift resolution of the crisis.

The procedure, sometimes referred as the “hammock” procedure, consisted in

- 1) Writing down the bank’s bad loans.
- 2) Testing the bank in a micro- and macroeconomic model.
- 3) Giving support to the banks that pass the test and closing, merging or restructuring in an orderly manner those that fail.

Hence, the procedure was on a case-by-case basis but with clear transparent rules that avoided delays and renegotiation.

As the current crisis has higher levels of uncertainty regarding the value of some assets, a bad bank or the AMC may have to hold assets for a longer period of time. Still, the flexibility of the good bank/bad bank separation and the possibility to have a case by case approach makes it a powerful tool to be applied in a banking crisis.

The current UK proposal of banks drafting a “living will” to simplify the management, restructuring and sale of its assets, if enforceable, would produce a similar contingent reallocation of property rights in the event of the bank’s bankruptcy. According to the current proposal a living will should outline which divestitures the bank would sell, how clients’ assets will be transferred to another institution and how they would liquidate the assets on their trading books within 60 days.

The Squam Lake group suggests a mechanism for the expedited resolution of distressed institutions that requires banks to hold reverse convertibles. To avoid possible price manipulations, conversion is triggered only when two conditions are met: first, the regulatory authorities have to announce the start of a systemic crisis; second, the conditions on the bank share price specified in the reverse convertible have to be met. The need for a regulator to declare the beginning of a crisis is necessary because otherwise the hard incentives of the debt contract would be lost.

Defining banks’ bankruptcy rules that could be contingent on the existence of a systemic crisis constitutes one of the most imperative changes in banking regulation. Indeed, this will allow to minimize the required emergency recapitalisation. Funds it will also systematize the sale of banks’ assets (as the US Public-Private Investment Program for Legacy Assets, PPIP) if deemed necessary. Finally it would allow a more flexible capital requirement regulation during a downturn.

The design of bank specific bankruptcy rules benefits from the insights of contract theory. Bebchuk (1988) and Aghion, Hart and Moore (1992) have suggested mechanisms to reduce the costs and uncertainties associated with bankruptcy procedures. Using their insights could greatly improve the efficient resolution of banking crisis. In both contributions the rights of the different stakeholders are defined by options that depend upon the seniority of debt. Because during a systemic crisis the objectives of the regulator may prefer a speedy resolution to the efficient choice of liquidation or restructuring, imbedding the transformation of debt into another type of option on the bank’s asset will improve the efficiency of the systemic crisis resolution.

Of course, changing banks’ bankruptcy rules may imply a higher risk for debt holders and therefore banks will have to pay a higher return to debt holders, thus increasing the cost of funds and therefore reducing the supply of credit. Yet, this simply reflects the real cost of bank debt and therefore constitutes a key information for banks to be able to lend efficiently.

Finally, it is worth mentioning that the redefinition of claims once a critical level of capital is reached changes the incentives to managers and therefore should reduce the moral hazard associated with the excessively generous bail-outs that are the rule during a banking crisis and improve corporate governance.

#### **4. CORPORATE GOVERNANCE**

In the context of the current crisis, two key issues have surfaced that constitute serious weaknesses in the corporate governance of banks: managers’ bonuses and dividend policy.

The issue of bank managers' compensation has been preeminent as it has led to public outcry as State aid has been seen as siphoned into managers' pockets. The outcry led to proposals and in some countries to the drafting of legislation limiting this compensation (tax rates of 90% have been proposed in the US, bonuses banned in firms receiving State aid in France). Such a picture is distorted because, first, a number of compensation packages, possibly the majority, are based on stock options, second the bonuses may be a market remuneration practice, as it happens for traders, and third, because, some division managers within an institution in distress may have genuinely created added value within a profitable division of the distressed institution.

Because in the short run any bonus is a reduction in the shareholders' value, the decision to pay for talent is to be taken by shareholders as they are the ones to internalize the trade-off between the marginal costs and benefits of an increase in managerial talent, as well as to see the difference between salaries and bonuses. The question is then whether corporate governance is adequate so that shareholders take the decisions that maximize the bank's value. When the remunerations of top executives are voted at board meeting with limited control by shareholders and limited transparency, we may suspect the board of self dealing at the expense of other stakeholders. So, in spite of the public outcry that has led to caps in compensation packages, compensation is not the real issue but a symptom of inadequate corporate governance, which is a deeper and more complex issue.

