

# Implementing the macroprudential approach to financial regulation and supervision

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*There is now a widespread recognition in the policy community of the need to strengthen the macroprudential orientation of financial regulatory and supervisory frameworks. At the same time, the usage of the term “macroprudential” remains ambiguous. This essay summarises the specific definition and characterisation of the term that was developed in the early 2000s at the BIS and outlines the policies needed for implementing the approach. The policies are discussed with reference to two dimensions of the approach. The first is the cross-sectional dimension and is concerned with how aggregate risk is distributed in the financial system at a given point in time. The policy issue here is how to calibrate prudential instruments so as to address common exposures across financial institutions and the contribution of each institution to system-wide tail risk. The second is the time dimension and is concerned with how aggregate risk evolves over time. The policy issue is how to dampen the inherent procyclicality of the financial system, seen as a key source of financial instability. The essay also briefly considers the implications of the adoption of a macroprudential approach for the institutional set-up.*

NB: This paper draws in part on Borio and Drehmann (2008). The views expressed are those of the author and do not necessarily represent those of the Bank for International Settlements.

Recent international reports have recommended that financial regulatory and supervisory frameworks strengthen their macroprudential orientation (G20, 2009, and Larosière, 2009). The term has become so well accepted that, paraphrasing Milton Friedman, one could say that "we are all macroprudentialists now". And yet, a decade ago, the term was barely used. And it would have been hard for supervisors to recognise that their tasks involved a significant macroprudential dimension, let alone that it would have been desirable to strengthen it.

In fact, the term is not new. At the Bank for International Settlements (BIS), its usage goes back to at least the late 1970s, to denote a systemic or system-wide orientation of regulatory and supervisory frameworks and the link to the macroeconomy, although public references are of more recent vintage (e.g. BIS, 1986). It was already recognised then that focusing exclusively on the financial strength of individual institutions could miss an important dimension of the task of securing financial stability. However, it was only at the beginning of the new century that efforts were made to define the term more precisely, so as to derive more specific implications for the architecture of prudential arrangements (Crockett, 2000, Borio, 2003). This was a phase during which its usage was already becoming more common (e.g. International Monetary Fund, 2000). Subsequently, the macroprudential perspective slowly gained ground, until the current financial crisis gave it an extraordinary boost, as described in Knight (2006), White (2006) and Borio (2008).

At the same time, the usage of the term remains ambiguous. Sometimes, it is used synonymously with prudential approaches designed to limit the procyclicality of the financial system, seen as a key cause of financial instability. At other times, it is still vaguely used to denote approaches designed to address "systemic" or "system-wide" risk more generally. What does "macroprudential" really mean? What are its implications for policy?

Drawing on the long BIS tradition, this essay seeks to answer those two questions. It first summarises the specific definition and characterisation of the term "macroprudential" developed in the early 2000s at the BIS. It then considers the outline of policies that could strengthen the macroprudential orientation of regulatory and supervisory frameworks. In the process, it brings together what may appear as unrelated strands of analysis and policy initiatives.

## 1 | THE MACROPRUDENTIAL APPROACH: DEFINITION, KEY FEATURES AND IMPLICATIONS

### 1|1 Definition and key features

It is useful to define "macroprudential" with the help of its antonym, "microprudential", and to do so in an intentionally stylised way. So defined, by analogy with black and white, the macroprudential and microprudential orientations would normally coexist in the more natural shades of grey of regulatory and supervisory arrangements.

As defined here, the three fundamental features that distinguish the macroprudential from the microprudential approach to regulation and supervision relate to objectives, focus and the characterisation of risk (Table 1).

First, the proximate *objective* of a macroprudential approach is to limit the risk of episodes of system-wide financial distress so as to contain their cost for the macroeconomy. By contrast, the proximate objective of the microprudential approach is to limit the risk of failure of individual institutions, regardless of their impact on the overall economy. In turn, this is best rationalised in terms of consumer (depositor or investor) protection.

