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THE SHAPE OF REGULATION TO COME

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Abstract

We identify the main changes in the global financial system over the last decade, pointing out the fragilities of the existing banking regulation. We then propose a variety of responses to the new challenges, like limiting banks' non-core liabilities, introducing contingent capital and risk-weights that account for systemic risk, combining monetary policy with policies that promote financial stability, improving international cooperation regarding liquidity facilities, integrating regulation on deposit insurance and resolution of bank default. We point out some unexpected difficulties which threaten the reform agenda, and conclude with a warning: the business cycle matters when assessing the cost of new regulations, and imposing tighter rules that will create a credit crunch during a recession is questionable.

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Introduction

The global banking crisis has provided compelling evidence of the need to reform the regulatory framework. Deceived by the fallacy of composition, existing regulation was almost exclusively *micro-prudential* in its application, concerned with the solvency of individual banks, rather than being *macro-prudential*, concerned with the resilience of the financial system as a whole (see Hanson, Kashyap and Stein, 2011). This focus of regulation revealed to be inadequate to address a number of issues:

- The composition of the banks' balance sheets has changed, with banks relying extensively on short-term funding.
- The US dollar plays a pivotal role in the global financial system with European banks channeling international liquidity worldwide.
- Financial prices and credit ratings proved to be unreliable, casting doubts over their use in the regulatory framework.
- Financial stability is not independent of monetary policy, and few tools were available do deal with asset bubbles and the excessive growth of banks' balance sheets.

So, what is to be done? We provide answers, ranging from the obvious to more technical fixes, and identify proposals to improve regulation:

- Defining rules like caps on non-core liabilities in banks' balance sheets, instead of regulation based on the valuation of opaque assets.
- Reducing the incentives to use debt and acknowledging that sovereign debt is risky.
- Complementing monetary policy with macro-prudential tools.
- International cooperation to ensure a credible reform agenda.
- Ring-fencing deposit-taking activities.

Yet, recent efforts to improve regulation have met with unexpected difficulties which threaten to fragment the global financial system:

- Deleveraging by European global banks, which are pulling back to their home markets.
- Lack of multilateral commitment by supervisors and inability to define simple and clear rules.

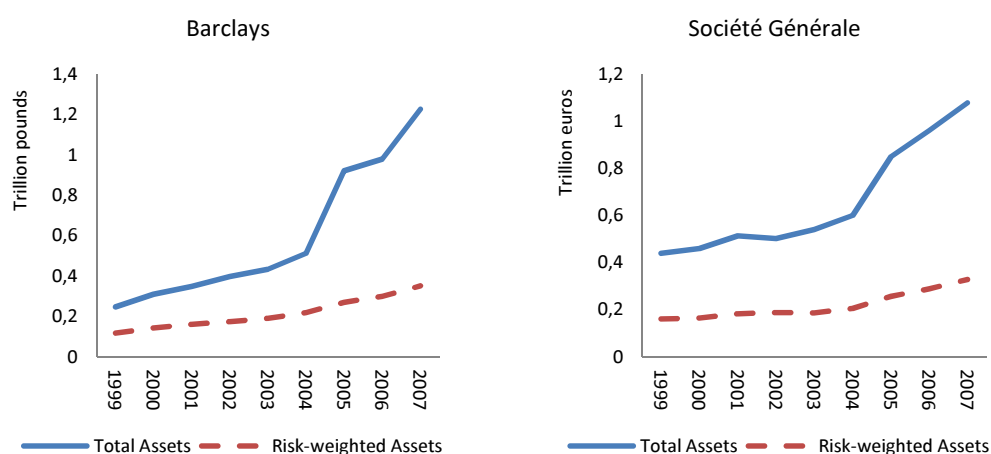
We take each issue in turn.

1. Diagnosis

1.1. Need to track exposures of the banking system more closely

Historically, a defining feature of the banking activity is its capacity to expand balance sheets with a limited amount of own capital. This capacity depends on two things — the amount of bank capital and the degree of acceptable leverage determined by the credit risk of the bank’s portfolio. In quiet times, bank lending expands to fill up any unused balance sheet capacity because perceived risks are low. Yet, experience has shown that rapid loan growth is possible only at the cost of reducing lending standards; lending booms often rely on aggressive risk-taking. Borio and Disyatat (2011) call this phenomenon “excess elasticity”.

Figure 1, taken from Shin (2011), plots the total assets and risk-weighted assets of two typical European global banks – Barclays and Société Générale – in the years before the financial crisis.⁴ The rapid growth of total assets was based on low levels of measured risks, allowing low levels of equity capital on the banks’ balance sheets. For example, sovereign bonds of developed countries had zero risk-weighting in terms of how capital requirements were computed under the Basel Accords. Arguably, the risk management practices embodied in the Basel Accords encouraged the expansion of banks’ balance sheets.



