

## Giovanni Carosio

Member of the Governing Board  
Banca d'Italia



# Financial Stability and Macro-Prudential Supervision: Challenges for Central Banks

## 1 The New Regulatory Architecture for Financial Stability

The crisis that has been rocking the world economy for the last three years has heightened the need for regulators and central banks to refocus on systemic risk, a key concept that must be embedded in their *modus operandi* through the development of a macro-prudential framework. Activity towards this goal is in full swing in a host of different fora, and the outline of a new framework is beginning to emerge. A broad agreement has been reached on some policy measures to be implemented, although important elements of the new regulatory structure are still under discussion. The coordinating role of the Financial Stability Board (FSB) has been essential towards achieving a global agreement.

The reform package of the Basel Committee, an important outcome of this effort, will include several measures addressing macro-prudential concerns. First, a significant portion of these reforms is targeted towards firms and activities that are systemic in nature; in particular, capital requirements have been increased for trading book activities, counterparty credit risk, complex securitizations and re-securitizations. Second, micro-prudential rules are being revised to address the risk of spillovers to the real economy, with the proposal to introduce counter-cyclical capital buffers. Third, in the overall calibration process of the reform package the Committee is paying close attention to its impact on the economy, both in the steady state and in the transition period, to ensure that the phasing-in process does not jeopardize the ongoing recovery.

We are also witnessing a parallel re-orientation of supervision. For in-

stance, together with the monitoring of individual intermediaries, many supervisory authorities now conduct so-called horizontal reviews of large financial institutions, aimed at identifying specific sources of risk for the financial system as a whole. A second example is given by the simultaneous, consistent stress tests conducted by large financial institutions under the direction of national supervisory authorities, and, in Europe, of the Committee of European Banking Supervisors (CEBS).

Many initiatives are underway to improve the global governance of financial markets, products and institutions. The G-20 is emerging as the main forum for the international discussion on global economic stability. Under the aegis of the G-20, the Financial Stability Board has expanded its membership and range of competencies and ensures an unprecedented degree of international coordination in regulatory matters. New members add to the breadth of its perspectives and to the weight of its deliberations. In addition to its old mandate, as a Financial Stability Forum, of assessing vulnerabilities and promoting coordinated action to address them, the FSB is now charged with additional tasks, which include undertaking joint strategic reviews of the policy development work of the international standard setting bodies; setting guidelines for, and supporting, the establishment of supervisory colleges; supporting contingency planning for cross-border crisis management. In this context, the International Monetary Fund (IMF) is re-focusing its activity on monitoring the international financial system and identifying threats to global financial stability.

In Europe, based on the current draft legislation, financial supervision

will feature a two-pillar structure. The European Systemic Risk Board (ESRB) will be responsible for the macro-prudential oversight of the EU financial system as a whole; the European System of Financial Supervisors (ESFS) will focus on micro-prudential supervision. In particular, the ESRB is to focus on potential threats to financial stability arising from macroeconomic developments, as well as from developments within the financial system as a whole. It will issue warnings of a general nature, or concerning specific aspects (e.g. at the country, or industry level) whenever risks are deemed significant. Where appropriate, it will issue recommendations for action to deal with these risks, and monitor compliance with its recommendations. The ESFS will entertain a dialogue with the ESRB, and convey the recommendations to the national supervisors, who will abide by the “act or explain” principle.

The design of a fully fledged global framework for macro-prudential supervision is taking shape. In my remarks today I will focus on what I see as the open issues that need to be addressed to make it operational and effective.

## 2 Will the New Policy Framework Make a Difference?

The new macro-prudential framework that I have briefly described is centered on the concept of systemic risk. This is defined in the IMF-BIS-FSB Report to the G-20 Finance Ministers and Governors as the risk of disruption to financial services that is caused by an impairment of all or parts of the financial system and that has the potential to have serious negative consequences for the real economy. Other sources pro-

vide complementary definitions, emphasizing pro-cyclicality (the collective tendency for financial firms and economic agents in general, to overexpose themselves to risk in a cyclical upswing, and to become overly risk-averse in a downswing, thereby amplifying the business cycle).<sup>1</sup> Implicit in these definitions is the notion of negative externalities – costs that an institution or a market impose on other players but that are not taken into account by them or their counterparties, and therefore are not reflected in market prices.

