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(Occasional Papers)

Connect them where it hurts. The missing piece of the puzzle

by Lorenzo Esposito

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CONNECT THEM WHERE IT HURTS. THE MISSING PIECE OF THE PUZZLE

by Lorenzo Esposito*

Abstract

The crisis has shown that banks that are too big to fail are at the core of the international financial system. These institutions are thus at the centre of a powerful wave of re-regulation of the banking system. Overall, the proposals developed to strengthen the capacity of big banks to weather future crises, starting with Basel 3, point in the right direction, but they are missing an essential element. SIFIs have a peculiar nature. Their most salient feature is that because of their size, interconnectedness and similar strategies, a crisis of one tends to become a crisis of all. Hence, it is essential to have a mechanism in place to link them together beforehand. The paper analyzes measures that can serve this end. It then proposes a tool designed to give SIFIs a shared interest in behaving correctly, i.e. taking into account the externality implied by their very existence.

JEL Classification: E60, G01, G28.

Keywords: financial crisis, too big to fail, macro-prudential, stability fund.

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1. Introduction: troubles in the realm of too-bigness

Hardness ever of hardness is mother – Shakespeare

Consolidation has been a major feature of global banking for decades, and the crisis has accelerated its pace. To explain this trend, the literature often points to external economies and diversification benefits, although banks can exploit these well before they attain systemically important size. We believe a better explanation lies in the survival instinct of the banks: in a complex environment where profitability is falling, size seems a good card to play. As the number of big banks shrinks and the similarities of their business models make them more and more interconnected, the situation of these systemically important financial institutions (SIFIs) is one of the most if not the most important issue for financial stability worldwide¹.

An assessment of the role of big banks must also consider the development of international banking². After years of playing a vital role to foster globalization, international banking came to be perceived as a factor that magnified the crisis, especially owing to the role of big banks. This helped concentrate attention on SIFIs and spurred discussion of tighter controls on them.

The crisis provoked a strong parallel decline in international trade flows and international banking, for the factors behind the globalization of the real economy and the banking system are basically the same. If in the 1930s the collapse of economy worldwide triggered a retreat towards nationalism and protectionism, this time attacking foreign banks has not yet figures prominently as a political tool. What Tschoegl (1987) called “receptivity”, benign neglect towards foreign banks, remains the prevalent attitude. Nevertheless, regulatory responses to the crisis have not been uniform and an accentuation of national regulatory peculiarities could pose a major problem for international banking in the future.

In this paper, we will suggest an additional tool to deal with SIFIs, one we think is still absent from the international discussion, although many measures come close to its logic. The presentation will proceed by steps. We analyze the main features of SIFIs, examine the basic tenets of the new regulatory measures, discuss the tools that come closest to our idea, and, finally, put forward our solution.

2. What a bank that is too big to fail looks like

The action of each individual is rational – or would be, were it not for the fact that others are behaving in the same way – Kindleberger

2.1 Shortcomings of the mainstream theoretical micro-macro approach

For decades the idea held sway that self-regulation or mild market-friendly regulation was the best approach to banking supervision. Although most practitioners knew that economic theory (specifically general equilibrium theory) had nothing relevant to say about banking³, the conclusions derived from

¹ “Too big to fail ... is the single most important policy issue that has emerged from the crisis”, Cecchetti, 2011; also Bernanke pointed out: “If the crisis has a single lesson, it is that the too-big-to-fail problem must be solved”.

² For the literature on different aspects of international banking, see Esposito and Atripaldi, 2011.

³ As Freixas and Rochet (1997) pointed out years ago, “Banks are useless in an Arrow-Debreu world”.

it were deemed particularly germane to the financial sector. All these views crashed with the markets. As Moosa (2010) remarked “The global financial crisis has dealt a severe blow, not only to the [efficient market hypothesis] but to the whole discipline of financial economics”.

The events prompted a rethinking of the global supervisory and regulatory framework, which had also proved inadequate⁴. We believe its inadequacy stemmed from a basic theoretical feature of the general equilibrium approach: the missing link between micro and macro, between the single agent and the system. In the Arrow-Debreu world, as a rule, what is true at a micro level holds true for the market: if a bank is sounder, the banking system is sounder. Basel 2, with its benign neglect of macro-prudential issues, reflects this theoretical stance⁵. But in the real world, “even if a given bank was managing its own risks well, that doesn’t address *systemic* risk” (Stiglitz, 2010, p. 149). The crisis confirmed the inherent fallacy of the prevailing approach: “The current approach to systemic regulation implicitly assumes that we can make the system as a whole safe by simply trying to make sure that individual banks are safe. This sounds like a truism, but in practice it represents a fallacy of composition. In trying to make themselves safer, banks, and other highly leveraged financial intermediaries, can behave in a way that collectively undermines the system” (Brunnermeier et al., 2009, p. vii).

The need to supervise systemic risk per se has gained attention in the wake of the crisis. SIFIs, banks that are “too big to fail”, constitute the core of this risk, for they are the connection between micro and macro world. That is why analysis and proposals for reform are concentrating on them.

2.2 The nature of a SIFI

Let us now consider the characteristics of big banks that are the most important in determining their behaviour.

First is their life-span. The biggest banks are basically always the same ones, taking into account mergers and acquisitions⁶. What does change is their relative size. For instance, when the expression “too big too fail” was coined in 1984, only one bank had total assets exceeding 3% of U.S. GDP; in 2007 nine did (Johnson and Kwak, 2010); in many European countries SIFIs are considerably larger in relation to GDP. Consequently, SIFIs control a growing aggregate share of the market: “In 1990, the largest ten financial companies controlled a bit less than 10 percent of total U.S. financial institution assets; by 2004 ... their share exceeded 50 percent”⁷. This growth in size has been accompanied by an increase in the range of markets served in terms of business segments and geographical areas⁸.

National authorities encourage domestic firms to keep up with their competitors in scaling up. For instance, in 1989, the U.S. Treasury Department recommended “that the government encourage the growth of large U.S. banks in order to compete with Japanese and European institutions” (Goldberg and Hanweck, 1991). As an explanation of size competitive pressures seem to go further than efficiency-seeking; indeed, some studies cast doubt on whether there is actually a positive connection

⁴ For instance, the *Interim Report* (April 2011) of the UK Independent Commission on Banking (ICB) noted: “The crisis represented a spectacular failure by financial institutions and the market to manage risk efficiently” (p. 21). See also Levine, 2010.

⁵ On this point, see the *De Larosiere Report*, 2009.

⁶ For the U.S. experience see Kaufman, 2002, and Shull, 2010.

⁷ Scherer, 2010; see also Goldstein and Veron, 2010, Ötker-Robe et al., 2011, and Demirguc-Kunt and Huizinga, 2011.

⁸ See Ötker-Robe et al., 2010, for the relevant statistics.

between size and efficiency⁹. Great business diversification did not bring efficiency: the biggest banks suffered larger losses than other banks (Goldstein and Veron, 2010), and this was also the case with geographical diversification (Evanoff et al., 2009, pp. 69-70.). Therefore, their higher return on equity after the crisis was due more to riskier balance sheets than to higher efficiency.

Still, these intermediaries have state-of-the-art organizational structures and strategies. So the explanation for their crisis must lie elsewhere. A prime candidate is moral hazard¹⁰. The biggest banks become reckless because they are certain they will be rescued. According to many commentators, the markets reward this attitude in terms of funding cost, reputational risk and other factors because SIFIs' creditors believe they are totally safe (Stern and Feldman, 2004)¹¹. Giant banks choose a sub-optimal strategy because they do not take into consideration the externalities of their strategy. Some authors describe this situation as collusion between banks and regulators to create institutions that do not fail because the taxpayers always foot the bill (Lobez, 2010).

Moreover, big banks notoriously have close political connections, and this exacerbates moral hazard. However, the problem with laying so much stress on moral hazard is that it cannot explain the fate of a single firm. For the theory to make sense, a riskier bank should be run by an executive with less skin in the game, but this is not the case. For instance, the CEO of Bear Stearns lost colossal amounts of his own money. "It is hard to imagine that the story would have had a happier ending if only [Jimmy] Cayne had had an even bigger stake in the firm, and hence higher-powered incentives to get things right" (Kashyap et al., 2008). The same is true for Lehman, where "employees were the largest owner"¹². In short, all these observations about reckless behaviour (moral hazard, empire building, golden parachutes, etc.) are useful inasmuch they highlight the political importance of big banks, but it would be an exaggeration to see banks' increase in size as being motivated only by the goal of attaining too big to fail status. Nonetheless we think it is dangerous to have in place a regulation that implicitly does reward size per se.

If political connections are important, links among banks are even more important so that big banks are also "too interconnected to fail" (BIS, 2009). This feature, even more than concentration itself, characterizes the banking sector. Most mature economic sectors are dominated by a handful of giant firms that may be too big to fail, as was shown by the government bail-outs of the auto industry in the U.S. and Germany¹³. However, these firms are not directly connected to one another. Apple is not supposed to lend money to HP or Volkswagen to Ford, while for banks such dealings are part of the natural course of business. Their problems are rapidly shared via assets (for instance, by way of loan syndication but also through the originate-to-distribute model¹⁴), funding (reciprocal lending) and reputational and confidence issues (informational spillovers). Interconnectedness exacerbates the tendency of big banks to fail together (Wagner, 2010).

