



BANK FOR INTERNATIONAL SETTLEMENTS

Macroprudential Policy Tools and Frameworks

Progress Report to G20

27 October 2011

Table of contents

1.	Key aspects of macroprudential policymaking.....	4
2.	Identification and monitoring of systemic risk	5
2.1.	Key methodologies	5
2.2.	Identifying risks in the broader financial system.....	7
2.3.	Improving data and information to support macroprudential policymaking	8
3.	The macroprudential policy toolkit.....	9
3.1.	Country experience in the use of macroprudential instruments.....	10
3.2.	International regulatory developments: new macroprudential instruments	12
3.3.	Other international regulatory developments supporting the effective conduct of macroprudential policies	14
4.	Institutional arrangements and coordination of policies	15
5.	International consistency in macroprudential policy	19

Macprudential Policy Tools and Frameworks

Progress Report to G20

In November 2010, G20 Leaders “called on the FSB, IMF and BIS to do further work on macroprudential policy frameworks, including tools to mitigate the impact of excessive capital flows, and update Finance Ministers and Central Bank Governors at their next meeting.” They noted that “these frameworks should take into account national and regional arrangements” and looked “forward to a joint report which should elaborate on the progress achieved in identification of best practices, which will be the basis for establishing in the future international principles or guidelines on the design and implementation of the frameworks.”

This report responds to this call and follows an earlier update to the G20 in February 2011. It traces the progress in implementing macroprudential policy frameworks along three broad lines: (i) advances in the *identification and monitoring* of systemic financial risk; (ii) the designation and calibration of *instruments* for macroprudential purposes; and (iii) building *institutional* and *governance* arrangements in the domestic and regional context. Given the interlinkages with other spheres of public policy, the main message of the report is that effective macroprudential frameworks require institutional arrangements and governance structures, tailored to national circumstances, that can ensure an open and frank dialogue among policymakers on policy choices that impact on systemic risk, resolve conflicts among policy objectives and instruments and mobilise the right tools to limit systemic risk.

While recognising that no one size fits all, the report explores some of the common challenges that arise in developing effective frameworks.

The report notes that although the development and implementation of macroprudential frameworks is still at an early stage, important steps have been taken, both nationally and internationally. In the area of systemic risk monitoring, efforts have focused on closing data gaps and on developing better indicators and models to assess systemic risk both within and outside the banking system (the so-called ‘shadow banking system’). There has also been progress in developing new macroprudential tools – international agreement has been reached on the introduction of countercyclical capital buffers and additional loss absorbency for global systemically important banks – and in assessing the effectiveness of existing ones. On the governance front, a number of jurisdictions have been adjusting institutional arrangements to support macroprudential policy, and international workstreams have examined key characteristics of these arrangements.

That said, the report also highlights the scope for further progress. First, the identification of systemic risk is a nascent field. No common paradigms as yet exist. Further fundamental and applied research is needed, not least to better inform the collection and analysis of data underway. Second, newly introduced tools will need to be tried out in different circumstances and their performance evaluated against expectations. Finally, many jurisdictions still lack specific institutional arrangements for the conduct of macroprudential policy and those that have recently introduced them will need to gather experience on their performance.

1. Key aspects of macroprudential policymaking

The debate in policy circles about the definition of macroprudential policy is ongoing. Over the past several months a number of conferences and meetings have devoted time to these issues, to review different perspectives and identify points of convergence.¹ This report adopts the following characterisation of macroprudential policy, which outlines the main points of agreement.

Macroprudential policy is characterised by reference to three defining elements:

- (i) Its objective: to limit systemic risk – the risk of widespread disruptions to the provision of financial services that have serious negative consequences for the economy at large.
- (ii) Its scope: the focus is on the financial system as a whole (including the interactions between the financial and real sectors) as opposed to individual components (that take the rest of the system as given).
- (iii) Its instruments and associated governance: it uses primarily prudential tools calibrated to target the sources of systemic risk. Any non-prudential tools that are part of the framework need to clearly target systemic risk.²

Views still vary as to whether macroprudential is a particular perspective of prudential policy or a new policy area in its own right. At one end of the spectrum, some argue that prudential policy (without making a distinction between micro and macro) has always sought to strengthen the stability of the financial system as a whole. Many others emphasise that the philosophies behind micro and macroprudential policies differ, noting the possibility of occasional tensions between them. The difference between these two perspectives, however, is largely semantic *as long as* existing prudential policy frameworks address explicitly systemic risk, adopt a system-wide analytical perspective, and target tools at systemic risk. Importantly, there is now a consensus that having a system-wide perspective is a fundamental attribute of a well-specified prudential set-up. The main disagreement is on the importance of carving out a specific macroprudential framework.

Macroprudential policy also interacts closely with other spheres of public policy because:

- Other policies have an impact on systemic risk. For example, the stance of monetary policy can affect risk-taking incentives. Similarly, fiscal policy and public debt levels can be an important source of vulnerability for the financial sector.
- Macroprudential policy interventions, in turn, have macroeconomic effects. For example, raising capital requirements in a credit boom may to some extent dampen aggregate demand and, hence, influence the macroeconomic policy environment.

¹ This report draws inter alia on the discussions from two workshops organised by the three organisations—a High-Level Conference in Macroprudential Policy Frameworks (Washington, 17 April 2011) and a Roundtable on Macroprudential Frameworks and Policies (Basel, 21–22 June 2011).

² Even this set of criteria does not eliminate all ambiguities from the scope of macroprudential policy. An obvious case in point relates to the role of financial infrastructure policies. A broad definition of macroprudential policy could include such policies. However, since their importance and role in addressing systemic risk has never been questioned, this report focuses primarily on prudential standards (see below).

