

**1 MAKING MACROPRUDENTIAL POLICY OPERATIONAL**

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## MAKING MACROPRUDENTIAL POLICY OPERATIONAL

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*Making macroprudential policy operational is a prime policy challenge. One of the steps involved is to specify a policy strategy, which links the high level objectives of macroprudential policy to intermediate objectives and presumptive indicators for risk identification and instrument selection. In addition, the inaction bias inherent in macroprudential policymaking underscores the need for a strong mandate with adequate policy instruments and accountability. The institutional setting should dovetail with the core responsibilities of central banks for financial stability. The overall policy framework needs to be flexible and will be further developed as knowledge on the transmission mechanism between objectives, indicators and instruments is deepened. Much remains to be learned by doing.*

### 1. INTRODUCTION

The debate on macroprudential policy is rapidly evolving. Macroprudential policy started as an abstract concept: to calibrate prudential instruments towards systemic risk in the financial system as a whole.<sup>2</sup> The financial crisis spurred political support to make macroprudential policy operational, both at the national level and at the European level.<sup>3</sup> Indeed, macroprudential policy is even more needed in currency unions, where national financial cycles cannot be addressed by the harmonised monetary policy. Over the past couple of years, policy frameworks have been extensively discussed and have been put under construction at the national level.<sup>4</sup> Within Europe, this development has been given extra momentum by the European Systemic Risk Board's recommendation that member states identify macroprudential authorities with clear mandates and instruments. By consequence, national and international discussions are shifting towards the set of core instruments that should be made fully operational.

Operational macroprudential policy requires concrete intermediate objectives, effective and efficient policy instruments for achieving these, indicators that prompt policy implementation, and accountability mechanisms that validate the much needed operational independence. In this paper, we take a step back and reflect on this unfinished journey from the abstract to the operational. We use straightforward graphical representations of the macroprudential policy strategy, making these more concrete as we move along, ending with specific objectives, instruments and indicators. Key questions are:

- What are the high level objectives of macroprudential policy?
- How can these be made operational?
- How should macroprudential instruments be selected?
- Which indicators should inform decision making?
- Which institutional framework should govern macroprudential policy implementation?
- How should macroprudential policy be made accountable?

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<sup>2</sup> See e.g. Borio (2011) on the origins.

<sup>3</sup> For the EU, the De Larosière report (2009) paved the way for political decision making on the creation of the European Systemic Risk Board (ESRB). In the US, the Dodd Frank Act incorporated a macroprudential dimension, while in the UK the Turner Review (2009) emphasised the importance of having a cross-institutional view of the financial sector. In the Netherlands, the report by the Parliamentary Committee of Enquiry on the financial crisis called for a macroprudential perspective on financial developments (De Wit Committee, 2010).

<sup>4</sup> See, e.g. CGFS (2010a) and IMF (2011a).

Our main message is that we know enough to start implementing macroprudential policy, even though unanswered questions remain. Inaction is costly and many questions can only be answered through learning by doing. This calls for flexibility and willingness to adapt to new insights and experiences. Indeed, looking forward, new risks will arise and new instruments will have to be developed. This underlines the need for flexible procedures to maintain a macroprudential toolkit that is up to date with developments in the financial system.

The rest of this paper is structured as follows. Section 2 summarises the policy strategy at conceptual level, with high level objectives and an abstract classification of policy instruments. Section 3 adds intermediate objectives and discusses criteria for instrument selection. Section 4 links instruments and intermediate objectives through presumptive indicators. Sections 5 and 6 discuss the institutional framework and the role and design of accountability.

## 2. HIGH LEVEL OBJECTIVES

There are no unique definitions of financial stability, systemic risk and macroprudential policy. However, a number of elements are relevant from a policy perspective. First, financial stability refers to the ability of the financial system to help the economic system allocate resources, manage risks and absorb shocks.<sup>5</sup> Financial stability is difficult to measure, and is affected by other policy areas such as monetary policy and fiscal policy. As a result, macroprudential policy can contribute to financial stability, but it cannot guarantee the delivery of this objective on its own.

Second, the focus of macroprudential policy is on *systemic risks* to financial stability.<sup>6</sup> We follow the definition of systemic risk proposed by ESRB (2012): the risk of disruption in the financial system with the potential to have serious negative consequences for the real economy. This shift in focus towards *preventing financial instability* already makes the objective more specific. Indeed, in line with its preventive nature, it is often argued that macroprudential policy does not encompass crisis management, which also contributes heavily to financial stability. For instance, unconventional monetary measures – such as the recent VLTRO's of the Eurosystem – can be important in safeguarding financial stability. But we would classify them as crisis management rather than as macroprudential policies, while recognising substantial overlap in the end objective.