⁹ See, for instance, Berger and Udell, 1997, Demirguc-Kunt and Huizinga, 2011, and Shull, 2010.

¹⁰ For instance, Hetzel, 1991, Goldstein and Veron, 2010, Lastra and Wood, 2010. SIFIs' moral hazard can be accentuated by interacting with that of hedge funds and other financial institutions (see Spatt in Evanoff et al., 2009).

¹¹ For instance, the implicit subsidy of the government to J. P. Morgan alone could be about \$ 14 billions a year (*Dear Mr. Dimon, Is Your Bank Getting Corporate Welfare?*, www.bloomberg.com, 19 June, 2012).

¹² Fuld, *Statement before the United States House of Representatives Committee on Oversight Reform*, October 6, 2008; see also Sorkin, 2009.

¹³ Interestingly, the Swiss expert commission created to study the problem of systemically important banks also considers other sectors (including retail distribution, telecoms and insurance); see its *Final Report*, 2010.

¹⁴ The originate-to-distribute model multiplies the connections among financial players, deal by deal, thus linking their fate (see Evanoff et al., 2009).

The most dangerous aspect of these interconnections is that no one is aware of them beforehand: the complexity of the network is such that “financiers were taking on more risks than they would like to, and in many respects they did not understand or were unaware that they were doing so” (Kohn, 2009). To complicate the situation further, size and interconnectedness are magnified by the fact that big banks are becoming similar (Mottura, 2011). Their strategies, organizational tools and behaviour are more and more standardized. This is a problem, since “increased homogeneity of banks’ balance sheets increases the probability of a joint failure of financial institutions, because it increases the potential externalities on other banks from an individual bank’s liquidity problems. Because a shock is more likely to affect multiple banks at the same time” (Bijlsma et al., 2010).

The convergence of SIFIs’ behaviour is a powerful factor behind the convergence of the global financial system as a whole. Markets exhibit strong co-movements, shocks transmission is enhanced¹⁵. In a nutshell: “globalization leads to much closer correlation among markets in different countries and different asset categories” (Pozen 2010, p. 338). Geographical diversification is less and less meaningful as “there is evidence of a declining trend in the cross-country dispersion of equity premia worldwide” (De Nicolò, in Evanoff et al., 2009, p. 86).

This growing homogeneity also raises the issue of “too many to fail”. A spate of bankruptcies can force authorities to intervene even if they were initially reluctant, since “the number of options available to regulators for handling the bank insolvency problem decreases with the severity of the problem” (Brown and Dinç, 2011). Therefore, big banks have an incentive to be similar because the more similar they are, the more likely they are to be rescued by the government (Acharya and Yorulmazer, 2007).

To summarize, the banks in question are increasingly big, few in number and similar¹⁶. Sheer size, asset composition, organizational differences or political connections cannot completely explain why one big bank failed and another did not, even if all these factors played a role. In the end, perhaps some survived because they learned from the fatal mistakes of others. We call this the “Enterprise syndrome” (in the TV series “Star Trek”, the starship Enterprise arrived on the scene where another starship had just been annihilated and learned from its mistakes. In other words, the trick is not to be the first to face the trouble). This brings us back to the problem of “too many to fail”. For instance, no simple indicator showed in 2005 or 2006 that Lehman or RBS was doomed, and perhaps it is not even possible to create one. In fact, searching for such an indicator means a return to a micro approach, while the problem is one of collective behaviour and calls for a collective mechanism. The chart below summarizes the features of TBTF banks.

Chart 1. Main features of TBTF banks

<i>Feature</i>	<i>Consequences for banks strategies</i>	<i>Issues for regulators</i>
Persistence	Long-term plans, merging with rivals, increasing size	Reduced competition, political links, too big to fail status
Size	Diversification (markets, products), efficiency	Size vis à vis national economy; too big to fail status

¹⁵ Goldberg, 2009; see also Kubelec and Sá, 2010, and Allenspach and Monnin in Evanoff et al., 2009.

¹⁶ See data in Goldstein and Veron, 2010.

Diversification	Dimension, efficiency	Need for cross-border supervision, burden sharing
Political connection	Moral hazard	Regulatory capture
Interconnectedness	Similar strategies, market correlation	Excessively uniform behaviour, unpredictable links, too many to fail
Standardization – too many to fail	Herd behaviour, standardized strategies	Dynamic inconsistency, Enterprise syndrome

Having analyzed the main features of giant banks, we now turn to the proposed remedies to tame the risk they pose for the system.

3. Remedies to the risks posed by SIFIs

In recent years a number of remedies have been proposed to redress the weaknesses that emerged in the banking system during the crisis. This effort has largely focused on systemic risk. The final goal is to develop a better regulated, more resilient financial system, so that big banks are less dependent on public help to weather the storms. This means, in practice, pursuing two objectives: i) reducing the probability of default of a SIFI, ii) reducing the systemic impact of such a default should occur¹⁷. The following chart sums up the proposals that have been made¹⁸.

Chart 2. Tools to reduce systemic risks stemming from SIFIs

	<i>Reducing the probability of a default</i>	<i>Reducing the systemic impact of a default</i>
<i>Indirect methods</i>	<ul style="list-style-type: none"> - capital, liquidity, leverage - supervision mechanism and architecture, better data - executives' incentives - insurance mechanism, levies - enhancing competition - market infrastructure 	<ul style="list-style-type: none"> - ring-fencing, insurance, - certificates and repayment, haircuts, - subsidiarization
<i>Direct methods</i>	<ul style="list-style-type: none"> - restriction on activities - ring-fencing - size cap 	<ul style="list-style-type: none"> - effective resolution mechanisms

We will briefly examine them, concentrating on what we consider their possible drawbacks and weaknesses¹⁹.

3.1 Reducing the probability of a default

3.1.1 Indirect methods

¹⁷ These two aims are set, for instance, in the recent BCBS documents on G-SIB; see also Ötoker-Robe et al., 2011, the ICB *Interim Report*, 2011, and Blinder, 2010.

¹⁸ Hints for the chart in Ötoker-Robe et al., 2010 and in the IMF *Global Financial Stability Report*, April 2010.

¹⁹ On all the following measures, see IMF, 2010.

A) Capital, liquidity, leverage

Basel 3 raises the quantity and quality of regulatory capital and introduces (or re-introduces) a leverage ratio and liquidity risk indicators. Although the new capital accord is addressed to all banks, it reduces the profitability of activities which, before the crisis, accounted for an important part of the revenues of internationally active banks that will have to increase regulatory capital more than smaller competitors. Therefore, regulation is changing the basis of competitive advantage (Goldman Sachs, 2009). Basel 3 is not meant to be business-model neutral (BIS, *Annual Report*, 2011), although its ultimate impact is unclear because SIFIs have flexible business models and can adjust their strategies to mitigate its effects (Ötger-Robe et al., 2010). It is important to note that the direction Basel 3 has taken implicitly assumes that the benefits of diversification are not so important. On top of Basel 3, big banks will have to comply with specific further capital surcharges that are also linked to their interconnectedness²⁰.

These measures are useful. The problem is that if the additional requirements are minor, the impact is also minor²¹ and if they are substantial, they can change the competitive landscape of the banking sector. Moreover, in many instances banks started to collapse when their capital ratios were fairly good, as in the case of Lehman and Dexia. As a rule, a better capitalized bank is less prone to default, but in times of crisis better ratios may not make a big difference, even if Basel 3 has contributed to raise substantially the quality of capital.

B) Supervision mechanism and architecture, better data

On a theoretical level, the importance of macro-prudential regulation stems from the (re)discovery that micro-efficiency (of risk management and of supervision) is not enough to address systemic risk. The international authorities have therefore devised a set of rules aimed at building a macro-prudential supervision framework. In Europe, following the *De Larosière Report*, a systemic risk supervisor was set up with effect from January 2011²². The situation is similar in the United States.

Better macro regulation and supervision also implies better data. As the FSB recently stated: “Authorities need better, homogenous and consistent data at both the national and international level to ensure that they can recognize and address the build-up of risks in a timely manner”²³. As a result, SIFIs will have to comply with an add-on in terms of reporting duties (Ötger-Robe et al., 2010). Enhanced data will serve mainly for early warnings indicators (De Vincenzo et al, 2010). Better data are also needed to manage an international crisis as: “Systemic risk analysis is severely hampered by the lack of consistent data that capture the international dimensions of finance” (Cerutti et al, 2012).

A specific structure that supervises systemic risk is definitely a good idea, even if there is no legal framework in place enabling such a supervisor to intervene in a cross-border group crisis. And having better data is a positive development, but it can only go so far unless the data can be conveyed in a model that can predict the problems ahead²⁴.

²⁰ See the BCBS documents on G-SIB.

²¹ For instance, Americans for Financial Reform (2011) noted: “the proposed minimum additional capital requirements of 1 to 2.5 percent for systemically important banks in this Consultative Document are far too low”.