On the second issue, that of dividend policy, Acharya et al. (2009a) report that "The erosion of common equity has been exacerbated by large scale payments of dividends, in spite of widely anticipated credit losses". In addition, the author's report that banks having received State aid and in serious risk of failure have continued to pay out dividends. In both cases it implies that the rights of a third party, whether debt holders or taxpayers, have not been respected in the dividend decision.

Related to these two seemingly overoptimistic payout policies is a third issue, provisioning. As mentioned before, banks' insufficient provisioning for risky investments has been criticized, and the need for regulation to include compulsory dynamic provisioning has been evoked. Yet, this lack of provisions, directly related to the dividend policy, has its origin in a combination of ill defined bankruptcy procedures (possibly with the government implicit guarantees) and weak myopic corporate governance.

These excessively generous payout policies point at excessively weak external monitoring of corporations and lead to question banks' corporate governance and its role in the current crisis.

The regulation of banks' corporate governance should state:

1) When is it that a bank operation has created value to its stakeholders, thus avoiding the "fake alpha" issue of hidden losses ignored by the management and due to the lack of adequate risk provisioning. The correct provisioning of risks would make this issue less preeminent, but still the added value by a manager in the banking industry is only known three to five years after she has taken her decisions. This implies that compensation should either be lagged or, simply, be exclusively based on stocks and stock options held for a sufficiently long period of time.

2) What is the role of taxpayers as potential future stakeholders in banks' corporate governance? This is a delicate issue as an excessive representation could be tantamount to a nationalization of the banking industry and its management as a utility, while, at the opposite



extreme, the lack of representation leads to the bank's biased investment decisions, as the cost to taxpayers of a possible bail-out is ignored. During a crisis taxpayers, may become the main stakeholders of a bank, so they should protect their interests through the regulatory authorities. Still, in normal times there a risk that taxpayers influence may lead to excessively conservative, inefficient bank investment decisions. So, a possible way out is to increase the representation of taxpayers on the board of directors if a systemic crisis is declared. This, in a way, will acknowledge that during a crisis taxpayers are the banks' owners<sup>1</sup>.

## **5. REFORMING THE SAFETY NET**

The crisis has placed the safety net under great strain, yet some components, like deposit insurance, have been resilient and helped to maintain financial stability. Others, like capital requirements, have failed or led to new risks. We will focus on those issues and consider successively capital requirements, and lender of last resort policy.

### **5.1 Capital requirements**

As the crisis has unravelled, capital requirements regulation has been questioned on several grounds. It has become clear, first, that some risks were underestimated; second that those risks depended on the business cycle and on the well functioning of the financial system; third, that mechanisms for emergency recapitalization were required and fourth that the aggregate risk of the financial industry, not just the banking industry, mattered for financial stability.

Still, it should be emphasized that adding additional layers of capital will impair the efficiency of the banking system if it is not accurately justified. Thus some reports (e.g. Turner, 2009, p.7) that recommend 1) an increase in capital 2) to compute the risks through the cycle rather than as point in time and 3) to provision for business cycle risk through the creation of Economic Cycle Reserves can be suspected of triple counting the necessary capital. Yet, at the same time in a systemic crisis this capital may not be sufficient, as the data on some recent banks in distress seem to indicate (e.g. Northern Rock). So, a proposal of, say, tripling the capital requirement of banks would dwarf the banking industry while it is not clear that it would allow it to survive a repetition of the current crisis.

### **5.2 Improving risk measurement: micro-prudential**

The current crisis has highlighted serious flaws in risk measurement, both in banks' internal models and in Basel II foundational approach.