Given these interlinkages, effective macroprudential frameworks require institutional arrangements and governance structures, tailored to national circumstances, that can ensure an open and frank dialogue among policymakers on policy choices that impact on systemic risk, resolve conflicts among policy objectives and instruments, and mobilise the right tools to limit systemic risk.

2. Identification and monitoring of systemic risk

Pre-emptive policy action needs mechanisms for the early identification and assessment of systemic risks. Substantial work is underway to develop stronger analytical tools that can help to identify and measure systemic risk in a forward-looking way, and thus support improved policy judgements. The difficulty of this task should not be underestimated and this remains very much work in progress. Our understanding of systemic risk and of the fault lines in the structure of the financial system that makes it prone to instability or failure is incomplete. In addition, there are still important limitations in the analytical toolkit. For instance, current models do not adequately link real and financial sectors and significant data gaps remain. Initiatives set out below are attempting to address these limitations.

2.1. Key methodologies

To inform and guide timely policy decisions, systemic risk measures should be able to capture the time and cross-sectional dimensions of systemic risk. This means that they should signal the gradual build-up of imbalances and vulnerabilities, including providing assessments of likelihood and potential impact of shocks, but that they should also flag concentrations of risk within the system. As a result, policymakers need to monitor a variety of metrics, each providing a different perspective on system-wide risk.

Countries have used a wide range of indicators and models to assess systemic risks.³ National and international efforts have redoubled in the wake of the global crisis. The main measurement approaches can be categorized as follows:

- *Aggregate indicators of imbalances*: These indicators use macroeconomic data or balance sheet indicators (e.g., of bank credit, liquidity and maturity mismatch, currency risk, and sectoral or external imbalances) to signal the build-up of risks in the financial system and the economy at large.⁴ Increasing attention is being paid to measures of leverage in the financial, household and corporate sectors. The gap between the credit-to-GDP ratio and its long-term trend has been proposed as an indicator of systemic risk build-up in the banking system, and hence as a guide to set the countercyclical capital buffer for banks. Measures of credit growth can be complemented by other indicators, for example unusually rapid asset-price growth, to

³ This information is based on a survey conducted by the IMF in December 2010. For details of survey responses, see IMF, *Macroprudential Policy: An Organizing Framework – Background Paper*, March 2011.

⁴ See Borio and Drehmann “Assessing the risk of banking crises – revisited,” *BIS Quarterly Review*, March 2009.

form indicators of systemic risk build-up that reflect the characteristics of individual economies.⁵

- *Indicators of market conditions:* These indicators focus on developments in financial markets that may lead to generalised distress. They are typically observed at higher frequencies than the aggregate indicators mentioned above and behave more like coincident indicators of financial stress. Indicators of risk appetite (e.g., spreads, risk premia), and of market liquidity conditions (e.g., the liquidity risk component of 3-month LIBOR–OIS spreads) are used extensively in some jurisdictions.
- *Metrics of concentration of risk within the system:* These metrics relate to the cross-sectional dimension of systemic risk and focus on the channels of contagion and amplification. Beyond basic measures of size and concentration, they capture more specifically common exposures and interconnectedness among financial institutions (including non-bank financial institutions), sectors (e.g., public and private), markets (e.g., funding and credit markets), and countries.⁶ For instance, network models are increasingly used to measure interconnectedness and potential direct contagion across intermediaries. Standard setting bodies are also developing indicators, assessment methodologies, and data collection processes to identify global systemically important financial institutions (G-SIFIs, see below) in the banking and insurance sectors. The indicator-based approach proposed by the Basel Committee on Banking Supervision (BCBS) for the identification of global systemically important banks is a case in point.⁷
- *Macro stress testing:* national authorities and international institutions are improving tools to stress test the financial system as a whole. Tools that have been developed to test the resilience of individual institutions are being adapted to stress test financial systems by augmenting the methodology in order to: (i) incorporate market dynamics under extreme (tail-risk) scenarios and the amplification arising from network effects; and (ii) better assess the interactions between financial system distress and the real economy, including through multi-round adverse feedback effects. The importance of conducting top-down and bottom-up stress tests simultaneously to cross-check results is increasingly recognized.
- *Integrated monitoring systems:* While the metrics and approaches described above are useful on their own, they can often be combined into comprehensive monitoring systems (dashboards, heat maps, etc.), and sometimes into composite indicators. This can provide a more coherent picture of conditions across the financial system, tailored

⁵ The ratio of core to non-core liabilities appears to have significant predictive power (including in combination with the credit-to-GDP ratio) for currency crises. Credit growth (the annual growth of credit-to-GDP ratio) and asset price (equity or real estate) growth, combined, can reliably signal systemic risk build-up as early as two to four years ahead of crises.

⁶ Approaches include: (i) network analyses based on balance sheet cross-exposures; (ii) contingent claims analyses; (iii) joint probabilities of default and other measures of distress dependence using both equity returns and CDS spread data; and (iv) other market-based indicators of spill-over risks.

⁷ See BCBS, *Global systemically important banks: assessment methodology and the additional loss absorbency requirement*, July 2011.

to specific domestic circumstances. Various institutions have developed or are in the process of developing such frameworks for the analysis of systemic risk.⁸

In general, the usefulness of specific metrics and indicators depends on a range of country- and context-specific factors. Hence, countries are choosing the set that is most appropriate in their domestic circumstances and there is no single framework in use. The analysis of signals provided by the indicators needs to take account of the broader economic context. For example, the policy response to a credit boom would differ if strong growth is attributable to productivity gains in the corporate sector or to a relaxation of lending standards.⁹

Quantitative indicators are often combined with qualitative information and intelligence gathered through regular contacts with market participants. Such information can provide timely insight into trends and point to areas that deserve a more systematic investigation.