²² Moss (2009) proposed a similar structure called “Systemic Risk Review Board”.

²³ FSB, 2011, *Understanding Financial Linkages: A Common Data Template for Global Systemically Important Banks*; see also Dorrucci and McKay, 2011, and Cecchetti et al., 2010.

²⁴ Borio and Dremann 2009; see also Blinder, 2010.

C) Executives' incentives

Wall Street paid bonuses amounting to \$18.4 billion in 2008. For 6 of the 9 biggest banks saved by the US government in 2008, bonus payments exceeded profits that year²⁵. The problem, then, cannot be denied. Rules have been passed to reduce short-sightedness and one-way bets and are becoming effective. For instance, a recent survey by the Federal Reserve shows that the largest US banks are deferring more than 60 per cent of senior bank executives' bonuses²⁶. An interesting version is the proposal by Roubini and Mihm, who suggest creating a bonus pool in order to average the performance of a manager over for many years or for many managers, putting all the potential bonuses in an escrow account that can be tapped if losses arise in the following years (Roubini and Mihm, 2010).

Redressing distorted incentives is a must, although these measures cannot avoid the consequences of moral hazard for SIFIs as a group.

D) Insurance mechanism, levies

The banking sector already has insurance mechanism in place, such as deposit insurance schemes. The idea is to create an insurance mechanism only for big banks or for specific activities. As for the levies, the IMF points out that they could be used to encourage SIFIs to reduce systemic risks. To do so, policymakers should ensure appropriate burden-sharing (IMF, April 2010). The idea is politically stronger than simply raising banks' tax rate.

Deposit insurance proved long ago that insurance mechanisms are useful. More taxes on banks are inevitable. What is needed is an international solution to avoid fiscal or regulatory arbitrage. Unfortunately, this coordination is unlikely.

E) Enhancing competition

Banking consolidation is a long-term trend. If it cannot be reversed, newcomers can at least be helped to enter the market or to gain market shares²⁷. Everywhere there is a search for so-called challenger banks that can pose a threat to the largest banking groups. Apart from this, no other strong proposals have come out so far (ICB, *Final Report*, 2011).

The idea of boosting competition to reduce banking concentration seems sound. Unfortunately, the challenger banks are basically the biggest operators of other countries, so efforts to increase domestic competition inevitably increase international consolidation as well, worsening the global too big to fail effect. Secondly, some analyses, building on the so-called franchise paradigm, find that an oligopolistic market is more stable and that excessive competition is harmful (OECD, 2009). For instance, it has been noted that when the number of rating agencies grew, issuers started to shop around for a better "treatment" and the quality of assessment worsened (Pozen, 2010). When the pressure on profits also increases as a side-effect of increased competition, this has consequences in terms of riskier strategies and should be taken into account by the regulators.

²⁵ For a recent restatement of the international position on the issue, see the *Final Declaration* of the Cannes G-20 Meeting, point 25.

²⁶ S. Nasiripour, "US banks defer 60% of executive bonuses", *Financial Times*, 10 October 2011.

²⁷ See the second part of the ICB *Final Report*. For a theoretical analysis of the issue, see Boot and Marinč, 2005.

F) Market infrastructure

Complex financial products, most of them traded over the counter, have figured prominently in the crisis. Hence the drive to expand the role of central counterparties for financial derivatives as well as for wholesale funding (Rochet, 2009).

The creation of central counterparties for OTC products would enhance their standardization, thereby reducing profit margins on them. This could help to decrease the riskiness of *those* products but it would also spur the creation of new non-standardized products, thus making these measures of limited efficacy for the fate of SIFIs.

3.1.2 Direct methods

A) Restrictions on specific activities; ring-fencing

Many proposals are aimed at separating “normal” banking from innovative and riskier financial activities. The most prominent is the Volcker rule whose essence is to separate proprietary trading from retail and commercial banking. Some proposals (such as the Kotlikoff proposal) go further and would end or at least reduce the connections between trading or investment banking and retail banking. The impact of such regulation depends on the specific limitations imposed, but potentially it could deeply alter SIFIs’ business model.

The general aim of ring-fencing, “living wills” and other such proposals is to protect ordinary banking as a vital sector of a modern economy from risky financial bets, in order to render transparent exactly what the public finances should support in case of an emergency. These proposals have not gone so far as to recommend the reintroduction of a Glass-Steagall Act style rule, which would be contrary to the EU’s historical stance on universal banking and is considered too extreme (at least by the European Central Bank)²⁸.

Whether or not it is legally possible, many articles have suggested that ring-fencing could be the first step back to a Glass-Steagall Act environment (*Financial Times*, “Roundtable on the Vickers Report”, 14 September 2011).

However, many commentators have pointed out that universal banks did not fare worse than more specialized entities, and that most of the securities activities were permitted before the repeal of the Glass-Steagall Act repeal (Pozen, 2010).

Moreover, there are some links between retail banking and investment banking (funding, assets quality, reputation, etc.) that these proposals cannot sever, so the final outcome will not necessarily be a sounder system. Proponents of these measures acknowledge this but observe that the whole package

²⁸ “In Europe, the introduction of a Volcker rule-style of regulation would raise a number of complex issues. First, it would run counter to the established model of universal banking. Second, it could hinder the smooth provision of financial services in the European Union, thus hampering the objective of further financial integration in the Single Market. Third and more generally, it might trigger unintended effects such as the migration of riskier activities to less regulated (and often less capitalised) areas of the financial system. Against this background the functional separation does not seem the most promising way forward in the European context. Overall, it appears more fruitful to enhance and enlarge the perimeter of both supervision and, wherever warranted, regulation to a wider range of potentially riskier activities” (ECB, *Financial Stability Review*, June 2010, p. 108).

of reforms will address these shortcomings (ICB, *Final Report*, 2011, p. 30). No doubt it is true that reforms will work jointly, the question is the merit of each one of them.

Some commentators also object that the restricted activities are essential and that ring-fencing will place too many direct constraints on business models (Commission of Experts for limiting the economic risks posed by large companies, 2010).

A last point worth noting is that all rules of this kind have an implicit national root. In fact ring-fencing bars banks from carrying on activities that “directly increase the exposure of the ring-fenced bank to global financial markets”²⁹. Further, “ring-fenced banks should ... not be allowed to ... provide services to customers outside the EEA”³⁰. Since the ideas of the Vickers Report will influence the debate in other countries³¹, we will examine this aspect in great depth later on.

Against ring-fencing and similar ideas, banks have stressed the importance of diversification and regulatory arbitrage risks³². These two objections do not seem invincible in the wake of the crisis.

A more problematic issue is that recombining activities does not eliminate SIFIs. For instance, two big banks could specialize, respectively, in retail and investment banking, selling their non-core assets to each other. Their combined size would be the same, but they would be less diversified. Would the situation be safer than before? Only if the non-retail bank is totally excluded from any state aid, i.e. only if it has no links whatsoever with the retail banking world. This seems unlikely, owing in part to dynamic inconsistency issues that make an exclusion of investment banks from state aid unlikely³³.

B) Size caps

Imposing a size cap is a strong way to face the problems of SIFIs. The most radical proposal is to dispose of big banks altogether. Central bankers, former central bankers and well-known academics have stated that if a bank is too big to fail it is simply too big to exist³⁴. The Standard Oil and AT&T break-ups are cited as historical examples to imitate.

In the U.S., the Riegle-Neal Interstate Banking and Branching Efficiency Act of 1994 introduced a size cap, subsequently extended by the Dodd-Frank Act. The problem is that this cap is based on the market's size. If the banking sector is big, 10% could still make a huge part of domestic economy, which is why some commentators propose GDP as the denominator. For instance, Johnson and Kwak (2010) suggest a cap of 4% of GDP for retail banking and 2% for investment banking. To preserve a level playing field across countries, they also recommend an international yardstick based on world GDP³⁵.

All in all, the history of anti-trust battles is not very inspiring. Industrial and financial concentration is a secular trend that laws, governments and authorities have not been able to stop. General economic

²⁹ ICB, *Final Report*, 2011, p. 51, see also the *Roundtable on the Vickers Report*, 2011.

³⁰ ICB, *Final Report* 2011, p. 29.

³¹ See, for instance Brooke Master et al., “UK Joins Toughest Bank Regimes”, *Financial Times* (2011, September, 12), Schaefer Munoz and Patrick, “U.K. Lenders Face Expensive Overhaul”, *The Wall Street Journal Europe* (2011, September, 9), and Pignal and Barker, “Barnier Commission set up to consider Break-up of Banks”, *Financial Time* (2011, November, 22).

³² See, for instance, the answers of Barclays and BNP Paribas to the BCBS paper on the G-SIB.

³³ On dynamic inconsistency of state intervention during banking crisis, see Acharya and Yorulmazer, 2007.

³⁴ For instance, Stiglitz points out that “there is an obvious solution to the too-big-to-fail banks: break them up”, and Roubini and Mihm write: “Frankly, they shouldn't exist”.

³⁵ See also Moosa, 2010.

consolidation encourages financial consolidation.

There is also a problem of a level playing field. If the cap is national, any non-U.S. entity would be penalized. If the denominator is international, the smaller a country's GDP, the larger the problem of big financial conglomerates. The lesson of Iceland is sufficiently clear.