⁴ Risk-weighted assets are used in regulation on bank capital. Bank capital is often expressed as equity over assets, but the assets are weighted using complex formulae and internal models because banks should hold more capital against risky assets than they need for safe lending.

Figure 1. Total assets and risk-weighted assets of Barclays and Société Generale. Source: Shin (2011) used data from Bankscope.

In 2007, global banks had set aside little capital, given their exposures to structured investment vehicles, derivatives and proprietary trading. As a result, the subprime crisis had a disproportionate impact on the banking sector, leaving many of the largest European and American financial institutions on the verge of insolvency.

1.2. The Fed has become the Central Bank of the global banking system

Being the funding currency of global banks, the US dollar became the currency that supports the global banking system. The United States hosts branches of the most important foreign global banks whose main function is to raise wholesale dollar funding in the US capital markets and then channel it to the head office. Figure 2 is taken from the International Monetary Fund's Global Financial Stability Report (IMF GFSR) of September 2011, and shows the evolution of the liquidity provided by US offices of - foreign banks to parent offices since 2006. The figure shows a steep increase in the net lending by foreign bank branches and subsidiaries in the US to the head offices until 2008.



Figure 2. Liquidity provided by US Offices of Foreign Banks to Parent Offices. Source: IMF GFSR September 2011 Box 1.4, International Monetary Fund staff estimates. Note: A more positive value implies increased funding provided by US Offices of foreign banks to parent offices while a less positive value implies foreign parents are draining less liquidity from their US operations.

The effect of the global savings glut is well documented; it has helped the United States to maintain a substantial current account deficit and becoming the largest net debtor in the world. Yet, the United States is a large net creditor in the global banking system. Although some of the dollars borrowed in the United States return to its origin, some flow to Europe, Asia and Latin America where global banks are active local lenders. As the global banks channel dollar liquidity across borders, the marginal cost of bank funding is equalized across regions through the portfolio decisions of the global banks. As the excess liquidity in the United States is transmitted globally, the US monetary policy becomes the global monetary policy (see Bruno and Shin, 2013).⁵

1.3. European global banks have become the financial intermediaries of the global financial system

The period before 2007 saw the rapid growth in banks' cross-border activities. European global banks were in the vanguard of this process and have played a prominent role in the redistribution of US dollars (see Shin, 2011).⁶

The US money market is an important source of wholesale funding for global banks. Figure 3 charts the time series of the US prime money market fund exposures to banks, expressed as a percentage of the total assets. We see the preponderance of the amounts owed by European banks, suggesting that they are key elements in the US shadow banking system.

⁵ According to data compiled by the Federal Reserve, six European banks were among the top ten largest borrowers under the Federal Reserve's Term Auction Facility. Indeed, three of the top four were British banks (Barclays Bank, Bank of Scotland, and Royal Bank of Scotland).

⁶ One striking feature of the expansion of European banks in the years before the financial crisis was that so much of their business was in dollar denominated areas.

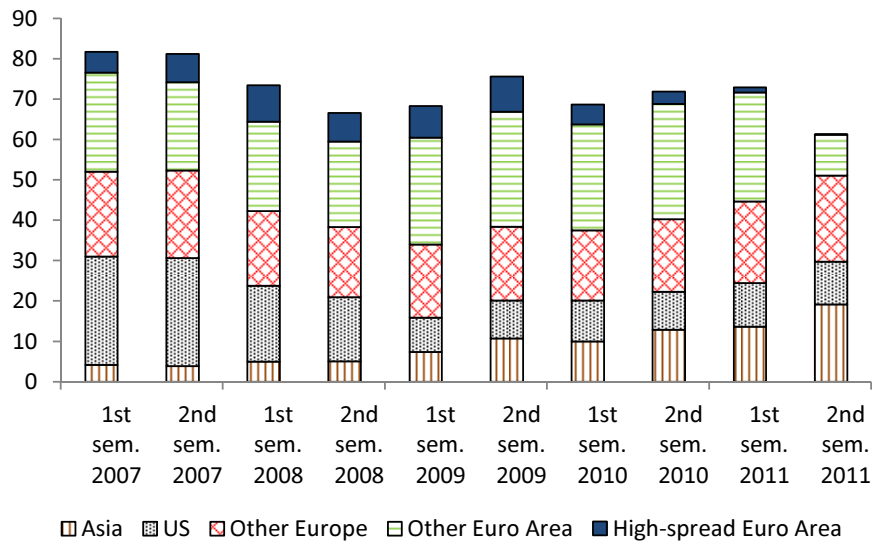


Figure 3. US Prime Money Market Exposures to Banks (percent of total assets). Source: IMF GFSR September 2011 Figure 1.22, Fitch. Note: The high-spread euro area consists of Belgium, Greece, Ireland, Italy, Portugal, and Spain.

