June 2013 SDN 13/05

IMF STAFF DISCUSSION NOTE

Macroprudential and Microprudential Policies: Toward Cohabitation

Jacek Osiński, Katharine Seal, and Lex Hoogduin

INTERNATIONAL MONETARY FUND

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Monetary and Capital Markets Department

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Prepared by Jacek Osiński, Katharine Seal, and Lex Hoogduin[1]

Authorized for distribution by:

José Viñals

June 2013

JEL Classification Numbers: E51, E61, G18, G21, G28.

Keywords: macroprudential policy; microprudential policy; supervision; financial stability; financial cycle

Authors' e-mail addresses:
josinski@imf.org
kseal@imf.org
l.h.hoogduin@uva.nl

[1] External Expert.

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EXECUTIVE SUMMARY

How can policymakers promote effective cooperation between two closely related financial sector policies? This Staff Discussion Note identifies complementarities and potential conflicts between microprudential policy, which focuses on the health of individual financial institutions, and macroprudential policy, which addresses risks to the financial system as a whole.

These policies usually complement and reinforce each other in pursuit of their respective goals. For example, the health of individual institutions is a necessary, though not sufficient, condition for system-wide stability, while a stable system contributes to the health of individual institutions. In certain situations, however, conflicts may occur because of overlapping policy mandates and the way in which policies are applied.

This paper shows that the clarification of respective mandates, functions, and toolkits can help maximize synergies and limit the potentially negative consequences of policy interaction. Specifically, it is helpful to set primary and secondary policy objectives to clarify the respective responsibilities. It is also important to establish separate, but complementary, policy functions. These include supervision and enforcement (microprudential authority) as well as the identification of systemic risks and the vetting of financial regulations from a systemic risk perspective (macroprudential authority). The potential for tensions between the two policies can be further reduced by clearly assigning powers.

Tensions are more likely to occur at certain stages of the credit cycle, notably during the downturn phase and at crucial turning points. Information sharing, joint analysis of risks, and general dialogue between the microprudential and macroprudential authorities can reduce the likelihood of differences of opinion between the two. Tensions during the downturn are also less likely to occur if policymakers encourage the buildup of shock-absorbing buffers in good times, and if effective resolution mechanisms are in place that allow unviable institutions to die safely. Finally, in order to minimize the risk of misperceptions among market participants, microprudential and macroprudential authorities should establish a credible joint communication strategy that can bolster investor confidence during turbulent periods.

Certain institutional mechanisms can enhance policy cooperation and coordination. The specific features of these mechanisms often reflect country-specific circumstances. For example, if the two policy mandates are held by different entities, it will be important to establish a coordination committee. Other jurisdictions may want to award both policy mandates to a single authority. And in those cases where conflicts between the two policy objectives remain, mechanisms need to be in place to decide which policy should prevail.

This paper provides general and preliminary guidance on measures and arrangements to promote effective cooperation between both policies in their joint pursuit of financial stability. Solutions will be shaped, to a large extent, by country-specific circumstances. Moreover, some flexibility in policy design and arrangements is needed because of the still-considerable uncertainty about the impact of these policies and our evolving understanding of systemic risk.

I. INTRODUCTION

Financial stability is generally considered to be one of the objectives of microprudential policy. Through its focus on the risks and resilience of individual institutions it makes an important contribution to ensuring resilience of the system as a whole.[2] The health of individual financial institutions is a necessary condition for a sound financial system. However, it is not sufficient unto itself due to the complexity of the financial system and to "fallacy of composition"[3] issues that can arise.[4] Actions apparently suitable at the level of individual institutions can destabilize the system as a whole (Hanson, Kashyap, and Stein, 2011) because of their interaction on financial markets, the structure of the network of which they are part, and the behavior of other financial institutions. In the context of general equilibrium theory (Allen and Gale, 2009), it could be argued that macroprudential policy takes into account general equilibrium effects, whereas these are usually ignored by microprudential supervisors. To achieve resilience and robustness within the financial system, the focus on individual institutions needs to be complemented by a system-wide perspective. In particular, microprudential supervision should be supplemented with macroprudential policies aimed at increasing the resilience of the system as a whole, calming booms and softening busts, while mitigating systemic risks resulting from fallacies of composition associated with concentration and interconnectedness in the financial system.

This paper analyzes the interactions between microprudential and macroprudential policies to identify complementarities and potential conflicts, and to propose mechanisms for aligning both policies.[5] Such complementarities and potential for conflict are inherent in the effects of system-wide actions on the health of individual institutions, as well as in the effects of actions by individual institutions on the system, especially if the system is materially concentrated or interconnected.