Third, for analytical purposes, systemic risk can be divided into a time and a cross-section dimension.<sup>7</sup> The time dimension deals with the evolution of aggregate risk in the financial system over time. It refers to a tendency of financial agents to assume excessive risk in the upswing and then to become overly risk averse in the downswing. This reveals itself in cyclical patterns in the leverage and maturity mismatch positions in the financial system – a credit and liquidity cycle. The cross-section dimension refers to the distribution of risk across the financial system at any point in time, or in other words the interconnectedness and resilience of the market structure.

Fourth, addressing these two dimensions of systemic risk requires different types of instruments. Mitigating the build-up of risk over time requires instruments that are calibrated on indicators that signal this build-up of risk. Examples include the countercyclical capital buffer (which is calibrated on the

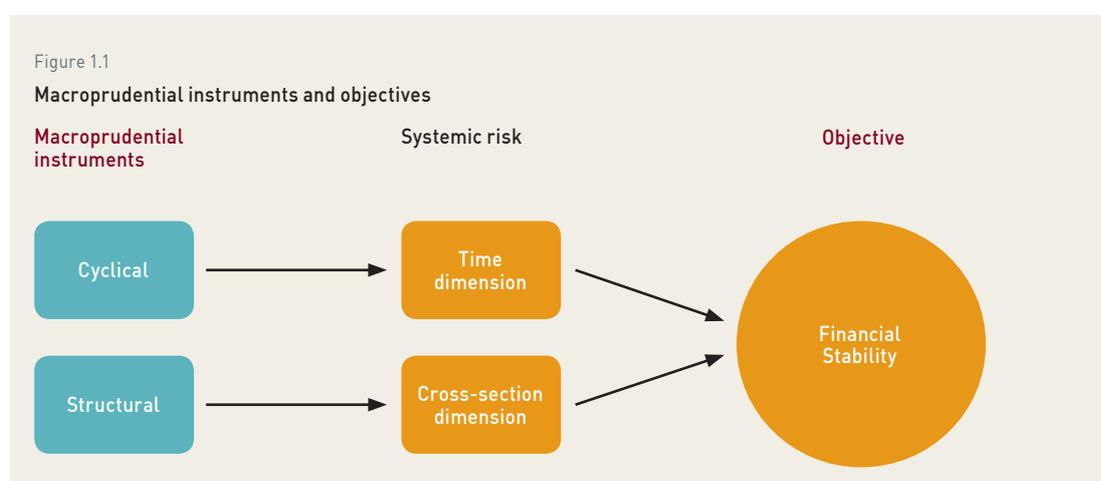
5 Houben et al. (2004).

6 See e.g. CGFS (2010)

7 See Borio (2011) and the references it provides.

credit-to-GDP gap) or loan-to-value ratios. These instruments can be used in a time-varying manner (as with a countercyclical capital buffer) or as a ceiling (as with a maximum loan-to-value ratio). Structural measures are directed at the cross-section risk type. They represent one-off reforms that change the components of the financial system, and improve market functioning and resilience by addressing different forms of market failures.<sup>8</sup> Examples include surcharges for systemically important financial institutions or reforms of the financial infrastructure, such as central counterparty clearing (CCP) and real time gross settlement (RTGS).

Figure 1.1 summarises the resulting macroprudential policy strategy at a conceptual level. It provides a starting point for the evolution towards an operational approach.



### 3. INTERMEDIATE OBJECTIVES AND INSTRUMENT SELECTION

#### *Intermediate objectives*

The cyclical and structural dimensions of systemic risk are key concepts of macroprudential policy. However, they need to be specified further to give practical guidance for the use of macroprudential policy instruments. Similarly, for accountability to work effectively, the objectives of macroprudential policy need to be made operational.<sup>9</sup>

In this context, the ESRB recommendation on national macroprudential mandates includes the need for intermediate objectives: “*intermediate policy objectives may be identified as operational specifications of the ultimate objective*” [ESRB, 2011, p. 3].<sup>10</sup> Table 1.1 summarises preliminary thinking on intermediate

<sup>8</sup> The market failures themselves are outside the scope of our paper. See Longworth (2011) for an overview of market failures that justify macroprudential policy intervention, and Bank of England (2009, 2011) that divides market imperfections in financial markets in incentive distortions, informational frictions and co-ordination problems.