Because the presence of European banks in the domestic US commercial banking sector is small, only a minor fraction of these funds was lent to US residents. To know what has happened to the funds collected in the United States, it is useful to look at how capital flows were channeled worldwide. Figure 4 is from the Bank for International Settlements (BIS) consolidated banking statistics based on the nationality of the parent bank. This data provides information on international financial claims of domestic bank head offices on a worldwide consolidated basis (i.e. excluding inter-office positions). The graph plots total foreign claims in a set of representative countries including emerging economies, as well as the share of those claims that belong to European banks. Banking flows are responsible for a large share of capital flows and have a strong procyclical pattern. Until 2008, perceptions of a relatively benign risk environment provided the basis for investors to engage in “currency carry trade”, whereby European banks borrowed at low US rates to invest in other parts of the world.

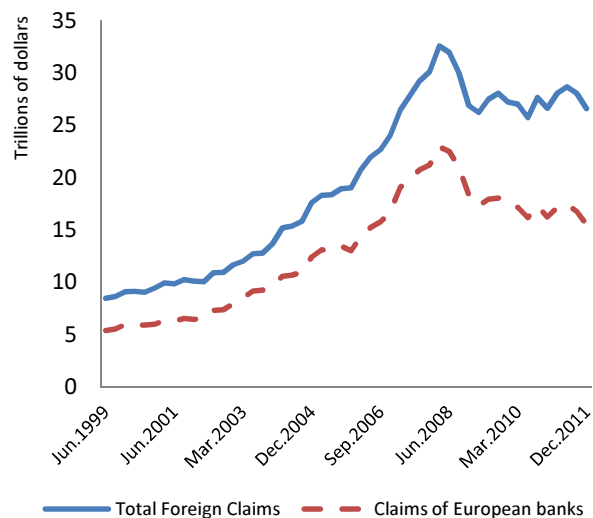


Figure 4. Liquidity receiving economies: Foreign Claims. Source: BIS (2012) Table 9B.

Note: The economies examined are Australia, China, Hong Kong SAR, India, Indonesia, Japan, South Korea, Malaysia, New Zealand, Pakistan, Philippines, Singapore, Sri Lanka, Thailand, Vietnam, Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Iceland, Latvia, Lithuania, Nigeria, Norway, Poland, Romania, Russia, Saudi Arabia, South Africa, Turkey, United Kingdom, Argentina, Brazil, Canada, Chile, Colombia, Mexico, Peru, United States, and euro area. “European Banks” refers to domestically owned banks of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, Turkey and the United Kingdom. Claims of European banks do not include holdings in their home markets (but include holdings in other European markets).

To see the importance of European global banks in global flows, in Figure 5 we look at the shares that European and US banks have on the total foreign claims of a set of individual countries. The figure, also taken from the BIS consolidated banking statistics, reveals the dominant position of European banks worldwide.

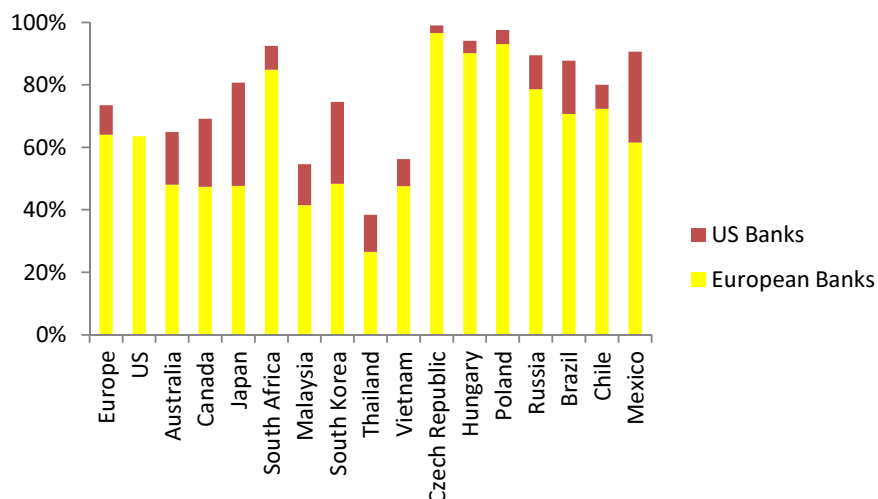


Figure 5. Percentage of consolidated foreign claims vis-à-vis individual countries by nationality of reporting banks attributed to European and US Banks in July 2011.