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[2] Accompanying the Press Release on the proposals of rules implementing the Basel III regulatory capital reforms in the United States on June 7, 2012, Federal Reserve Chairman Ben Bernanke stated: "Banking organizations' capital requirements should better reflect their risk profiles, improving the resilience of the U.S. banking system in times of stress, thus contributing to the overall health of the U.S. economy."

[3] "Fallacy of composition" is the concept that the whole is not the simple sum of its parts and therefore what is true for an individual bank will hold true for the banking and financial system as a whole. The outcome is that micro reasoning may lead to wrong conclusions at the macro level, even while that reasoning appears suitable for objectives at the micro level.

[4] For an exposition of complexity theory, see S.D. Mitchell (2009), M. Mitchell (2009), Easley and Kleinberg (2010), and Scheffer (2009). Haldane (2012) applies complexity theory to analyze the financial system and microprudential and macroprudential policies. Hayek (1967) provides an early exposition of complex phenomena.

[5] See IMF (2013) for analysis of interactions of macroprudential and monetary policies.

Considerable uncertainties about the impact of the policies complicate the assessment of their interaction. Analysis and understanding of the concept of systemic risk and the policy instruments necessary to deal with it are still developing. These range from the varying effect along the cycle of changes in microprudential requirements on aggregate lending to the uncertainties surrounding the identification of systemic risk and the effectiveness of measures aimed at containing it. This suggests that caution and flexibility are called for when setting up mechanisms for aligning the two policies. It also suggests that any arrangements should promote active feedback between the authorities involved.

Although macroprudential policy applies to the financial system as a whole, for practical purposes this paper concentrates on interactions in the field of banking and in the context of policies being conducted within an individual country. Banking supervision is treated as representative for other microprudential policies. The paper does not touch on complexities that arise in cross-border application of the policies.

Crisis management, resolution frameworks, and structural measures—such as ring-fencing of activities—are not addressed in this paper. Such policies have a major bearing on financial stability and interact with both microprudential and macroprudential policies. The authorities responsible for the latter should be closely involved with, and should advise on, design and implementation of these frameworks and measures.

II. Microprudential and Macroprudential Policies: Mandates, Synergies, and Tensions

A. Policy Mandates

According to the Basel Core Principles for Effective Banking Supervision (Basel Committee for Banking Supervision, 2011), the "ultimate objective" of supervision (i.e., microprudential policy) is to promote the "safety and soundness of banks and the banking system."[6] In some jurisdictions, the banking supervisor is explicitly tasked with the responsibility for financial stability or for contributing to financial stability—a responsibility that is usually implicitly or explicitly part of the central bank's mandate. In general, microprudential policies examine the responses of an individual bank to exogenous risks and do not incorporate endogenous risk and the interconnectedness with the rest of the system.

The ultimate objective of macroprudential policy is to avoid output and wealth losses in the long run by limiting the buildup of system-wide financial risk (IMF, 2011a).[7] One of the key

[6] The Basel Core Principals do not explicitly distinguish between microprudential and macroprudential policies.

[7] In doing so, macroprudential policy should focus on limiting the potential for damage caused by financial instability. The use of macroprudential policies for managing short-term aggregate demand may in fact create

(continued…)

purposes of macroprudential policy is to address negative externalities by acting as a countervailing force to the natural decline in measured risks in a boom and the subsequent rise in measured risks in the downturn. It also aims to mitigate risks linked to financial sector concentration and interconnectedness.[8] As such, macroprudential policy has both a time dimension and a cross-sectional (or structural) dimension.

The macroprudential authority focuses on herd behavior and shifts in overall risk appetite.[9] For example, individual institutional risk often appears to be low, or falling, at a time when system-wide risk is actually rising. Similarly, the microprudential authority is concerned with risk concentration within individual institutions, while the macroprudential authority is concerned with similar portfolio holdings among institutions in the system.

There are a number of areas in which the respective mandates overlap and may thus give rise to tensions:

- ***Objectives.*** In cases where the objective of banking supervision includes on an equal basis both the soundness of individual institutions and the safety of the banking system, confusion may arise as to who is ultimately responsible for addressing emerging systemic risk and what actions are needed to preserve financial stability.

- ***Risk perimeter***. The microprudential supervisor, while taking decisions concerning individual banks, will need to take into account risks arising from the external environment in which the bank has to operate, for instance in the context of Pillar 2 of the Basel capital framework (see Box 1).[10] Such system-wide risk assessments are a key element of the macroprudential policy function.

- ***Institutional perimeter***. The more concentrated a financial system is, the more the system itself is affected by the actions or the stability of an individual institution. In a highly concentrated system, supervisory action aimed at an individual firm or a few firms could have systemic consequences. Moreover, policy actions to address

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additional distortions by imposing constraints on behavior beyond those areas where financial distortions originate (IMF, 2013).