How is this new regulatory framework going to tackle systemic risk? To answer this question we should start by acknowledging two key difficulties in the design of any institutional system aimed at ensuring financial stability.

First, although systemic risk is easy to define, it is hard to be given operational content, because of its various dimensions: pro-cyclicality, as mentioned previously; network or contagion risk, the spillover effects of a single institution’s distress to the rest of the financial system; correlation risk, depending on the common exposures of all financial institutions to the same risk factors; concentration risk, due to the presence of a few dominant institutions in key financial markets and activities. Furthermore, systemic risk can stem from multiple sources, which make it hard to predict. For instance, in the late 1990s and early 2000s the hedge fund industry was considered a main source of systemic risk, and a candidate for regulation. However, this risk failed to materialize: the industry was not a trigger of the current crisis, nor, probably, the key element of the propagation mechanism. By contrast, the recent events provide several examples of triggers

<sup>1</sup> See e. g. Bank of England. 2009. *The Role of Macro-Prudential Policy. Discussion Paper.*

that did have systemic consequences but were not perceived as crucial *ex ante*: the behavior of certain insurance companies, commonly thought to be well-understood and non-systemic; the supposedly safe mortgage market of the most financially developed system of the world; the current situation in the European sovereign debt market. In a sense, policymakers were taken by surprise by each turn of the crisis.

The second key difficulty in the design of an effective framework to contain systemic risk is that, even when a source of risk is identified, acting upon this knowledge has historically proved very difficult. Consider for example the Government Sponsored Enterprises (GSEs) operating in the U.S. mortgage market. The portfolio of mortgages held by the two main GSEs, Fannie Mae and Freddie Mac, went from USD 160 billion in 1990 to over 1.5 trillion in 2003. That this might be a problem for financial stability had long been known to regulators.<sup>2</sup> As far back as 2004, following the emergence of accounting problems at the agencies, the Federal Reserve and the Treasury proposed to Congress to enforce a gradual reduction and eventual extinction of the portfolio of the GSEs, based on the argument that it was a source of considerable systemic risk. Yet, in the following years total assets of all GSEs continued to expand, to about USD 3.2 trillion at the end of 2007. This example bears witness to the difficulty, not so much of identifying the key risks before they materialize, but rather of taking

prompt corrective action.<sup>3</sup> This is true especially when, as is often the case, corrective action ends up being costly, or unpopular: the regulator, or the politician, may find it hard to run against the sentiment of the time.

In the light of these two key difficulties, let me turn to discuss why the new regulatory and supervisory framework and its European components are an important step in the direction of preserving financial stability.

Concerning the first difficulty, the question is: Does the new system improve regulators' ability to identify the



ever-changing sources of systemic risk? I think that the answer should be cautiously optimistic. Central banks and supervisory authorities had identified some of the sources of risk that led to the current crisis, as witnessed by many annual reports and financial stability reviews in the first half of this decade. What was missing was a clear understanding of the linkages – between markets, institutions, countries – that

<sup>2</sup> In 2002, William Poole, then president of the Federal Reserve Bank of St. Louis, wrote: “The issue with Fannie and Freddie is not one of disclosure. Their annual reports disclose quite well the high degree of complexity of their operations, and the small amount of capital they carry [...]. Why is [Fannie and Freddie’s capital] standard so far below that required of federally regulated banks? What will happen to the housing market if Fannie and Freddie become unstable?”. Speech held before the Council of State Governments, Southern Legislative Conference Annual Meeting, New Orleans, Louisiana, August 4.