1. Preventing asset bubbles. As Basel II gives the banking regulatory authorities power to supervise the risk assessment, when central banks, within their new macro-prudential mandate, identify a possible bubble, as it is the case when a significant divergence between an asset price and the expected net present value of its future cash is observed, regulatory authorities should check that the commercial banks' risk models account for the increased risk. This may take into

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<sup>1</sup> In one well-known exchange with a railroad executive, J.P. Morgan, said, "Your railroad? Your railroad belongs to my clients". The difference with the present situation is that J.P.Morgan was a member of the board.

account loan to value in the case of mortgages, but it could as well consider asset growth, as excessive growth is known to be a source of banks' risk. Implementing a rigorous risk measurement will require a degree of regulatory independence which has not always been reached, particularly when it refers to residential housing market (Calomiris, 2009), but more generally when it seems to constrain the development of domestic credit market. If, for instance, the Irish authorities require higher capital to invest in real estate related loans then it is easier for a non Irish bank to invest in the Irish mortgage market. Irish banks will then argue they face unfair competition. Yet, as the risk of an asset depends on its correlation with the portfolio, Irish banks heavily ridden with Irish mortgages are facing higher risks than foreign competitors with a more diversified portfolio. The use of the second pillar in this case allows limiting exuberant expectations and pyramidal schemes.

2. An Over the Counter (OTC) risk premium: AIG and Lehman's crises have shown that over the counter derivative markets have higher risks than organized ones. Consequently the regulator should reject any risk models where over the counter operations have the same risk as those performed in an organized market. It may be argued that this will diminish the incentives to innovate in the banking industry. Yet, as some of the innovations are aimed at bypassing regulation, reassessing rigorously the risks and capital charges for these operations will penalize innovations driven by regulatory arbitrage but not productive innovations.

3. Correct for discrepancies between ratings and spreads: In an efficient market spreads give better information than ratings, so that there is no free lunch. Consequently any discrepancy between the two is prima facie evidence of a model error. Computing risk on the basis of ratings, whether internal or external, should be therefore justified only by superior information. In other words, in case of discrepancy between the market and the internal or external model, the market should prevail except for well documented operations. This simple rule would have helped limit the investment in AAA subprime tranches with spreads clearly above average and the losses of UBS.

4. Reviewing securitization related risks. Theoretically Basel II imposes capital charges on a securitized loan that are equal to the ones of a buy and hold strategy, making regulatory arbitrage impossible. Still, the sensitivity of securitized loans and more sophisticated instruments like Collateralized Debt Obligations CDOs based on securitized loans to a systemic crisis has been undervalued,

5. Compute a maturity mismatch capital charge as part of pillar capital requirements not as it is nowadays part of pillar 2. This would reflect not only interest rate risk but also, even more important liquidity risk.

6. Finally, even if, strictly speaking provisions are not part of a financial institution's capital, in order to correct for the procyclical behaviour of banks' loan losses, the bank should make provisions on every loan, thus reflecting the expected loan losses as insurance companies do with their mathematical provisions. The Spanish statistical provisioning scheme (See Box 2) could be a simple, yet rigorous starting point.

**BOX 2: Spanish Statistical/Dynamic Provisions**

Bank loans resemble an insurance product because loan defaults are the equivalent of accidents for an insurance company. This implies that as insurance companies have to make mathematical provisions, so banks should be required to make the equivalent statistical or dynamical provisions. Still, there is one important difference: the amount of banks loan losses is determined also by the business cycle.

In an upturn, banks set looser credit conditions in view of the low level of contemporaneous non-performing loans. This leads them to a portfolio of low quality loans that will only become apparent three years later during downturns.

Observing that banks did not provision for business cycle risks, the bank of Spain introduced in 2000 a statistical provision regulation. This contradicted the accounting rules set by the international accounting standards Board (IASB) which were applied in 2004, requiring a revision on the statistical provisioning regulation. In spite of the change, some accounting experts still consider that the Spanish statistical provision violates the IASB rules. The regulation contemplates either an internal model or a standard approach. In both cases the bank will set provisions during good times for the defaults in downturn. Thus, for instance, the standard approach considers six categories of risk of which the two higher risk ones are the medium-high risk (e.g. personal credits to finance purchases of durable consumer goods) and the high risk (e.g. credit cards balances, current account overdrafts and credit account excesses). The amount to be provisioned is a linear function of the (positive or negative) change in the stock of loans and of the difference between the average percentage of provisions across the cycle as set by the Bank of Spain and the bank's effective percentage of provisions on its loans.