Thirdly, dynamic inconsistency applies here too, as we have seen in the last three important mergers in the United States, where the buyer has been granted a waiver from the cap in order to save the sinking institution.

Despite all these problems, this measure does have an important merit. While the Volcker rule, ring-fencing and other such measures depend on laws or regulations that can be reversed, when a bank is split in two or three, that's it: the resulting entities start to live as separate companies with different boards, different CEOs, competing strategies. A size cap is therefore an effective way to reduce SIFIs' political clout (Johnson and Kwak, 2010).

3.2 Reducing the systemic impact of a default

Big banks should be easy to liquidate if need be. The general idea behind measures to reduce the systemic impact of a SIFI's default is to minimize markets disruption and the bill for taxpayers.

3.2.1 Indirect methods

Ring-fencing and living wills can greatly facilitate the orderly unwinding of a SIFI, but let us note again that ring-fencing of banking activities must be absolutely transparent beforehand if it is to be effective. In the dying days of a financial behemoth, what is least needed is a public guessing game about what will befall each of its parts.

Other proposals, such as insurance certificates and repayment haircuts, are aimed at having some cash available in case of bankruptcy (Hetzel, 1991). Still other schemes call for the issue contingent capital (bail-in bonds, "Co-Cos", etc.)³⁶. The general idea is to have an automatic way to recapitalize a troubled bank with private funds.

Subsidiarization is a way to reduce the impact of default, but it is also a far-reaching consequence of the crisis. We will examine it more deeply later.

3.2.2 Direct method

The idea is to have laws and procedures for orderly bankruptcy, i.e. to set up an effective resolution mechanism. Before the crisis, specific bankruptcy procedures for banks were already in place in many countries³⁷. In those that lacked them, they were sorely missed. They are an important tool to reduce moral hazard because they give credibility to the threat of failure³⁸.

³⁶ See, for instance, BCBS, 2010, *Proposal to ensure the loss absorbency of regulatory capital at the point of non-viability*.

³⁷ However, existing resolution regimes fall short of the European Union's plans for effective tools and powers and Basel 3's proposals for the "point of non-viability".

³⁸ IMF, 2010; see also Banca d'Italia, 2011, *Insolvency and Cross-border Groups. UNCITRAL Recommendations for a European Perspective?*.

The main drawback of these methods is that they intervene after the fact and so are unlikely to avert a panic situation. In addition, they operate in a national context because they are linked to other domestic legislation, such as bankruptcy law. As the FSB points out, “Cross-border resolution is impeded by major differences in national resolution regimes, absence of mutual recognition to give effect to resolution measures across borders, and lack of planning for handling stress and resolution”³⁹.

As SIFIs are international in nature and “national resolution tools will not be effective unless they can be applied to firms operating globally”⁴⁰, there is a risk that countries where a failed SIFI operates would try to use these laws to minimize the domestic burden of the failure even if this means worse global results⁴¹. Ring-fencing is a step in this direction. With it “the UK has struck the first major blow against global harmonisation ... [and] the divergence could well lead to fragmentation of the global financial market”⁴². If before the crisis regulatory arbitrage was subject to criticism, now it could become the norm. Since this helped inflate the bubble that eventually burst, this is a reason for concern (Ötoker-Robe et al., 2011).

Broadly speaking, the idea of an easy resolution of a big bank is wishful thinking unless it means a merger, which often implies state intervention on a huge scale (Commission of Experts, 2010, p. 37).

Insurance and similar mechanisms (certificates, repayment haircuts) only work if the turmoil is limited. The role of CDSs to protect from credit risk illustrates the point. They worked as long as difficulties were not widespread and the protection seller was in better shape than the protection buyers. The efficacy of an insurance scheme is based on pooling many customers and helping the few with problems. No insurance company can withstand the failure of most of its customers. This is why compensation schemes can run into trouble too, as the FSB has pointed out: “It is generally recognized that deposit insurance is an effective means of protecting depositors of small and medium sized firms. However, some deposit insurance schemes may not have the capacity to effectively protect depositors of a large systemically important financial firm”⁴³.

Bearing all these caveats in mind, effective resolution mechanisms are nonetheless an important piece of a better regulatory framework for crisis management.

3.3 An unfortunate predictable result of the crisis: subsidiarization and the decline of international supervision

For decades, globalization has been hailed as the single most important factor behind economic growth, and common international rules a tool to help it to flourish. International banking returned to prominence in the 1960s after decades of national regulation that was hostile to international banking. International banks needed a level playing field. This is basically what Basel 1 was about.

Not only common regulation but common enforcement by regulators (and hence their coordination) was considered essential to boost the financial system’s efficiency and competitiveness. This was

³⁹ FSB, 2011, *Consultative Document Effective Resolution of Systemically Important Financial Institutions. Recommendations and Timelines*.

⁴⁰ FSB, 2010, *Reducing the moral hazard posed by systemically important financial institutions*.

⁴¹ The case of Lehman is explained in Sorkin, 2009.

⁴² B. Masters, “Uniform Implementation of Regulation is Unlikely”, *Financial Times*. 12 October 2011.

⁴³ FSB, 2011, *Consultative Document...*, 2011, p. 70.

already clear with the “Concordat” back in 1975 and became increasingly the consensus view among central bankers and banking regulators. The post-Basel 2 architecture, colleges of supervisors, the Committee of European Banking Supervisors and so forth represent the final stage of this long trend⁴⁴. Although banks and other intermediaries often complained that their home regulator was “gold plating” international rules, regulatory convergence has been broad, helping the growth of cross-border banking. Meanwhile, competition among the main financial hubs was fierce but fair.

As the crisis was a global event, in theory it demanded a global solution. But “in practice, no country is prepared to cede its sovereignty to a global regulator” (Pozen, 2010, p. xviii). As a result of the crisis, “the appetite for international cooperation” was “gravely diminished”⁴⁵. Many episodes serve to illustrate this: the harsh comment of J.P. Morgan’s CEO on Basel 3⁴⁶, the clash between the UK and the ECB about where to situate the main clearing houses, the quarrel about accounting rules between regulators, banks and other players in the market. With a long period of difficulties in prospect, anything goes, unfair competition is fashionable again. This situation poses a serious threat to the very idea of global regulation⁴⁷. Big banks prefer domestic support although this may mean lesser diversification in the future, not least because crisis underlined the reduction of the benefit of diversification due to synchronization⁴⁸. The fact that “foreign banks entry enhances competition in the market”⁴⁹ is not exactly a reason for domestic operators to be keen for it.

National authorities found out at their own expense how difficult it is to deal with a failure of a cross-border group (BIS, 2009, *Annual Report*, pp. 52-54)⁵⁰.

There is a problem of burden sharing. Plainly, it is easier to cooperate when little is at stake than to decide which state will commit fiscal suicide by bailing out a big bank. Again, Icelandic banks’ story tells it all⁵¹. Burden sharing issues are complicated by the fact that foreign banks are important players in almost any country via branches or subsidiaries or both. For instance, when the Fed organized a meeting about OTC derivatives on 1 April 2009, 9 out of 15 operators invited were non-US (Duffie, 2010). And when AIG crumbled, 6 out of 9 of its main counterparts were foreign banks, accounting for two thirds of the total amount involved. Observers noted that “it seems inappropriate for the United States to bail out large foreign banks” (Pozen, 2010, p. 78).

This is not an abstract concern. In connection with the TARP and the TALF in the United States, many observers asked why the authorities were giving American taxpayers’ money to foreign entities. The answer that it was impossible to disentangle domestic and non-domestic entities in a financial hub like New York was not well received by a population contending with rising unemployment and poverty. To add insult to injury, some research has shown that the more closely a bank is regulated at home, the more it tends to be reckless abroad (Ongena et al., 2011).

Regulatory, fiscal and political factors are producing a crisis of international regulation and

⁴⁴ On the issue, see BCBS, 2010, *Good practice principles on supervisory colleges*.

⁴⁵ G. Rachman, “The Long Slide into Protectionism”, *Financial Times*, 9 September 2011. On the general idea, see Maris, 2010.

⁴⁶ D. Kopecki, “U.S. Should Consider Withdrawing From Basel, Dimon Tells FT”, www.bloomberg.com, 9 September 2011.

⁴⁷ Y. Onaran, “Global Bank Capital Regime at Risk as Regulators Spar Over Rules”, www.bloomberg.com, 8 August 2011.

⁴⁸ IMF, *World Economic Outlook*, 2011.

⁴⁹ Uiboupin, 2004; see also Bertus et al., 2008.

⁵⁰ See also CEBS, *Guidelines for the joint assessment of the elements covered by the supervisory review and evaluation process (SREP) and the joint decision regarding the capital adequacy of cross border groups (CP39)*, (p. 3). See also IMF, 2011 and BCBS, 2011, *Global systemically important... Cover note*.