[8] Following De Nicolò, Favara, and Ratnovski (2012), externalities are related to (1) *strategic complementarities,* which lead financial institutions to take excessive or correlated risks during the upswing of a financial crisis; (2) *fire sales* arising from a generalized sell-off of financial assets that causes a decline in asset prices and impairs the balance sheet of intermediaries during the contractionary phase of a financial cycle; and (3) *interconnectedness* caused by propagation of shocks from systemic institutions or through networks.

[9] The term "macroprudential authority" in this note means the institution or a body (council, committee, board) that is given the responsibility to operate macroprudential policy in the jurisdiction. For further discussion of different macroprudential institutional arrangements, see Nier and others (2011).

[10] Other examples are liquidity and related maturity mismatches or currency mismatches that are important from the individual institution as well as the systemic perspective.

systemic risks would have significant consequences for the few individual firms that make up the system.

Box 1. Pillar 2 of the Basel Capital Framework

As part of the Basel Capital Framework, Pillar 2 requires an assessment by the firm and also by the supervisor of the capital adequacy of an *individual* institution to ensure that the capital it holds is commensurate with the risks to which it is exposed. The assessment is both quantitative and qualitative, and is not limited to an assessment of risks that are taken into account under the *general* minimum Pillar 1 requirement. Pillar 2 is thus often considered the quintessential microprudential tool.

Nevertheless, there are three aspects of overlap with macroprudential policy that can be identified in the Pillar 2 approach: (i) the risks considered under Pillar 2 include systemic elements; (ii) the primary tool of Pillar 2 is the creation of a capital buffer; and (iii) the level of the buffer may be adjusted depending upon the point of the cycle.

Concerns and risks that either authority may wish to address can include that of concentration of the banking system, reliance by banks on volatile wholesale funding, extent of leverage within banks, exposure to currency funding, or implicit state guarantees. Any of these risks could impair the viability of banks and imply that the calibration of the Basel minimum standard (Pillar 1) may be too low from both the perspective of an individual bank and potentially on a system-wide basis.[1]

The introduction of countercyclical capital buffers and capital conservation buffers in Basel Capital Framework demands that the borderline between Pillar 2 and these new buffers be clarified. By extension, the application of these tools for macroprudential policy needs to be closely aligned to their use for microprudential purposes, which may differ by jurisdiction.

[1] For example, Stefan Ingves, Governor of the Swedish Riksbank and Chair of the Basel Committee, has repeatedly indicated that systemic banks in Sweden should have higher capital than the Basel III required minimum level (see *Risk* Magazine, November 2011).

B. Toolkits

Both microprudential and macroprudential authorities use prudential policy instruments and tools that are applied at the level of the individual firm, such as buffers (whether capital or liquidity) and balance sheet restrictions (see Annex I). But they can do so with different objectives. Microprudential policy adjusts capital based on individual institutions' risks, while macroprudential policy adjusts overall levels of capital based on the financial cycle and systemic relevance to guard against systemic risk buildup.

Even though the purpose and calibration may differ, both policies depend on capital and liquidity tools that are deployed at the level of the individual institution. Prudential standards are, in essence, safety standards providing a backstop of resilience both to the firm and to the system. The use of similar instruments implies largely identical transmission channels, and

makes the interaction between microprudential and macroprudential policies particularly strong in comparison to relations between other public policies. The need to consider the either the cumulative or counteracting joint effects of the instruments when used for different purposes can give rise to tensions.

Other instruments can also be used to achieve the objectives of both policies, such as direct limits on credit buildup or measures such as loan-to-value (LTV) ratios, debt-to-income (DTI) standards, as well as required reserves or levies. These tools may not be under the direct control of either the microprudential supervisor or the macroprudential authority, and can raise coordination issues with other policy objectives such as housing policy. Their use can be influenced by the prudential authorities by making recommendations or expressing opinions.

Macroprudential policy can also involve regulation of markets more generally (which can thus raise issues of coordination with market regulators) and extend to entities in the shadow banking sector. In addition, systemic risk can evolve in reaction to financial innovation or regulations. Therefore, the perimeter of macroprudential policy and its active instruments may need to adjust over time.

C. Interactions

The health of individual financial institutions is a necessary but insufficient condition for financial stability. At the same time, a more stable financial system—and the buffers built up to enhance its resilience—contribute to the soundness of individual institutions that are part of it. The macroprudential authority seeks to detect threats to the stability of the financial system stemming from other public policy areas (e.g., microprudential, macroeconomic, structural, etc.). By alerting relevant authorities or pushing for reaction, macroprudential policy can help contain systemic risk. If successful, the environment in which individual financial institutions operate will be more stable. This, in turn, will facilitate the policy conduct of the microprudential supervisor. From this perspective, both policies reinforce each other and can be seen as complementary parts of a common framework of policies aimed at preserving financial stability. Of course, there can be occasions when other policies, for instance monetary policy, may have to lend a hand-to help preserve financial stability. This can for instance be the case due to limitations in the effectiveness of prudential tools (IMF, 2013; Blanchard, Dell'Ariccia, Mauro, 2013).