In this way, during a downturn the statistical provisioning requirement are negative and the growth in specific provisions can be met using the statistical fund instead of the P&L account.

The statistical provisions were included in Tier 2 capital, that is, up to 1.25 percent of risk-weighted assets and since 2004 are tax deductible, although with a cap. (See Banco de España. (2004))

### 5.3 Emergency recapitalization

In spite of the proposed improvement in prudential regulation it is still quite likely that a too-big-to-fail institution has to be recapitalized. Still, notice that the issue is directly related to banks' bankruptcy regime that we examine hereafter, as any dilution in debt holders rights, as a debt equity swap, immediately and automatically generates capital. In general, State aid has been available to rescue banks that are in trouble, quite often as tier 2 capital. Although this has a cost to tax payers, it limits the conflicts with shareholders and therefore allows for a quick resolution. It is clear that in a systemic crisis this has a positive externality on the whole banking industry which contrasts with the effect of State aid in other industries (e.g. the automobile industry). Still, in the third quarter of 2009, once banks are starting to have funds from the market, the difference on the cost of funds between large and small banks have reached 30 basis points and this is thought to reflect the government implicit guarantees to too-big-to-fail banks and therefore unfair competition.

To solve the issue of emergency recapitalization in case of systemic crisis, Kashyap et al. (2008) propose to implement a capital insurance scheme. They argue that in normal times holding additional capital buffers would reduce the incentives of debt and its market discipline. Consequently, to generate capital during a systemic crisis, banks need a "banking-industry catastrophe insurance" scheme. If the insurance scheme is private, this would be priced according to the market and avoid the implications for tax-payers. The idea of a private scheme, attractive as it is, has not been received without some scepticism. Indeed, the pay-out to insured banks in the event of a crisis the insurance fund that has to rise is such that it will also affect all financial markets. This means that the insurance fund should invest only in Treasuries or bank reserves if it is structured as a bank, which imposes a high opportunity cost. Also, as the insurance fund has to liquidate its assets, even in the more favourable case where there is sufficient liquidity in the market, this would generate an adverse effect on the market prices and therefore a huge cost to the fund. In addition, the experience of AIG providing private insurance against the credit market has shown that the incentives of the insured and those of the insurance company may sometimes be misaligned. So the support of the central bank will be needed, whether through a credit line or a repurchase commitment, and, consequently, the challenge is to design a mechanism of contingent emergency capital provision, like the one suggested, with the support of the Central Bank but without the inconvenience of a Government intervention.

### 5.4 Monitoring the financial system aggregate capital

The justification of a capital buffer to cover unexpected losses is clearly stated in Basel II. The requirement that capital should be accounted for in so far as the holder of capital is able to sustain the unexpected loss on its capital is consistent with this view. This point becomes obvious with the requirement of Basel II to consider supervision on a consolidated basis rather than on a solo base. Indeed, it would be possible for a banking group to hold very limited external investors capital while showing a sufficient (internal) capital on each of the individual banks provided by the other

banks in the group. This general principle applies beyond consolidation and is illustrated by the AIG case.

AIG did not have the capacity to cover its losses and therefore these losses would have been transferred to the banking system creating systemic risk. The same is true for shadow banking: the lack of capital of structured investment vehicle (SIVs) and other conduits implied that the risks had to be transferred to other agents. As these were often equipped with commercial banks' liquidity lines, the risks were transferred back to the commercial banks. The implication is that the aggregate capital of the financial industry, not just the one for commercial banks should be considered. This does not imply that a unique regulator should be in charge of the whole financial system as it has been suggested, but that some minimal monitoring of aggregate systemic risk should be undertaken.