**Table 1**  
The macroprudential and microprudential perspectives compared

	Macroprudential	Microprudential
<b>Proximate objective</b>	limit financial system-wide distress	limit distress of individual institutions
<b>Ultimate objective</b>	avoid output (GDP) costs	consumer (investor/depositor) protection
<b>Characterisation of risk</b>	Seen as dependent on collective behaviour ("endogenous")	Seen as independent of individual agents' behaviour ("exogenous")
<b>Correlations and common exposures across institutions</b>	important	irrelevant
<b>Calibration of prudential controls</b>	in terms of system-wide risk; top-down	in terms of risks of individual institutions; bottom-up

Source: Borio (2003).

Second, as a result, the *focus* of the macroprudential approach is the financial system as a whole; that of its microprudential counterpart is the individual institution. This distinguishing feature can best be illustrated with an analogy. One can think of the financial system as a portfolio of securities, with each security representing a financial institution. The microprudential approach would care equally about losses on each individual security; the macroprudential one would focus on the losses on the overall portfolio. What is crucial from a macroprudential perspective is the degree of diversification or concentration of risk not in individual institutions but in the overall system. Thus, what matters is the common (correlated) exposures *across* financial institutions, not so much those *within* the portfolios of individual institutions, which represent the main concern of the microprudential approach.

Finally, a macroprudential approach treats aggregate *risk* as dependent on the collective behaviour of institutions – in technical terms, as "*endogenous*". This is because, collectively, institutions can affect the prices of financial assets, the quantities transacted (e.g. borrowed and lent) and hence the strength of the economy itself. This, in turn, has powerful feedback effects on the soundness of the institutions. By contrast, given its focus on individual institutions, a microprudential perspective ignores such feedbacks, i.e. it treats risk as "*exogenous*". Taken in isolation, individual institutions will generally have little impact on market prices or the economy as a whole. Indeed, this is very much how individual institutions treat risk: they regard asset prices, market/credit conditions and economic activity as unaffected by their decisions. For example, risk models and stress tests take as given the possible range of asset price movements, probabilities of default and the macroeconomy.<sup>1</sup>

## 1|2 Implications

The differences in focus and conception of risk have important implications for how the sources of financial distress are assessed in the two approaches.

From a macroprudential perspective, it is possible that individual institutions may appear to be safe, while the financial system as a whole is not.<sup>2</sup> This would occur, for instance, if greater diversification of risk in the portfolio of individual institutions was achieved by increasing its concentration in the overall financial system. Even as they disperse risk in their own balance sheets, institutions could be raising their exposure to common risk factors, such as through greater similarity in their portfolios. This would mean that negative shocks would affect more institutions simultaneously, i.e. that systemic, non-diversifiable risk in the system would increase.<sup>3</sup>

In addition, the endogeneity of risk highlights the possibility that actions that are optimal from the perspective of individual institutions may result in undesirable outcomes for the system as a whole, through adverse feedback effects. For example, retrenchment at times of financial strain is rational and almost irresistible for individual participants. If generalised, however, it could make everyone worse off, by inducing fire sales and tighter credit conditions. Such a possibility is ruled out by definition in the microprudential approach, as risk is treated as exogenous.

This sharp contrast between the two approaches is reflected in the fundamental disagreement over the validity of the microprudential dictum: "for the financial system to be sound it is *necessary* and *sufficient* that each individual institution is sound". From a macroprudential perspective, this condition is not *necessary*: the output costs of financial stress at individual institutions, or even groups of institutions, may not be large enough. More subtly, it is not *sufficient* either: by failing to take into account common exposures across financial institutions and the endogeneity of risk, a microprudential approach may not promote overall financial stability effectively.

The macroprudential approach to financial regulation and supervision is best thought of as consisting of two dimensions, which have different implications for the calibration of prudential tools.

1 This also indicates that the previous analogy with the portfolio of securities is incomplete, since portfolio managers would also treat the underlying sources of risk as exogenous.

2 For an early academic contribution on this, see Hellwig (1995). See also Acharya (2001) for a perspective highlighting the importance of the cross-sectional dimension of a macroprudential approach, without using this specific terminology.