Source: BIS (2011) Table 9B. Note: “European Banks” refers to domestically owned banks of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, Turkey and the United Kingdom. Banks’ claims do not include holdings in their home markets. “Europe” includes Austria, Andorra, Belgium, Cyprus, Denmark, Estonia, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Liechtenstein, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland, United Kingdom, Vatican, Albania, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Hungary, Latvia, Lithuania, Macedonia, Moldova, Montenegro, Poland, Romania, Russia, Serbia, Turkey, Ukraine, and Serbia and Montenegro. The column “Europe” includes “European banks” because the countries included in the two sets do not match exactly.

1.4. Prices of assets may not reflect fundamental values

One of the core functions of the financial market is finding and setting the right price of risk and, as long as markets are efficient, mark-to-market accounting dominates. But one of the characteristics of the recent crisis is the huge mispricing of assets prior to and during the financial crisis. In June 2007, credit default swap (CDS) prices for the banking sector were at a record low level and, in 2009, sovereign debt prices for countries like Ireland, Greece, Portugal, Italy and Spain were the same as for Germany.⁷ Distorted prices and the lending boom were related phenomena over the last decade and prices did not signal financial excesses until it was too late. Rating methodologies, too,

⁷ Although the prospects for the economies of these countries were clearly different, sovereign debt prices remained low and stable in the preceding years.

were responsible for inflating the asset bubble. Moreover, markets are not informationally efficient during crises. Hence, market prices and other financial indicators, like credit ratings, do not provide a good guide for regulators and investors. This claim can be attested by the instability of Greek CDS spreads and credit ratings before the Greek bailout, shown in Figure 6 and taken from the IMF GFSR of October 2010.

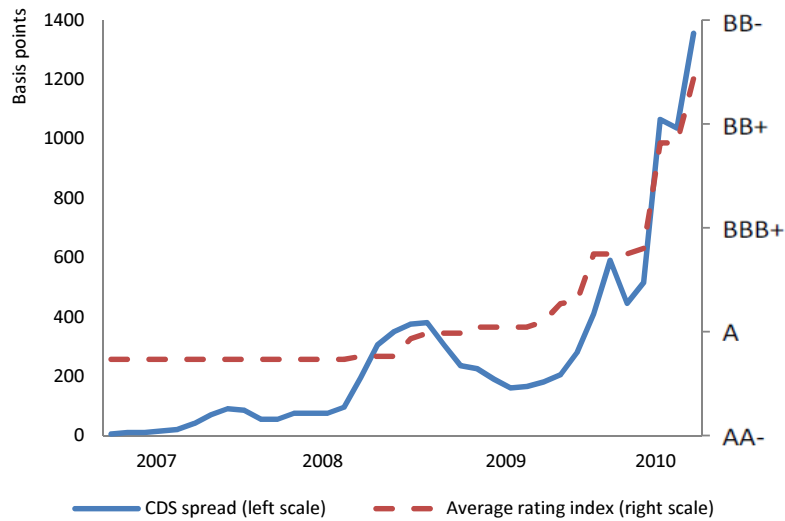


Figure 6. Greek Credit Default Swap Spreads and Average Rating. Source: IMF GFSR October 2010 Box 3.6; Bloomberg L.P. and International Monetary Fund staff estimates. Note: The average rating shown on the right-hand side reflects the average of three rating agency (Fitch, Moody's, and S&P) levels (shown are Fitch and S&P symbols). A linear transformation is used to transform each rating into a number between 21 and 1. In addition, in order to capture more fully the information content of the outlook, the rating level is also adjusted by -0.3 ($+0.3$) for a negative (positive) outlook or negative (positive) watch.

These inefficiencies are worrying, as the approach underlying many forms of regulation, standards and market practices relies on the correct evaluation of assets. Repeatedly, regulators have been deceived by too optimistic assessments of complex securities and sovereign risks. The practices embodied in the Basel Accords rely extensively on the evaluation of opaque assets – whose risks are difficult to measure – to compute bank capital requirements. Finally, market discipline is no longer seen as the perfect

complement to supervision, and cannot be expected to play a major role containing banks' risk taking (see Freixas and Laux, 2012).

1.5. Financial stability is not independent of monetary policy

The dominant paradigm for monetary policy prior to the crisis did not take into account financial stability, even though it is important for the implementation of an effective monetary policy. The unsustainable expansion in credit and asset prices that preceded the crisis is a result of loose monetary conditions due to monetary policy focused on consumer price stability. There is an emerging consensus that the framework behind central banking is too narrow. Inflation targeting is responsible for excessive liquidity granted at low policy interest rates, which prompted banks to expand their balance sheets and had an impact on asset prices, credit, leverage and capital flows (see Eichengreen *et al.* 2011).

2. Solutions

2.1. Beyond “price regulation”: “Quantity regulation” on banks' liabilities

Central banks and financial supervisors should not be overconfident in the power of risk indicators, like prices and credit ratings, and should rely more on “quantity” indicators which convey important information about financial conditions.