<sup>3</sup> The De Larosière Report makes this point clearly: “Insofar as macro-prudential risks were identified ... there was no mechanism to ensure that this assessment of risk was translated into action”. (p. 40 of the High-Level Group on Financial Supervision in the EU, Brussels, February 25, 2009).

ended up transforming a real estate bubble in some states of the USA into a global crisis. Institutions with a broad membership and a deep view over the whole world and the European financial landscapes, such as the FSB and the ESRB, would have had a better chance of interpreting the signals coming from the different countries and markets, that were lost also because of the fragmentation of points of view. Let me emphasize that I am talking about “better probability” of predicting a crisis, not about a once-and-for-all solution to the problem. Nevertheless, I think that this is the type of improvement that may reasonably be expected from a well-designed regulatory framework.



How should the new regulatory framework address the second difficulty which I mentioned above, i.e. how will it ensure that prompt corrective action is taken, once the risks are identified? In this crisis, one reason for inaction was that there was no authority with a specific and clear mandate to act. Indeed, one key motivation for the creation of the Financial Stability Board and the ESRB was the recognition that early warning signals were visible, but

failed to trigger concrete pre-emptive policy action. In the European context, not only will the ESRB issue warnings about specific risks; it shall also issue recommendations for action, and monitor compliance with its recommendations. The “act or explain” mechanism should “give teeth” to these recommendations.

Let me give you an example of how a proper institutional arrangement can help solve stability problems. In the 1980s, the risk of a systemic crisis spreading through the wholesale payment system was a common cause of concern. Realizing this, central banks worldwide began to promote real-time gross settlement systems. The recent experience confirms that widespread adoption of these systems has all but eradicated systemic risk from payment networks. Three preconditions were important in this success story: central banks had the instruments to foresee the source of risk; they had the means to act; and, just as important, they had the incentives to foresee and to act. In a similar vein, I believe that the new regulatory framework is a serious attempt to establish similar preconditions towards the far broader goal of financial stability. The incentives for the ESRB to foresee and to issue recommendations are present, since this is precisely its mandate. The means to act, following a recommendation, are in the hands of supervisors, central banks, possibly governments – the “owners” of the macro-prudential tools – who in turn have an incentive to abide.

In sum, the current design of the new regulatory framework, although by no means simple, seems to have the potential to bring about substantial improvement in the area of financial stability. What will it take to translate this potential into action?

### 3 Translating the New Framework into Action

In principle, the macro-prudential work process can be separated into various steps: (i) identifying and monitoring the relevant macro-prudential risks; (ii) assessing their relative importance; (iii) issuing risk warnings and policy recommendations. Steps (i) and (ii) correspond, to a large extent, to the two core components of the financial stability analysis conducted by a number of central banks and international financial institutions and often published in financial stability reports. Step (iii) is essentially new at the international level, even if some central banks, especially those with supervisory tasks, devote significant parts of their internal reports to discussing policy measures to address the identified risks.

#### 3.1 Risk Assessment

The first essential step for macro-prudential regulators is to identify the sources of risk. Some signals for concern are easy to gauge, such as rapid growth in aggregate credit, or in asset prices, but are hard to interpret, as the short- and medium-term developments of these indicators contain a significant amount of noise. The problem is with “false positives”, cases in which risk indicators would trigger corrective action, which *ex post* would turn out to be unwarranted, and hence damaging for the economy. Although progress has been made towards improving signal extraction,<sup>4</sup> more work in this area is needed.

An important requisite for a thorough risk assessment process is a set of statistics, as detailed, timely and comparable across countries as possible. I

argued previously that the information to diagnose the roots of the current crisis was probably available to a careful observer. Nevertheless, significant gaps concern data on the build-up of risk in the financial sector, on cross-border financial linkages and worldwide consolidated exposures, on off-balance sheet exposure, on interbank exposures, on non-bank financial exposures. A joint effort led by the IMF and the FSB is currently addressing these data gaps. A problem is that, in order to build reliable measures of interconnectedness, high frequency data on bilateral exposures would be required, but this objective seems out of reach for the moment. While deciding which data are required and collecting them will represent a major challenge, an even greater challenge will be to keep the data collection systems abreast of market developments. The markets for certain financial instruments can record spectacular developments in a matter of just a few years (consider e.g. the market for CDOs). Adapting internationally harmonized data collection systems to a rapidly evolving financial environment will be a major effort.