3 To return to the portfolio analogy, the total variance of a portfolio is equal to the sum of the variances of the returns on each security plus that of the covariances. The return on each security (read financial institution) may have a lower variance, but that of the portfolio as a whole may in fact be larger if the covariances increase by enough. The whole is not equal to the sum of its parts.

These dimensions are often not sufficiently distinguished in the common usage of the term. The first concerns how risk is distributed in the financial system *at a given point in time* – the “cross-sectional dimension”. The second concerns how aggregate risk evolves *over time* – the “time dimension”. The first is like taking a snapshot picture of the financial system; the second is like following its evolution in a movie.

The key issue in the *cross-sectional dimension* is the existence of common (correlated) exposures. These arise either because institutions are *directly* exposed to the same or similar asset classes or because of indirect exposures associated with linkages among them (e.g. counterparty relationships). Returning to the analogy with the portfolio of securities, the main distinction is between systemic or non-diversifiable risk across institutions, on the one hand, and idiosyncratic (or institution-specific) risk, on the other.

Correspondingly, the guiding principle for the calibration of prudential tools is to tailor them to the individual institutions' contribution to system-wide risk. Ideally, this would be done in a top-down way. One would start from a measure of system-wide tail risk, calculate the contribution of each institution to it and then adjust the tools (capital requirements, insurance premia, etc.) accordingly. This would imply having tighter standards for institutions whose contribution is larger. This contrasts sharply with the microprudential approach, which would have common standards for all institutions.

The key issue in the *time dimension* is how system-wide risk can be amplified by interactions within the financial system as well as between the financial system and the real economy. This is what procyclicality is all about (e.g. BIS, 2001, Borio *et al.*, 2001, Brunnermeier *et al.*, 2009). Here feedback effects are of the essence. During expansions, the mutually reinforcing process between falling risk perceptions, rising risk tolerance, weakening financing constraints, rising leverage, higher market liquidity, booming asset prices and hence expenditures feeds into itself, potentially leading to the overextension of balance sheets. This process, then, operates in reverse, and more abruptly, as financial strains emerge, amplifying financial distress. The main policy question, therefore, is how to dampen the inherent procyclicality of the financial system.

The corresponding guiding principle is to calibrate policy tools so as to encourage the build-up of buffers in good times so that they can be used as strains materialise. This would help to limit the costs of incipient financial stress, by allowing the system to absorb the shock better. Moreover, the build-up of the buffers, to the extent that it acted as a kind of dragging anchor or “soft” speed limit, could also help to restrain the build-up of risk-taking during the expansion phase. As a result, it would also limit the risk of financial distress in the first place.

## 2 | THE MACROPRUDENTIAL APPROACH: IMPLEMENTATION

The previous analysis highlights how the macroprudential and microprudential perspectives inevitably coexist in current financial regulatory and supervisory frameworks. For example, tailoring the degree of prudential oversight to the systemic importance of institutions or limiting risk concentration across the system is consistent with a macroprudential perspective. By contrast, peer group analysis is micro: it seeks to identify outliers, without regard for whether average performance is appropriate. Importantly, also micro is the general practice of calibrating prudential tools uniformly with respect to the risk profile of individual institutions (e.g. calibrating capital requirements so as to achieve a common probability of failure for all institutions). The key policy challenge, therefore, is how to strengthen the macroprudential orientation of current arrangements.

The urgency of this task has been highlighted by the current financial crisis (Borio, 2008). The crisis has put a premium on the need to assess risk from a system-wide perspective. It would have been impossible to detect the threat without considering the exposures held outside the banking system. In the run-up to the current crisis, it was erroneously felt that securitising mortgage portfolios, and slicing and dicing risk in the process, would make the overall system safer. And the mistaken belief that the system was better diversified paradoxically encouraged each institution to take on more risk. Moreover, the crisis has been a quintessential example of procyclicality at work. Against the background of low interest rates and aggressive risk-taking, benign economic

conditions masked the gradual overextension in private sector balance sheets. Traditional tell-tale signs of the build-up of risk included booming credit and asset prices, especially in the residential property sector, as well as unusually low volatilities and risk premia across a broad spectrum of asset classes. Once these financial imbalances finally unwound, the process went into reverse with a vengeance. It triggered and amplified financial distress and crippled the real economy.