Complex regulation relying on risk indicators ends up being contaminated by the distortions that afflict those indicators. Risk-weighted assets are a good example of such distortions. As a result of opaqueness of banking firms' assets, risk-weights are vulnerable to regulatory arbitrage, whereby global banks move their assets across national borders and into lightly regulated areas of the financial system. Arguably, the Basel Accords have given incentives for permissive bank risk management practices because they gave scope for the manipulation of risk-weighted assets by banks. Risk-weighted assets can also be affected by collective blindness, such as when structured finance products based on subprime mortgages have been considered risk free. Hence, regulatory bank capital should not depend (exclusively) on the evaluation of opaque assets.

Regulators ought to take a broader approach and should also monitor “quantity” variables, like the volume of credit (both aggregate and across sectors) and banks'

liabilities. Specifically, non-core liabilities in banks' balance sheets should be monitored because of two reasons. First, during a credit boom, the rapid increase in bank lending exceeds the core deposit funding available to a bank. Second, banks' liabilities are likely to be less opaque than banks' assets (see Shin, 2010).

Authorities must build indicators of financial excess that trigger their intervention. This means that when rapid credit growth along with asset price increases threaten to be disruptive for the economy, authorities should “lean against the wind” using a combination of policies, including monetary policy when necessary.

Some central bank officials see “quantity” regulation on leverage – like thresholds for the leverage ratio, the loan-to-deposit ratio or the net stable funding ratio – as the best way to keep bankers honest about their balance sheets (see Haldane, 2012).⁸ But there is another side to the story. Risk insensitive regulation and caps have a disproportionate impact on banks that provide basic, low-risk services because their loans will be treated in the same way as high-risk, speculative loans. Many worry that trade finance, essential to international trade, will be heavily penalized under these forms of regulation.

2.2. Restrain debt and rely more on equity

Laws and regulation have promoted leverage. In many countries, households have tax exemptions of interest payments on mortgages, and capital is more costly than debt because there is a tax advantage of debt (often, debt interest is tax-deductible at the corporate level but dividends are not). As a result, there has been excessive reliance on debt financing and authorities should reduce the aforementioned incentives.

Banks should be incentivized to issue convertible debt that could be converted into equity in the event of a crisis. This type of contingent capital has several good properties. First, it provides a cushion for the bank during financial crises. Second, it enables raising capital at times when other options are impossible. Third, conversion dilutes the existing equity, thereby giving shareholders an incentive to monitor managers. Fourth, contingent capital allows sharing losses with debt holders.

Another interesting proposal to deal with financial disaster is to force creditors to suffer losses before default, while the bank is still operating. This would wipe out debt before

⁸ American banks are subject to a leverage ratio, which did not prevent them from running into trouble.

taxpayers suffer losses. According to this “bail in” scheme, the regulator should decide when to impose losses on creditors.

Compensation schemes for top managers based on contingent capital and “bail-inable” debt, will align bank managers’ interests with those of creditors, thereby disciplining and inducing them to behave prudently.

Regarding capital requirements, the definition of risk-weights should take into account the systemic risk contribution of assets rather than their historical risks or individual risks. A complex security with AAA rating may pose a bigger threat to financial stability than a AAA corporate loan, even if both have similar absolute risk. Assigning higher risk-weights to those assets that create systemic risk (as, for example, complex securities) would modify the relative prices of assets that banks hold on their balance sheets and would be an incentive to contain systemic risk.

The revision of the Basel Accord incorporates new positive features. Basel III introduces a countercyclical capital charge that increases when the economy is in upswing and decreases in the downswing. This should be helpful to stabilize the behavior of credit and to make the financial system more resilient.

2.3. Sovereign debt is risky

Regulators, standard setting bodies and central banks must rethink the role given to sovereign bonds. They have demanded that banks raise their holdings of liquid, safe assets using government bonds and the Basel Accords ascribed zero risk-weighting to sovereign bonds of developed countries. This gave incentives to accumulate large stocks of sovereign debt and paved the way to the under-capitalization that many of the global banks are now suffering. The Basel Accords endorsed the “zero capital” policy because of the assumption that the sovereign debt of developed countries was riskless. Once more, regulators were misled by risk assessments and this is one more example of the perverse effects that the definition of capital requirements based on asset evaluation can have.

Acknowledging that sovereign debt is risky will have big implications in the longer term. Apart from raising sovereign borrowing costs and having a discipline effect, more realistic evaluations of sovereign risk will force banks to hold more capital.

Margin requirements – or payments that must be made to counterparties when the price of bonds used as loan collateral falls – have also been complacent with sovereign risk in the past. Once the real risk in sovereign bonds is recognized, margin requirements will increase, creating an under-collateralization problem in financial markets.