<sup>9</sup> Indeed, the development of concrete macroprudential instruments has highlighted the need to specify more concretely what the instrument aims at. For example, the primary aim of the countercyclical capital buffer is to protect the banking sector from the build up of system-wide risks associated with periods of excess aggregate credit growth (BIS, 2010). There are two dimensions to this: increasing resilience and limiting credit growth. The current proposals for the countercyclical capital buffer are balanced more towards the former.

<sup>10</sup> Schoemaker and Wiertz (2011) also propose intermediate objectives.

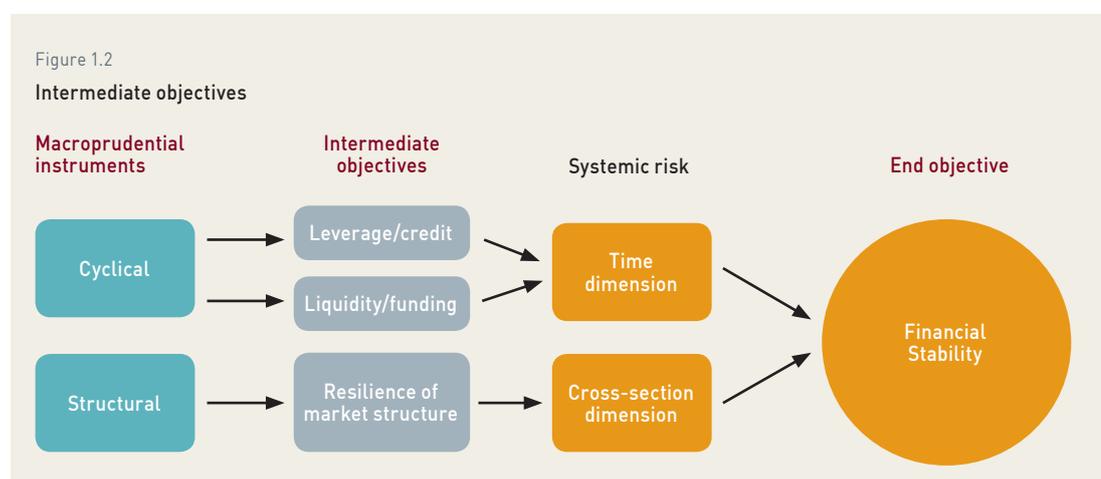
objectives in the context of the ESRB Instruments Working Group, The Committee on the Global Financial System (CGFS, 2010) and the Bank of England (2011).

Table 1.1

Intermediate objectives of macroprudential policy: comparing terminology

	1. LEVERAGE/CREDIT	2. LIQUIDITY/ FUNDING	3. RESILIENCE OF MARKET STRUCTURE
ESRB (2011): "Intermediate objectives"	Resilience to excessive credit and leverage: a. towards the real economy (net) b. intra-financial system exposures (gross)	Maturity mismatch/ liquidity & funding risk	<ul style="list-style-type: none"> <li>• Common exposures (direct &amp; indirect)</li> <li>• Expectations of a bailout</li> <li>• Resilience of financial infrastructure</li> </ul>
CGFS (2010): "Vulnerabilities"	Leverage	Liquidity or market risk	Interconnectedness
Bank of England (2011): "Key amplification channels"	Leverage; Intra-financial system activity	Maturity transformation	Distribution of risk; opacity; complexity

The comparison in Table 1.1 highlights that the underlying concepts are similar, despite differences in terminology. In essence there are three groups of intermediate policy objectives, the first comprising leverage and credit, the second liquidity and funding and the third the resilience of the market structure. The third can be divided further into common exposures, 'too big too fail' bail-out expectations and interconnectedness through the financial infrastructure. Figure 1.2 highlights this first step towards an operational approach by adding intermediate objectives to the policy strategy.



Instrument selection

Once intermediate objectives have been specified, the most effective and efficient instruments for achieving them need to be selected. To become meaningful, these selection criteria need to be tailored to the characteristics of macroprudential policy.