⁵¹ On burden sharing, see Cerutti et al, 2010, and Cotterli and Gualandri, 2010.

consequently working in favour of subsidiarization, since a subsidiary must fully comply with domestic laws and is regulated by national authorities. Some have described this as de-globalization (Ruozi and Ferrari 2011). Branches are encouraged to become subsidiaries or at least to behave like subsidiaries: “The practical difficulties of achieving global cooperation in crises have led some countries to require greater self-sufficiency of the local operations of foreign banks” because “in an integrated branch structure, where the branch is legally inseparable from the parent, it may be difficult for the host country to manage and resolve the branch if the parent fails”⁵². Others suggest that a branch, when designated as systemic, should be required automatically to convert itself into a separately capitalized subsidiary (Brunnermeier et al., 2009, p. 26).

The most extreme version of the approach would dispose of international regulation altogether: “One way forward is to forget about the international harmonization and unification of banking regulation and to leave every country to formulate its own regulation” (Moosa, 2010, p. 197). And a consensus is building that every country needs a specific domestic framework to back up international rules (ICB, *Final Report*, 2011, p. 7). The Basel Committee concludes that “harmonisation of national resolution regimes, while desirable, will not be sufficient to prevent divergent national interests from obstructing co-ordinated resolution of a cross-border bank during a crisis”⁵³. In brief: the future of international supervision is in danger.

Subsidiarization is gaining momentum even if “cross-border expansion by banking groups through integrated branch networks appears to be less costly and, in some cases, more efficient than establishing a series of legally independent subsidiaries”, because “in the event of failure of a banking group ... it appears that a subsidiary structure would generally be less costly to resolve” (Fiechter et al., 2011).

Another factor that could affect international banking regulation is the surge of big banks based in emerging markets. Up to now western SIFIs have continued to hold sway in the emerging financial markets (albeit less so in retail banking). This helps to explain why “global banks played a significant role in transmitting the 2007-09 financial crisis to emerging-market economies” (Cetorelli and Goldberg, 2010). Nevertheless, national champions are rising in China and other emerging banking systems and the biggest banks from these countries are now so huge in absolute terms that in 2010 they accounted for 40% of the sector’s worldwide profits⁵⁴. These big players are no longer willing to let “the West” decide and regulate for them. Given the importance of these economies in funding the government budgets of the U.S. and Europe, they have very significant leverage to impose a shared decision on the future of world financial markets. If a compromise is not reached, further fragmentation may follow⁵⁵. The eclipse of a single international framework for banking supervision seems a real possibility.

The tools we have examined can improve the soundness of the banking system worldwide, but, as we have argued, they all are deficient in one or more respects. The main advantage of indirect methods is that they can be modeled for a vast array of operators and situations, and so they are naturally international. Their basic drawback is that they seem unable to recast the way big banks operate, their core strategies, thereby pushing governments towards direct solutions that are national in essence.

⁵² Ötker-Robe et al., 2010, see also De Haas and Van Horen 2011.

⁵³ BCBS, 2010, *An assessment of the long-term economic impact of stronger capital and liquidity requirements*, p. 67.

⁵⁴ F. Guerrero, “UBS Scandal tilts debate over rules”, *Wall Street Journal Europe*, 9 September 2011. See also McKinsey, 2011.

⁵⁵ *The Economist* has recently theorized this rebalancing: “It would be healthy, too, if the developing world could break the rich world’s monopoly on international finance” (“Cotting on”, 24 September 2011).

Weak and international, strong but national; this is the riddle the authorities must solve in order to create a stronger financial system.

4. Similar projects

We shall now examine measures similar to the one we propose, focusing on the elements best suited to dealing with the systemic risk posed by SIFIs.

4.1 A theoretical start: how to measure systemic risk

Before discussing how to tame the systemic risk embedded in big banks, it would be useful to see if and how it is measurable. This is difficult, since “the identification of systemic risk is a nascent field. No common paradigms as yet exist”⁵⁶. However, many theoretical studies try to quantify systemic risk in order to assign banks their due share of it, as with any negative externality (Tarashev et al., 2011, Gourièroux and Monfort, 2011, and Acharya et al., 2011). A similar approach comes from payment system contagion analysis (Eisenberg and Noe, 2011, and Elsinger et al., 2006). Building on these frameworks, it is possible to envisage a way to divide fairly the costs of a default among participants (Summer, 2009). These methods could be used to quantify the social cost of a SIFI, providing a rational ground to tax it, to impose additional capital requirements and for other measures⁵⁷. Another theoretical breakthrough came with the proposal of a series of stability indicators for banks, which are now used in macro-prudential analysis⁵⁸. These authors conclude that systemic risk arises from connections between SIFIs, and has increased rapidly in step with the growth in cross dependencies during the crisis. Of course, in order to enforce the associated regulatory burden, the model should be easy to apply and empirically robust, which is not the case for now⁵⁹. But what we think is important here is the idea of connecting the fate of an agent to that of all the others. In theoretical terms, these authors are seeking a bridge between micro and macro analysis realizing that “a key policy lesson from the recent financial crisis has been the need to put greater emphasis on a systemic approach to financial stability” (Tarashev et al., 2011). This goal is paramount. However, all these measures, useful as analytical tools, display a weakness when we move to the quantification of the single contribution. It would be economically impossible for a single SIFI to put aside sufficient capital to offset the risk it poses as global entity, its share of systemic risk. SIFIs can do so, but only as a group.

4.2 Compensation schemes and contingent capital

General compensation schemes, born with bank deposits, have been around for more than 70 years. They minimize the consequences of a bank default for depositors, with benefits for banks (for instance, in the form of lower funding cost), embodying the risk pooling rationale of any insurance scheme.

A similar idea is behind a fund among mutual banks in Italy, the Institutional Guarantee Fund⁶⁰. The

⁵⁶ FSB, IMF, BIS, 2011, *Macroprudential Policy Tools and Frameworks*. Progress Report to G20; see also Haldane et al., 2007, and Lim et al., 2011.

⁵⁷ A sort of Pigouvian tax for big banks is proposed in Adrian and Brunnermeier (2009).

⁵⁸ Segoviano and Goodhart, 2009. For a practical exploitation see, for instance, Banca d'Italia, *Financial Stability Review*, 2011, pp. 35 ff..

⁵⁹ See, for instance, the banks complaints about the Basel Committee's method of identifying SIFIs (<http://www.bis.org/publ/bcbs201/cacommments.htm>). Many banks argue that the method is too complex and opaque, others that it is simplistic and one-sided. The skepticism about too complicated supervision tools is well explained in Barclays (2012).

⁶⁰ See CEPS, 2010.

Fund provides additional guarantees for participating institutions, beyond the compulsory deposit insurance. Its aim is to use network resources to safeguard the liquidity and solvency of the member banks. Although the Fund is set up for small banks, it has a relevant feature for larger institutions too. In exchange for protection, the Fund gets screening power and can intervene directly with an individual bank's management with a set of actions, ranging from preliminary work in order to remove items potentially detrimental to the financial stability of the bank, to the drawing up of a recovery plan, including the necessary resources⁶¹. In other words, a bank must be ready to surrender part of its independence to a peer-review structure in exchange for help when needed.

Many have pointed out that a collective scheme for SIFIs would be helpful. The discussion has also touched on the specific features such a scheme should have. For instance, Kashyap et al. observe that a privately funded scheme that could have pricing problems in times of trouble (Kashyap et al., 2008). For these reasons, Moss (2009), among others, proposes a public insurance scheme paid for by SIFIs.

The scheme proposed by Kashyap et al. is basically an insurance policy that expires after a given number of years. In practical terms, it would operate as follows: "A bank with \$500 billion in risk-weighted assets could be given the following choice by regulators: it could either accept an upfront capital requirement that is, say, 2% higher, meaning that the bank would have to raise \$10 billion in new equity. Or it could acquire an insurance policy that pays off \$10 billion upon the occurrence of a systemic 'event'— defined perhaps as a situation in which the aggregate write-offs of major financial institutions in a given period exceed some trigger level. To make the policy default-proof, the insurer (we have in mind a pension fund, or a sovereign wealth fund) would at inception put \$10 billion in Treasuries into a custodial account, i.e., a 'lock box'. If there is no event over the life of the policy, the \$10 billion would be returned to the insurer, who would also receive the insurance premium from the bank as well as the interest paid by the Treasuries. If there is an event, the \$10 billion would transfer to the balance sheet of the insured bank. Thus from the perspective of the insurer, the policy would resemble an investment in a defaultable 'catastrophe' bond" (p. 28).

As for the trigger event, Moss proposes the following: "The program would pay out 'claims' only in the context of a systemic financial event (determined perhaps by a presidential declaration); and payouts would be limited to pre-specified amounts. For example, if a systemically significant financial institution with \$500 billion in assets were required to buy federal capital insurance equal to 10 percent of total assets, the potential payout by the federal capital insurance program in a systemic event would be \$50 billion. In return, the federal government would receive \$50 billion in non-voting preferred shares (which the affected institution would have the obligation to repurchase after the crisis had passed)".