2.4. Combining monetary and macro-prudential policy

Financial stability has become a main concern of policy makers and they need additional regulatory tools to deal with excess leverage, excessive risk taking, or apparent deviations of asset prices from fundamentals. Loan-to-value and debt-service-to-income ratios can be used to dampen credit booms and housing prices. Margin requirements can be raised to limit stock price increases, and if leverage appears excessive, regulatory capital ratios can be increased or caps on bank leverage can be imposed. Shin (2010) and Perotti and Suarez (2011) have explained the virtues of taxes on the non-core liabilities and short term funding of the banking system.

Equipped with new tools, policymakers need to coordinate carefully a mix of financial and macroeconomic policies. In the case of a monetary union, members can use national instruments that could, for instance, involve tighter rules on specific types of lending by banks. National flexibility and regional differentiation are important, in order to accommodate asymmetric shocks.

Yet, there is no consensus about the best design of institutions. What should be the mandate of central banks? Should financial stability become an explicit objective of central banks, along with price stability? Or should macro-prudential regulation be in the hands of a separate entity? Should central banks use macro-prudential instruments to prevent credit excesses while monetary policy is set for the economy as whole? Should short term rates be used exclusively to pursue price stability? Or should they be used to achieve financial stability? Answers to these questions are important as they will determine how effective policies will be (see Schoenmaker and Wierds, 2011). Arguably, some regulatory agencies failed in the past because their mission, tools and scope for intervention had not been clearly defined.

Finally, the new framework will involve a certain degree of flexibility, and it will be subject to extensive lobbying. Authorities will require a great level of operational independence in order to pursue their mandates. Goodhart (2010) expects that macro-

prudential policy will require a new accountability regime that is in between those of monetary policy and micro-prudential supervision.

2.5. International liquidity

Central banks of large economies do little to internalize the spillover effects of their policies on other countries. They should let considerations of these external effects play an explicit role in the monetary policy framework, and pay more attention to their collective policy stance and its global implications.

More progress is needed on reducing the uncertainties surrounding the availability of liquidity facilities for dealing with systemic crises. In 2011, pre-emptive action using bilateral swaps between central banks – in a context in which US money market funds cut their exposure to European banks to record lows – illustrates the importance of coordination in this area.

2.6. European level deposit insurance and resolution of default

The introduction of the euro meant that money could flow freely across the borders in the euro area, but most of the assets remained local and immobile. Banking funds flew from the core countries to the banking systems of the periphery and, when the crisis started, rushed back to the core countries. This contrast between mobile debt and immobile real assets in European banks' balance sheets has been a key contributing factor to the European crisis.

Cross-border banking requires more integrated regulation at the European level (see Schoenmaker 2013). Although there has been some improvement on supervision, more progress is needed on mechanisms for resolving failures of cross-border financial institutions and the harmonization of the deposit insurance framework in Europe (see Schoenmaker 2012, and Gros and Schoenmaker 2012).⁹

⁹ The lack of a resolution framework exposed the weaknesses of the European banking system after the failure of the Belgian-Dutch-Luxembourgian Fortis bank.

Without a banking union, banks are contingent liabilities of their own individual sovereign state.¹⁰ This has two implications. First, investors charge a premium on banks' funding costs reflecting the sovereign risk of the individual bank's home country. Second, national supervisors have an incentive to restrict their banks' exposures to foreign risks.

Recently, political leaders have committed to the creation of a banking union with a Europe-wide bank supervisor. Yet, the legal and political challenges to a switch from national to supranational supervision are daunting and could take years to resolve.

The priorities for the regulatory reform agenda include strict rules for systemically important financial institutions as they impose a big threat for the financial system as whole. Also, the migration of risks into the shadow banking system has to be closely monitored, and multilateral commitment is vital to guaranteeing the credibility of the reform agenda and avoiding regulatory arbitrage.

2.7. Ring-fencing

After the repeal of the Glass–Steagall Act, global investment banks exploded in size, as they had access to cheap funds protected by implicit guarantees. Large universal banks became extremely complex, making them harder to understand and resolve. Moreover, global banks became dangerously interconnected through their trading activities.

Given the extraordinary support provided to the financial system during the crisis, governments are demanding a separation between the deposit-taking activities and other bank activities. Two types of proposals are under discussion (see Vickers, 2012). In the US, the Volker rule effectively proposes a return to the Glass–Steagall Act. The rule bans proprietary trading, forbidding a banking entity from acquiring or retaining equity or other ownership interest, and sponsoring hedge funds or private equity funds. It will require breaking up banks.

European universal banks have a long tradition, and the Vickers and the Liikanen reports do not propose to break up banks. Instead, they propose to separate domestic retail banking services from investment banking services. This would be achieved by

¹⁰ Recent events have shown how costly it is for national states to deal with insolvent global banks. As highlighted by Charles Goodhart (2009), “cross-border banks are international in life, but national in death”.

creating separate legal entities. According to the Vickers report, a retail bank would be ring-fenced within a holding company. This company would be a large (and more diversified) financial institution.