Effectiveness, or the degree to which intermediate and final objectives can be achieved, points to the need to understand the transmission channels between instruments and objectives. A first factor determining



effectiveness relates to cross-border leakages.<sup>11</sup> As macroprudential policies will predominantly be implemented at the national level, the impact of these policies will be influenced by the degree to which cross-border flows substitute for domestic flows. This will strongly apply to transactions conducted in international capital markets (such as most securitisations) and less so to transactions related to domestic markets (such as mortgage lending). The effect on cross-border flows implies the need for international reciprocity for the same risks.<sup>12</sup> A second factor determining policy effectiveness, particularly in the integrated European financial markets, is adverse spill-overs. If negative policy spill-overs are neglected this may elicit retaliation policies in other countries, to the detriment of the internal market and overall policy effectiveness. Co-ordination can promote consistency between countries and prevent measures that support financial stability in one country but not in another. This is most notably the case when home authorities take measures that impact on the operations of financial institutions in host countries.

In principle, in line with the Tinbergen rule, at least one effective instrument is needed for each intermediate objective. But given uncertainty and scope for arbitrage, the use of several complementary instruments will generally be considered. Of course, there is a preference for first best solutions, i.e. instruments that tackle market failures at their source. However, first best solutions may not be feasible when the policy instruments that create the distortion (such as taxation) are primarily aimed at other objectives than financial stability. In those cases, macroprudential authorities should be able to address their concerns to the responsible authority, for instance through a 'comply or explain' mechanism, and if needed to implement 'second best' instruments to safeguard financial stability (e.g. raise buffer requirements if tax distortions increase risk taking by financial institutions).

*Efficiency* implies the achievement of objectives at minimum costs. At a high level of abstraction this relates to the trade-off between resilience and growth: increasing buffers (resilience) is not costless. In the quest for efficiency, macroprudential instruments thus need to be assessed in a medium-term context that looks beyond financial cycles and fully incorporates the impact of moral hazard on the behaviour of financial agents. Efficiency also captures uncertainty about an instrument's influence on its primary objective. Less uncertainty about policy effects facilitates calibration and decision-making on the degree to which the instrument is used.

An evidence based evaluation of macroprudential instruments on the basis of these two key criteria is challenging at this stage. Still, an increasing body of analytical work points to an emerging international consensus on the following instruments as part of the minimum macroprudential toolbox:

- A countercyclical capital buffer;<sup>13</sup>
- A time-varying leverage ratio;<sup>14</sup>
- Changes in sectoral risk weights;<sup>15</sup>
- Limits to Loan-to-value (LTV) and loan-to-income (LTI) ratios;<sup>16</sup>
- A capital surcharge for systemically important financial institutions;<sup>17</sup>
- Recovery and resolution plans.<sup>18</sup>

11 *In thinking about cross-border effects, it is moreover relevant that macroprudential instruments generally operate through a time-varying add-on above the legal minimum of existing prudential instruments. Their use would therefore not induce a race to the bottom.*

12 *Reciprocity arrangements are part already of the proposals for the countercyclical capital buffer.*

13 *BIS (2010).*

14 *Bank of England (2011).*

15 *Both the countercyclical capital buffer and changes in sectoral risk weights (for real estate) are included in current draft version of the proposed new EU Capital Requirements Directive (CRD/CRR-IV).*

16 *IMF (2011b) discusses the link between macro financial stability and the housing market.*

17 *BIS/MAG (2011) assesses proposals for higher capital requirements for systemically important banks.*

18 *FSB (2011b).*

Some other instruments are desirable from an analytical perspective, but challenges remain in making them operational. Hence, they are likely to be included in a standard set of macroprudential instruments in due course, but only after more insight is acquired on their transmission effect and practical applicability. We consider among these:

- Macroprudential instruments that address maturity mismatch and funding risk;<sup>19</sup>
- Limits on financial activities in the shadow banking sector.<sup>20</sup>
- Minimum margins and haircuts in order to counter procyclicality.<sup>21</sup>

Most of these instruments are aimed at the cyclical dimension of systemic risk. Macroprudential instruments targeted at the structural dimension have a one-off nature. Examples include CCP clearing and settlement, binding requirements to use specific financial markets infrastructures, and the design of the Deposit Guarantee Scheme (DGS), although the latter instrument can include a cyclical component in the form of risk-weighted guarantee premia.

Again, there is no doubt that the macroprudential toolbox will continue to evolve. This underlines the need for flexible procedures in maintaining the macroprudential toolkit up to date with new insights and developments in the financial system.

#### 4. INDICATORS AND INSTRUMENT APPLICATION

Once an initial set of instruments has been selected, the challenge shifts to instrument application. Here, a further step is needed from the analytical to the operational. In terms of the policy strategy, intermediate objectives need to be mapped to the implementation of one or more policy instruments: which instruments should be used when and in what measure?