These proposals go beyond the convertible bond idea proposed by Flannery (2005) and others, which became a hot topic during the crisis (Flannery's original idea was a reverse convertible debenture that would automatically be converted into common shares when capital ratios fell below a given threshold). What is interesting in these financial instruments is that the extra resources the banks required are already there when needed. This is a fundamental feature for any measure to work. The weak point is that they are individual (each SIFI has to face the market alone) and that they rely on the market⁶², but in a dire situation the market will be not of much help (Persaud, 2008). And even in a normal situation the prices of these instruments will be heavily distorted by externalities that the SIFIs produce. Hence

⁶¹ http://www.federcasse.it/news/dettaglio_news.asp?i_menuID=8918&hNewsID=27959.

⁶² Flannery solution is the most astute one. More ingenious market solution are in Kupiec, 2005 or in Zingales and Hart, 2009.

the skepticism of the Basel Committee and other authorities.

4.3 Emergency programmes, from LTCM to TARP

The story of the hedge fund known as LTCM is well known. We shall only recall how it ended. The New York Fed basically forced the biggest U.S. banks to save LTCM, sharing the losses among them. Ironically, only Bear Stearns declined to participate and history took its revenge some years later. A similar approach was used by J.P. Morgan in 1907 to save the day when the United States did not yet have a central bank. The same approach was also tried after LTCM. In the autumn of 2007, when things started to deteriorate, to help a SIV of Citigroup, big U.S. banks announced a sort of resource pooling, the Master Liquidity Enhancement Conduit, that never took off (Johnson and Kwak, 2010). When Lehman Brothers started to sink, the U.S. authorities tried to use the LTCM solution again, but it did not work. The individual banks were too concerned about their own fate, even though the rationale for intervention⁶³ was obvious to all the leading actors. For political reasons, regulators and the government were not eager to enforce a solution that banks were unable to find on their own. The Lehman example confirmed the “prisoners’ dilemma” outcome.

LTCM-like solutions were envisaged both before and after the TARP was created. The best-known proposal was that by Warren Buffett for a public-private partnership fund to buy toxic assets. It is interesting to analyze its repayment mechanism⁶⁴. One quarter of the fund’s initial capital would come from the private sector and three quarters from the government. When an asset yielded some cash or was sold, the government would be paid back in full; any remained would go to private investors. Finally, any profit would be apportioned according to inverted shares, three quarters going to the private investors and one quarter to the Treasury.

For us, the most significant aspect of the TARP and similar bail-out solutions is that all the big banks were persuaded or forced to participate, in order to prevent the market from singling out the weakest link. The lesson is that SIFIs create a better situation when they act as a group.

4.4 A Resolution Fund

During the crisis, public money was used to bail out banks. Given the present state of public finances, this is unlikely to be possible again for some time to come. Clearly, something is lacking. “There is wide recognition that the EU needs to build a resolution regime that would ensure that all competent authorities effectively coordinate their actions and have the appropriate tools for intervening quickly to manage the failure of a bank, with the objective of minimizing the need for States to resort to the kind of exceptional measures that have been necessary in this crisis” (European Commission, 2009). Alongside the European Systemic Risk Board, which is focused on building and managing an early warning system, a resolution fund could be useful in case of crisis. The EU document mentions many proposals aimed at the two objectives we have already explored (see Chart 2). For instance, there are proposals concerning SIFI governance, including the power to require a group restoration plan, to change the management of a bank, or to appoint a representative with the particular objective of restoring the financial situation of an institution. There is a need for an international scheme precisely because, “in the absence of any EU measures ... the management of crises is almost entirely governed by national regimes which can be significantly different” (ibid.).

⁶³ See a vivid report in Sorkin, 2009.

⁶⁴ See <http://warrenbuffettresource.wordpress.com/interviews-lectures/interviews-lectures-part-2/>.

As the European Commission points out, to be effective, such a scheme should ensure that losses fall primarily on shareholders and junior and unsecured creditors rather than on governments and taxpayers. Secondly, it needs clear “threshold conditions” that must be met before the powers of intervention are triggered. As for who is supposed to pay for it, the EU idea is that private funding arrangements are optimal. This means the scheme should be in place before the crisis, as “the availability of private sector options rapidly diminishes as a crisis deepens”.

Commenting on the document, the Committee of European Banking Supervisors underscores that a resolution fund would permit greater risk-sharing between member states⁶⁵. The same points are underlined by the FSB in its analysis of resolution scheme for SIFIs⁶⁶. The FSB also stresses the importance of clear trigger events and strong resolution powers. Although these schemes start to work *after* a banks crisis, the FSB also proposes a pre-crisis measure “restructuring mechanisms to allow recapitalisation of a financial institution as a going concern” (FSB, 2011, p. 35). The FSB proposes that such mechanisms have very broad powers, including vis-à-vis the present shareholders (ibid., pp. 36-37). As for governance, the proposal is based on the lead supervisor arrangement.

At the EU level, discussions about some sort of banking union in terms of regulation and resolution funds are under way, linked to the sovereign debt turmoil⁶⁷.

An even clearer idea has been proposed by the Swiss Commission set up to analyse the issue of big banks. It suggests that revenues from taxes on banks “can be allocated either directly into general government budgets or to a stability fund that can be used to help wind up financial institutions that have ended up in a dire predicament” (2010, p. 128). It also explains that such a solution can work only if how to access the fund is clear beforehand; even so, there is a dynamic inconsistency dilemma because events could make it necessary to intervene differently (ibid., p. 131). All in all, such a fund gives the authorities a powerful tool but it also makes unclear who pays for the crisis. Moreover, a national stability fund would be insufficient or even counterproductive in the face of an international bank crisis, while an international one could be politically unfeasible at present. A third kind of fund is needed.

4.5 A Special Capital Account

Acharya et al. (2012) propose the following tool:

“The other—and more innovative—measure is a “special capital account” that is built up through retained earnings made possible by restricting dividend payouts by the bank. An important purpose of this special capital account is to provide the bank with a readily available resource that can be tapped to instantaneously replenish a diminished core capital account to its desired level. In other words, an automatic and mechanical transfer from the special capital account to the core capital account would occur whenever the bank suffers an income shock that depletes the core account. Restrictions on

⁶⁵ CEBS, 2010, *CEBS's response to the European Commission's Communication on an EU Framework for Cross-Border Crisis Management in the Banking Sector*.

⁶⁶ FSB, 2011, *Consultative Document Effective Resolution of Systemically Important Financial Institutions. Recommendations and Timelines*.

⁶⁷ See

<http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/12/478&format=HTML&aged=0&language=EN&guiLanguage=en> and other material on the Union website.

dividend payouts are then imposed on the bank to ensure that the special capital account is rebuilt to its original level over time through retained earnings.”

Such a special account is based on trigger events and is invested in liquid securities such as Treasuries in order to remove managerial discretion over the use of that capital.

The aforementioned proposals are summarized in the following chart:

Chart 3. Cherry picking from similar proposals

<i>Proposals</i>	<i>Selected features</i>
Systemic risk measurement	<ul style="list-style-type: none"> - the model should be easy to apply and empirically robust - SIFIs must pay for the risk they pose to the system - it internalizes the idea that the deterioration of one is detrimental to all - a bridge between the micro and macro dimensions - it is impossible for a single SIFI to put aside sufficient capital to offset its share of systemic risk.
Compensation schemes and Institutional Guarantee Fund	<ul style="list-style-type: none"> - insurance logic that yields reputational and funding returns - in exchange for protection, the fund gets screening power and could intervene directly in the bank situation - a bank must be ready to surrender part of its independence to a peer-review structure in exchange for help when needed.
Convertible bonds	<ul style="list-style-type: none"> - they create an automatic reserve for use when needed.
Emergency programmes	<ul style="list-style-type: none"> - mandatory participation - SIFIs must be forced to behave as a group.
Public private partnership fund	<ul style="list-style-type: none"> - the logic of return is differentiated among participants - government is paid back in full first.
Resolution fund	<ul style="list-style-type: none"> - losses fall primarily on shareholders and junior and unsecured creditors rather than on governments and taxpayers - clear threshold conditions - greater risk-sharing between member states.
Ex ante fund	<ul style="list-style-type: none"> - allows recapitalisation of a financial institution as a going concern.
“Swiss” stability fund	<ul style="list-style-type: none"> - tax revenues allocated into a stability fund that can be used to help wind up financial institutions that have ended up in a dire predicament.
Special Capital Account	<ul style="list-style-type: none"> - built up through retained earnings made possible by restricting dividend payouts by the bank - can be tapped to instantaneously replenish a diminished core capital account to its desired level - based on trigger events and invested in liquid securities.

5. The SIFI Stability Fund

5.1 The rationale behind the fund: of penguins and mountaineers

SIFIs are a different kind of bank in terms of systemic risk and “interconnectedness”. Dozens of small banks can fail with no significant increase in the probability of default of others, but a single mega bank’s demise is enough to shake the other big banks and the entire system. While for a small/medium-sized intermediary what matters most is the average situation of its competitors, for SIFIs what really matters is the situation of the worst among them. Small banks are like a colony of penguins: even if many of them are killed, the colony survives. SIFIs are like a group of climbers roped together, if one falls, the others follow. The very existence of a SIFI is a negative externality for other SIFIs and for the entire world. The problem is getting worse, since this externality is often internalized through M&As, creating a dwindling number of ever larger conglomerates. A tool is needed to address this basic contradiction. This is a complex task. In fact, we need something that works to prevent the crisis of a SIFI and that also heals the system after such a crisis, something that induces different behaviour even when there is nothing as legally binding as the Glass-Steagall Act, something that works internationally but that can please national governments by allowing them to avoid paying huge sums to bail out big banks. Using the idea we have set out, we propose a scheme that we think could help. We call it, unimaginatively, the SIFI stability fund (or SSF).