As the experience with the American International Group showed, trading in over-the-counter derivatives can make financial institutions dangerously interconnected. Regulators are forcing many of these derivatives onto central-clearing houses. Among other advantages, clearing imposes transparency and might reduce the risk of contagion. Yet, it will require a significant amount of collateral and it will not reduce the cost of the clearing house failing itself.

3. Added Difficulties

3.1. The great deleveraging

The Eurozone crisis made it more difficult for European banks to get US dollar financing, and tougher capital regulation is forcing banks to shrink their balance sheets. In 2011, US money market funds significantly trimmed their holdings of European bank paper, and their exposures to euro area banks dropped to less than 15% of total assets (see Figure 3) leading European banks to scale back credit and sell their assets.

Euro area firms are particularly vulnerable to reduction in bank credit because the European model relies on banks for funding. Big European companies increasingly rely on the issuance of their own bonds, shifting the balance towards the American financial model in which banks play a less important role in corporate funding.

Rules to “bail in” bondholders have unintended consequences. Senior bank creditors will respond to the potential for losses in a way that makes the banking system more unstable, because they will ensure that their loans are secured or are short term loans. If too many assets are pledged, there will be fewer assets to support other unsecured creditors. Fewer assets will raise funding costs and will also increase the risk of depositors and dry up unsecured lending.¹¹

¹¹ Unsecured funding channels closed for many European banks, and they are increasingly using collateralized lending. According to the Watkins (2012), the percentage of European bank assets being pledged as collateral has increased significantly. In Italy this percentage increased from 5 per cent in 2005 to 12 per cent in 2011, while in Spain the same variable rose from 14 per cent to 24 per cent.

The European Central Bank's longer-term refinancing operations did not help to solve this problem because they consist of collateralized loans. Many European banks have pledged collateral to the European Central Bank (ECB), leaving less to repay to depositors and bondholders if a bank were to default.

3.2. Led by European banks, global lenders are retreating to their home markets

Deleveraging will have worldwide effects (Figure 4 shows the pace of deleveraging in global banking flows in recent years), although its impact will likely be strongest in the periphery of the euro area and in emerging Europe. Figure 7 is from the BIS consolidated statistics and shows that banks in the northern euro area are trimming exposures to members under stress.

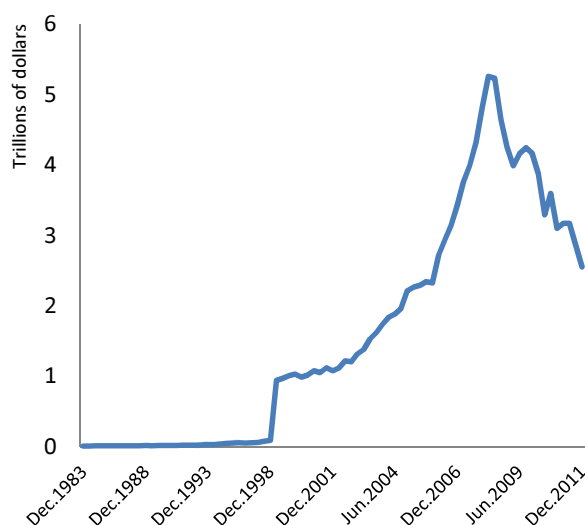


Figure 7. Exposure of Austrian, Belgian, Danish, Finish, French, German and Dutch banks to Greece, Ireland, Italy, Portugal and Spain. Source: BIS (2012) Table 9B.

Latin America is also at risk, as it is dependent of Spanish banks. Asian banks, too, are conscious of the danger, and the United States is showing increased concern about the feedback loop from the euro area.¹²

It is likely that banks from other countries replace European banks in their home markets and cushion the impact on short-term commodity finance, but that will depend

¹² According to data compiled by the Federal Reserve, Eurozone banks have cut their assets in the US by more than one third since the financial crisis began in 2007.

on their access to US dollars and euros. Figure 3 suggests that Asian banks have been able to step in and fill part of the gap left by European banks.

3.3. Supervisors are pursuing their own agendas

Progress is being made in strengthening the global regulatory framework, but consistency among regulatory regimes across jurisdictions and cooperation among supervisors is missing. Rule-makers in Europe, UK and US are pushing ahead with unilateral reforms without international coordination, raising the risk of financial market fragmentation.