Given that the objectives of the two policies are closely linked and that their toolkits overlap to a large extent, there is the potential for either complementarities or tensions, or even policy confusion in terms of which authority should act or which instrument should be used. The authorities may disagree on the likely consequence of a specific policy action or the timing of an intervention.

In limiting the buildup of systemic risk, macroprudential policy aims to lean against the financial cycle and to strengthen the resilience of the financial system. Conversely, microprudential policy instruments, such as risk-based capital adequacy requirements, can be procyclical. The microprudential supervisor is mainly concerned with the minimum level of capital needed to ensure the resilience of an individual institution at any given point in time. Even though the microprudential supervisor may take into account the impact of the cycle on individual institutions (e.g., through stress tests), the macroprudential authority is better placed to assess the unhealthy buildup of credit cycles and to assess interactions within the financial system and between the financial system and the broader economy. There can be instances in which tensions arise between the systemic approach of the macroprudential authority and the institution-specific measures set by the microprudential supervisor, such as potential deleveraging pressures when microprudential standards are raised to a very high level following a shock. In turn, during the downward phase of the credit cycle, a macroprudential decision to release capital buffers to prevent excessive deleveraging can have negative implications for weaker institutions,[11] and thus complicate life for the microprudential supervisor.

III. Optimizing Synergies and Reducing the Scope for Tension

As described in Section II, several elements of the microprudential and macroprudential mandates show overlaps that can create confusion regarding the borderline of the policies. The lack of clarity on some aspects of the policies' borders has both positive and negative aspects: positive, as it provides flexibility to adjust the solutions to local circumstances; and negative, by making the accountability for the outcome of the policies less clear. Exploitation of synergies of the policies and limiting negative consequences of the "fuzziness" of their borders requires clarifying their ***mandates, functions,*** and ***toolkits*** to the extent possible.

A. Mandates

Separate mandates for both policies, which would be explicit and well documented, can define objectives, roles, and available instruments, as well as clarify the responsibilities of the institutions (authorities) involved. The definition of the mandates can provide mechanisms to ensure transparency and accountability, and protect independence as required. In particular, they should cover the instruments needed by both policies and their respective responsibilities, and should be reviewed regularly, given the evolving nature of systemic risk. In practice, this approach aims at furthering ex ante coordination and for this purpose it is advisable to design complementary mandates. The mandates can explicitly recognize the prime policy objectives, and that the objective of macroprudential policy (systemic stability)

[11] In the case of weaker firms, excess capital levels are not always indicative of strength as capital ratios are often much more volatile, so release of a buffer may appear to be acceptable even though it might put the institution at risk.

can be defined as a secondary objective for microprudential policy, without prejudice to the primary objective, and the other way around.

B. Functions

A clear understanding of the functions of microprudential and macroprudential policies can help to exploit the complementarities between the two. It will facilitate coordination and consultation between the respective authorities. Open communication, information sharing, and transparency are the essential foundation for effective functioning. Arrangements can be more or less formalized; but frequency of contact, senior-level engagement, and open exchanges are prerequisites for ensuring that full information is available to all parties. This will reduce the likelihood of differences of view arising, and if they do, facilitate their early identification and resolution. Open dialogue and constructive challenge will also prove very useful in coming to sound judgment and promoting a will to act regarding inherently difficult decisions on when and how to act to contain dangerous credit cycles or to reduce endogenous risk in such areas as those outlined below:

- ***Systemic risk assessment***. Both the microprudential and macroprudential authorities need a view on systemic risk upon which to base their actions in order to assess, respectively, the implications for supervised institutions and the general vulnerabilities in the financial system, including those resulting from interactions with the broader economy. They will do so from different perspectives, and using different skill-sets and analytical techniques, which can lead to a stronger assessment approach. Reaching a common view on systemic risk based on shared information will reduce incentives for disagreements and uncoordinated policy action by the respective authorities, and can add to the credibility of the measures that are taken. The overall view of the macroprudential authority should incorporate the bottom-up observations by the microprudential authority, and should feed into the latter's assessment of the implications for the institutions it supervises. Joint discussion is indispensable for mutual understanding and for increasing the likelihood of a well-founded and shared view.

