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ABSTRACT

Regulatory Reform After the Crisis: Opportunities and Pitfalls

The recent crisis has led to a thriving academic and policy debate on the future regulation of financial institutions and markets. This paper argues that the objective of securing financial stability should be balanced with the goal of fostering financial deepening and efficiency, especially in emerging markets. This would require a market-harnessing rather than market-restricting approach to regulation; it would imply price-based capital and liquidity regulation, rather than restrictions and prohibitions; it would focus on forcing financial institutions to internalize the external costs of their risk-taking decisions rather than suppressing financial innovation. Beyond changes in the capital and liquidity requirements and corporate governance structures, the overhaul of failure resolution systems should top the reform agenda, to better address incentives problems and impose market discipline, even on large, too-important-to-close financial institutions. Reform areas should include both legal and regulatory frameworks and incentive structures for regulators and supervisors.

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1. Introduction

The recent crisis has led to a thriving academic and policy debate on the future regulation of financial institutions and markets. The deregulation of the past 30 years is being blamed for increasing inequality and the current crisis, and new prohibitions, restrictions and firewalls are being proposed.[1] Suggestions range from a complete overhaul of the Basel capital requirement regime over splitting universal banks into commercial and investment banks to a global bank charter. While the need for regulatory reform is clear, the focus and extent is not. And while the attention that these reform debates have achieved on the political level is certainly helpful in order to turn reform suggestions into actual laws and regulations, this same attention has also politicized the discussion, as has become clear in the current U.S. reform debate on the overhaul of the regulatory structure. This paper argues that the objectives of securing financial stability and fostering financial deepening and efficiency should be balanced, especially in emerging markets. This would require price-based capital and liquidity regulation, rather than restrictions and prohibitions; it would focus on forcing financial institutions to internalize the external costs of their risk-taking decisions rather than suppressing financial innovation. Beyond changes in the capital and liquidity requirements and corporate governance structures, this would require an overhaul of failure resolution systems to better address incentives problems and impose market discipline, even on large, too-important-to-close financial institutions. Such an approach is certainly more promising than a regulator-or legislator driven restructuring of the financial market structure, as we are currently experiencing it in Europe.

When assessing the different reform proposals, one has to keep in mind the causes of the crisis. While the final verdict has not been reached, a couple of observations can be made. Aggressive risk taking by private financial institutions, governance failures and blind confidence in risk management models are often blamed for the crisis; such behavior, however, can be seen

[1] See for example Paul Krugman: http://krugman.blogs.nytimes.com/2009/04/07/the-financial-factor/

simply as human behavior following incentives and herding instincts. Booms are typically characterized by exuberance, even irrational behavior, often under the motto "this time is different". And while such boom and bust cycles can be seen as symptom of market failures, it is the task of the regulatory framework to address such failures. For deeper reasons of the current global crisis, one therefore has to look for regulatory and macroeconomic policies. Take the example of carry trades – shifting risky assets off the balance sheet, securitizing them and putting them back on the balance sheet for a gain of 40 basis points –, which are often blamed for the fragility of many banks in the U.S. but also many European countries (Acharya and Schnabl, 2009). However, it was the long period of sustained loose monetary policies, which made carry trades with 40 basis points profitable. And it was regulators who turned a blind eye to such practices in some but not all countries. Similarly, it was regulators who turned a blind eye to the "shadow banking system" and allowed regulatory arbitrage. The reform debate should therefore focus primarily on regulatory policies and structures that set the framework in which financial institutions and markets function.[2]

Any attempt at regulatory reform should keep in mind the benefits of a deep and efficient financial system for economic growth. As well documented in a large literature, countries with deeper financial systems allocate their resources more effectively, provide funding to the firms and industries that need and deserve them most and therefore grow faster (Demirguc-Kunt and Maksimovic, 1998; Rajan and Zingales, 1998; Beck, Levine, and Loayza, 2000). It is more; deeper financial systems provide more opportunities to larger shares of the population and enable developing countries to reduce poverty levels at a faster rate (Beck, Demirguc-Kunt and Levine, 2007). This is not to downplay the risks of over-indebtedness, both on the firm as on the household level and the enormous social costs of a financial crisis, but it is important to keep in

[2] While the interaction of loose macroeconomic policies and negligent regulatory policies is certainly important, I will focus on the latter in the context of this paper.

mind the balance. While in many developed countries, there might have been an overshooting in terms of financial service provision, both on the micro-level (unaffordable sub-prime mortgages) and macro-level (ballooning of derivative markets), many developing countries still suffer from a lack of finance rather than from too much finance. Or put differently: while some industrialized countries have overshot their access possibilities frontier, with a necessary focus on market-harnessing policies, most developing countries are still far away from their access possibilities frontier, with a necessary focus on market-developing and –enabling policies (Beck and de la Torre, 2007). Any regulatory reform should therefore balance benefits with costs and take into account the enormous benefits that financial innovation can bring; any reform has to take into account that one size does not fit all.

This paper makes the case for a regulatory reform that provides incentives to moderate risk-taking and financial innovation and that forces stakeholders to internalize the social cost of their risk-taking decisions and of potential failure, without losing the benefits of financial deepening. I will try to make a case for price rather than for quantitative regulation, for a focus on harnessing markets rather than increasing regulatory restrictions. However, one also has to understand that one size does not fit all. While price-based regulation is certainly feasible and desirable in societies with skilled regulators that are independent from the political sphere and the financial industry, more rudimentary tools might have to be applied in societies with more basic financial markets, less skilled and potentially less independent regulators and supervisors. Critically, capital and other requirements will not be able prevent the next systemic crisis or even future idiosyncratic bank failures (one could argue that bank failures are a natural part of a vibrant financial market), as the cause for the next crisis is rarely the same as for the previous one. This strengthens the case for an overhaul of bank resolution systems around the world, certainly the Achilles' heels in most European countries, but – perhaps surprisingly – also in the

U.S. Regulators might not know the cause of the next crisis, but they can prepare themselves for it!