5.2 How the SIFI Stability Fund works

A stability fund is established among the institutions considered to be global systemically important banks by the international authorities. Every year, 20% of the net profits of these banks is put into a fund (basically an escrow account) managed by the IMF or another international institution (ideally a self-managed structure audited by the IMF). After 5 years, the oldest contribution to the fund is given back to the banks.

If “problems” arise and an SSF participant needs recapitalization, it can tap the fund⁶⁸. The money a troubled bank receives comes in this order: first, it gets back its oldest contribution. If this is not enough, the rest is divided between a more recent share paid in by the bank and the oldest contributions of all the other banks. If also these amounts are not sufficient, more and more recent contributions are released, always with a lag of one year between the troubled bank’s contribution and the rest of the fund.

The contributions are eventually (after 5 years) returned to the bank that caused the problem only for the residual amount, to the others on a pro rata basis.

Let’s examine the mechanism with a couple of examples.

The SSF has three participant banks (A B and C) and is set up in t. That year, profits of A, B and C are, respectively, 3, 5 and 10 billion. Therefore, the fund at time t+1 has a total of 3.6 billion with single contributions of 600 million for A, 1 billion for B and 2 billion for C. At time t+6 bank A is in trouble and needs 500 million. The fund is called to the rescue. Luckily, the oldest quota of bank A is enough to cover it. The fund will return 100 million to bank A and the original amounts to bank B and

⁶⁸ On trigger events and the related issues, there is a vast literature, including notably the Basel Committee documents.

C (1 billion and 2 billion respectively)⁶⁹.

Now we move to a more complicated situation. For the sake of simplicity we use the same figures of the previous example year after year (that is, the fund will receive 3.6 billion every year). Now, bank A's troubles in t+6 are not so inexpensive, let's say 1 billion. Of this amount, 600 million is taken from its oldest contribution. The remaining 400 million is divided between its contribution of year t+2 and the oldest contribution of all the banks (that is, bank B and C, in proportion to their contribution). When is time to return t+1 quotas, the fund will give back only 2.8 billion (since 600 million of bank A and 200 million of banks B and C were used to save bank A). This amount will be returned to banks B and C in proportion pro rata (that is 1/3 and 2/3). The following year, the t+2 quotas must be returned. The fund will give back 3.400 billion (200 million of bank A is gone). Of this amount, 400 million will go to bank A (its residual quota) and the rest as before, 1/3 to B and 2/3 to C.

To sum up the pecking order is as follows:

Contributions	t+1	t+2	t+3	t+4	t+5
Utilisation sequence					
Troubled Bank quota	1°	2°	3°	...	
The rest of the SSF	2°	3°	...		

As for the actual way to use these resources, the discussion has been broad and detailed and we refer to it. Basically, the sum coming from the fund must be used to buy or issue common equity. The fund acquires a voice in the bank's management and governance proportional to its help.

Like deposit insurance scheme, the fund should be good for SIFIs' reputation and should therefore help them in self-financing. But since this entails a potential expropriation of part of a bank's profit to the benefit of its competitors, the fund participants could rightly ask for something in exchange, such as monitoring powers. There are plenty of these. We think the essential one is the right of the fund to name at least one non-executive member of the board of any SIFI as a "resident examiner", to speak on behalf of the fund (also to the banking supervisor, if needed).

The general principle is that as all the SIFIs risk their money when one of them is in peril, the SSF allows and spurs them to monitor and help each other. To strengthen this indirect mechanism, we propose to extend its logic. When a bank is accepted in the SSF, it also agrees to a shared fate mechanism: the enforcement of any measure for a participant bank is partially shared by all the participant banks. For instance, say our now infamous bank A receives a cap to the bonus of its top management. All the SIFIs participating in the SSF (B and C in our case) will comply with the cap in an attenuated form (half of it, for example). If bank A is ordered not to distribute dividends in a given year, banks B and C can distribute only half of the dividend they had planned.

5.3 Discussion and further design issues

What we believe is important in the SSF mechanism is the common destiny it entails: it forces every SIFI to help and control the others. Of course, the mechanism can be improved in a number of

⁶⁹ If the profits of bank A at t are zero and accordingly its quota at t+1 is zero, the t+2 contribution will be automatically used, and so on.

directions. We shall consider some of them and we shall also discuss some possible drawbacks and objections to the mechanism in order to sharpen the idea.

The first point is how to decide membership. The literature on specific measures for SIFIs contains a discussion about the pros and cons of naming them⁷⁰. We have two possibilities: domestic and international authorities agree on a public list of SIFIs that will have to comply with a special regulatory regime (hence contributing to the SSF) or else they set size thresholds (the “Swiss” solution we cited before) that determine SIFI status. The list has the merit of being clear and non-negotiable. The drawback is that it is subject to periodical review⁷¹. This could provoke a continuity issue with the fund. It would be difficult for banks to plan ahead. In practice, however, it is very unlikely that a SIFI bank would shrink to become small enough to fail. All considered, a list based on the Basel Committee’s criteria looks like the best solution.

The “nomination issue” takes us to another problem: should membership of the fund be mandatory or voluntary? If it is voluntary, a bank could decide to enter only if it needs to, a situation any insurance company knows too well, even if it could only tap the fund after 5 years. In this way, participation might become a stigma. By contrast, when all are in (as with the TARP), the market cannot single anyone out. So we think a compulsory membership is better. Finally, the initial proposal limits the fund to global SIFIs. Although after a running-in period the fund could be extended to national SIFIs, this gain in size would be accompanied by a drawback: the more members the fund has, the harder is for them to control each other.

The second point is contribution. Broadly speaking, contributions to the fund could be based on a number of criteria (size, riskiness, etc.)⁷². However, since no indicator has been identified as a direct early warning of a future crisis, the use of these criteria would be subject to discussion and manipulation: bigger size does not always bring higher profits, so the funding of the SSF would be more complicated. Profits are an objective measure of a bank’s relative weight and also of its actual risks. Also, a proposal based on profit does not require any recapitalization and is neutral in terms of business models (it focuses exclusively on profits, regardless of how they are generated). Therefore, we think it is the best way to finance the fund. It is also useful to consider ways to sweeten the pill for the contributing banks, at least until the fund is fully operational (i.e. after 5 years). This could be done by using tax breaks or paying an interest on the quotas (for instance the minimum reserve rate).

Thirdly, there is the tapping mechanism. In order to share the losses, all the banks must be punished for the losses of one of them. However, the mechanism could be designed to punish the troubled bank more harshly (for instance, by requiring a bank supported by the fund to pay in a higher contribution in the subsequent years until it returns the amount it received, say, up to 40% of the profits for the coming years).

A fourth point is whether the SSF should be mechanically triggered or its intervention should be based on qualitative judgments. This is a major point. If the trigger events are clearly stated beforehand, there is no room for political maneuvering⁷³. However, regulators have information about the SIFIs that can

⁷⁰ See, for instance, BCBS, 2011, *Global systemically important banks: Assessment methodology and the additional loss absorbency requirement*.

⁷¹ The FSB, for instance, proposes to update the list annually. The Basel Committee is for reassessment every three years.

⁷² An interesting analysis of this point is in Acharya et al. (2011) with the idea of a Systemic Expected Shortfall and in Adrian and Burnermeier (2009) with the Co-Var. The drawbacks of these fruitful ideas are their complexity that reduce their enforceability.

⁷³ It could be also macro-based. For instance Murphy et al. (2012) propose a trigger event defined in terms of the aggregate state of the

be useful to the fund. This opens up a discussion about the role of the banking supervisors for the SSF: what kind of information could be shared and to what ends, the participation of the SSF to the College of Supervisors, the SSF board member could report to the banking supervisors and so on. This kind of collaboration is essential. The point, however, is that as the cohesion of international banking supervision is in danger, the SSF should not rely completely on it, on the contrary it should help to strengthen it using different channels. Banking supervision and SSF, therefore, should rely on different methods and tools to reach the same goal, international financial stability. The link with banking supervisors is also important to reduce possible conflict of interest.

Another aspect is the lifespan of the fund. Five years seems a good compromise between an implicit claw-back mechanism and the understandable interest of the participant banks in getting their money back. The lifespan could be lengthened to match an average business cycle, to say, 10 years. To reach the same result, the quotas could be returned only piecemeal. For instance, the contribution of year $t+1$, that is to return to the banks in $t+6$, could be given back *starting* from that year but only one third or one fifth of it per year. That way, if a problem arises, the claw-back mechanism is stronger (i.e. the fund has more cash ready).

An important related issue is moral hazard. Discussing such a mechanism, the above-mentioned Swiss commission remarked: “Tax revenues that are channeled into a stability fund are reserved for the resolution or the reorganization of financial institutions from the moment they are levied. For such a system to work, the ways in which the fund can be accessed must be fairly precisely determined on an *ex ante* basis. Under certain circumstances, this will increase the level of moral hazard considerably” (2010, p.131).