2.2. Identifying risks in the broader financial system

Because of its system-wide perspective, macroprudential policy requires an ability to capture the build-up of systemic risk also in the shadow banking system – defined broadly as ‘the system of credit intermediation that involves entities and activities outside the regulated banking system’. At the request of G20 Leaders the FSB, in collaboration with standard setting bodies, has recently set out proposals to strengthen oversight in this area.¹⁰ Capturing the risks in the shadow banking system may require regulatory action or even legislation to enable collection of relevant data.

The proposals are an important component of a stronger macroprudential policy framework. They centre on a three-step monitoring process. The first step comprises a broad review of non-bank credit intermediation that aims to identify the main trends and areas where additional scrutiny is warranted. In the second step, the authorities narrow down the focus onto the areas where systemic risks are most likely to be building, by drawing on a set of ‘risk factors’ that highlight incipient problems. The set may include indicators of rising maturity and liquidity transformation, measures of increasing leverage, and signals of imperfect credit risk transfer practices. The authorities must also be alert to signs of regulatory arbitrage, which adds to systemic risk by undermining the effectiveness of financial regulation. The third step involves a detailed assessment of the potential systemic risks identified, through an analysis of the possible impact on the system as a whole of severe distress or failure of the most vulnerable shadow banking entities and/or activities.¹¹

In developing an enhanced monitoring framework, the authorities need to apply high level principles that are relevant for systemic risk monitoring more broadly. In particular, it is important that the oversight framework be sufficiently comprehensive to assess risks to the

⁸ For instance, the IMF has proposed, and aims to further develop, “systemic risk dashboards”. See IMF, *Macroprudential Policy: An Organizing Framework*, Box 1, March 2011.

⁹ IMF, *Global Financial Stability Report*, Chapter 3, September 2011.

¹⁰ FSB, *Shadow Banking: Strengthening Oversight and Regulation*, October 2011.

¹¹ The FSB has tested this framework by reviewing the latest trends in shadow banking activity, and has refined the recommendations in the light of this experience. Drawing on this enhanced monitoring framework and the lessons from the current review, the FSB will conduct regular annual assessments of global trends and risks from shadow banking.

entire financial system. Monitoring should be regular, so that nascent risks are identified in time. Ready access to the necessary data is essential and so it is important that the relevant authorities have the requisite powers to collect information from market participants. The monitoring system must also be flexible enough to respond to innovation and mutation in the financial system, not least given incentives for regulatory arbitrage. Although many features are likely to be common across jurisdictions, the monitoring framework must also take into account country-specific characteristics. Finally, it is vital that national authorities work together closely and effectively to assess the potential for cross-border spillovers and contagion of shadow banking risks, including by regularly exchanging information and assessments.

2.3. Improving data and information to support macroprudential policymaking

The identification and availability of relevant data is critical for an effective macroprudential policy framework. The crisis revealed major gaps in the information available to the authorities to assess and monitor systemic risk. These gaps need to be addressed.

A number of initiatives are underway to enhance the data infrastructure and to address material gaps. In particular, progress is being made to implement the 20 recommendations in the report “The Financial Crisis and Information Gaps” endorsed by the G20 Finance Ministers and Governors in November 2009.¹² The main aim is to create better information on risks to the system as a whole. This calls for a clearer picture of the principal interconnections and common exposures to shocks within the financial system.

Priorities include:¹³

- Improving information on maturity and liquidity mismatch, and on leverage, for both the banking and shadow banking systems.
- Improving information on common risk exposures and interconnections through:
 - Granular information on major international banks’ main exposures to, and sources of funding from, key markets, sectors and instruments;
 - Consistent data on the principal bilateral exposures of the large systemically important banks and on their main individual funding providers;
 - Enhancements to data on sectoral balance sheets, international banking, portfolio investment and capital flows.
- Strengthening data on credit default swaps (CDS), over-the-counter (OTC) derivatives and complex structured products, and facilitating the reporting and aggregation of data collected by trade repositories. Introducing a common global system to uniquely identify parties to financial transactions is under active consideration – the so-called

¹² See *The Financial Crisis and Information Gaps: Implementation Progress Report*, prepared by IMF staff and the FSB secretariat, for a detailed update, June 2011. See also the October 2010 FSB consultation paper *Understanding Financial Linkages: A Common Data Template for Global Systemically Important Banks*.

¹³ Clear timelines and project plans for the various statistical enhancements have been agreed and set out in the annual progress reports to the G-20.

Legal Entity Identifier (LEI) initiative¹⁴ – to support this process and to enhance data integrity and reporting more broadly.

Improving data for systemic risk analysis will necessitate improvements in data collection frameworks in some cases, especially to provide the authorities with sufficient powers to collect the requisite data. One initiative underway refers to substantial enhancements to the BIS international banking statistics that improve their ability to capture aggregate asset-liability mismatches in terms of currency and maturity profiles of internationally active banks.¹⁵ Moreover, changes in the arrangements for information exchange may also be needed to promote effective data sharing among key authorities, so as to strengthen the assessment of system-wide risks at the national, regional and global level. This will be subject to the introduction of suitable arrangements to protect sensitive information, which need to be considered carefully. A strong data governance framework is also important to ensure that requests for additional data from firms are integrated to minimise compliance costs, that there are clear policies governing access and data sharing, and that data are maintained to a suitable standard.