What follows discusses, sequentially, the outline of the efforts needed to implement the guiding principles in the cross-sectional and time dimensions, respectively. It then considers briefly the implications for the institutional set-up.

## 2|1 The cross-sectional dimension: common exposures

Current prudential frameworks to some extent already recognise the relevance of common exposures across financial institutions. Supervisors may, on a discretionary basis, constrain overall exposures to sectors that they regard as particularly risky at particular points in time (e.g. real estate, leveraged loans). More importantly, in several jurisdictions authorities have already sought to tailor the supervisory scrutiny of individual institutions to their systemic importance, devoting more resources to them. Steps in this direction have received greater attention since the recent financial strains. For example, a case in point is Switzerland, where the authorities have introduced tighter regulatory and supervisory requirements for the country's two large internationally active banks.

Strengthening further the macroprudential orientation would call for more systematic efforts to measure the contribution of individual institutions to system-wide risk from a top-down perspective. Such contributions would be determined by several characteristics of the institutions, notably their probability of default, relative size and their (direct and indirect) exposure to systemic risk, including that portion that reflects linkages among institutions, such as through counterparty relationships.

The main limitation here is that quantitative methodologies capable of informing such judgments are still in their infancy. Some tools, such as those for the estimation of domino effects through counterparty relationships, can provide a sense of the consequences of the failure of one or more institutions. However, they suffer from a number of drawbacks. They are exceedingly mechanical, eschewing behavioural responses; they call for information about such linkages that is generally not available, except perhaps for specific markets (e.g. organised exchanges); and they provide no information about the likelihood of a stress event (e.g. Upper, 2007). Other approaches, which generally rely on market prices (e.g. equities, credit spreads), can yield measures of system-wide tail risk, at least for groups of institutions. This is because they draw on the multivariate probability distribution that underlies asset price movements. Examples are measures of tail risk based on extreme value theory (e.g. Geluk *et al.*, 2007) or quantile regressions (Adrian and Brunnermeier, 2008). However, either it is impossible to decompose and allocate these measures to individual institutions or, even if in principle feasible, the corresponding methodologies have not been explored much.

In research with colleagues at the BIS, we are seeking to overcome these limitations (Borio *et al.*, 2009). We have developed ways of decomposing aggregate measures of tail risk for groups of institutions, such as system-wide credit value-at-risk or expected shortfall, into *additive* contributions of the individual institutions. As other methodologies for measuring credit risk, this procedure relies on estimates of probabilities of default and exposures to systemic risk that are based on market prices.<sup>4</sup> Moreover, the approach to decomposition is quite general and intuitive and can be applied to various metrics of system-wide risk. The approach can help to structure policymakers' thinking about the issues. In principle, tools of this kind could also be used to inform transparent adjustments to instruments such as capital requirements, the intensity of supervisory review or insurance premia.

From an operational perspective, three issues loom large when calibrating prudential tools with reference to the contribution to system-wide risk of

<sup>4</sup> While the specific implementation is based on market prices, the inputs could also be drawn from assessments of supervisors or combinations of such assessments and market prices.

individual institutions: the relationship between the cross-sectional and the time dimension; the choice of "portfolio" of institutions; and, closely related, the scope of regulation (or its "perimeter").

Approaches that estimate the marginal contribution of institutions based on market prices should take into account a fundamental limitation: these prices can be very deceptive measures of the *time dimension* of risk. This is, in fact, one of the key manifestations of procyclicality. Market price measures of risk tend to be unusually low also when risks are building up, reflecting aggressive risk-taking in the system: risk premia, measured and implied volatilities and correlations are unusually low. In other words, market prices behave more like thermometers of financial distress, measuring its temperature once it rises, than as barometers of distress, providing signals of its *future* materialisation (Borio and Drehmann, 2008). Hence the paradox of financial instability: the system appears strongest precisely when it is most vulnerable. This can easily contaminate the point-in-time measures of system-wide risk and also those of individual institutions' contributions to it.