The remainder of the paper is organized as follows. Section 2 discusses different regulatory approaches and how they are framing the current debate on regulatory reform. Section 3 discusses the implication of the current crisis and resolution experience for a reform of the financial safety net. Section 4 focuses on the implication of an increasingly globalized financial system for regulatory reform, especially in highly integrated regions, such as Europe. Section 5 concludes.

Some caveats are due before proceeding. First, this paper will not attempt to provide an extensive analysis of the crisis, as a large literature already exists on that.[3] Second, this paper will focus on "micro-prudential" regulation and less on "macro-prudential" and systemic crisis resolution. This limitation is especially important in light of the observation that financial fragility can be caused by different combinations of agency, herding and mood swing problems (De la Torre and Ize, 2009), which demand a broader regulatory tool kit than on the micro-level. Finally, a lot has been written about appropriate regulatory reforms after the crisis and this paper will not be able to do justice to all the different proposals and to all the different areas being discussed. Rather, I will be concentrating on the general trends and debates, focusing on certain areas where adequate.

2. Restricting or harnessing markets – searching for a new approach

The current crisis has shown that many financial institutions were to a large extent undercapitalized and could not withstand the enormous negative shocks that the subprime crisis, the global financial crisis and the subsequent worldwide recession constituted. Further, after

[3] For summaries, see, for example, and Acharya and Richardson (2009), Brunnermeier (2009) and Dewatripont et al. (2009)

several years of a global liquidity glut, the price of liquidity was too low and access to it was taken granted too easily. Finally, the crisis was characterized by the bail-out of many institutions that were considered too large to fail and by the inability to deal with the failure of cross-border banks. These features of the crisis have led to suggestions to dramatically increase the capital and liquidity buffers banks have to hold and impose ceilings on the size of banks. The bail-out of many large financial institutions and the repercussions of the Lehman Brothers failure have also led to suggestions and actual policies to reduce the size of banks and move away from universal banking towards separate commercial and investment banking. While some of these trends towards simpler and more basic finance, undertaken by smaller institutions might come about by themselves, there are concerns that financial institutions and markets are about to get back to business as usual, encouraged by their recent bail-out by tax payers.

On a more general level and at the risk of caricaturing a rich debate, the basic issue in regulatory reform seems to focus on two different approaches: a market-restricting approach and market-harnessing approach; or a focus on quantitative regulation as opposed to a focus on price regulation. Proponents of the first view see the current crisis as result of excessive deregulation over the past three decades and advocate a more restricted but safer financial system. First, there is the suggestion to turn away from a universal banking system to separate commercial and investment banking and prohibit commercial banks from engaging in insurance activities. Less radical suggestions aim at prohibiting commercial banks from proprietary trading activities, as this is not considered central to a bank's intermediation function, but can easily endanger a bank's solvency position. Second, there is the suggestion to limit the size of banks or even break up existing large banks that are considered too big to close or even too big to save, as in the case of the Icelandic banks. This market-restricting approach is the one currently being followed in Europe, though not through regulatory or legislative means, but rather via decisions of the EU Commission that has imposed restructuring measures on banks that have received state aid during

the current crisis. Such restructuring has involved separating commercial banking from insurance activities (such as in the case of the Dutch ING that is forced to divest from its insurance arm), separating investment from commercial banking activities (as in the case of the German Commerzbank, which is forced to shrink its investment banking arm and divest from commercial real estate activities), shrinking of branch network and thus client base and ultimately balance sheet (as in the case of several large British banks) and divesting from foreign subsidiaries (again ING). While hailed by some as a first attempt at restructuring towards a more manageable banking system, the piece-meal approach seems inconsistent (some banks have to divest from their insurance arm, others not) and will not necessarily lead to small and more focused financial institutions, if other large financial institutions buy up the pieces in order to become larger. Overall, the focus seems rather on "punishing" banks for the bail-out than redesigning the banking structure in a more systematic way.

On the other side of the debate are proponents of a market-harnessing or price-based approach that balances benefits and costs of financial innovation. Proponents of this approach start with the observation that deregulation has helped deepen and broaden financial markets in both developed and developing countries. Specifically, a large literature has shown that branch deregulation in the U.S. has contributed to income growth (Jayaratne and Strahan, 1998), entrepreneurship (Black and Strahan, 2002; Kerr and Nanda, 2009), lower economic volatility (Morgan, Rime, and Strahan, 2004; Demyanyk, Ostergaard, and Sorensen, 2007) and tighten income distribution (Beck, Levine and Levkov, 2009). Certainly, financial liberalization can lead to and has resulted in financial fragility, especially in weak regulatory and supervisory environments (Demirguc-Kunt and Detragiache, 1998, 2002). Ranciere, Tornell and Westermann (2006, 2008), however, have shown that the positive growth effect of financial liberalization outweighs the negative effect stemming from a higher crisis probability. Following this argument, the crisis has its causes not so much in deregulation, but rather in the inability of

regulators to keep up with financial innovation. Reform suggestions would therefore focus on aligning incentives of the different stakeholders – regulators and bankers – and force banks to internalize the external costs of their risk-taking decisions.

Some of the recent reform suggestions, such as imposing activity restrictions and limiting bank size, also have been assessed in the empirical literature, which can serve as guidance in the current reform debate. Take first the case of large banks where an extensive literature has not come to an unambiguous conclusion. Boyd and Runkle (1993), examining 122 U.S. bank holding companies, find that there is an inverse relationship between size and the volatility of asset returns, but no evidence that large banks are less likely to fail. Boyd and Graham (1991, 1996) find that large banks were more likely to fail in the U.S. during the period 1971 to 1986, but less likely in the period 1987 to 1994. De Nicoló (2000), on the other hand, finds a positive and significant relationship between bank size and the probability of failure for banks in the U.S., Japan and several European countries.