The second step of the macro-prudential process consists in ranking risks according to some criterion. It will be necessary to go beyond a mere list, however systematic and rigorous, of the “things that could go wrong”, as often found in financial stability reviews. Risks need to be prioritized, starting with those warranting a risk warning and subsequent policy action. In principle, one would like to have a technology to identify the events with potential systemic consequences; to attach a probability to each of them; to estimate

<sup>4</sup> The BIS has done extensive research on this issue. See e. g. Borio, C. and M. Drehmann. 2009. *Towards an Operational Framework for Financial Stability: “Fuzzy” Measurement and Its Consequences*. BIS Working Paper 284.

the loss conditional on each risk materializing. While all this is easier said than done, some form of cost-benefit analysis of the various policy actions is necessary for the next step of the macro-prudential policy process, the issuance of operational recommendations. The IMF and the FSB are moving in this direction. They are developing a monitoring process (the so-called Early Warning Exercise) that allows a more integrated and comprehensive view of emerging global developments and the corresponding risks. Using an integrated macro-financial and regulatory perspective, the process provides the first example of an organized, structural attempt to identify and prioritize systemic macro-financial risks at a global level and to propose policy responses.

Stress tests represent an important diagnostic tool in this process: as they yield a measure of the consequences of the various sources of risk, they will be key in the prioritization process.

Although the IMF-FSB Early Warning Exercise provides an example of a systematic monitoring of potential sources of vulnerability, its top-down perspective lacks the detailed views and information coming from micro-prudential supervisors. I believe that, whenever possible, the information flow should also be bottom-up: analysis and assessment by micro-prudential supervisors should support the risk prioritization process, and the selection of those risks which warrant a warning.

The European macro-prudential framework seems well-suited for this purpose. In fact, there will likely be an interaction between the ESRB prioritization exercise and the micro-prudential assessments that will be regularly carried out by the European Supervisory Authorities. ESAs could provide additional inputs into the macro-pru-

dential assessment cycle of the ESRB; in turn, the latter is expected to share with the ESAs and national supervisors the results of its macro-prudential risk assessment, so that these institutions can analyze the system-wide risks identified by the ESRB from a micro-prudential perspective. The micro-prudential assessment should add to the process the ability to identify sources of risk originating from areas that are hard to monitor on an aggregate basis. Stress testing is again a good example of such a two-way information flow: in perspective, the current EU-wide stress testing exercise will be conducted together by the ESRB and the ESAs, enhancing the cooperation already established towards fully consistent methodologies and approaches.

### **3.2 Implementing Macro-Prudential Policies**

The third step of an effective macro-prudential process is the issuance of recommendations, the “wielding of the tools”. What policies and tools are best suited to address systemic risk? The question is clearly complex, and defies a tidily arranged approach. I will confine myself to an overview of some of the main proposals, and to some general considerations on macro-prudential instruments.

To date, probably the clearest progress in the area of macro-prudential instruments has been made on capital regulation. Capital requirements are the cornerstone of micro-prudential regulation, but they also have a macro-prudential dimension linked to the procyclicality of the financial sector. One promising tool to counteract procyclicality is the capital buffer proposed by the Basel Committee, which requires banks to accumulate resources in periods of buoyant economic activity, when aggregate credit tends to grow “too

fast". The buffer should serve a dual purpose. First, it should help the banking system withstand the risks that build up in such a situation and materialize in the subsequent downturn. Second, it should contrast the very build-up of risk, thus dampening cyclical upswings and contributing to reduce the severity of downturns and the likelihood of economic crises. In the end, both micro- and macro-prudential considerations would concur to determine the amount of regulatory capital. Several key questions remain open. Should discretionary intervention on the buffer be kept to a minimum, to prevent regulatory capture? What level of geographical aggregation should be adopted to calibrate the buffer? For instance, in the euro area should it be linked to area-wide variables (e.g. credit growth), to address level playing field concerns, or should we leave the door open to disaggregated measures, as I will argue below? And, would market pressures allow banks to run down the buffer in a downturn? Probably, only the test of implementation will allow to solve some of the doubts and to make the necessary adjustments.