One way of tackling this problem is to follow similar procedures to those adopted to adjust risk measures when addressing procyclicality (see below). This means using stressed parameters (derived from periods of financial strains) or averages over long time periods. More generally, the objective would be to focus on the *relative* contribution of institutions to system-wide risk, rather than on their absolute one. And the risk of estimation error could be further reduced by dividing institutions into different categories, such as through a rating system.

The definition of the correct portfolio is not straightforward. Conceptually, how much of the financial system should be captured before the estimates can be regarded as reliable guides to system-wide risk? And should the portfolio relate to domestic financial systems or to those institutions that comprise the core of the global financial system? Moreover, the data needed for the calculations may not exist for significant parts of the financial sector (e.g. equities for savings or cooperative banks). A large dose of pragmatism is required. The correct portfolio will depend on priorities as well as the scope for effective international coordination. Practical limitations on the availability of the data may be addressed by using approximations or requiring

firms to issue the instruments whose secondary market prices would be used in the estimation.

This also raises the question of the perimeter of regulation. A macroprudential framework would need to address the risks generated by all financial institutions that are capable, on their own, as a group and through system interactions, to cause material system-wide damage. To the extent that an indirect approach based on restrictions on the regulated institutions proved insufficient, whether in terms of the ability to request information or take remedial action, the extension of the coverage of the prudential framework would need to be considered. To varying degrees, recent reports point in that direction (G20, 2009, Larosière, 2009).

The analytical efforts to address the cross-sectional dimension of the macroprudential approach have so far been more directly applicable to instruments like capital or insurance schemes. Importantly, they have not targeted liquidity. To be sure, a number of suggestions have been made, including those in Brunnermeier *et al.* (2009) and Perotti and Suarez (2009). These have been portrayed as tackling mainly procyclicality, by acting as speed limits during expansions or establishing buffers that can cushion strains. However, all of these proposals are calibrated with respect to characteristics of the balance sheets of institutions *on a standalone basis*. They fail to take into account *common* liquidity exposures across institutions. This is an area that deserves further attention.

## 2|2 The time dimension: procyclicality

In contrast to the scarcity of work considering the cross-sectional dimension, the time dimension has benefited from major analytical efforts in recent years. It has already given rise to a number of policy initiatives to dampen procyclicality (e.g. G20, 2009, Financial Stability Forum, 2009). The goal has been to limit the degree to which the prudential framework and accounting practices may contribute to the procyclicality of the system and to introduce an element of countercyclicality into the arrangements. Rather than discussing that work in detail, what follows puts forward five general principles that could guide current efforts. In the process, it also highlights some thorny issues that deserve special attention.

First, a *holistic approach* is needed. A broad range of policies have an impact on the procyclicality of the financial system. Thus, the required adjustments in the prudential framework will depend on the characteristics of other policies and on any adjustments made to them. For example, the current trend towards fair value accounting (FVA) is likely to add to procyclicality by making valuations more sensitive to the economic cycle: it embeds evolving estimates of future cash flows and risk premia in the accounting figures (e.g. Borio and Tsatsaronis, 2004, Goodhart, 2004, Adrian and Shin, 2008). Other obvious examples are the characteristics of deposit insurance schemes, of resolution procedures and of the monetary policy regime in place. Insurance schemes that are not pre-funded require institutions to pay precisely when the system is facing strains. Resolution procedures for individual institutions that do not take into account system-wide strains could force excessive liquidation. And monetary policy regimes that do not restrain the build-up of financial imbalances, in the form of unusually rapid credit and asset price increases, when inflation is low and stable, may unwittingly accommodate their expansion (e.g. Borio *et al.*, 2001, BIS, 2008).