### **5.5 Disclosure**

G20 meetings conclusions have particularly emphasized the issue of disclosure. This is clearly a critical issue, and more transparency may indeed be desirable, but a number of points should be addressed. First, it should be acknowledged that banks assets are opaque, which sets an ultimate limit to the extent of disclosure. Second, the disclosure discussion has always focused on disclosure to large market participants. Yet disclosure to the banks' clients might also improve the overall allocation of funds and reduce the riskiness to the bank. As of today it is unclear whether banks' uninsured depositors know what they are to expect in case of bankruptcy, as the banks' contracts are the same and no discontinuity on the interest rate spread occurs. Illustrating this lack of disclosure to the bank retail client, Anderson and Dokko(2009) show completely different patterns of delinquency for the borrowers that has an escrow account for their taxes and a clear view of the payments their commitment implied and those that did not.

Still, the main issue the current crisis has unveiled is related to credit rating agencies in their role of collecting information and disclosing it to the market. Because the duplication of monitoring efforts between investors and rating agencies is inefficient, a better definition and regulation of credit rating agencies is critical. Still, it is generally agreed, that better information should allow investors to impose efficient market discipline. So, the question is what is better information? A thought-provoking answer is provided by Dewatripont and Rochet (2009) as they quote Keynes and argue that "*it is better to be roughly right than precisely wrong*". Indeed, if Basel II rules combined with the complexity of internal models are susceptible of manipulation and yield information too complex to be processed by the market, then investors will resort to simple thumb rules, such as the leverage ratio to exert market discipline. Acknowledging this would provide some guidance on what the efficient disclosure of information by banks should be. This may limit the undesired impact of uninformed market discipline.

## **6. MACRO-PRUDENTIAL AND MONETARY POLICY**

### **6.1 Macro-prudential regulation**

The link between business cycle and risk assessment with its implications on capital requirements is one of the key issues regulatory reform should address. Four aspects are critical.

First, as stated by Dewatripont and Rochet (2009), a mechanism to formally declare a systemic crisis would be required as it enables to redefine the rights and responsibilities of both commercial banks and regulatory authorities once a systemic crisis is declared. This will allow defining regulatory rules that would apply only during a systemic crisis but that a bank in trouble cannot invoke in normal times. The decision can be based on a number of automatic thresholds being reached which limits the possibilities of lobbying by banks as well as political interference. Of course, once the crisis is declared regulatory institutions independence will be limited, as each bail-out is a governmental decision.

Second, as the crisis has highlighted the critical importance of bubbles, macro-prudential policy should implement mechanisms for the identification of asset prices bubbles. This mandate should presumably be part of the central banks responsibilities, as this institution is equipped with the information required to identify a bubble. This information need not be public, but will be a critical input in both the banks internal rating models and their supervision by the regulatory authorities. This role of central banks in providing macro-prudential information to supervisory authorities would be quite consistent with the monitoring of overall leverage in the banking and financial industry, which absence during the current crisis has had a negative impact.

Third, Adrian and Brunnermeier (2009) consider the issue of banks' risk measurement from a perspective encompassing a wider view of the markets, and so taking into account the contagion effects due to the distress of other banking institutions. Although value at risk (VaR) already reflects the variations in the business cycle, as the Basel II approach is based on the unique factor Merton (1974) model, it does not take into account the interaction between banking risks and markets when banks are in distress. This has led Adrian and Brunnermeier to put forward a different risk measure, *CoVaR* as "the value at risk (VaR) of financial institutions conditional on other institutions being in distress". Using this concept, they show a significant *CoVaR* increase among financial institutions in the years before the crisis and important fluctuations in the wedge between *CoVaR* and VaR. This idea could be extended to cope with the illiquidity of the market, which is neither contemplated by Basel II nor in the design of fair value accounting rules. Indeed a bank's liquidity mismatch that is considered of low risk and managed by accessing the interbank markets becomes a high risk when there is a generalized liquidity shortage.

Fourth, to cope with the negative impact of banks' capital regulation through the business cycle, regulation should impose more stringent capital requirements during good times that could be lowered in bad times. This would take into account the fact that risks should be computed through the cycle, not just at a point in time. Repullo, Saurina and Trucharte (2009) analyse this issue and compare different procedures to account for the capital procyclicality. Their empirical analysis shows that the best procedure is to use a simple multiplier of the Basel II requirements that depends on the deviation of the rate of growth of the Gross Domestic Product with respect to its long-run average. Capital requirements would be increased in expansions (or decreased in recessions) by 7.2% for a one standard deviation change in Gross Domestic Product growth.