For other sources of systemic risk, such as liquidity dry-ups, uncontroversial solutions have not yet emerged. The new standards proposed by the Basel Committee (the Liquidity Coverage Ratio and the Net Stable Funding Ratio) seem to be powerful instruments, but are still very micro-prudential in nature and do not necessarily address the "fallacy of composition" that is typical of liquidity (the classical example is that the maturity mismatch of the financial system need not be equal to the average mismatch of its components).

In principle, the systemic dimension of liquidity risk could be addressed by designing a countercyclical liquidity buffer, similar to the capital buffer that I have just discussed, possibly without raising overall liquidity requirements. An important advantage of this option would be to eliminate the pro-cyclicality of the micro-prudential liquidity



regulation in its current formulation; a disadvantage would be an added layer of complexity. Another solution would be to levy charges on banks' funding maturity, a proxy for systemic liquidity risk.<sup>5</sup> Still other proposals suggest to tie levies to measures of systemic risk,<sup>6</sup> or to devise market instruments that make liquidity available on a contingent basis, when a systemic trigger is activated.<sup>7</sup> These are examples of first steps in the direction of approaching liquidity risk directly from a macro-prudential perspective. More work is needed on this crucial issue.

Another set of tools that – stretching the definition a bit – might be considered among those aimed at macro-prudential objectives concerns the proposals to address the problems raised by systemically important financial in-

<sup>5</sup> Perotti, E. and J. Suarez. 2009. *Liquidity Risk Charges as a Macro-prudential Tool*. CEPR Policy Insight 40.

<sup>6</sup> Adrian, T. and M. Brunnermeier. 2009. *CoVaR*. Federal Reserve Bank of New York. *Staff Reports* 348.

<sup>7</sup> Nicoletti Altimari, S. and C. Salleo. 2010. *Contingent Liquidity*. Bank of Italy. *Mimeo*.



stitutions (SIFIs). Beyond a general agreement on the need for some harmonization of prudential regulation, since SIFIs are all cross-border in nature, not much consensus on a solution has been reached. I see two main approaches being developed, both building on the three keywords for SIFIs: size, complexity, interlinkedness. According to the first approach, structural measures should be devised to ensure that no institution is too big, com-



plicated or interconnected to fail. In this spirit there are proposals to limit banks' size, to separate commercial and investment banking, to dis-integrate conglomerates via living wills, etc. This line of reasoning is controversial, since the effectiveness of these measures depends on the specific characteristics of a relatively small number of SIFIs: different countries are likely to devise different solutions. While an agreement is likely to be reached on some of these proposals, in particular on resolution

mechanisms, others (e.g. breaking up institutions according to some criterion) would require a broad international political consensus, which seems unlikely at this stage. A second approach would be to link an additional capital requirement, or a tax, to some measure of systemic relevance. The tax seems more appropriate in a burden-sharing perspective, the former tool in a financial stability perspective. Legislation underway in the USA as well as proposals in Europe contemplate measures of this type.<sup>8</sup>

This brief overview does not exhaust the list of suggestions for macro-prudential tools. Indeed, the search for adequate instruments is still work in progress, and is clearly very important; it will be essential to achieve some convergence on this issue in time for the start of the new European regulatory framework. However, I believe that the quest for an "optimal", time-invariant set of macro-prudential tools should not be overemphasized. For the reasons discussed above – essentially, the difficulty of gauging systemic risk due to its multi-faceted nature – macro-prudential policy is hard to translate into operationally useful concepts and measures. In my view, this requires the adoption of a flexible and, if necessary, discretionary approach, using the instrument that is more likely to be effective for the purpose at hand. Let me illustrate this point with a couple of examples.