The increasing size and globalization of financial institutions, however, might pose additional problems that are not captured by many of the above quoted studies. First, on the theoretical level, Wagner (2008) shows that diversification can make large financial institutions look alike, which will hurt in times of crisis. This is empirically confirmed by De Nicoló and Kwast (2001) who find that correlations of stock returns of large U.S. financial conglomerates increased between 1988 and 1999, as did the market share for these LCBOs. Second, growth in bank size increases the moral hazard risk of becoming too-big-to-fail, a risk which will only become obvious in times of crisis like the current one. Given the limited evidence for scale economies in banking beyond a relatively small size, the recent trends towards large financial institutions throughout Europe and the U.S. might thus be driven by attempts to gain too-big-to-fail status. Nier and Baumann (2006) find for a sample of 729 banks across 32 countries that banks that can expect government support in case of failure hold smaller capital cushion. Beck et

al. (2009) find for small and medium-sized private banks in Germany that the risk-weighted capital-asset ratio is negatively associated with bank size, which points to a too-big-to-fail phenomenon even below the tier of top banks.

Second, regulatory policies that restrict banks' activities have – if any – a negative association with bank stability. Specifically, Barth, Caprio and Levine (2004) and Beck et al. (2006 a,b) find that banking systems with more restrictions on banks' activities and barriers to bank entry are more likely to suffer systemic banking distress, while capital regulations are not significantly associated with the likelihood of suffering a crisis.

We certainly have to add the caveat to this empirical evidence that some of the relationships found previously might be (i) driven by an overall trend towards consolidation during the Great Moderation and/or (ii) might hold during the normal times, but not during times of systemic global distress. Nevertheless, this evidence is more supportive of a market-harnessing and price-based than a market-restricting approach. One important advantage of price regulation would be that it takes both benefits and costs into account; it helps reveal the true benefits of combining different activities and of scale economies. However, it is also more challenging as it might have to be changed over time. And it is important to note that it might be more difficult to implement such a price-based regulatory regime in a regulatory environment characterized by understaffed and less skilled regulatory agencies with limited independence.

In the following, I would like to use this discussion framework to briefly discuss five specific areas. First, capital requirements are one important topic of the current reform debate. While pillar one of Basel 2 – regulating capital - was supposed to be a big improvement over the rather mechanic 8% rule of Basel 1, the current crisis has revealed enormous deficiencies in this system, related both to problems in banks' risk management models and their underlying assumptions, but also more basic incentive problems in the way capital requirements were supposed to be measured. Take the example of off-balance sheet items, such as SIVs. While the

legal responsibility and liability was supposedly off the balance sheet, reputation risk forced banks to take back these risks on their balance sheet when the vehicles were hit by shocks and turned out to be underfunded. So, while legally not liable for these losses, there was an economic responsibility, which should also be reflected in capital requirements. Capital requirements have also not taken into account co-variance of financial institutions asset and capital position, which has increased in recent years, as discussed above (De Nicolo and Kwast, 2001) and has led to problems in the current crisis. Some of the recent proposals (Adrian and Brunnermeier, 2009) try to address this by expanding the Value-at-Risk approach to measuring the necessary capital cushion with a covariance matrix that explicitly takes into account an institution's marginal contribution to systemic risk. In the case of large cross-border financial institutions, this would also have to take into account risks beyond the home market. On the other hands, simple leverage ratios have gained again popularity, as they seem less subject to manipulation; an advantage especially in regulatory environments with independent and less skilled supervisors. A combination of both seems certainly appropriate.

Second, credit rating agencies have had an important role to play under the Basel 2 capital regime as they were the ones to assess the riskiness of many assets and therefore the necessary capital charges. While the literature has identified the conflict of interest of credit rating agencies representing the interests of issuers rather than investors and combining both consulting and rating business (Bolton, Freixas and Shapiro, 2009), less progress has been made on an appropriate reform of their role in determining capital for banks. On the one hand, there is the call for more rigorous regulation and supervision of these institutions. However, this might transfer the principal-agent problem just to a different part of the chain, most notably to supervisors. There have been calls for more competition in the sector; without other reforms or changes, however, this might exacerbate rather than alleviate problems, as it increases incentives to shop around (Bolton, Freixas and Shapiro, 2009). Another solution would be treat the

relationship between rating agencies and banks similar to the relationship between firms and auditing firms, i.e. force financial institutions to contract with a specific rating agency for a certain time period, after which it is forced to change. This would eliminate the trend to shop around and thus rating inflation. At the same time, one would have to separate rating and consulting activities, i.e. the same rating agency cannot contract with a specific financial institution for rating activities while providing consulting activities, similar to the reform implemented for auditing companies in the wake of the Enron scandal. A more radical proposal would be to simply remove the regulatory task from these institutions, with the downside, however, that less market information would be used in the process of determining capital charges.

Third, as discussed above, the bail-out of many large financial institutions has resulted in calls to restrict the size of institutions. A market-restricting approach would be to impose a size limit. While this has the benefit of being seemingly easy to implement, it has the shortcoming that it can be arbitrary and orthogonal to the actual importance of an institution (in terms of market share or position in specific markets). Further, the limit will have to be adjusted over time, which might be difficult to do in an environment with less than independent regulators. A more flexible, market-harnessing and price-based approach would be to tax financial institutions for being large or for being complex in the form of higher capital charges. This could take different forms. One could envision increasing capital charges as banks grow larger. Another possibility would be additional deposit insurance premiums. Similarly, one could envision additional capital charges if banks become active in additional business areas, as well as capital charges as function of the maturity mismatch or the share of funding derived from wholesale rather than retail markets. An advantage of such an approach would be that it would be continuous rather than discrete; financial institutions thus have to balance the benefits of a larger

size or additional potentially risky activities with the costs of higher capital charges. On the aggregate level, this would allow balancing of benefits and risks of scale and scope.