- ***Policy development***. The quality and soundness of the overall policy framework will benefit if based on the shared insights and analyses of both sets of policymakers. Mutual scrutiny of regulation and policy development by the authorities—meaning a more intensive examination and exchange of comment than a standard consultation—may reduce the scope for unintended consequences. The macroprudential authority should extend this scrutiny to a wider circle to ensure a full view of factors affecting systemic stability, including those generated by other public policies. Examples of policy debates in the prudential context include the treatment of the procyclical elements of microprudential regulation and the fallacy of composition. Under the Basel III framework enhanced risk sensitivity is to some extent balanced with measures to dampen *procyclicality*, such as the leverage ratio and countercyclical

capital buffers. Their application should take both microprudential and macroprudential perspectives into account. The potential for *fallacy of composition* in regulation means that the outcome at the macro level not only depends on the characteristics of individual institutions but also on their interaction on financial markets (e.g., correlation risk) (Acharya, 2009), the structure of the network (the financial system) of which they are part, and the behavior of other financial institutions. The negative feedback loops experienced in the recent crisis when asset values fell and margin calls rose demonstrated that the security of a collateralized exposure that appears prudent at a firm level could result in systemic distress following a shock. Policy debate can determine whether risk mitigation or margining policies may need adjustment, either at a point in time or through the cycle.

- ***Supervision***. The microprudential authority performs the supervisory function and leads the relationship with the individual firm. The supervisory function is the primary source of information on the firms within the system, but the macroprudential authority may also have market intelligence on firm behavior that is very relevant to the microprudential authority. All relevant data should be shared between the two sets of authorities, subject to adequate protocols. Supervision should also monitor financial innovations developed by firms, which can be a source of developing systemic risk.

C. Toolkits

Approaches to address the overlap of the macroprudential and microprudential policy toolkits have differed across jurisdictions (see Annex II). Two of the approaches used in advanced countries are (1) the allocation of all tools to the microprudential authority, with macroprudential input; and (2) the legal allocation of instruments to separate authorities. Neither case will avoid all potential for disagreement, as decisions will still be needed on which tools should be used at which time to meet both microprudential and macroprudential objectives. If all tools are assigned to the microprudential authority, mechanisms need to be in place through which the macroprudential authority can request or recommend activation or recalibration of some of these instruments to achieve its policy objective. If jurisdictions separate the toolkits, a conceptual or empirical basis is needed to guide their choice (see Annex III). To date, the empirical evidence is limited, but one option might be to assign the instrument to the policy in which it is expected to be most effective. It is also necessary to ensure that the legal framework has sufficient flexibility to permit the relevant authorities to adopt any appropriate new tools as they emerge.[12]

[12] Nevertheless, it is understood that full flexibility may not be possible under constitutional and political traditions in many jurisdictions. There can be limits to legislative flexibility stemming from the rule of law, the requirements of proportionality, and the needs of effective accountability. The jurisdiction will make its decisions within its local context.

IV. ALIGNING THE POLICIES

Even if best effort is made to clarify mandates, functions, and the allocation of instruments, tensions may emerge in the actual conduct of microprudential and macroprudential policies. They relate to policy actions along the financial cycle (see Annex IV) but also in some areas of strong fallacies of composition. There is less likelihood that tensions will occur in the cross-sectional dimension of systemic risk, although they cannot be entirely excluded.

A. Financial Cycle

During Upswing and Peak of the Credit Cycle

Both microprudential and macroprudential perspectives encourage the buildup of capital and liquidity buffers in the upward phase of the cycle, when there are signs that individual institutions may be increasing leverage and relaxing underwriting standards, and when systemic risk is rising. As confidence expands, financial innovation may introduce potential new sources of systemic risk. Nevertheless, though directionally the policymakers are likely to agree, there may be differences of view in terms of timing and scale of the buildup of capital and liquidity buffers. In practical terms, the microprudential authority will scrutinize individual firms' credit standards and provisioning, and will intervene through Pillar 2 mechanisms. The macroprudential authority will monitor—and act on—indicators that will trigger the use of the countercyclical capital buffers or other tools that affect credit granting such as LTV ratios.

Differences in approach by the two policy areas appear relatively limited and may even be negligible at the earlier stages of the upswing, but they may start diverging when the cycle starts approaching its peak. At this stage, microprudential indicators appear very positive, while systemic risk indicators give increasingly urgent warning signs. This is sometimes referred to as the "paradox of financial instability"—the system appears strongest precisely when it can be most vulnerable (Borio and Drehmann, 2009). Leverage measured at market prices is artificially low, while risk premia and volatilities are unusually compressed. What looks like a low-risk environment is, in fact, a reflection of aggressive risk-taking.