The notion of intermediate objectives still gives the macroprudential authority a large degree of discretion. By using presumptive indicators as the linking pin between intermediate objectives and instrument use, decision-making can be made more objective and policy decisions can become more rules-based, even if a fair amount of discretion remains inevitable. In particular, an authority can precommit to taking action when one or more indicators exceed a predetermined threshold value, or be compelled to explain why it chooses not to take action. Describing *ex ante* in which circumstances certain policy actions will or can be taken acts as a mechanism to incentivize the authority to actually take the necessary measures when a risk is identified, hence reducing the bias towards inaction (Goodhart, 2011). Ideally, a relatively small set of indicators would provide reliable early warning signals of financial fragilities.

A policy strategy based on presumptive indicators also creates the transparency that is needed to guide expectations about the macroprudential authority's behaviour. This will lead market participants to take into account future policy decisions, which - if the authority can credibly precommit to taking effective action - will enhance macroprudential policy effectiveness.

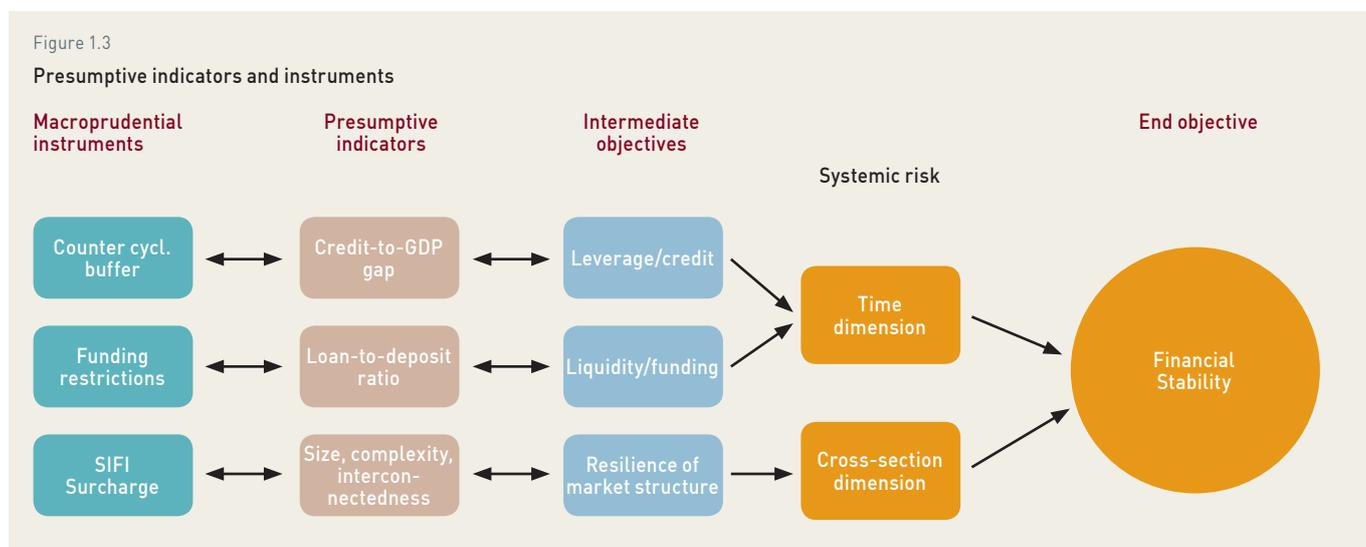
19 Perotti et Suarez (2009), *Liquidity insurance for systemic crises*, VoxEU.

20 FSB (2011a), 'Shadow Banking: Strengthening Oversight and Regulation - Recommendations of the Financial Stability Board'. Recommended steps are: (1) The scanning and mapping of the shadow banking system; (2) The identification of the aspects of the shadow banking system posing systemic risk or regulatory arbitrage concerns; (3) Detailed assessment of systemic risk or regulatory arbitrage concern.

21 CGFS (2010b), *The role of margin requirements and haircuts in procyclicality*.

The key question is whether in practice presumptive indicators are available that are sufficiently reliable. Both Goodhart (2011) and Borio (2011) point to readily available data related to leverage, credit growth, housing and property prices, and perhaps also funding and liquidity. Indeed, these data are customarily used in Financial Stability Reports to point at emerging risks. While it is difficult to tell exactly when a risk becomes excessive, and how much policy intervention is then justified, experience shows that for instance high credit growth is a powerful predictor of financial crises, particularly when coupled with strong asset price increases.<sup>22</sup> While further empirical research will deepen our understanding of leading indicators and transmission channels, normative judgements are also called for. In this context, given that policy inaction is both prevalent and costly, the burden of proof for policy action should not be heavier than for policy inaction.