First, with the benefit of hindsight, it appears that reducing loan-to-value ratios could have been beneficial for some euro area countries in the early years of this decade, whereas for some

<sup>8</sup> The "Restoring American Financial Stability Act", passed by the U.S. Senate on May 20, would impose substantial new requirements and restrictions on SIFIs, envisioning the possibility for the Federal Reserve to enforce increasingly strict rules for capital, leverage, liquidity. On May 26, the European Commission proposed that member states form national funds, financed by a levy on the financial sector, to help wind up or reorganize failing banks.

others this policy would have made little sense. A similar reasoning could hold for other instruments, e.g. ceilings on leverage. This suggests that the regulator should be ready to consider policy actions targeted at individual countries or sectors, rather than across the board, and be willing to face difficult trade-offs, as such actions may raise level-playing-field concerns and open the door to regulatory discretion, with all its pros and cons.

A second example is provided by the recent seizure of interbank markets. As soon as the crisis began to expose banks' weaknesses, transactions on the e-MID, a screen-based facility used by the main European banks to exchange interbank deposits, started to drop. From a daily average of about EUR 24 billion at the beginning of 2007, transactions declined to the current value of EUR 5 to 6 billion. Anecdotal evidence points to the very transparency of this market as the cause of its waning: banks facing strains were unwilling to reveal their liquidity needs to all market participants, and probably turned to the opaque OTC market. At the end of 2008 the Bank of Italy, together with the bank treasurers' associations, launched the MIC (Mercato Interbancario Collateralizzato), a new market segment where trades are anonymous and collateralized. Thanks to this, and to other features that made it appealing for both borrowers and lenders, the MIC recorded a rapid expansion in the early months of 2009, when interbank markets were most dysfunctional. While anonymous to its users, the MIC is fully transparent for the Bank of Italy. The MIC is not intended as a permanent structure: it will be dismantled when the e-MID will be again fully operational. This suggests that the macro-prudential regulator should also consider ad hoc interventions, limited

in time, to mitigate specific market failures.

These examples suggest that a good amount of flexibility is required of the macro-prudential authority. The macro-prudential toolbox, unlike that of the monetary policymaker, should not be viewed as a closed set of instruments, nor should these instruments be thought of as applicable only and always across all markets and situations. This conclusion is also warranted by a forceful argument: whereas there is limited room for strategic interplay as far as monetary policy decisions are concerned, financial intermediaries and market operators have the incentives and the means to circumvent the policies adopted by the regulator (e.g. witness the abnormal development of off-balance sheet activity, or of the shadow banking system, over the past few years). A static approach by the latter is doomed to failure.

Finally, the tools in the macro-prudential toolbox are a very heterogeneous lot: they may have been devised for micro-prudential purposes, but be adapted to macro-prudential objectives; they may belong to different classes, including intervention on market infrastructure, or central bank operations. This implies that the authorities "owning" the instruments may be different, giving rise to various problems: responsibilities must be shared, while keeping the respective roles separate; effective coordination must be achieved. Before moving to discuss these problems, I would like to touch briefly upon whether monetary policy itself should contribute to financial stability.

#### **4 Monetary Policy and Financial Stability**

What are the lessons for monetary policy from the current crisis? Some com-

mentators have argued that monetary policy in developed countries, especially in the USA, bears an important responsibility for the crisis.<sup>9</sup> A more balanced opinion, which I share, is that while the main failures lie on the regulatory side, expansionary monetary policies may have contributed to the financial imbalances which built up prior to the crisis. Research at the Bank of Italy suggests that a policy of “leaning against the wind” in the US would not have avoided overheating in the residential property market, which was an essential ingredient of the current crisis. However, it also suggests that loose monetary policy did provide a contribution to the appreciation in this market.<sup>10</sup> More generally, it appears that the danger signals coming from the real estate market, as well as those coming from external imbalances, from declining households’ saving ratios, from the exceptional pace of growth of some financial markets, could have been given more weight in the decision making process. The central idea of inflation targeting regimes, that credit, money and asset prices should be considered only insofar as they affect the inflation forecast, has shown its limitations. This idea was built on the view that we have a relatively reliable model of how the macroeconomy works and how inflation is determined. However, we have been reminded that the world is non-linear, that an excessive credit expansion which goes unchecked for a long period of time may eventually prove disastrous.