One objective of improved data collection is to provide additional information on system-wide risks to market participants by suitable aggregation and publication. Strengthening disclosures at the firm level on a consistent basis should also help systemic risk analysis and financial market functioning.¹⁶

As the financial system innovates and adapts so must the collection of data and information. Developing new analytical tools for systemic risk may well also require further changes in information and data needs over time. Because producing data is costly, it is important that new requests are justified on cost-benefit grounds. In addition, while better data are an essential component of the macroprudential toolkit, they are not a substitute for strong analysis and good policy judgment.

3. The macroprudential policy toolkit

Developing an effective macroprudential policy framework requires identifying and developing a set of policy tools and operational guidelines for their use, including for their calibration. Operational guidelines should ideally include effective mechanisms to solve coordination problems and risks of arbitrage, not least internationally. As prudential tools are the key instrument in the framework, where tensions exist between their use from a micro and macroprudential perspective, mechanisms need to be in place to assess and ensure their consistency.

There is as yet no widely agreed and comprehensive theoretical framework for the optimal choice and calibration of macroprudential policy tools. And while progress is being made in a

¹⁴ The FSB held a workshop in September 2011 to discuss the issues that will need to be addressed by financial regulators and industry to establish such an LEI.

¹⁵ For a description of these enhancements see BIS, *Annual Report*, Chapter VI, June 2011.

¹⁶ See *Thematic review on risk disclosure practices*, FSB, March 2011.

number of areas, it is still too early to provide a definite assessment of the set of macroprudential tools that will prove most useful further down the road – in part because financial innovation and change within the financial system will give rise to new risks in due course. Flexibility is therefore required in national regimes and legislation to enable this learning process to take place – acknowledging, of course, that optimal choices are likely to be partly country- and context-specific.

While a broad range of policy instruments is potentially available to address macroprudential risks, those most commonly used or proposed include:

- (i) tools to address threats to financial stability arising from excessive credit expansion and asset price booms, particularly in real estate markets, both residential and commercial (e.g., dynamic capital buffers, dynamic provisions, loan-to-value (LTV) and debt service-to-income (DTI) ratios), but also the terms and conditions of transactions in wholesale financial markets (e.g., margins);
- (ii) tools to address key amplification mechanisms of systemic risk linked to leverage (e.g., capital tools) and maturity mismatches (e.g., market and funding liquidity tools), including adjustments to take into account the prominent role played by ballooning intra-financial system exposures in the run-up to the current crisis (e.g., risk weights or limits on intra-financial system exposures); and
- (iii) tools to mitigate structural vulnerabilities in the system and limit systemic spillovers in times of stress, such as additional loss absorbing capacity for SIFIs. Disclosure requirements that target common exposures, common risk factors and interconnectedness (rather than the risk profiles of individual institutions on a stand-alone basis), and specific requirements for SIFIs in the context of effective resolution framework are also key supportive instruments in this area.

Infrastructure policies (robust payment and settlement systems, including CCPs; trading infrastructures, etc.) are systemic by definition and have always been a core policy strand, well before the crisis. Measures to enhance robustness of financial market infrastructure can help especially helpful in addressing the cross sectional dimension of systemic risk, and are considered complementary macroprudential tools for the purposes of this report, which focuses on changes in prudential standards.

What follows describes how these tools have been used so far, first focusing on experience with tools employed purely at the national level, and then turning to those that have been agreed or proposed at the international level.

3.1. Country experience in the use of macroprudential instruments

An IMF survey of country practices reveals that a number of countries have used policy instruments (mainly prudential) to address aspects of systemic risk for quite some time. The recent crisis has prompted more countries to use such instruments, with a growing emphasis on rapid asset growth and the build-up of leverage. The macroprudential instruments most commonly employed are reported in Box 1. As noted above, the nature of the tools alone is not sufficient to characterise them as macroprudential. They also need to have a systemic orientation in terms of objective, calibration and governance.

Work by the IMF on the application of instruments designed to address the time dimension of systemic risk highlights how the choice is clearly influenced by country- and context-specific factors. These include, for instance, the degree of financial development, the type of balance-sheet vulnerabilities (such as the composition of liabilities, including cross-border), the exchange rate regime and the prevailing sources of risk. Nevertheless, the diversity of country experiences points to some common features:¹⁷

Box 1. Commonly used macroprudential instruments

Tools to address threats from excessive credit expansion in the system

- Time-varying capital requirements (e.g., risk weights)
- Dynamic provisions
- Ceilings on credit or credit growth
- Caps, possibly time-varying, on loan-to-value (LTV) ratio
- Caps, possibly time-varying, on debt service-to-income (DTI) ratio
- Minimum, possibly time varying, margin requirements
- Reserve requirements

Tools to address key amplification mechanisms of systemic risk

- Limits on maturity mismatches
- Caps on foreign currency lending
- Limits on net open currency positions or mismatches
- Levy on non-core funding

Tools to mitigate structural vulnerabilities and limit spillovers from stress

- Additional loss absorbency related to systemic importance
- Disclosure policy for markets and institutions targeting systemic risk
- Resolution requirements for SIFIs

- The instruments are often used in combination (e.g., some countries have varied LTV and DTI ratios jointly to tame real estate booms). The use of multiple instruments has advantages (it provides greater assurances of effectiveness by addressing different sources of risk) but may be difficult to coordinate and also harder to communicate than single tools.
- Instruments to address excessive credit expansion in the system tend to target specific types of exposure, such as real estate (see next bullet). Differentiation by currency has been used in jurisdictions where growth in foreign currency-denominated lending was of concern. The flexibility of a more tailored and targeted approach is self-evident, but there are also limitations. For example, it requires more granular data, has higher administrative costs, may be more susceptible to circumvention and, if taken too far, could inadvertently result in intrusive credit allocation.