Figure 1.3 adds presumptive indicators to the emerging operational policy strategy. These would be used in addition to a broader set of indicators as input to constrained discretion decision-making. The instruments mentioned in the figure are examples, to keep the size of the figure manageable. In addition to indicators related to cyclical instruments, the capital surcharge for systemically relevant institutions is included as an example of a structural instrument. Also for this instrument, the concrete development (which took place in the Financial Stability Board) necessitated a discussion on concrete indicators to (i) identify institutions as systemically important and (ii) calibrate additional capital requirements. This illustrates how abstract concepts like 'too big to fail' can ultimately be translated into specific core-tier-one surcharges.



## 5. INSTITUTIONAL FRAMEWORK

To ensure effective macroprudential policy, the policy strategy needs to be anchored in a well-defined institutional structure. This structure should assign macroprudential responsibilities and powers to a given authority and should align this authority's incentives and instruments with the macroprudential policy objectives.

<sup>22</sup> See for instance Schularick and Taylor (2009) and Borio and Lowe (2002). Forthcoming empirical research based on recent financial stress will provide greater insight into the link between credit growth and asset prices, on the one hand, and financial stability risks, on the other.

When defining an institutional mandate, the specific nature of macroprudential policy must be taken into account. Three characteristics are especially relevant. First, macro-prudential policy suffers from an “inaction bias”. This bias stems from the fact that the benefits of macroprudential policy are hard to observe and can only be determined in the long run, if at all, whereas the costs of macroprudential policy measures are generally highly visible and directly felt. In the case of cyclical risks, macroprudential policy tightening during an upswing is intrinsically unpopular and is likely to be resisted. Similarly, measures to address structural risks are likely to face opposition on grounds of excessive cost, lack of urgency or market interference. Pressure from the financial industry, political bodies and contrarian economists create incentives for the policymaker to delay or refrain from taking action. The bias towards inaction also stems from the high uncertainty governing tail risks, which creates a preference for false negatives (an incorrect judgement that there is no need for action) over false positives (incorrectly judging that action must be taken).<sup>23</sup>

In short, a mandate is needed that clearly defines responsibilities and powers, and that creates both the ability and willingness to act.<sup>24</sup> Moreover, making the macroprudential authority operationally independent from government separates it from the political cycle and allows it to put greater weight on longer term financial stability risks.

The second characteristic of macroprudential policy impacting the institutional set-up is the interaction with macroeconomic policies, financial regulation and microprudential supervision in delivering the end-objective of financial stability. This interaction underscores the need for consistency between these policy areas. Coordination mechanisms such as information exchange on analyses and prospective policy measures, and ‘comply or explain’ procedures in the case of conflicting policies, can clarify trade-offs and promote the achievement of a consistent policy mix. Beyond this, the implementation of macroprudential policy requires new powers such as the ability to collect information both from financial institutions within and outside the regulatory perimeter; to designate financial institutions as systemically relevant and make them subject to additional prudential requirements; to give recommendations to the legislative authorities on the regulatory perimeter; and to request additional macroprudential instruments.<sup>25</sup>

The third characteristic of macroprudential policy influencing the institutional structure is the linkage to the central bank’s responsibilities for financial stability. Indeed, although there is no one-size-fits-all governance model for macroprudential policy, there is consensus that central banks should play a leading role.<sup>26</sup> Central banks have expertise in analyzing financial sector developments, interacting with financial markets, safeguarding payments systems and providing lender-of-last-resort financing. The central bank by nature takes a system-wide, medium-term perspective, fully aligned with that of macroprudential policy. Given that macroprudential policies are often implemented via supervisory regulation, the Twin Peaks model (with central banking and prudential supervision in a single institution) may be particularly well-suited for macroprudential policy. The synergy to be derived from combining the systemic and prudential perspective in one institution is one explanation for the increased popularity of this model since the onset of the crisis.