Fourth, it has been suggested to restrict products or have them vetted by a sort of product agency, similar to the Federal Drug Administration. While this might have the short-term benefit of eliminating products and markets that have been at the center of the crisis, it carries the large risk of stifling financial innovation. As discussed by Michalopoulous, Laeven and Levine (2009), legal impediments to financial innovation have been detrimental for economic development. Under the rigid Code Napoleon, adapted in many former French, Belgian, Dutch, Spanish and Portuguese colonies, it has resulted cumbersome to introduce financing forms such as leasing and factoring that are especially conducive for small enterprises. But financial innovation can also contribute to financial fragility. The example of securitization – used successfully for many years for other segments of the loan portfolio – shows the two sides of the coin: helpful if used in a transparent manner with clear allocation of profits and losses, risky, if non-transparent, linked to highly price-sensitive assets and used for regulatory arbitrage only. On the one hand, Gerardi, Rosen and Willen (2010) show how securitization has helped align consumers' housing consumption with their permanent rather than current income in the U.S. in the 1980s and 90s. On the other hand, Dell'Ariccia, Igan and Laeven (2008) show how securitization has contributed to deteriorating lending standards in the run-up to the current crisis. A cautious approach is therefore called for that allows financial innovation while limiting the risks stemming from individual products and markets for the whole financial system. One possibility would be to allow over-the-counter, unregulated markets for new products – requiring at the same time higher capital charges if the activity is undertaken on the institution's own account -, but to require a shift to regulated and supervised exchanges, once products become standardized and more wide-spread.

Finally, one controversial topic during recent months has been the generous bonus and dividend payments by financial institutions that have received state aid. These payments effectively constitute a transfer from debt holders or ultimately tax payers to equity holders and employees. Suggestions that these are simply issues of corporate governance do not recognize the external costs of bank failure and the fact that in a systemic crisis or for too-large-to-close institutions, the taxpayer is effectively a stakeholder. Calls for limits on payments might not be useful, as they are subject to political pressure. However, evaluating bonus and dividend policies in the context of the overall supervisory monitoring process might very well be appropriate. It is important to note that it is the structure of compensation policies and less the amount that have an important impact on risk-taking decisions.

While the debate on capital requirements and other regulatory restrictions is important, bank failures will continue to happen, both by small and large financial institutions. Not only will regulators always be behind the latest developments in markets and institutions, but the next crisis will certainly have other causes and start in a different segment of the financial system than the current one. In addition, bank failures can be seen as part of the "natural" process of market development (Schumpeter, 1934), the task being more to manage the resolution of such failure rather than avoiding it at any price. Rather than trying to minimize the likelihood of bank failures towards zero at any price, therefore, this underlines the necessity to have the necessary frameworks in place to deal with such failures, a topic that we will turn to in the next section.

3. Failure resolution schemes - the core of regulatory reform

The crisis has exposed significant deficiencies in the failure resolution framework of financial institutions. In September 2008, at the height of the financial crisis, Lehman Brothers were allowed to go into liquidation, while AIG was bailed out. In Europe, the failure of national authorities to cooperate on the resolution of the cross-border financial conglomerate Fortis led

first to nationalization of the resolution process and ultimately to the nationalization of the financial conglomerate in Belgium, Netherlands and Luxembourg. The inability to deal with the failing Icelandic institutions not only led to the effective bankruptcy of the country, but international tensions!

In order to show the importance of a special failure resolution scheme for financial institutions, especially banks, one has to remember the special nature but also functions of the financial system in a modern market economy. Specifically, banks have three basic functions in a modern market economy: (i) they provide payment services, (ii) they pool society's savings, transforming short-term liquidity into long-term investment, and (iii) they screen and monitor borrowers and investment projects. The provision of payment services is only feasible if banks belong to a network, the maturity transformation results in the risk of maturity mismatch and liquidity shortages in the case of shocks such as bank runs, and the screening and monitoring function of financial institutions implies the creation of private information.

One can argue that in all three functions the failure of a financial institution results in negative externalities beyond the private costs of failure; this gap between private and social cost of bank insolvency by itself justifies the special insolvency regime for banks. There are some additional bank characteristics which makes the resolution of financial institutions more complicated than that of non-financial institutions. The opacity of banks' balance sheet, the market sensitivity of assets, and the ability to rapidly change structure of balance sheet and thus capital position underlines the need for early and rapid intervention capacity. The interconnectedness of banks, i.e. the large proportion of claims banks hold on each other relative to their total assets, results in increased contagion risk. Bailing out junior creditors in the current crisis was often implicitly justified with the possible domino effect on other banks that not bailing them out would cause.

Bank failure resolution faces a basic trade-off. On the one hand, the three bank characteristics discussed above result in three basic challenges that call for rapid resolution. First, the network character of the financial system requires rapid intervention to avoid domino effects. Second, depositors might withdraw their sight deposits not only in the failing but in other institutions, causing contagion effects. Finally, the production of borrower-specific information has external benefits for the economy, which might get lost if the institution is liquidated. These three goals call for a rapid intervention and minimization of any disruption of the institution's business.

On the other hand, the gap between private and social cost of bank insolvency and the expectation of the authorities' intervention creates moral hazard risk. On a more basic level, the moral hazard risk stems from the put option character of bank's equity, i.e. as soon as a bank's liabilities surpass its assets (strike price), the owners can walk away in a regime with limited liability. The assumption to be bailed out given the external cost of a bank failure reduces creditors' and depositors' incentives to monitor and discipline banks' owners and managers. From the regulator's viewpoint, this can be seen as a classical time inconsistency problem: while ex-ante it is optimal to insist on market discipline, ex-post it is optimal to focus on access to liquidity. It was for this reason that the reliance on monetary and regulatory authorities in the U.S. in the run-up to the crisis was often referred to as Bernanke-Greenspan put.