¹⁷ See Lim, Columba, Costa, Kongsamut, Otani, Saiyid, Wezel and Wu, *Macroprudential Policy: What Instruments and How to Use Them? Lessons from Country Experiences*, IMF working paper, October 2011. See also Borio, “Implementing a Macroprudential Framework: Blending Boldness and Realism,” Keynote address for the BIS-HKMA conference on *Financial Stability: Towards a Macroprudential Approach*, 5–6 July 2010.

- To contain the risk of unsustainable real estate booms, a number of jurisdictions have taken actions to restrict mortgage credit. In addition to LTV and DTI (sometimes applied based on loan size and property value), other instruments include, for instance, changing the terms on mortgage insurance.¹⁸
- Calibrations are often based on discretion and judgment rather than rules, although some countries have used rule-based instruments. While rules have merits – they can help to overcome policy inertia, enhance accountability, and create greater certainty for the industry – designing them may be difficult, especially when multiple instruments are being used in combination. This is why rules are often complemented with discretion.

While the effectiveness of macroprudential instruments is difficult to assess empirically, country experiences can help shed some light. In particular, the empirical literature tentatively supports in some cases the effectiveness of macroprudential tools in dampening procyclicality, notably LTV and DTI caps to tame real estate booms,¹⁹ but also ceilings on credit or credit growth, reserve requirements, and dynamic provisioning. The effectiveness does not seem to depend on the stage of economic development or type of exchange rate regime, suggesting that macroprudential instruments can potentially be useful in a wide range of countries.

Some countries have used macroprudential instruments to address financial stability risks associated with large capital inflows. Tools in this category would typically, but not always, differentiate transactions on the basis of currency, and may include for example higher capital charges, tighter LTV and DTI ratios, and restrictions on foreign currency mismatch. Residency-based capital flow management measures (often referred to as capital controls), however, are not *per se* macroprudential instruments as they typically have macroeconomic objectives. In some countries, though, the introduction of capital controls was primarily motivated by the desire to address systemic vulnerabilities associated with rapid domestic credit growth that was fuelled by capital inflows, making a classification difficult in these cases.

3.2. International regulatory developments: new macroprudential instruments

In response to the financial crisis, the international community has agreed on new instruments designed to address the time and cross-sectional dimensions of systemic risk.

Concerning the time-dimension of systemic risk, the Basel III framework puts in place three elements to address procyclicality: a maximum leverage ratio, a capital conservation buffer and a countercyclical capital buffer. This last element, in particular, is designed to accumulate capital in boom times, when systemic risk builds up, so that it can be used when risks materialise, thereby acting as a stabiliser during both the expansion and contraction phases of

¹⁸ The FSB is developing mortgage underwriting principles that should provide for more prudent property valuations, hence give more teeth to tools based on LTV and debt servicing ratios (as banks can be unduly optimistic in respect of the “V” or the value of the property).

¹⁹ See in particular Crowe, Dell’Ariccia, Igan and Rabanal, *How to Deal with Real Estate Booms: Lessons from Country Experiences*, IMF Working Paper 11/91, April 2011.

the financial cycle.²⁰ National authorities activate the countercyclical capital buffer when they judge that vulnerabilities are building up. The deviation of the credit-to-GDP ratio from its long term trend, a signal of build-up of imbalances in the banking system, can act as a guide to activate the buffer.²¹ Authorities would then release the buffer based on incipient signs of strains, such as aggregate losses or tighter credit terms. In both the build-up and release phase of the buffer, the exercise of judgment remains critical. Implementation features specifically address the potential for cross-border spillovers and arbitrage: the *jurisdictional reciprocity principle* is designed to protect banks from credit cycles outside the home country, and addresses incentive challenges to circumvention.²² It represents an important step towards achieving a better coordination between home and host authorities in the deployment of macroprudential tools, and might serve as a model for international coordination of macroprudential policies more generally.

Additionally, the CGFS has recommended for consideration by the relevant standard-setters a series of policy options for haircuts and margining practices aimed at limiting the build-up of leverage in good times and soften the system-wide impact of deleveraging (including fire sales) during a market downturn. The recommendations aim to promote margining practices that are relatively stable across the cycle and calibrated to include periods of stressed market conditions, thereby reducing financial system procyclicality. A number of these recommendations are being implemented, some by inclusion in the Basel III accord, and some in various jurisdictions in connection with ongoing work on OTC derivatives markets (see below).

Concerning the cross-sectional dimension of systemic risk, the policy development on critical parts of the FSB's framework to address the risks posed by SIFIs has now been finalised. It includes: (i) a methodology for assessing the global systemic importance of banks based on five broad sets of indicators (size, interconnectedness, lack of substitutes, cross-jurisdictional activity and complexity); (ii) additional loss absorbency capacity for banks that is in line with the degree of global systemic importance; (iii) a new international standard for resolution regimes and additional measures to improve the authorities' capacity to resolve SIFIs;²³ and (iv) measures for more intensive and effective supervision.²⁴

²⁰ The buffer must be made up of to Common Equity Tier 1 (CET 1) and fully loss-absorbing capital and ranges from 0 to 2.5% of risk-weighted assets, but national authorities can implement a buffer in excess of 2.5% if deemed appropriate in their national context. The build-up of the buffer is encouraged through restrictions on capital distributions.

²¹ For a discussion, see BCBS, *Guidance for national authorities operating the countercyclical capital buffer*, December 2010, and for analysis, see Drehmann, Borio, Gambacorta, Jimenez and Trucharte "Countercyclical capital buffers: exploring options" BIS Working Paper 317, July 2010.