However, this problem is not likely to endanger the fund. For one thing, the SSF does not allow quotas to be immediately ready to tackle problems. For another, the SSF is built to prevent free riding: when a SIFI is caught without a ticket, every SIFI is fined. This is its main aspect.

The fund would also be faced with herd behaviour in the banking system. Kashyap et al. point out how this could affect the fund: “To the extent that the trigger is only breached when a number of large institutions experience losses at the same time, the issue of dealing with a single failing firm that is very inter-connected to the financial system would remain.” (Kashyap et al., 2008). This situation is inevitable; indeed, it is growing worse because of financial concentration and correlation trends. What is needed is a way to internalize this feature in the SIFIs’ strategies. Hence the SSF, which also forces SIFIs to save in good times and releases those savings in bad times. This countercyclical feature can help.

Besides moral hazard and herd behaviour, one could simply consider the SSF not having enough strength, so to speak, to force changes in the way big banks do their businesses. This is a key point: how can the SSF participants force one of them to behave correctly, to pay the ticket, to use the free riding metaphor. Basically the SSF has two tools. Profits and reputation. After a discussion with the regulator of the deviant participant, the SSF can call it to double its contribution to the fund. This would be a major economical blow as well as a serious reputational signal for the market. Similar decisions could be taken on dividend distribution, bonus and so on. In this way, SIFIs share the same fate but some of them gets also an additional fate if it deserves it.

This point is also linked to the general idea about who is best suited to monitor the SIFIs. For instance, Acharya et al. (2012) point out the “role of uninsured debt in encouraging the monitoring of bank management by ensuring that creditors have enough “skin in the game” to find such monitoring desirable”. However, ordinary creditors cannot effectively monitor a big bank. The special class of creditors consisting of other big banks can. The SSF is based on the assumption that peer monitoring is the most suitable arrangement to push for a change in the SIFIs behaviour.

As to whether it is better to have a single international fund or many regional funds, we think the one-fund solution is better. At a time when national solutions (such as subsidiarization) are jeopardizing the international supervisory framework, a unified fund is a way to avoid fiscal and regulatory arbitrage and to force SIFIs from every country to consider shared solutions to troubles. However, waiting for this global SSF, a regional structure such as the ESM is a good start.

Moreover, there is the investment issue. We proposed an escrow account. But how the SSF should be concretely be managed in terms of investment? Acharya et al. (2012) propose to invest in pre-designated liquid securities such as Treasuries. The problem is that, with the on-going sovereign debt turmoil, is not easy to find “free risk” securities. Anyway, broadly speaking, there is no any other viable solution.

Funding could be based not only on mandatory profit retention, but also on bonds issued according to the same logic as the SSF. Bondholders could buy a synthetic security of the mega banks all at once, an idea similar to that of Eurobonds⁷⁴. The mechanism would not be so different from a basket default swap of the first-to-default kind. If the SSF gains traction, SIFI bond could grow too.

On the subject of this collective convertible bond, it is useful to assess how the SSF works vis-à-vis going concern contingent capital and the Basel Committee’s proposals⁷⁵. We believe the main positive features of the latter are also incorporated in the SSF (loss absorbency, pre-positioning and pre-funding). As for agency problems and shareholder discipline, the crisis showed that an ordinary saver is unable to impose any discipline whatsoever on a big bank’s management, whereas screening by other SIFIs is likely to be far stronger. What contingent capital has that the SSF cannot simulate directly is the market’s perception of the bank health it could engender. Again, the crisis showed the market was not particularly useful as an early warning provider, a role we think could be played by the SIFI bond. On the other hand, the SSF prevents the effects described by the Basel Committee, such as the death spiral, since there is no bond that can spiral down. Moreover, the SSF is less complex and does not present pricing issues. Thirdly, the SSF is the same for all the SIFIs, thus forestalling disputes on how new rules are applied in the different jurisdictions and averting uncertainty about domestic supervisory judgment. In this connection, since profits are a fair and comparable number, the SSF also avoids of non-homogeneous data problems.

All things told, we think the Committee’s skepticism about contingent capital does not apply to the SSF.

⁷⁴ FSB already noted: “statutory bail-in within resolution tools do not prevent firms from issuing instruments that write-down or convert contractually, nor do they prevent national authorities from requiring them” FSB, 2011, *Consultative Document Effective Resolution of Systemically Important Financial Institutions. Recommendations and Timelines*.

⁷⁵ See the recent Basel Committee documents on G-SIB (BCBS, *Rules text* and *Cover note*).

5.4 A note about numbers

Even if it is considered a good idea, the SSF might not be big enough to withstand the crisis of a SIFI. Further, a heavy cut to profits could be politically difficult to push through at a time when banks are suffering from diminished profitability. Here we briefly assess these quantitative aspects.

Let's start with profitability. Banks point out that raising new capital is costly⁷⁶. The SSF does not require raising a cent of new capital as it is a deduction from profits. Still, it is a cost for SIFIs. We try to assess which SSF quota would reduce profitability by the same proportion as the Basel Committee's proposals for a capital surcharge. We use the following simplification. Let's call P the net profit, K the total capital requirements, K' the proposed capital surcharge and q the quota for the SSF. Now the "original" ROE is:

$$(1) \quad ROE = \frac{P}{K}$$

The ROE under the Basel Committee's proposals and with the SSF becomes, respectively:

$$(1a) \quad ROE_{BCBS} = \frac{P}{K + K'}$$

$$(1b) \quad ROE_{SSF} = \frac{P(1-q)}{K}$$

The equilibrium condition (1a=1b) is then: $q^* = \frac{K'}{K + K'}$

That means, with the numbers proposed by the Basel Committee (1% to 3.5%) a quota ranging from 10% to 30%, hence our proposal of 20% as a common average.

Secondly, we turn to the issue of sufficient size of the SSF. We begin with the possible "demand" for it. A recent BIS paper puts the total recapitalization of the banks during the crisis at \$ 1,380 billion (Brei et al, 2011). If we consider this amount as the potential maximum SIFIs could necessitate, we can estimate the SSF needs something like 20%-30% of that sum, or between €200 billion and €300 billions⁷⁷. If we take the net profit of the identified global systemically important banks and we calculate the dimension of the SSF, we get the following results:

⁷⁶ By the way, some commentators doubt it. See, for instance, Admati et al., 2010.

⁷⁷ Note that this figure is not very different from an estimate based on the Basel Committee's proposals, calculated by Barclays in its Answer to the Basel Committee's paper. The British bank estimated €271 billion of equity capital would be needed to meet the new Basel 3 and G-SIB requirements, over and above capital already raised since 2008. The European Stability Mechanism, with a lending capacity of € 500 billion, is also similar in size, if we consider only the European SIFIs.

Chart 4 – SSF and losses (*millions of euros*)⁷⁸

	SSF	Losses
SSF 2004-2008	135,471	(78,426)
SSF 2005-2009	129,611	(91,998)
SSF 2006-2010	124,612	(95,229)

Source: Bloomberg.

Adequate size could be attained using the contribution we have proposed.

6. Conclusions

There is a broad consensus that the crisis has revealed many weaknesses in the international banking regulatory framework, especially as far as big banks are concerned. That’s why the regulatory overhaul is centered on systemically important financial institutions. Although it is too soon to pass final verdict on any single proposal, we think most of them move in the right direction. However, a piece is missing from the picture: how to connect the fate of all the SIFIs in the most effective way. We have explained why forcing big banks to care one another is the key to preventing reckless behaviour. All the similar measures proposed so far (see Chart 3) are useful to collect resources for when the troubles come. However, although the discussion about who will foot the bill is important, we think is more important the discussion about how to avoid a big bank crisis that would force authorities to bail it out. The SIFI Stability Fund serves this end.

The SSF also serves another purpose. In times of dire economic trouble, the international fabric of the banking system risks disintegrating. Many episodes point in this direction. To counter this dangerous trend a mechanism is required that links together all the global systemically important banks independently of the dictates of politics at national level. We have sought to design such a mechanism. The optimal situation would be to have a global regulator in place⁷⁹. As this is implausible in the short term, the SSF tries to bypass the problem.

If the international authorities fail to make big banks sound, the next crisis, or to put it more precisely, the next round of this crisis, could be even more dangerous. The Governor of Bank of England, Mervyn King, has remarked that international banks are global in life but national in death. If international banks’ activity is not placed in a safe environment, the next problem will not be the national nature of a big bank’s death but the death of a nation or of more than one.

⁷⁸ The chart is built as follows. The net profits of the global systemically important banks are considered. When a bank makes a loss, a zero contribution is considered. The SSF column is the five-year sum of 20% net profits of all the banks. The losses contribution is the five-year sum of all their losses.

⁷⁹ As the EC states for Europe talking about a resolution fund: “Ideally a pan-EU resolution authority would manage its disbursement but the absence of a single European banking supervisor and insolvency regime make this unworkable at this stage.” (<http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/12/416&format=HTML&aged=0&language=EN&guiLanguage=fr>).

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