Figure 1 illustrates the trade-off between access to objectives of maintaining access to liquidity and maintaining market discipline.[4] In the case of an insolvent but illiquid bank, forbearance would be in the NW corner of Figure 1, while in the case of an illiquid and insolvent bank (we abstract from cases of illiquid but solvent banks, as this is more a case for the lender of last resort), this would constitute open bank assistance. On the other extreme, the liquidation of a financial institution as any non-financial corporation, with a stay on assets and liabilities, would

[4] This is based on DeYoung and Reidhill (2008) and Beck (2010).

constitute a solution that would maximize market discipline, as it would force all liability holders to price their claims according to the risk, while not providing any liquidity. The social optimum would be in the NE corner of Figure 1, maximizing liquidity and market discipline simultaneously. The objective of a specific bank failure resolution scheme is to provide alternatives to open bank assistance and liquidation that maximize both liquidity and market discipline, thus ultimately reducing the trade-off between the two.

The experience in developed and developing countries over the past decades has shown different models for minimizing the trade-off, but has also shown the limitations, both technically as politically. Take first the positive side of the experience. There are several models of resolving failing banks that are an improvement over the two extremes of liquidation and open-bank-assistance/forbearance. On the one extreme, moving from the conventional liquidation procedure to a procedure where small depositors are paid out immediately (e.g. through a deposit insurance scheme or through another bank), while large depositors and other creditors go through a regular liquidation process increases liquidity while imposing some degree of market discipline. On the other extreme, introducing the legal form of bridge bank that transfers assets and liabilities of a failing bank while wiping out equity holders' claims, maintains liquidity, while introducing some degree of market discipline.

Other resolution mechanisms minimize the trade-off between liquidity and market discipline even further. Take the example of a regulator-driven merger and acquisition, where under pressure of the authorities a weak bank is purchased by a strong bank, be it domestic or foreign-owned. Such a resolution mechanism maximizes liquidity, but imposes some market discipline on equity holders – who will see their share in the new merged bank diluted – and management who will most likely lose their job in the new bank. Merger and acquisition as resolution mechanism, however, is only feasible if there is still positive equity in the failing bank, i.e. has to be done well in advance of a bank hitting the zero-capital threshold. If this condition

does not hold, a purchase and acquisition transaction could be implemented. Such a transaction can take different forms across different legal systems, but basically involves selling the good assets to a strong bank with part of the liabilities (in order of ranking: insured depositors, non-insured depositors, other creditors), while the bad assets stay behind with the remaining liabilities and are sent to liquidation (be it judicial or extra-judicial). Any remaining gap between good assets and liabilities would be filled with resources from a deposit insurance fund. A similar technique is the good bank-bad bank model, where the failing bank is split into two parts, with any gap in the good bank filled with public resources or deposit insurance fund resources and the bad bank being sent into liquidation. The good bank would either continue as a stand-alone bank or purchased by a strong surviving bank.

The experience has also shown the limitations of such approaches, especially in case of large banks and too-many-to-fail banks. The failure of large banks or financial institutions that have a critical role in certain markets (such as AIG in the CDS market) has a significantly larger impact on the rest of the financial system than the failure of a small financial institution that has a marginal role within the network. That the importance of a bank for the network is not necessarily a function of its size, however, became clear even in 1974 when the failure of the German bank Herstatt set off domino effects of cascading cross-defaults among financial institutions around the globe. Second, the failure of a large bank will most likely lead to larger depositor panics and has – purely by its size – a bigger impact on markets than the failure of a large bank. Finally, the importance of the lending relationships of a large banks are more important, not just because of the number of relationships and the likelihood that a larger number of large loans will be contracted with this institution, but also because it is most likely active in more markets than a small bank. A similar situation arises in the case of too-many-to-fail, or a systemic crisis, as we are currently living. All three problems are exponentially multiplied when the number of institutions increases. However, not only the problems increase exponentially, but

also the possible resolution tools are drastically reduced. The possibility to implement a regulator-driven private solution, such as a merger and acquisition, or a purchase and assumption, declines in the size of the failed institution. Similarly, the possibility to implement such solutions declines in the number of failed institutions, given the reduced number of healthy institutions and given the uncertainty about the health of the institutions that are still standing. In addition, moral hazard concerns increase in the size, importance and number of institutions (the latter through herding effects as observed in the S&L and the current crisis), as large, important and each other imitating institutions know about the limited possibilities of authorities to impose market discipline.

The decision, which resolution mechanism to apply, however, does not only depend on the available resolution tools, but also on preferences of the authorities who take these decisions. Following Ed Kane (2000), we can distinguish between four different stakeholders in the financial safety net: (i) bank managers and owners, (ii) depositors, (iii) managers of the financial safety net and (iv) owners of the financial safety net, ultimately the tax payer. Bank managers and owners have strong incentives to take aggressive and imprudent risk and have obviously strong preferences towards liquidity and against market discipline. Depositors care mostly about the safety of and access to their deposits, thus again more about liquidity than about market discipline. The owners of the financial safety net, ultimately the taxpayers, want to minimize the costs while at the same time fostering financial intermediation. Given the long-term characteristics of this preference, the owner of the financial safety net will therefore have preference more towards market discipline than the other two groups.

Ultimately, however, it is the managers of the safety net, mostly regulatory authorities, who take the decision. Whose interests they represent depends on the institutional structure of bank regulation and supervision and the political environment. A large literature has pointed to the risk of both regulatory capture – regulators representing the interests of the regulated, i.e.

banks – and political capture – regulators representing short-term political interests. Regulatory capture biases regulators towards liquidity support; similarly, political capture makes regulators care more about today's economic consequences of failure resolution than the dynamic effect of the moral hazard risk created by these actions. Given the short-term horizon of politicians, captured regulators would thus heavily discount the moral hazard repercussions of today's resolution actions. Others have suggested that regulators might err towards liquidity, be it through forbearance or liquidity support, to avoid that bank failures happen "on my watch" (Kane, 1989) Given that regulators have a limited tenure, they heavily discount the future negative moral hazard effects of open bank assistance and forbearance during their tenure. In the case of too-big or too-important-to-fail institutions as well in the case of a systemic crisis as we live it currently, there is an additional bias towards liquidity support and against imposing market discipline. It is thus not surprising that the recent crisis seems like the burial ground for market discipline in the financial sector, as across the developed world, banks' creditors and depositors have been bailed out. While shareholders had to take some hit, their claims were not completely wiped out, with the exception of Lehman Brothers.[5]