²² The principle requires that banks with credit exposures to several jurisdictions hold a buffer that reflects the composition of a bank's domestic and international exposures; the host authority activates the buffer for the international exposures, and the home authority has the option of imposing a higher buffer but should not impose a lower one.

²³ Effective resolution frameworks reduce moral hazard and ex ante risk taking and therefore support macroprudential objectives. The framework for SIFI resolution has four building blocks: (i) strengthened national resolution regimes; (ii) cross-border cooperation arrangements; (iii) improved recovery and resolution plans by financial institutions; and (iv) resolvability assessments.

²⁴ BCBS, *Global systemically important banks: Assessment methodology and the additional loss absorbency requirement - consultative document*, July 2011; and FSB, *Effective Resolution of Systemically Important Financial Institutions, Recommendations and Timelines*, July 2011. A similar methodology is being developed for insurance companies; work will begin to extend the SIFI policy framework to other global SIFIs as well as to domestic SIFIs.

Given that they seek to limit the systemic risk posed by SIFIs, some elements of the SIFI framework can be thought of as macroprudential tools. These include the additional loss absorbency requirements for systemic institutions and the potential deployment by supervisory authorities of measures to address overly complex organizational structures based on resolvability assessments and the feasibility of recovery and resolution plans. In addition, the framework can serve as a useful starting point for dealing with domestic systemically important financial institutions. For example, national authorities could refer to international requirements and develop country-specific prudential requirements for their domestic SIFIs based on national country-specific circumstances and sources of risk.

To promote effective implementation of the SIFI framework by national authorities, a Peer Review Council for global SIFIs will be established. The objective is to ensure that the sources of systemic risk related to interconnectedness or correlated exposures are addressed in a globally consistent manner, and that adequate attention is given to level playing field considerations.

3.3. Other international regulatory developments supporting the effective conduct of macroprudential policies

Other policy developments are also intended to strengthen the functioning of the financial system and support the effectiveness of macroprudential policy, in both its time and cross-sectional dimensions. In particular, structural policies that promote robust market operations and resilient market infrastructures are aimed at reducing the risks associated with interconnectedness and contagion. If properly designed, these policies can also limit procyclicality. More generally, they provide tools that facilitate more effective monitoring and managing of systemic risk. The performance of macroprudential frameworks depends crucially on how well structural policies are designed.

International work is well underway to strengthen financial market infrastructures and improve market practices. CPSS and IOSCO have recently published a consultative report on harmonised principles for financial market infrastructures, covering payment systems, central securities depositories, securities settlements systems and central counterparties (CCPs), including guidance on trade repositories.²⁵ This work is aimed at reinforcing oversight and regulation of CCPs and other core financial market infrastructures. Efforts are also continuing to implement the 2010 FSB recommendations designed to promote international consistency in the commitments to standardisation, central clearing, and organised platform trading, and reporting to trade repositories of OTC derivatives contracts.²⁶ Other areas of analysis aimed at best configurations of financial market infrastructures to address systemic risk or addressing potential unintended consequences for systemic stability of market or regulatory developments are the following: central bank liquidity access for CCPs; macrofinancial implications of alternative CCP access configurations; international standards on margining

²⁵ CPSS-IOSCO, *Principles for Financial Market Infrastructures – Consultative Report*, March 2011.

²⁶ Work is in progress to assess obstacles to implementation and differences in approaches that could weaken the effectiveness of the reforms in these markets, create potential opportunities for regulatory arbitrage, or subject market participants and infrastructures to conflicting requirements.

requirements for non-centrally cleared OTC derivatives; review of the securitisation framework (including calibration, reliance on ratings and identifying arbitrage opportunities); development of recommendations on re-launching sound securitisation markets.

With respect to shadow banking activities (see Section 2.2), policy measures are being developed to better ensure that economically similar financial activities are regulated in a similar way, whatever form they take. The FSB is currently developing recommendations to strengthen the regulation and oversight of the shadow banking system, including proposed work plans on (i) regulation of banks' interactions with shadow banking entities (indirect regulation); (ii) regulatory reform of MMFs; (iii) the regulation of other shadow banking entities; (iv) regulation of securitisation; and (v) regulation of securities lending/repos.

4. Institutional arrangements and coordination of policies

Institutional arrangements for macroprudential policymaking should be conducive to effective mitigation of systemic risk. This involves several aspects: having a clear objective; providing incentives and tools for authorities to act commensurate with that objective; supporting accountability and transparency of decisions; and ensuring effective coordination across policy areas that have a bearing on financial stability.

There is a wide variation in national institutional designs. A number of factors influence the approaches adopted. In particular, institutional frameworks draw extensively on pre-existing coordination arrangements and may serve additional objectives in such areas as crisis management and financial sector development.²⁷

A useful way of reviewing the existing institutional design of macroprudential policy is by discussing a set of common elements: (i) mandate; (ii) powers and instruments; (iii) accountability and transparency mechanisms; (iv) composition of the decision-making body; and (v) arrangements for domestic policy coordination. The rest of this section draws on current and planned institutional arrangements to highlight how each of these issues are being approached in different jurisdictions.

Mandate

Views currently differ on the case for an explicit mandate for macroprudential policy. Less than half of the jurisdictions surveyed by the IMF stated that they had a specific (formal) macroprudential mandate in place at the time of the response. A review of financial stability law in various countries by a BIS Committee Report examining central bank governance and financial stability found that a statutory foundation for such a mandate is even less common.²⁸ Many jurisdictions are in the process of developing such mandates while some others do not intend to do so.

²⁷ A recent IMF study explores stylized institutional models to identify relative strengths and weaknesses. Nier, Osiński, Jácome and Madrid, *Towards Effective Macroprudential Policy Frameworks – An Assessment of Stylized Institutional Models*, IMF working paper, October 2011.