## 6.2 Monetary policy

Three issues should be considered regarding monetary policy. First, a lax monetary policy during the pre-crisis period has been held responsible for nurturing asset price bubbles and macroeconomic fragility. Second, during the crisis period, monetary policy has changed course and has focussed exclusively on the provision of liquidity at low interest rates.

### Sustainable monetary policy

A lax monetary policy could be compatible with low levels of inflation if the excess liquidity is channelled into asset prices. This means that maintaining a lax monetary policy may come at a cost, as this represents a distortion with respect to the long term equilibrium that at one point will have to revert to its “fundamental value”. Of course, the existence of current account imbalance makes this issue more complex.

Traditionally, monetary policy objective is price stability, as the European Central Bank’s unique objective, or at a combination of price stability and economic growth, as it is the case for the US Federal Reserve. It is not clear that the current crisis will change the way monetary policy is conducted. Yet, the impact of interest rate deviations has been made clear. In the design and implementation of monetary policy, central banks should take into account that, with some probability however small, low interest rates imply higher macroeconomic fragility and financial instability. This may have an impact on interest rates. Still, if financial institutions take into account the risk of a bubble in their internal risk models, there is no need for monetary policy to take into account asset prices.

### Emergency liquidity management

Regarding liquidity injection, the behaviour of central banks across the world has been quite consistent. They have injected as much liquidity as required by the financial system. Of course, the difference between injecting liquidity and subsidising banks depends on the collateral that is used and the price that is set for the collateral. Here the policy of both the European Central Bank and the US Fed has been to lend against a large class of eligible collateral. By so doing, central banks have departed from their traditional cautious lending policy and have taken risks that may result in future losses. Still, central banks liquidity injection has limited the number of banks in distress, avoiding a worsening of the crisis.

Perotti and Suarez (2009) suggest an alternative to the central bank intervention through the idea of mandatory liquidity insurance. During good times, the Emergency Liquidity Insurance Fund would receive the liquidity insurance premia and once a systemic crisis is declared it would use its “pre-packaged access to central bank liquidity and government funds backing”. Thus the fund could not be used by a bank facing a liquidity shortage in normal times: such a bank would have to face market discipline. Yet the fund has the advantage of providing a “guarantee on uninsured wholesale funding” thus preventing the financial accelerator and contagion effects we have seen. As central banks have actually provided emergency liquidity provision, the differences should be emphasized: a private institution would be able to price liquidity insurance correctly and by so doing provide the right incentives for banks to keep more liquid assets (but notice that, as mentioned, liquidity is endogenous). Second, it would provide the market with certainty regarding

liquidity injection. Still, the problem of eligible collateral would remain to be solved: if its definition is too strict, say T-Bills, the fund is useless; if it is too wide, say AAA mortgage back securities, it corresponds to capital, not liquidity injection.

#### **Interest rate policy.**

It has been often argued that monetary policy and prudential regulation were to be separated and implemented by different agencies. The recent events seem to challenge this view. By injecting liquidity at low interest rates banks solvency is generally improved. Consequently the question of the optimal interest rate policy is to be considered.

Two recent theoretical contributions, Allen, Carletti and Gale(2008), and Freixas, Martin and Skeie (2009) argue that this is indeed the case. The efficient functioning of the interbank market is improved by setting low interest rates during a crisis and higher interest rates in normal times. The implication is here that monetary policy should also take into account the possible risks associated with a systemic crisis. At these interest rates the Central Bank should provide the aggregate amount of liquidity banks require.

Perotti and Suarez (2009) liquidity insurance proposal would have a similar effect as the cost of liquidity is higher in normal times because of the liquidity insurance premium.