Which reforms are necessary to avoid replays of the current situation? In the U.S., both investment banks (Lehman Brothers) and insurance companies (AIG) were outside the failure resolution schemes that the FDIC has used successfully over the past decades for commercial banks. Expanding such a failure resolution framework to non-bank financial institutions, especially the ones that are critical for the functioning of financial markets, will be critical. Most European countries did not even have proper failure resolution schemes in place for banks, as they found out during the current crisis. Introducing such frameworks, which include rules on haircuts for junior creditors and shareholders, cannot only help reestablish market discipline, but

[5] And one can argue that the disastrous experience of the Lehman Brothers bankruptcy will prevent the authorities to ever push a large financial institution again into liquidation.

can also reduce taxpayer expenses and help reduce uncertainty on liquidity access, so clearly a move towards the NE corner of Figure 1. Such reforms would also have to include the possibility to intervene early into banks, before equity nears zero, such as in the form of a prompt corrective action regime. Introducing prompt corrective action regimes and least-cost rules would have the added the additional advantage that they help align the incentives of regulators with tax payers, reducing the risk of forbearance and generous bail-outs. One step further would go the proposal by Ed Kane to defer part of supervisors' payments to reduce the risk of "not-on-my-watch" forbearance. Critically, this discussion shows that both tools and incentives of supervisors are important in the reform of the resolution framework.

Expanding the resolution possibilities for large financial institutions will be an important part of the reform process on either side of the Atlantic, as well as other parts of the world. Several suggestions have been made for incentive-compatible resolution mechanisms for large financial institutions that minimize the trade-off between liquidity and market discipline, illustrated in Figure 1. These suggestions include automatic debt-equity conversion, where debt is converted into equity claims when the value of existing equity nears zero (Flannery, 2005; Squam Lake Working Group on Financial Regulation). Hart and Zingales (2009) suggest to link the equity cushion financial institutions have to hold to the price of their credit default swap (CDS) and require them to hold a cushion of long term bonds sufficiently large that, even if the equity is wiped out, the systemically relevant obligations are safe. A movement of the CDS spread above a threshold would force the institution to issue equity until the CDS price moves back down. One shortcoming of this proposal is that it would heavily depend on a working CDS market. Another suggestion is to force banks to draw up living wills, which would detail how their operations could be wound down in a crisis and how their assets would be distributed.[6] This

[6] While it does not seem clear who used the expression of "living will" for banks first, the idea seemed to have emerged from the UK authorities (Treasury and FSA).

would increase transparency and could also help align incentives if stakeholders know in advance how much to expect in case of failure. This might thus force risk-based pricing of claims and reintroduce an element of market discipline, which seemed to have been lost in the current crisis. Such wills should also include separation mechanisms of components of a financial institution that are critical for the functioning of financial markets and components that are not (Hüpkes, 2009). One shortcoming of the idea of living wills is that they might have to be adjusted quite frequently, with the consequent transaction costs for banks themselves.

While the national reform agenda for failure resolution is long, this does not reduce the need to improve global cooperation in dealing with large cross-border financial institutions in case of failure, a topic I will turn to in the next section.

4. Regulatory reform – the global dimension

Globalization has brought many benefits, but also many risks to countries' financial systems. In addition to sudden stops and currency crises, global banks most openly characterize this trade-off. On the one hand, there are efficiency gains from scale as well as benefits for host countries, such as importing skills and resources or even indirectly through a regulatory upgrade. On the other hand, these large cross-border institutions are a source of fragility. In the current crisis, the failure of Lehman Brothers was an important trigger for the deepening of the crisis and a source of cross-border contagion, as it affected a large number of countries. Critically, the current crisis has exposed the weaknesses in the existing resolution frameworks for cross-border banks. Nowhere has this geographic mismatch between activity and regulation become clearer than in Europe.

The Dutch-Belgian Fortis bank is a good example for that. Back in 2007, the Belgian Fortis was allowed to participate in the take-over of Dutch ABN Amro in spite of facing already solvency problems, which points to both regulatory capture in Belgium and the lack of

information exchange between Belgian and Dutch supervisors. The conflict between Belgian and Dutch supervisors following the take-over about who would be lead supervisor of Fortis made cooperation during the subsequent crisis in 2008 difficult. Initial coordinated recapitalization failed to calm the markets, which resulted in each national government taking their own actions, ultimately not only nationalizing resolution of the individual bank pieces in Belgium, Luxembourg and Netherlands, but nationalizing the banks themselves. Insiders stress that cooperation ultimately broke down when the Ministers of Finance got involved. Even today, there are still disputes between the Belgian and Dutch government about burden sharing according to the initial joint intervention.

What then would be the appropriate financial safety net for Pan-European banks? Supervision and intervention powers on the supranational level, corresponding to the ownership and deposit holdings seems important as this would align the incentives. As or even more important, however, are that such a supervisor has the necessary resources to intervene into a failing bank. That's why some economists in Europe recommend the establishment of a European Deposit Insurance Corporation (EDIC) along the same lines as the FDIC. The main problem seems to be the Lisbon treaty, which prevents the EU from establishing a regulatory authority, as financial supervision is considered national, following the subsidiary principle. However, even if legally feasible, would this be a panacea? Far from it, as supra-national supervisors might not have access to the necessary local information in order to properly supervise these banks. In addition, do we really need a new European bureaucracy? On the other hand, moving supervision from the national to the supra-national level might increase the independence of supervision. In addition, moving resolution to the supranational level would also redefine the too-big-to-fail status – what is too big for Belgium might not be too big for the EU. One important caveat would be that such a system would apply only to the large Pan-

European banks, not to small national or regional bank that are best supervised by national supervisors.[7]

While the introduction of a EU-level regulator might not possible at this moment, not only for constitutional but also for political reasons, as the resistance within the EU against the De Larosière report shows, other suggestions are less institutionally demanding. Perotti and Suarez (2008) suggest a compulsory liquidity insurance mechanism for large banks that would allow access to liquidity support once a systemic crisis has been declared. Hertig, Lee and McCahery (2009) suggest a choice-based model where EU member states can opt to delegate supervision of their largest banks to the ECB, a model that seems more flexible and politically easier to accept than creating a new pan-European institution.