On the other hand, the credibility that the ECB and other central banks have acquired over the years by maintaining stable prices has proved crucial during the crisis. Even in an emergency situation, we have been able to control inflation expectations, reduce uncertainty and risk premia, sustain the flow of finance to the economy and thus reinforce the prospects for real activity and financial stability. Had inflation and inflation expectations not been under control, the room for central banks to implement an active management of liquidity policies would have been much narrower. I truly believe that the benefits of a sound monetary framework have become more, not less, apparent with the crisis.

The fact is that financial market and credit developments are becoming increasingly relevant also for the management of inflation, and not only for the purpose of detecting financial imbalances. Indeed, the crisis has exposed fundamental weaknesses in the ability to integrate financial sector linkages into the macroeconomic models that guided policymaking for decades, and efforts are underway to improve these models.<sup>11</sup> The Basel Committee recently created a group to study the monetary policy transmission channels that operate via financial institution balance sheets in periods of financial crises, relative to periods of more normal financial market conditions, in order to gauge their impact on financial stability.

<sup>9</sup> White, W. 2008. *Should Monetary Policy Lean against Credit Bubbles or Clean Up Afterwards?* Speech at the Monetary Policy Roundtable. Bank of England. London. 30 September.

<sup>10</sup> Iacoviello, M. and S. Neri. 2010. *Housing Market Spillovers: Evidence from an Estimated DSGE Model*. In: *American Economic Journal: Macro-economics* 2. 125–164. For an opposite view, see Del Negro, M. and C. Otrok. 2007. *99 Luftballons: Monetary Policy and the House Price Boom across U.S. States*. *Journal of Monetary Economics*. 1962–1985.

<sup>11</sup> See, e. g., Gerali, A., S. Neri, L. Sessa and F. Signoretti. 2010. *Credit and Banking in a DSGE Model of the Euro Area*. *Journal of Money, Credit and Banking*. Forthcoming.

Summing up, monetary policy should remain primarily concerned with price stability, whereas primary responsibility for financial stability should be of macro and micro regulators and supervisors. At the same time, it is increasingly accepted that monetary policy should lean against the wind in periods of growing financial imbalances, even in the absence of immediate threats to price stability; it should aim at a greater symmetry throughout the cycle and should not neglect the modifications and innovations affecting the structure of the financial system. This symmetry may not be sufficient *per se* to avoid bubbles and subsequent crashes, but it may contribute, together with other policies, to a more stable financial environment. The monetary policy strategy of the Eurosystem, which emphasizes the analysis of money and credit, goes a long way towards embodying these views. In this respect, exploiting the interaction with the ESRB appears a promising way forward, as well as a challenge to be met.

## 5 Coordination Issues

The new regulatory framework will require an increased amount of interaction among authorities: among macro-prudential bodies (the IMF, the FSB, the ESRB); among the latter and the micro-prudential authorities (the Basel Committee, the European Banking Authority and the other European supervisory authorities, the national supervisors); among macro-prudential and monetary policy authorities.

Concerning the first type of interaction, I mentioned previously the structured process that the IMF and the FSB are building to identify vulnerabilities and to address them. The ESRB will also conduct a regular assessment of systemic risk and translate it into recommendations towards the adop-

tion of mitigating policies. The potential for overlap seems ample. Given that the ESRB has a regional mandate while the FSB and IMF are global in nature, effective collaboration could have the IMF and the FSB focus on the analysis of interlinkages and contagion channels across the main macro areas and on developing policy options to contain spillover risk. The ESRB, and analogous national and regional institutions elsewhere, could focus on sources of risk within their purview, on how their financial system would react to a shock generated elsewhere and devise policy measures to mitigate “domestic” developments. The coming years will be crucial to assess the functioning of the new framework, and to minimize potential inefficiencies.