²⁸ BIS, *Central Bank Governance and Financial Stability*, May 2011 ('Ingves report').

Those in favour of developing macroprudential mandates, beyond generic financial stability ones, point to the merits of providing clear objectives, responsibilities, and powers for the agency (or agencies) involved in macroprudential policy. A formal mandate can improve the clarity of decision making, help contain the incentives for inaction, and avoid policy paralysis when views differ. To be sure, some note the challenges of writing explicit mandates given the difficulties in defining the policy goal precisely. But others observe that the lack of a quantifiable goal for macroprudential policy need not be a major problem, since many other fields of public policy face similar challenges.

Powers and instruments

The recent IMF macroprudential survey suggests that emerging frameworks highlight the importance of information collection and decision-making powers. The power to request information directly from private firms is critical when relevant information is not readily available to the macroprudential authority through other means. When information is already collected through other reporting channels (e.g., regulatory returns, on-site examinations, or information from payment and settlement system operators), the framework typically governs the access rights for the macroprudential authority. The arrangements for sharing this information are often complex, as some may be confidential and market sensitive.

Powers to communicate risk warnings and to recommend or direct the adjustment of regulatory instruments are quite common in existing and emerging frameworks. Examples include the ability to issue non-binding recommendations to other authorities—as established for the ESRB in the European Union, the Financial System Stability Council (FSSC) in Mexico, the Financial Policy Committee (FPC) in the United Kingdom, and the Financial Stability Oversight Council (FSOC) in the United States. The recommendations are often subject to a “comply or explain” mechanism (e.g., in EU, UK and US), sometimes strengthened by an ability (or requirement) to publish recommendations.

Powers to set and adjust instruments directly are most common where the macroprudential mandate and control over instruments fall under the same authority (such as a central bank serving as financial services supervisor). Mechanisms to assign specific instruments to a new macroprudential body (e.g., a committee) are also being developed in some cases but remain less common.²⁹ Where responsibility for the operation of the new macroprudential tools remains ill-defined, clear assignments will be needed. For example, the smooth operation of the countercyclical buffer in Basel III calls for such an assignment.

Accountability arrangements

An institutional design challenge is to establish accountability in the absence of an easily-measurable metric of success. This challenge is often compounded by the presence of multiple agencies in macroprudential policymaking that may differ in their primary objectives. The case for clear accountability arrangements is strengthened given that ‘costs’ of macroprudential measures (restrictions on certain activities) are felt immediately while

²⁹ Under the new UK arrangements, the FPC will be able to issue binding directions on specific macroprudential instruments (still to be determined).

‘benefits’ (lower incidence of financial distress) accrue over the long-term and are hard to measure. In turn, this asymmetry between the visibility and time profile of costs and benefits puts a premium on ensuring that the authorities in charge of macroprudential policy enjoy the necessary degree of insulation from pressures linked to the political cycle.

Transparency and clear communication of policy decisions to the public are central elements of accountability and have been embraced in a number of countries. This can include ex ante statements of strategy, publication of records of meetings, Financial Stability Reports and annual performance statements with an ex post assessment of policy effectiveness.

In many cases accountability is also to Parliament. For example, the EU establishes accountability for the ESRB to the European Parliament. In the UK, the FPC’s Financial Stability Report will be laid before Parliament and meeting minutes will be published. The US structure combines both strong reporting requirements to Congress and FSOC members’ obligation to individually attest that they believe that the proper actions are being taken to support financial stability.

Composition of the decision-making body

In many countries, especially when the number of relevant authorities is large, macroprudential policy is conducted through committee arrangements. The creation of such committees is most obviously desirable when multiple bodies have a financial stability mandate, or where there is separation between bodies with decision-making and policy implementation powers. Inter-agency committees can bring together different perspectives on the sources of systemic risk and the potential for regulatory arbitrage, as well as identifying the most appropriate tools (which may be housed in different agencies).

However, different domestic circumstances often lead to different institutional arrangements across countries, recognizing that it is important to capitalise on existing institutions and governance structures if they are working well. For instance, informal arrangements may be effective when a small group of agencies is involved.

Central banks are always represented and often play a leading role. This reflects both their experience and expertise in the assessment of financial and macroeconomic developments as well as their role in payment systems and as lender of last resort. The recently released Ingves report discusses the way in which central banks fulfil their macroprudential functions alongside their other roles. The central bank may have clear responsibility for both macroprudential and microprudential policy (as in Malaysia and, prospectively, the UK), or account for a large share of the votes in the committee (as in the ESRB). In the US arrangements, the Federal Reserve is one of 10 voting members of the FSOC, but it is charged with the regulation of systemically important banks and non-bank financial institutions, as designated by FSOC.

The role of the finance ministry is more diverse in current frameworks. In part this may reflect differences in national legal frameworks as well as in the range of objectives assigned to inter-agency committees – which may extend beyond limiting the build-up of systemic risk

and into crisis management and other responsibilities.³⁰ Finance ministries are often involved in setting objectives and priorities for macroprudential policy, and have an important role if changes in legislation are expected to be needed to mitigate systemic risk, for instance with respect to expanding the perimeter of regulation. A possible risk associated with a central involvement of finance ministries in the operation of macroprudential frameworks is a reduced degree of insulation from pressures linked to the political cycle.