23 *The inaction bias also occurs in other policy fields where insurance against tail risks is costly in the short run while the benefits of preventing systemic events are uncertain and take time to materialise. For instance, while the need for higher dikes had been established in The Netherlands in the early 1930s, measures were only taken after a fatal flood in 1953. The widespread tightening of financial regulation following the financial crisis of 2008 is a similar reaction to the earlier inaction bias.*

24 *See also ESRB (2011) and IMF (2011a).*

25 *See also e.g. IMF (2011a).*

26 *BIS (2011).*



## 6. ACCOUNTABILITY

Political economy considerations favour macroprudential decision-making that is operationally independent from political and interest group pressures. The necessary degree of operational independence, however, requires strong accountability mechanisms for the macroprudential policymaker. The characteristics of macroprudential policy pose a number of challenges for the design of these mechanisms. The benefits of macroprudential policies are difficult to quantify, partly because a uniform metric for financial stability is lacking, and partly because macroprudential policy addresses uncertain systemic risks that may otherwise lead to a financial crisis in, say, twenty years time. Moreover, measures to advance financial stability in the short term may actually increase financial stability risks in the long term, notably when short term risk mitigation fuels moral hazard and excessive risk taking in the longer term. As a result, macroprudential policymakers can hardly be judged against the policy outcomes. This contrasts with for instance monetary policy, where inflation can be measured in a straightforward way and can be compared to a stated policy target subject to limited policy lags.

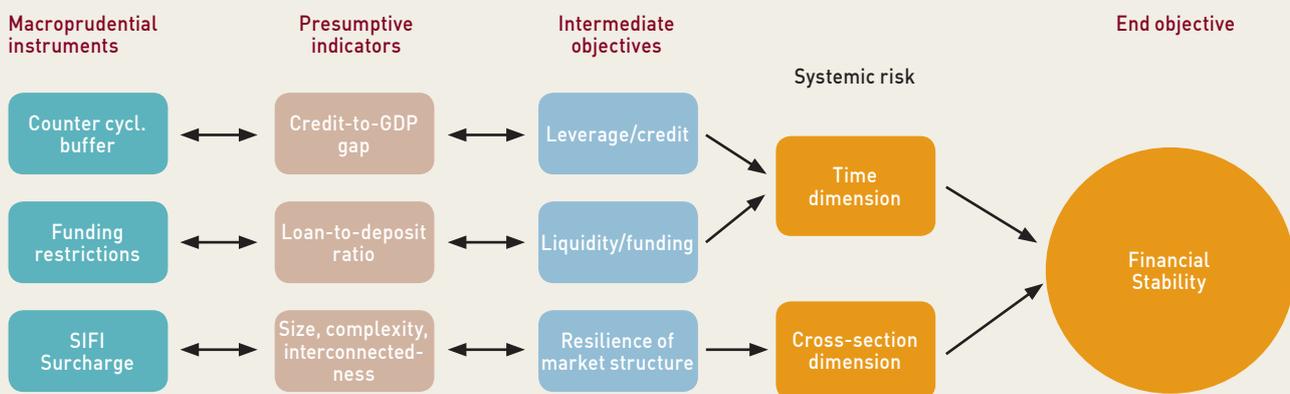
Given the difficulty of quantifying the impact of macroprudential policy on financial stability, accountability requires a specified policy strategy and cannot be based only on the policy outcome. This can be illustrated by comparing Figures 1.1 and 1.3. In Figure 1.1, the relation between instruments and financial stability is fuzzy, and hence cannot form the basis for strong accountability, while in Figure 1.3 each step is defined and the macroprudential authority can be held accountable for both policy action and inaction.

Strong accountability requires the macroprudential authority to be transparent both *ex ante* on the policy strategy it has adopted, and *ex post* on how the strategy has actually been applied. *Ex ante* transparency is necessary to create a benchmark to evaluate the behaviour of the authority. This implies that the macroprudential authority publishes the intermediate objectives it will pursue, the instruments it will use to address specific risks, and the presumptive indicators guiding the use of these instruments. Transparency *ex post* relates to the analysis and deliberations in the internal decision-making process and the rationale for choosing a particular course of action. The accountability mechanism should encompass the different steps of the policy strategy. First, the authority should publish the values of the presumptive indicators, and explain why these indicator values do or do not create a need for policy action. For example, if only one or two presumptive indicators exceed their threshold value, while others do not, the authority may conclude that the intermediate objective to which the indicators refer is not at risk. Second, if the authority decides that the identified systemic risk actually requires policy action, it should explain the selection of a specific policy instrument. For instance, if the authority finds that credit growth is too high, it should explain why it prefers a higher risk-weighted capital ratio rather than a higher leverage ratio or a lower LTV limit. In doing so, the authority should explain how it expects policy action to mitigate the risk identified.

In turn, this can be used to evaluate the effectiveness of policy action, which is another component of accountability. By gauging the impact of earlier policy action, and comparing this with the authorities' expectations when they decided to take action, the understanding of macroprudential policy can be deepened and the policy strategy be made more robust. Of course, over time a proven track-record improves policy effectiveness and helps to withstand pressures to refrain from action.