Second, it is important to *build on existing arrangements*. In particular, Basel II represents a major improvement over Basel I. Through Pillar 1, it has greatly improved the ability to discriminate across borrowers in the cross-section, by aligning capital charges much more closely with the relative riskiness of exposures. It has thereby greatly tightened the link between risk measures and minimum capital and reduced the scope for regulatory arbitrage. Through Pillar 2, it has substantially enhanced the scope for supervisors to require levels of capital above the minima, thereby allowing them to tailor the capital cushion to the risk incurred by institutions ("supervisory review"). Through Pillar 3, it has provided a tool to strengthen risk disclosures and market discipline. Above all, Basel II has helped to spread and hard-wire best risk management practice within the banking industry. The challenge in this area is to reduce the procyclical sensitivity of the framework without sacrificing its ability to differentiate across risks at a point in time, and to do so through simple and transparent adjustments.

Third, the spectrum of options for regulatory capital ranges from reducing its cyclical risk sensitivity to

deliberately introducing elements of countercyclicality into the framework. There are various ways in which this can be done (e.g. Gordy and Howells, 2006, Borio and Drehmann, 2008, FSF, 2009). Examples are reducing the cyclical sensitivity of minimum requirements, by further smoothing the inputs (e.g. based on through-the-cycle or stressed parameters of probabilities of default) or the outputs, and adding transparent countercyclical adjustments that would allow the build-up and release of capital buffers. The adjustments could be hard-wired to the minima (Pillar 1 in Basel II) or encouraged through the supervisory review process (Pillar 2).

Fourth, while a lot of attention has been devoted to capital requirements, *other prudential tools* are also worth considering. As a preliminary step, "prudential filters" can be applied to accounting figures to offset undesirable features, such as loan provisioning rules that are not sufficiently forward-looking and prudent (see below). As the availability of funding liquidity is procyclical, funding liquidity standards that rely on quantitative minimum requirements that are invariant to the state of the economy risk exacerbating financial strains once they emerge. In other words, just like invariant capital requirements, they would act as shock amplifiers rather than shock absorbers (Goodhart, 2008, Borio, 2009). Increasing variation margins when volatility spikes can have a similar effect. High loan-to-value ratios can add to procyclicality by increasing the sensitivity of the supply of credit to the assets used as collateral (Borio *et al.*, 2001). Arrangements could therefore be adjusted in all of these areas.

Fifth, the operational framework should rely as far as possible on built-in (*automatic*) stabilisers rather than discretion. This would help address the limitations in the measurement of aggregate risks in real time, which can make discretionary action error-prone. Admittedly, recent work at the BIS has confirmed that simple leading indicators of financial system distress can be developed and perform fairly well also out of sample. In particular, they provide warnings of the current crisis (Borio and Drehmann, 2009). Even so, the margin of error remains significant. Moreover, relying on automatic stabilisers would limit the danger that, even when risks are correctly identified, action may not be taken at all. The fear of going against the manifest view of markets can have a powerful inhibiting effect.

Once in place, automatic stabilisers can act as an effective pre-commitment device. They can help shift the burden of proof (Landau, 2009).

At the same time, automatic stabilisers and discretionary measures should not be seen as mutually exclusive. Discretionary measures could complement automatic stabilisers if the latter faced design limitations. Likewise, discretionary measures might be more easily tailored to the nature of the build-up in risk-taking and vulnerabilities as long as these are identifiable in real time. They may also be harder to arbitrage away, as circumvention becomes easier over time. The key issue would be how to constrain and discipline any such discretion.

There are a number of areas in which automatic stabilisers could be considered. As regards collateral practices, possibilities include seeking to implement through-the-cycle margining requirements (Geithner, 2006, FSF, 2009) and enforcing maximum loan-to-value ratios that are low and/or based on valuations that are less sensitive to market prices. Similarly, supervisors may consider that accounting standards do not allow for sufficiently forward-looking or prudent provisions. One notable example is obstacles to the adoption of through-the-cycle provisions for loans, sometimes known as "dynamic provisions", based on average historical experience, in place until recently in Spain (e.g. Jiménez and Saurina, 2006). In that case, supervisors can add the difference between what they find appropriate and the accounting figures to minimum capital requirements. Importantly, adjustments to capital standards within the existing framework could be made based on specific rules rather than discretion.