### **7. THE INTERNATIONAL REGULATORY CHALLENGE**

The definition of a uniform minimal set of rules for banking regulations that would allow safe and sound banks to compete in a “level playing field” has been since its creation the objective of the Basel committee. The output of the committee has defined a framework for transnational banking operations that has allowed to establish some uniform international banking system. Yet, beyond these minimal rules, the design of international banking regulation raises two key issues.

First, each regulatory authority has as a mandate to preserve the stability of the banking system in its own country. Implicit in this is the fact that the banking system has to prosper and grow, and therefore the international regulatory game is basically a non-cooperative game.

The second issue international coordination has to solve is the issue of emergency recapitalization. Once a bank operates as a truly international bank, its bail-out or its liquidation affects not only the global financial stability but also the costs and benefits each country has to bear in the operation, independently of its country of origin. As these costs and benefits are unknown, the problem is a classical problem of financing of a public good. Each country will tend to free ride on the home country and therefore large multinational banks will not be bailed out. This according to the Turner report was a key factor in the bankruptcy of Lehman (p. 37). Only an ex ante commitment on clearly set rules for burden-sharing among countries could solve this type of problem (Freixas, 2003; Goodhart and Shoenmaker, 2006), but, as of now such a commitment does not appear a feasible option., To attenuate the conflicts of interest it would be interesting that the host countries have an option to require the bank branch to become a subsidiary once its size threatens financial stability in the host country. This could be relevant when the major systemic bank in one country is regulated by a foreign country as it happens in some eastern European countries. The option to require the transformation of a branch into a subsidiary could apply also once the dimension of the country cannot guarantee the deposit insurance, as was the case for the Icelandic banks.



**Box 3****Lessons from the Icelandic banking crisis.**

Operating in accordance with the EU second directive of single banking passport, the Icelandic bank Landsbanki opened a branch in the UK and under the Icesave brand raised retail deposits by offering often 50% more than British high street banks. Also in agreement with the European rules regarding deposit insurance, the Icelandic deposit insurance scheme covered up to the value of €20,887 so that in order to compete with the more generous UK deposit insurance scheme it was authorized to buy additional deposit insurance, a top-up, to the level of £50,000. As the UK chose post paid deposit insurance this did not imply a higher cost for Landsbanki, but the commitment to share the losses of defaulting UK banks. Landsbanki attracted £4.5 billion in the UK.

The situation of Iceland banks then deteriorated and the Icelandic government indicated that it was in no position to meet the liabilities its deposit insurance (the GDP of Iceland was about 5,5 billion computed at the November 7<sup>th</sup> exchange rate, Danielsson 2008). As deposits above £50,000 were not insured, fearing a panic, on October 9<sup>th</sup> 2008, Premier Minister Gordon Brown ordered to freeze the assets of Landsbanki branch in the UK using the Anti-Terrorism Crime and Security Act 2001.

## Lessons:

- The choice of such a spectacular measure proves that the European “single passport” banking directive does not provide the host country with appropriate instruments to cope with the failing of a bank in another European country.
- It also shows that if a foreign deposit insurance company goes bankrupt, it leaves all the host countries where it operates in a dire situation as the host country will have to bear either the cost of the full repayment to insured depositors or the cost of bearing with the possible contagion effect.
- In addition, as illustrated by the UK crisis, it may be the case that the host country considers as a systemic risk the repayment of uninsured depositors which constitute no liability to the foreign defaulting bank.
- Independently of the capacity of the host supervisory authorities, and independently of the existence of a top-up that means that the UK insurance scheme and the UK taxpayer’s funds could be at stake, the supervision of the branch is the unique responsibility of the home regulator.
- Landsbanki depositors were able to obtain the high interest rate promised on their savings during some time without incurring in the cost of failure. The UK government has thus assumed that depositors that invest in this high return low risk were uninformed in spite of the large amount of their investment. Charities, including children's hospices invested in these deposits to grasp the mythical free lunch.
- What were the ex ante options of the government? It is not clear that government warnings regarding the risky character of the investment would be acceptable under current EU rules.