The more closely aligned the risk assessment of the two authorities, the more closely aligned their will to act will be, both in terms of scale and timing. Under these conditions, information exchange, open discussion, and participation to the extent possible in each other's decision-making may be sufficient to iron out any remaining differences of emphasis. Such exchanges will also mutually support the will to act in an environment in which indicators do not clearly identify a systemic threat.

Authorities may choose to act through capital or provisioning. While use of the former raises more issues of how to credibly reduce buffers in the downturn, use of the latter raises challenges of interactions with accounting standard setters.

During the Downturn

Once the financial cycle turns and losses begin to emerge, the microprudential concern is to ensure the stability of the individual firms, while the macroprudential concern is with stabilizing the broader system and avoiding excessive deleveraging pressures that—if acute—can lead to or exacerbate a crisis, with loss of confidence and a credit crunch. The tension for the two policy areas is to assess whether, how far, and how quickly financial buffers can be allowed to fall.

In this regard it is important to consider not only the formal minimum buffers embedded in legislation, but also the additional amounts that individual banks actually hold. This additional amount may vary over a cycle and can be influenced by supervisory action (Pillar 2).

Microprudential policy action will focus on stabilizing the capital adequacy of the firm (not least because losses are a lagging indicator in a downturn), and the institution will need to be able to absorb future potential default. Options include restricting dividend (capital conservation buffer), a more aggressive raising of capital requirements, or other aimed at deleveraging of the bank, including through asset sales. An alternative is for supervisory scrutiny to focus on the soundness of valuation and appropriate provisioning to ensure that confidence in balance sheets is maintained. Should the crisis intensify, however, the microprudential authority may have incentives to show forbearance and be slow to insist that the firms recognize losses that will further impair their capital strength. Incentives for regulatory forbearance increase with any further pressures to release capital buffers.

At the downturn, the macroprudential authority is wary of a potential collective contraction in the supply of lending to the economy or undue pressure on asset prices that could weaken growth and undermine the system's resilience by creating negative feedback loops between the financial system and the economy. Hence, its incentive is to mitigate this risk by releasing capital buffers that were built up earlier, to the extent that prevailing levels allow for this without jeopardizing confidence in the financial institutions concerned. The greater the severity of the crisis, the greater the risks of deleveraging and hence the pressure to release the buffers. This is also true when uncertainty in the financial markets prevails and confidence in the stability of (important parts of) the financial system is weak. Under such circumstances, banks will find it hard to fund themselves at lower capital ratios, making any reduction of capital buffers ineffective or even counterproductive (Bank of England, 2013). Relaxing liquidity measures may be less susceptible to market misinterpretation than formal changes in published capital buffers.

The differences between the two policies are at their most stark in the downswing when they can have diverging assessments of the extent to which buffers may be released to contain excessive deleveraging without endangering the stability of individual institutions, as well as the extent of consequences of a potential deleveraging induced by microprudential policy actions. However, a clear understanding of the severity of the looming crisis and the level of the buffers at the outset can contribute to finding common ground between the policies.

The higher the buffers are at the turning point of the cycle, the earlier and faster they may be allowed to fall. This is especially the case if the economy is deteriorating rapidly, without challenging confidence or undermining the viability of firms, in particular, systemically important firms or systemic groups of firms. In other words, the more resilient the system and its component firms are at the turning point of the cycle, the greater the policy space for maneuver. However, not all institutions will remain viable during a downturn or crisis, and regulatory forbearance damages the system, so it is also essential that an effective resolution mechanism be in place and used, so that weaker institutions can fail without causing systemic disruptions.

One option to mitigate forbearance would be greater automaticity in the application of macroprudential rules to ensure that capital buffers or provisions are released when needed. Dynamic provisioning as used in some countries (Spain followed by Bolivia, Colombia, Peru, and Uruguay), which is not subject to negative stigma when reduced, can serve as an example. However, it is unclear that sufficient confidence in the available indicators exists to permit wide use of this approach. Some degree of supervisory judgment will be needed to avoid situations in which the release of capital buffers inadvertently leads to the undercapitalization and failure of an institution.

A measured release of capital buffers for macroprudential purposes should depend heavily on a common assessment of systemic risk as well as rigorous and regular diagnostic stress tests on individual firms (such as the U.S. Comprehensive Capital Analysis and Review supervisory test) (Tarullo, 2012). The outcome of such analysis may be that some specific institutions should be exempted from a general capital release—i.e., more vulnerable institutions would be required to maintain higher ratios and therefore not participate in the capital relief—or that capital relief should only apply to certain forms of new lending. If capital buffers need strengthening, it may help if the objective is formulated in amounts of capital rather than capital ratios, although experiences to date appear to provide mixed outcomes. Supervisory policy may also take the form of alleviating capital strains by encouraging the shedding by banks of noncore business lines, rather than by reducing the flow of credit to economy. It is unlikely, unless a bank is subject to remedial and corrective actions, that the supervisor would have powers to require a bank to disinvest in a business line but that the supervisor would still be able to discuss the bank's options and ensure that the bank considers such avenues.