Beyond Europe, the experience of the current crisis has implication for many emerging and developed economies that are host countries for large cross-border banks. There will be a trend away from allowing large branches and towards fire-walling subsidiaries so that they can stand-alone in case of failure of the parent bank. While this might increase the cost of cross-border banking, this might be a necessary price to pay for less fragility. As in the case of regulatory restrictions, it is important, however, not to throw out the baby with the bath water. Cross-border banking can bring enormous benefits to their host economies, as the example of the transition economies of Central and Eastern Europe has shown where foreign banks have played a critical role in financial sector deepening and broadening over the past two decades (Bonin and Wachtel, 2003).

The future of efficient and stable cross-border banking, however, depends critically on appropriate regulatory framework. Fine-tuning memorandum of understanding and strengthening colleges of supervisors will not be enough. Rather, we need "colleges of ministers of finance",

[7] A somewhat similar proposal was made by Cihak and Decressin (2007). Specifically, they propose a European Banking Charter, parallel to existing national bank charter, possibly with their own deposit insurance and failure resolution scheme.

i.e. appropriate ex-ante burden-sharing agreements, which in the context of large cross-border banks could be done through living wills discussed above.

5. Concluding remarks

The recent crisis has provided impetus for a rigorous debate on bank regulation and supervision. Over all these debates, it is important to not forget the critical role that financial systems play in the modern market economy and the benefit of financial deepening for economic development. Financial liberalization over the past decades has brought risks, but also enormous benefits across the developed and even more the developing world.

In this paper, I have argued that a market-harnessing rather than a market-restricting approach is better in order to achieve a stable, efficient and innovative financial system. Rather than being business-as-usual, this would imply important changes, including progressive taxation on size, scope and complexity of financial institutions and forcing standardized financial products on regulated exchanges. It would increase the cost of financial intermediation, but in a more incentive-compatible way than restrictions and prohibitions. It would force financial institutions to balance the private benefits of their risk-taking decisions with private and social costs of potential failure. Critically, such an approach would focus on the necessary reforms of bank resolution frameworks, both legal and regulatory aspects as incentive structures for regulators and supervisors.

The current G-20 discussions have not always focused on the most pressing issues, partly for technical reasons, partly for political reasons. Beyond expression of intentions, it will be impossible to agree on a set of regulatory policies that will be implemented worldwide. This

might be for the better, as one size does not fit all. More important than imposing a set of regulatory policies would be to set up frameworks for dealing with large cross-border banks.

Concentrating the discussion of regulatory policies in the G-20 forum is an improvement on the G-8 forum; however, it still does not take account of the needs and interests of the remaining 172 countries. While the financial systems of these 172 countries might not be critical to global financial stability, the financial systems in these countries are critical for their host economies' growth and development. The on-going regulatory debate will have an impact on regulation in these countries through imitation and best-practices, "disseminated" by the IFIs. (e.g. higher capital requirements). The future of large cross-border banks has a critical impact on the banking markets in many small emerging and developing countries, as subsidiaries often have large and dominant positions in these markets. The discussion of regulatory reform should therefore take on a more holistic and global view; safeguarding finance is not a goal in itself, but should be done for the sake of economic development and poverty alleviation.

References

Acharya, Viral and Philipp Schnabl. 2009. How Banks Played the Leverage "Game". In: Acharya, Viral and Matthew Richardson (Eds.): Restoring Financial Stability. Wiley

Acharya, Viral and Matthew Richardson (Eds.). 2009. *Restoring Financial Stability*. Wiley

Adrian, Tobias and Markus Brunnermeier. 2009. CoVaR. Princeton University mimeo.

Barth, J.R., Caprio, Jr., G., and Levine, R. 2004. Bank Supervision and Regulation: What Works Best? *Journal of Financial Intermediation* 13:2, 205-48.

Beck, T. 2010. Bank Failure Resolution – A Conceptual Framework. Tilburg University mimeo.

Beck, Thorsten and Augusto de la Torre. 2007. The Basic Analytics of Access to Financial Services. *Financial Markets, Institutions and Instruments* 16, 79-117.

Beck, T., Demirgüç-Kunt, A., and Levine, R. 2006a. Bank concentration, competition, and crises: First results. *Journal of Banking and Finance* 30, 1581-603.

Beck, T., Demirgüç-Kunt, A., and Levine, R. 2006b. Bank concentration and fragility: Impact and mechanics. In: Stulz, R., and Carey, M. (eds), *The Risks of Financial Institutions.* National Bureau of Economic Research.

Beck, Thorsten, Aslı Demirgüç-Kunt, and Ross Levine. 2007. Finance, Inequality, and the Poor. *Journal of Economic Growth* 12(1); 27-49.

Beck, Thorsten, Heiko Hesse, Thomas Kick and Natalja von Westernhagen. 2009. Bank Ownership and Stability: Evidence from Germany. Tilburg University mimeo.

Beck, Thorsten, Ross Levine, and Alex Levkov. 2010. Big Bad Banks? The Winners and Losers from Bank Deregulation in the United States. *Journal of Finance*, forthcoming.

Beck, Thorsten, Ross Levine, and Norman Loayza. 2000. Finance and the Sources of Growth. *Journal of Financial Economics 58*, 261-300.

Black, S.E., Strahan, P., 2002. Entrepreneurship and bank credit availability. Journal of Finance 57, 2807-2833.

Bolton, Patrick, Xavier Freixas and J. Shapiro. 2009. The Credit Rating Game. Universitat Pompeu Fabra mimeo.