Concerning the second type of interaction, among the authorities in charge of systemic risk assessment and those in charge of micro-prudential supervision, the above discussion and a number of practical examples show that



micro-prudential tools (capital and liquidity requirements, loan-to-value ratios, etc.) may be appropriately calibrated also to serve macro-prudential goals. If the tools are broadly the same but must serve two purposes and be used by two different authorities, potential for conflict arises. Consider

again capital requirements. It is not hard to imagine a scenario of economic downturn, in which the macro-prudential regulator would want to run down the equity buffers built up during good times in order to avoid a credit crunch, whereas the micro-prudential regulator might be reluctant to let that happen, to preserve the safety and soundness of individual institutions. For this reason, cooperation and coordination among these authorities is required. Indeed, they will have to move rapidly beyond the cooperation stage, devising procedures and protocols to make their action synergic and, most importantly, timely.



Coordination/interaction will also be necessary between macro-prudential policy and monetary policy. The key question here is: What is the relationship between the policy interest rate and the “new” macro-prudential instruments? Answering this question requires understanding the macroeconomic effects of macro-prudential policies. This is the case in particular if one accepts the view that macro-prudential tools, such as capital buffers, should be moved discretionarily.

The analysis of the interaction between monetary and macro-prudential policies is at a very early stage. Current research at the Bank of Italy indicates that the discretionary use of a macro-prudential instrument, such as a countercyclical capital buffer or a loan-to-value ratio to smooth fluctuations in lending, may help dampen output fluctuations, although the benefits could be small in non-crisis times. At the same time, it suggests that assigning the responsibility for monetary and macro-prudential policies to separate authorities creates the risk of a coordination failure and suboptimal macroeconomic results (significant instrument instability and interest rate volatility).<sup>12</sup> The intuition behind these results is that macro-prudential decisions may not be consistent with price stability and force the central bank to offset them.

The new European institutional arrangement is well-conceived in this respect. Coordination between the ESRB and the monetary policy authority will be ensured by the composition of the ESRB and by the important role assigned to the ECB in the preparation of the background analysis. I also see consistency in the institutional set-ups. There is a long-standing consensus that monetary policy should be conducted by a technical body, which should be held accountable for its action to elected bodies. This institutional principle also informs the statute of the ESRB. The counterpart of its broad powers is accountability: the ESRB is responsible for its recommendations in front of the European Parliament and Council. At the same time, not giving the ESRB direct powers but only the right/duty to make recommendations achieves a

<sup>12</sup> Angelini, P., S. Neri and F. Panetta. 2010. *Grafting: Macro-prudential Policies in a Macro-Economic Framework: Choice of Optimal Instruments and Interaction with Monetary Policy*. Paper presented at the CEPR-EBC conference on procyclicality and financial regulation. Tilburg. 11 and 12 March 2010.

good balance of powers, and leaves full accountability where decisions are made. But by making the ESRB responsible for its recommendations in front of the European Parliament and Council a degree of political oversight and thus democratic legitimacy is ensured, which is all the more important since the recommendations might impinge on national sovereignty.

## 6 Concluding Remarks

Financial stability is preserved by a plurality of institutions; central banks are essential members of this group. The international community of regulators and supervisors is developing a set of macro-prudential tools, which will need to be flexible enough to deal with a variety of situations that change over time. Sufficient resources should be devoted to this purpose, starting now, to have the system fully operational when times will be good again. The interactions between these tools and micro-prudential requirements and practices,

on the one hand, and monetary policy, on the other, need to be taken into account. The complex institutional framework that is being devised will need fine-tuning, but more importantly it will need support from member countries. Coordination among all institutions is vital, both in the day-to-day business of monitoring trends and in acting once a major risk is identified, or a crisis occurs. Experience shows that ex ante agreements and procedures, while difficult to achieve, may be crucial to ensure an adequate management of crises.

Central banks should apply their knowledge of the macroeconomy and of financial markets to play a role in the development of effective macro-prudential analyses. The credibility gained with the responsible management of monetary policy can contribute to the effectiveness of macro-prudential policies, since in the long run there is convergence between the goals of price stability and financial stability.