The authorities' policy actions must be underpinned by a credible and joint communication strategy to help contain risks of market perceptions, or indeed wider public perceptions that overreact to the authorities' actions and trigger a loss of confidence. To avoid such effects, the intention and rationale for releasing the buffers in the downturn should be made public ex ante as part of the justification for the decision to build up buffers in the first place. The authorities' communication with the markets and the public should focus on the size of the buffers and the degree of resilience, rather than on meeting specific supervisory ratios.

Recovery and Return to an Upswing

When the cycle turns again to recovery, typically, both microprudential and macroprudential authorities will agree on the need to restore resilience in the system, even though views may differ on timing and intensity. Once again, a consistent and closely coordinated approach to risk assessment and the need to foster the recovery is the foundation for keeping the policy actions closely aligned.

Turning Points in the Cycle

Given that policy preferences differ through the cycle, one of the most difficult challenges is to identify and predict what point the cycle has reached. The period of the "Great Moderation" illustrated that a "peak" could be sustained for a considerable period and that—during a downturn—it is difficult to identify whether the trough has been reached, whether stabilization has been achieved, or whether there will be a further negative movement. Even so, some crisis indicators have been identified in research (IMF, 2011c), and although these indicators cannot be regarded as failsafe predictors, there is clearly value in using such findings to inform the microprudential and macroprudential policy debate. This is all the more important, as it is under these circumstances that the macroprudential policymaker will be inclined to release buffers, whereas microprudential supervision may tend to raise them. Having more reliable information available will help resolve such potential for conflict.

B. Areas of Strong Fallacies of Composition

Interconnectedness and Common Exposures

Outcomes at the macro level do not only depend on the characteristics of individual institutions but also on their interaction on financial markets, the structure of the financial system they belong to, and the behavior of other financial institutions. The role of macroprudential policy is to identify risk concentrations, common exposures, linkages, and interdependencies that are sources of contagion and spillover risks, and to issue advice or take action if it feels like these events may give rise to systemic concerns. Such concerns may relate, for instance, to activities in particular market segments, or to the use of certain trading or secured lending techniques, and they may call for adjustments in microprudential supervision. It is less likely, however, that this will give rise to significant tensions between

the two policies, as their interests appear well aligned toward incorporating the systemic concerns in their respective decisions. The greater the credibility of the macroprudential authority, the more likely it is that its warnings will be heeded by market participants, and that they will mitigate their behavior and exposures without supervisory intervention.

Treatment of Collateral

Credit risk mitigation techniques that rely on collateral, while desirable from a microprudential perspective, can under stressed circumstances increase systemic risk through feedback loops as a result of forced selling. The macroprudential authority has an important role in identifying occasions when the potential for contagion arises and in perhaps making recommendations to raise the minimum margin requirements in the upswing. This is unlikely to result in major tensions between the two authorities, as the outcome will be beneficial in mitigating risk from both a microprudential and macroprudential perspective. As is the case with capital buffers, the potential for friction seems greater in the downturn, when the microprudential supervisor may be more reluctant to lower minimum margin requirements than the macroprudential authority. Having higher initial minimum margins may help reduce tensions.

Liquidity Requirements

Under stressed conditions, the microprudential supervisor may encourage banks to maintain higher liquidity buffers. If such higher buffers are required, banks may need to sell less liquid classes of assets, which could trigger fire sales in illiquid markets and exacerbate the stress. The potential for contagion means that an individual firm's behavior can lead to a loss of confidence that could freeze the wider market. As in the case of treatment of collateral, it will be important that such concerns be raised by the macroprudential authority (whether formally or informally depending on local structures) and be taken into account by the microprudential supervisor. In the wake of the recent agreements on the Liquidity Coverage Ratio, the Group of Governors and Heads of Supervision, which is the oversight body of the Basel Committee on Banking Supervision, emphasized that liquidity buffers—even from the microprudential perspective—should be accessible and used in times of stress, providing there is a credible plan to rebuild the buffers over time. In this case, the monetary authority should also be involved, as banks' access to contingent lines of liquidity at the central bank can help mitigate some of the macroprudential concerns.