Regulatory and supervisory agencies play a key role in macroprudential policy by adjusting the prudential tools under their control to meet macroprudential objectives, and by intensifying microprudential supervision in particular of systemic institutions. The role of securities and market conduct regulators in monitoring and addressing systemic risk in capital markets should also be recognised. Such regulators, through their traditional focus on transparency and disclosure, are well placed to work towards an appropriate flow of information to market participants, investors and other regulators, and can also play a role via their direct authority over a wide cross-section of market participants (especially in terms of business conduct), financial market infrastructures, and trading venues and via their market surveillance function.³¹

Mechanisms for domestic policy coordination and consistency

Coordination mechanisms need to recognise that no matter how different policy mandates are structured, financial stability – and in particular the mitigation of systemic risk – is a common responsibility, given the far reaching consequences of financial crises. An essential function of any institutional arrangement is therefore to promote coherence in the application of all policies that have a bearing on financial stability.

Committee-type arrangements can help to address possible frictions between the objectives of different policies, promoting the resolution of conflicts. For example, tension may arise over when to draw countercyclical buffers down. From a countercyclical point of view, supplementary buffers built during an upswing should be released in a downturn, to reduce impediments to the flow of credit to the economy, but banking supervisors, wearing a microprudential hat, may prefer to keep an increased capital buffer to guard against heightened risks to individual institutions. In such circumstances, it is important that there be a clear assignment of decision-making responsibilities and explicit mechanisms to resolve the tensions involved.

Although monetary and fiscal policies remain formally outside the macroprudential policy framework, there are nevertheless potential benefits in coordinating these and other policies with macroprudential policy. Policy coordination typically relies on the overlapping membership of policy committees.

³⁰ Finance ministries have traditionally played a strong role in committees with a role in crisis management, given their responsibility over the use of public funds. For instance, the US Secretary of the Treasury has veto power over emergency measures that might involve public money.

³¹ [The IOSCO Objectives and Principles of Securities Regulation](#) (July 2010) were recently revised to enhance the focus on systemic risk as one of the three key objectives of securities regulation, together with investor protection and ensuring that markets are fair, efficient and transparent. See also IOSCO Technical Committee, [Mitigating Systemic Risk. A Role for Securities Regulators](#) (February 2011).

Coordination arrangements also need to recognise that macroprudential policy clearly cannot be a substitute for sound macroeconomic policy. Monetary and fiscal policies need to continue to focus on correcting macroeconomic imbalances, with macroprudential policy focused on ensuring that systemic risk is well-contained. Such a clear division of labour helps protect the independence arrangements for monetary policy that are needed for maintaining price stability.

These issues are particularly important for jurisdictions where the macroeconomic and financial stability consequences of surges in capital inflows can be difficult to manage. Countries have been using a range of policy measures to address these challenges, including macroeconomic policies (e.g., exchange rate appreciation, fiscal tightening and foreign exchange intervention). Macroprudential policies have also been used to address financial stability risks associated with capital inflows (see section 3.1), but their effectiveness will depend on the coordinated and coherent use of different policy tools, notably sound macroeconomic policies.³²

5. International consistency in macroprudential policy

Because of the close integration of global capital markets and the high risks of spillovers and regulatory arbitrage, it is important to consider the multilateral aspects of macroprudential policymaking. Cooperation on macroprudential policies requires (i) strong institutional mechanisms to promote a common understanding of threats to global financial stability and adequate policy actions; and (ii) steps to ensure that macroprudential frameworks in individual countries are mutually consistent.

In the area of system-wide global monitoring, significant progress is already being made. International efforts include those of the FSB Standing Committee on Assessment of Vulnerabilities, the IMF's regular bilateral and multilateral surveillance, the IMF-FSB Early Warning Exercise, the G20 Mutual Assessment Process, and various workstreams at the BIS, notably the regular monitoring by the CGFS that informs regular discussions among central bank Governors. These efforts focus on the identification of common exposures, risk concentrations and interlinkages within and across financial systems, and of the build-up of macroeconomic and financial imbalances, both domestically and globally.

Some progress is also being made towards the international consistency of national macroprudential frameworks. A key concern is that macroprudential tools may create the potential for cross-border regulatory arbitrage. The principle of reciprocity embedded in the new BCBS countercyclical capital buffer, and the FSB's arrangements for global SIFIs, both of which are described above, provide useful examples of how to address the cross-border aspects of macroprudential policies. Effective coordination mechanisms and/or instrument design features would also be needed in those instances in which specific macroprudential tools are used in response to sources of vulnerabilities that impact across national

³² See conclusions of the G20 International Monetary System Sub-Working Group on Capital Flow Management. For the IMF's views see IMF, *The Fund's Role Regarding Cross-Border Capital Flows*, November 2010; and IMF, *Recent Experiences in Managing Capital Inflows—Cross-Cutting Themes and Possible Guidelines*, February 2011.

jurisdictions. However, the goal of limiting spillovers and arbitrage has to be balanced against the aim of providing jurisdictions sufficient flexibility to tailor policies to national financial conditions and circumstances. It must also not subordinate the need for countries to act when required. A clear lesson from the crisis is that the largest spillovers occur when countries fail to act promptly to head off problems – given the interconnectedness of the global banking system, systemic risk in one country can rapidly become a problem for other countries.

Coordination in other areas that are supportive of macroprudential goals, such as for instance strengthening financial infrastructure, is also important to ensure international consistency and avoid regulatory arbitrage across jurisdictions.

Further international guidance on macroprudential policy frameworks would support international consistency. Progressing toward such guidance will be a gradual process. As highlighted earlier, there is more to be learned on designing and implementing macroprudential tools to address identified systemic stress in a national context. At the international level, these challenges are compounded by the need to better understand the channels of international transmission of risks and financial instability, and the interactions between domestic and global stability. Further work will also be needed on the interactions between macroprudential and other policies (notably monetary policy), and on the effects of exchange rate arrangements, tax provisions, and different levels of international financial integration, on the desirable degree of coordination across countries.