Rule-makers are building firewalls around domestic banking systems. Regulators do not appreciate that banks in its purview have large exposures abroad or depend on foreign institutions. They want banks to have enough assets to operate in times of crisis and to pay back domestic creditors in case of default, regardless of where they are domiciled. On the one hand, host regulators want subsidiaries of foreign banks to be ring-fenced so that funds cannot escape the country in the event of a crisis. On the other hand, home market regulators do not wish that foreign exposures dry the resources of national banks in periods of crisis.

As a result, regulators are imposing increasing obstacles to cross-border banking. These hurdles could permanently reduce the presence of European global banks in countries where they lack a deposit base.

Bankers have accused the Federal Reserve of treating domestic assets more favorably than foreign ones in their stress tests, privileging lending in US markets. Within Europe, Britain and Sweden want to impose stricter capital rules than other countries.

There is also the issue of extraterritoriality when the US and the European Union apply their rules globally to any group that does business within their territories.

Isolating domestic banking systems will not be sufficient to ensure financial stability because it sacrifices resilience in the event of a future crisis. When market-based finance dries up in national markets, global banks will not be able to step in and fill up the gap. Retrenchment behind national borders will also reduce diversification.

Still, there is a more positive message within the European Union, because differences in national regulation could be removed by the Commission's efforts to standardize

supervision and regulation across the bloc. These will make it more difficult for member states to compete by offering soft regulation, and will be an important step towards financial integration. Macro-prudential oversight by the European Systemic Risk Board along with national authorities, and a Europe-wide bank supervisor will also facilitate cooperation.

The investor base for sovereign bonds in many countries is also becoming more domestic, suggesting that concerns about excessive home bias in the behavior of domestic investors are real. Since the outbreak of the European crisis, some forms of financial repression on the part of policy makers are also steering banks into holding national sovereign debt. Arguably, much of the ECB's provision of collateralized three year liquidity to banks found its way into sovereign debt to help European governments.¹³

3.4. The devil is in the details

A large part of current regulation on market risk is based on value-at-risk measures derived from risk models. But a fundamental assumption in most numerical risk modeling is that the basic statistical properties of financial data remain constant, which is not true during crises. Market data is endogenous to market behavior and agents change their behavior in times of crisis.

Hence current market risk regulation relies on an inadequate representation of risk, and this is one more reason why we recommend that financial regulators should complement their toolkit with the more naïve “quantity regulation”. Yet, it will be difficult to define useful indicators of financial excess, which trigger intervention by regulators.

Goodhart's Law states that once an economic indicator is made a target for the purpose of conducting economic policy, then agents will adapt and that indicator will lose its information content. If the authorities restrict the growth of a particular credit aggregate, financial innovation will circumvent the restrictions and the credit aggregate will no longer be useful for conducting economic policy.

¹³ Collateral rules for ECB's liquidity operations discriminate collateral, which also ends up having heterogeneous impact across the system.

This problem will be aggravated because it is hard to define the relevant operational indicators. For example, it is hard to distinguish core from non-core liabilities of the banking sector.

3.5. Less is more

The laws that set up the American banking system (1864), the Federal Reserve Act (1913), and the Glass-Steagall act (1933), each had less than 40 pages. The Dodd-Frank act is more than 800 pages long. Alone, the proposal for the Volker Rule (Section 619 of the Dodd-Frank Act) has 298 pages. The reference to the “minerals originating in the Democratic Republic of the Congo” in Section 1502 of the Dodd-Frank Act is a glaring example of the extension of the provisions in the new pieces of regulation. Bankers fear they will be suffocated by excessive and badly written regulation.

The design of recent reforms is becoming extraordinarily complex. Writing the rule-making requirements mandated by the Dodd-Frank Act and interpreting them has become a frustrating task; the same is true for Europe. But, and more worryingly, bankers fear that red tape, fuzzy regulation and uncertainty about the interpretation of incomprehensible provisions will stop financial innovation and make it impossible to focus on long-term growth. Moreover, bankers complain about regulators not being cooperative. Another unintended consequence is that complexity encourages efforts to exploiting loopholes in regulation, making the whole system unmanageable.

Conclusion: Is this the best time?

Regulation will have an impact of banks' long-term profitability. Arithmetics dictates that more capital leads to lower returns; ring-fencing and restricting profitable (but risky) bank activities will further reduce returns.

But the cost-benefit analysis of regulation should go further than just considering what an individual bank pays to comply with rules, because the burden of regulation includes the harm suffered by the whole economy. The trade-off between costs and benefits is likely to depend on the business cycle because the costs of a credit crunch are much higher during a recession. Just as monetary policy varies according to the business cycle, so should regulatory policy; it should be lighter in a recession. It is important to strike the right balance between stricter regulation that strengthens the financial system and lighter regulation that mitigates the contraction of credit.

While policy makers are using every available tool to revive the economy, regulatory policy has mostly ignored the business cycle. Yet, there is a growing view that imposing tighter rules which create a credit crunch during a recession is questionable.

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