Figure 1.4

Policy strategy and accountability



Elements of accountability

What is the macroprudential policy strategy?

- Which measures are taken?
- How will they affect the risks identified?
- Are instruments still appropriate?

- Which indicators hit the threshold value?
- Is this reason for policy (in)action?
- Impact of previous policy measures on indicator values?

- How have intermediate objectives developed?
- Are indicators still appropriate?

## 7. CONCLUSION

This paper traces the evolution of macroprudential policy from the abstract to the operational. It shows that important steps have been taken towards the practical implementation of macroprudential policy, but the journey is far from finished. There is a rough understanding of how the basic parts of the policy strategy fit together: final objectives, intermediate objectives, presumptive indicators, policy instruments, institutional settings and accountability mechanisms. The rest is learning by doing.



## 8. REFERENCES

- Bank of England (2009), 'The role of macroprudential policy', A Discussion Paper.
- Bank of England (2011), 'Instruments of macroprudential policy', A Discussion Paper.
- BIS (2010), 'Guidance for national authorities operating the countercyclical capital buffer', Basel.
- BIS/FSB Macroeconomic Assessment Group (2011), 'Assessment of the macroeconomic impact of higher loss absorbency for global systemically important banks', Basel.
- BIS (2011), Central bank governance and financial stability, A report by a study group chaired by Stefan Ingves.
- Borio, C. (2011), 'Rediscovering the macroeconomic roots of financial stability policy: journey, challenges and a way forward', BIS Working Papers No. 354.
- Borio, C. and A. Crockett (2000), 'In search of anchors for financial and monetary stability', Greek Economic Review, 20, 1-14.
- Borio, C. and P. Lowe (2002), 'Asset prices, financial and monetary stability: exploring the nexus', BIS Working Papers No 114.
- CGFS (2010a), 'Macroprudential instruments and frameworks: a stocktaking of issues and experiences', BIS/CGFS Papers No. 38.
- CGFS (2010b), 'The role of margin requirements and haircuts in procyclicality'. BIS/CGFS Papers No. 36.
- Commissie de Wit (2010), 'Verloren krediet, Parlementair onderzoek financieel stelsel', Tweede Kamerstukken vergaderjaar 2009-10, nr. 31 980.
- ESRB (2011), 'Recommendation on the macro-prudential mandate of national authorities', ESRB 2011/3.
- ESRB (2012), 'The ESRB at work – its role, organisation and functioning', Macro-prudential commentaries, No. 1.
- Financial Stability Board (2011a), 'Shadow Banking: Strengthening Oversight and Regulation - Recommendations of the Financial Stability Board'.
- Financial Stability Board (2011b). 'Key Attributes of Effective Resolution Regimes for Financial Institutions'.
- Goodhart, C.A.E. (2011), 'The macro-prudential authority: powers, scope and accountability', OECD Journal: Financial Market Trends, Volume 2011, Issue 2.
- Haan, J. de, A. Houben and R. van der Molen, 'Governance van macroprudentieel beleid', in De economische toekomst van Nederland, KVS Jaarboek 2011.
- Houben, A., J. Kakes and G. Schinasi (2004), 'Towards a framework for financial stability', IMF Working Papers 04/101.

IMF (2011a), 'Macro-prudential Policy: An Organizing Framework', Washington D.C.

IMF (2011b), 'Policies for Macrofinancial Stability: Options to Deal with Real Estate Booms', Staff Discussion Note 11/02.

Larosière, J. de, L. Balcerowicz, O. Issing, R. Masera, C. McCarthy, L. Nyberg, J. Pérez en O. Ruding (2009), The High Level Group on Financial Supervision in the EU, EU, Brussel.

Longworth, D. (2010), 'A Survey of Macroprudential Policy Issues', Mimeo

Perotti, E.C. and Suarez, J. (2009), 'Liquidity insurance for systemic crises', VoxEU.

Schoenmaker, D., en P. Wierts (2011), 'Macroprudential Policy: The Need for a Coherent Policy Framework', Central Banking, Quarterly Journal, vol. 12, no. 1.

Schularick M. and A. Taylor (2009), 'Credit Booms Gone Bust: Monetary Policy, Leverage Cycles and Financial Crises 1870–2008', NBER Working Paper No. 15512.

Turner, A. (2009), 'The Turner Review: A regulatory response to the global banking crisis', London.