Bonin, John and Paul Wachtel (2003): Financial Sector Development in Transition Economies: Lessons from the First Decade. *Financial Markets, Institutions and Instruments* 12, 1-66.

Boyd, J.H., and Graham, S. 1991. Investigating the banking consolidation trend. *Federal Reserve Bank of Minneapolis Quarterly Review* Spring, 1-15.

Boyd, J.H., and Graham, S. 1998. Consolidation in US banking. In: Amihud, Y., and Miller, G. (eds), *Bank mergers and acquisitions*. Norwell, MA. Kluwer, 113-35.

Boyd, J.H., and Runkle, D.E. 1993. Size and performance of banking firms: Testing the predictions of theory. *Journal of Monetary Economics* 31, 47-67.

Brunnermeier, Markus. 2009. Deciphering the Liquidity and Credit Crunch 2007-08. *Journal of Economic Perspectives* 23, 77-100.

Cihak, Martin and Jörg Decressin. 2007. The Case for a European Banking Charter. IMF Working Paper 07/173.

De la Torre, Augusto and Alain Ize. 2009. Regulatory Reform: Integrating Paradigms. World Bank Policy Research Working Paper 4842.

De Nicoló, G. (2000) Size, charter value and risk in banking: An international perspective. International Finance Discussion Paper #689, Board of Governors of the Federal Reserve System.

De Nicoló, G. and Kwast, M. (2002) Financial risk and consolidation: Are they related?" *Journal of Banking and Finance* 26, 861-80.

Dell'Ariccia, G., Igun, D., and Laeven, L. 2008. Credit booms and lending standards: Evidence from the subprime mortgage market. IMF *Working Paper* 08/106.

Demirgüç-Kunt, Aslı, and Enrica Detragiache. 1998. The Determinants of Banking Crises: Evidence from Developing and Developed Countries. *IMF Staff Papers* 45 (1): 81–109.

Demirgüç-Kunt, Aslı, and Enrica Detragiache. 2002. Does Deposit Insurance Increase Banking System Stability? An Empirical Investigation. *Journal of Monetary Economics* 49 (7): 1373–406.

Demirgüç-Kunt, Aslı, and Vojislav Maksimovic. 1998. Law, Finance and Firm Growth. *Journal of Finance* 53, 2107-37.

Demyanyk, Y., Ostergaard, C., Sorensen, B., 2007. U.S. Banking Deregulation, Small Businesses, and Interstate Insurance of Personal Income. *Journal of Finance* 62, 2763-2801.

Dewatripont M., X. Freixas and R. Portes 2009. *Macroeconomic Stability and Financial Regulation*, CEPR and VoxEU.

Flannery, Mark J. 2005.No Pain, No Gain? Effecting Market Discipline via Reverse Convertible Debentures. Chapter 5 of Hal S. Scott, ed., *Capital Adequacy Beyond Basel: Banking Securities and Insurance*, Oxford: Oxford University Press.

Gerardi, Kristopher S., Harvey S. Rosen and Paul S. Willen. 2010. The Impact of Deregulation and Financial Innovation on Consumers: The Case of the Mortgage Market. Journal of Finance, forthcoming.

Hart, Oliver and Luigi Zingales. 2009. A New Capital Regulation for Large Financial Institutions. University of Chicago mimeo.

Hertig, Gerard, Ruben Lee and Joe McCahery. 2009. Empowering the ECB to Supervise Banks: A Choice-Based Approach. TILEC Discussion Paper 2009-01.

Hüpkes, Eva. 2009. Too Big, Too Interconnected and too international to resolve? How to Deal with Global Financial Institutions in Crisis. Mimeo. m

Jayaratne, J., Strahan, P., 1998. Entry restrictions, industry evolution and dynamic efficiency: evidence from commercial banking. Journal of Law and Economics 41, 239-74.

Kane, Ed, 2000, Designing financial safety nets to fit country circumstances, World Bank Policy Research Working Paper 2453.

Kane, Ed. 1989. Changing Incentives Facing Financial-Services Regulators. *Journal of Financial Services Research* 2, 265-74.

Kerr, W., Nanda, R., 2009. Democratizing Entry: Banking Deregulations, Financing Constraints, and Entrepreneurship. *Journal of Financial Economics*, forthcoming.

Michalopolous, Stelios, Luc Laeven and Ross Levine. 2009. Financial Innovation and Endogenous Growth. Tufts University mimeo.

Morgan, D.P, B. Rime, Strahan, P., 2004. Bank integration and state business cycles. Quarterly Journal of Economics 119, 1555-85.

Nier, Erlend and Ursel Baumann. 2006. Market Discipline, Disclosure, and Moral Hazard in Banking. *Journal of Financial Intermediation* 15, 333-62.

Perotti, Enrico and Javier Suarez. 2009. Liquidity Insurance for Systemic Crises. CEPR Policy Insight 31.

Rajan, Raghuram, and Luigi Zingales. 1998. Financial Dependence and Growth. *American Economic Review* 88: 559-587.

DeYoung, Robert and Jack Reidhill. 2008. A Theory of Bank Resolution: Political Economics and Technological Change. University of Kansas mimeo.

Ranciere R., Tornell, A., and Westermann, F. 2006. Decomposing the Effects of Financial Liberalization: Growth vs. Crises. *Journal of Banking and Finance* 30, 3331-48.

Ranciere R., Tornell, A., and Westermann, F. 2008. Systemic Crises and Growth. *Quarterly Journal of Economics* 123, 359-406.

Schumpeter, J. A., 1934. *The Theory of Economic Development*, 1912, translated by Redvers Opie (Harvard University Press, Cambridge, MA).

Squam Lake Working Group on Financial Regulation 2009. An Expedited Resolution Mechanism for Distressed Financial Firms: Regulatory Hybrid Securities. April 2009

Wagner, W. (2008) Diversification at Financial Institutions and Systemic Crises. Tilburg University mimeo.

Figure 1: Bank failure resolution – the basic trade-off