However, it is not hard to see how rule-based adjustments may be difficult in some cases. Consider the objective of establishing countercyclical regulatory capital buffers. It is not easy to devise rules that are equally effective during the expansion and contraction phases. For example, linking minimum requirements to credit growth, as suggested by Goodhart and Persaud (2008), could be effective during the expansion phase, but could fail to release buffers at the right time. As the current crisis has demonstrated again, the credit slowdown tends to lag the emergence of strains, not least owing to the drawdown of credit lines. Likewise, relating the minima to credit spreads may be an improvement from that perspective (Gordy, 2009), but their behaviour

has not been uniform across stress periods. To be sure, these illustrations do not rule out the possibility of developing rules. However, they do highlight that discretion and judgment may be necessary too.

Any efforts to build up and release buffers in a credible way will need to address head-on a major issue: as strains materialise, *markets* may prevent the drawdown from occurring. The recent experience has highlighted how at times of turbulence a sharp rise in the risk aversion and uncertainty of investors will require institutions to *raise* their capital cushions. There are ways in which this risk can be reduced. One is having buffers and minima that are sufficiently high, underpinned by a credible framework, so that the solvency of the institutions does not come into serious doubt. Another is communicating the rules of the game clearly, so that their application is not seen as a departure from standard practice, which could signal serious concern with the condition of the banks. Even so, it is hard to judge at this stage whether these steps would be sufficient to allow an effective operation of the buffers.

## 2|3 Institutional set-up

Two key issues that need to be addressed in the institutional set-up for the implementation of the framework are the needs to ensure accountability and to align objectives with the available know-how.

Accountability calls for a clear mandate, transparency and effective processes to hold policymakers responsible. Accountability is especially important to discipline any reliance on discretion that complements automatic stabilisers. It can generally be enhanced by making sure that the measures used are as simple and transparent as possible. One could imagine a set-up similar to the one now being employed for monetary policy. At the same time, given the lags involved and the inevitable "fuzziness" in definition and measurement, it would be unrealistic to expect that an equivalent degree of accountability and transparency is feasible (Borio and Drehmann, 2008).

Addressing the imperfect alignment between goals, instruments and know-how in the institutional set-up is a difficult and controversial task. At a minimum, a financial stability framework with a macroprudential

orientation requires close cooperation between a broad range of authorities with respect to both its development and its implementation. After all, a wide range of policies, under the responsibility of authorities with very different perspectives, has a bearing on financial stability.

At the same time, a key ingredient of success is to leverage the comparative advantage of the various authorities involved. This is especially important for monetary and prudential authorities. Monetary authorities have an edge in understanding the nexus between the macroeconomy and the

financial system and the functioning of financial markets. Prudential authorities have an edge in understanding the risk management practices of the regulated institutions. For instance, one could set up special committees involving these types of authority and charged with implementing those macroprudential overlays in regulatory and supervisory tools that are executed on a discretionary basis. In all of this, it is critical to ensure a sufficient degree of operational independence from the political process. As in the case of monetary policy, it is essential to "take away the punchbowl when the party gets going".

*There is now a widespread recognition in the policy community of the need to strengthen the macroprudential orientation of financial regulatory and supervisory frameworks. This swell of support could not have been anticipated even as recently as a couple of years ago. The current financial crisis has been instrumental in underpinning it. So far, policy initiatives have largely focused on addressing procyclicality – the time dimension of the macroprudential approach. Looking ahead, more attention will likely also be devoted to addressing common exposures within the financial system – the cross-sectional dimension. The task now is to examine concretely the spectrum of policy options, so as to evaluate their desirability and feasibility. The BIS is actively involved in this process.*

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