The second crucial legal aspect is the bankruptcy procedure. The international banks' bankruptcy laws make a liquidation process more complex, because countries could choose between two different perspectives on the different rights of their claimholders: territoriality or universality. Under territoriality each country considers the assets and liabilities in its own country; under universality all assets and liabilities are jointly considered, independently of their country of origin. This generates clear conflicts if a country applying territoriality has to cope with the bankruptcy of a foreign bank from a country where universality is the rule. This has led the governor of the Bank of England, Mervyn King, to synthesize the issue in the now well-known observation that international banking is "*global in life, but national in death*". Territoriality is an economically inefficient bankruptcy regime but has the advantage that it defines clear cut legal rules. On the other hand, universality requires a number of issues to be negotiated among the different participating countries and their stakeholders. Under universality the countries should face the issue of burden sharing that is simply avoided under territoriality.

In Europe, the contradiction between, on the one hand, the soothing communiqués and the letters of mutual understanding among European regulatory agencies, and, on the other hand, the clear cut national mandates of the regulatory authorities was already understood. So, the crisis (in particular the downfall of Fortis) has made blatant what was already latent. The lesson to be drawn is that in fact Europe is much further away from a fully integrated financial market than what the second European banking directive ("single passport" directive) seemed to imply. The use of the United Kingdom antiterrorist law in order to freeze the assets the branch of Landsbanki in the United Kingdom (See Box 3) had, shows how far Europe is from a well defined scheme of international regulatory cooperation. A European definition of what an insured deposit is and what an uninsured deposit is, which implies effective convergence, would be welcome.

## **8. TO CONCLUDE: A CRITICAL REGULATORY CHOICE**

To conclude this view on the necessary regulatory reform, it is worth emphasizing the connection between the different components of the future regulation. Our view is that only two choices are possible, with no consistent intermediate options.

The reason is that once we make a choice regarding banks' bankruptcy procedures a number of other regulatory rules fall into place as their natural consequences.

Two major cases are to be considered.

Consider first a bankruptcy regime based on clearly defined contingent rights for debt holders, so that debt of certain characteristics becomes equity in the event of a banking crisis, whether through reverse convertible or through debt-equity swaps. In this case, the bank has to disclose the contract each type of liability holders has and make it clear avoiding mis-selling of products to uninformed depositors. This would imply that the term "deposit" would only be used for contracts that reflect the low risk and confidence that banks are supposed to encourage. This clarifies the role of market discipline as depositors are not supposed to exert market discipline, while convertible liability holders should do so. Implications on corporate governance follow. Indeed, the holders of these reverse convertible bonds are important stakeholders of the bank and therefore should be

represented in the board of directors in order to allow debt holders to price correctly their bonds so as to reflect the long run cost of raising debt for the bank. Again, the reference to Modigliani-Miller theorem allow us to pin down our argument: the price of debt immediately reflect the risk taken by the board and it is internalized in the board decisions so as to lead to the strategy that maximizes the value of the firm, not just the value of shareholders equity.

At the other extreme, a bank bankruptcy regime where banks can only be intervened when their equity is negative implies that banks continue operating while a bank run is developing. This, in turn, requires a larger deposit insurance, and possibly the extension of deposit insurance to uninsured deposits to cope with contagion, as illustrated, for instance by the Swedish crisis. It also entails a higher risk of moral hazard and herding behaviour on behalf of bank managers. Consequently, banks deposit contracts constitute a safe asset independently of its amount and maturity. The implication, in terms of corporate governance, is that taxpayers are stakeholders and, therefore, their interests should be represented. In this case, the board of directors should include representatives of taxpayers (regulatory authorities), who will consider the cost to taxpayers of the bank's strategy.

The choice between the two is not obvious, but two points should be made. First, considering only one side of the alternative as seems to be the position of the Turner review (Turner, 2009, p.7) that advocates the extension of deposit insurance may lead to a biased decision. Second, there seems to be no intermediate road: a bankruptcy regime with only some characteristics of the contingent debt equity swap will have to be quite generous on deposit insurance and therefore will imply the same costs as the non-contingent bankruptcy regime without any of its benefits. Finally, international competition between the two schemes may lead, not to the dominance of the most efficient institutions, but to the prevalence of the one that is more heavily subsidized by taxpayers, whether willingly or unwillingly.

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