V. Organizational Mechanisms and Governance Arrangements

The discussion of policy preference—along the financial cycle and in treating risks of interconnectedness and common exposures—illustrates that close coordination between microprudential and macroprudential authorities can go a long way in aligning policy action, while preserving their respective primary objectives. Nevertheless, incompatible differences can exist. To deal with such situations, arrangements need to be in place to ensure clarity of

responsibility and ultimate coherence of policy action. An important condition for such governance and accountability arrangements is that they should be conducive to taking timely action. This applies to microprudential supervisors, who should undertake early intervention, and to macroprudential authorities, who will often have to exercise judgment in acting before buildups of risk have become obvious, or in implementing measures that have serious implications for economic actors well beyond the financial sector. A reasonable degree of transparency on the part of the macroprudential authority will be essential.

A. Institutional Design

Regulatory architecture can further strengthen incentives for cooperation and understanding between the policy areas. Such architecture can include:

- ***Cross-representation of the authorities in decision-making bodies of the policies***. This mechanism can be applied when microprudential and macroprudential mandates are assigned to separate distinct authorities and the existing institutional model allows for this solution (like in a case of the United Kingdom). The cross-representation in each other's governance structure can be seen as an advanced form of cooperation and information sharing,[13] entailing the benefits noted above. In practice, active involvement of microprudential policymakers in the overall formulation and execution of macroprudential policy is an essential part of this coordination mechanism.[14] The macroprudential authority should be involved in the conduct of microprudential policy, but not in supervisory decisions concerning individual institutions. Such arrangements will sharply reduce, but not entirely remove, the likelihood of disagreement. While there are important arguments to be considered with respect to whether either authority's statutory objective could be confused or blurred due to this model, it should be noted that this issue surfaces with any authority that is given a dual mandate.

- ***Coordinating committee structures.*** The coordination committee can be a useful vehicle when there is no one single macroprudential authority, but microprudential and macroprudential (financial stability) mandates are assigned to multiple agencies (e.g., financial stability mandate to the central bank, but also to sectoral or integrated microprudential supervisors, such as in Australia, Canada, India, Korea, and Mexico). It can be useful even if it has no powers to formulate or execute the policy. Each represented institution has its own primary objective to fulfill, but such groupings facilitate discussion, enhanced understanding, and mutual cooperation.

[13] Not all present legal frameworks will accommodate the necessary information sharing for this arrangement to function well.

[14] Microprudential authorities are often represented on committees that are responsible for macroprudential policy.

- ***Assigning both mandates to one institution.*** A single institution responsible for both policies will not remove the tensions, but it will internalize them and thus ensure that the authorities speak with one voice. This can help avoid damage to the credibility and effectiveness of either policy. A single institution will reach a final decision, but as the discussions and debates will be internal, it will be at the expense of diminished transparency of the process unless additional communication mechanisms are put in place, whether through speeches, disclosure of minutes of relevant committee meetings, or issuance of policy papers. Clear decision-making processes will be important within the institution, but local circumstances will determine whether they need to be kept entirely separate. Given the recognition that macro and micro dimensions in using prudential instruments are highly intertwined, it is not necessary for the processes to be completely distinct, unlike the case for monetary policy. Ultimately, country-specific circumstances—such as the degree of concentration in the financial system, the legal framework, and the functions and capacity of existing institutions—will inform this institutional choice and its specific design. In many countries, the central bank is the institution holding both mandates (e.g., Brazil, Bulgaria, Czech Republic, Malaysia, Singapore, and Thailand).

- ***Recommendations, with a "comply or explain" requirement.*** Public recommendations, with a "comply or explain" element issued by the macroprudential authority can be used to apply further pressure to come to agreement. Such recommendations could be issued without public disclosure, but this would, by definition, be a nontransparent approach that exerts less pressure to comply. The recommendations can be to create or activate an instrument that is needed for addressing systemic risk, or to discontinue policies that are identified as a source of systemic risk. If they are not acted upon, and the reasons are disclosed, the responsibility for systemic risk de facto becomes shared. The use of a recommendation procedure creates pressure and expectation to act. Transparency may further help overcome biases in favor of inaction. For example, if a supervisory agency considers taking risk-reducing action but faces strong opposition from the financial industry, a public recommendation from the macroprudential body might provide sufficient support for it to take the appropriate decision (IMF, 2012b). Examples of macroprudential authorities with such powers are in the United Kingdom and the United States, along with the European Systemic Risk Board.

B. Policy Hierarchy

Some jurisdictions have pursued a more formal hierarchy model, but others have deliberately not done so. Hierarchy implies that one objective takes precedence over the other. It can take the form of a procedure that gives one authority the power to override the decision of the

other authority, or to instruct it to take certain measures.[15] A macroprudential override might be chosen on the view that the failure to achieve the objective of financial stability can be very costly. Alternatively, a microprudential override might be based on the supervisors' closer knowledge of the condition and resilience of the individual institutions within the system, and thus its greater understanding of the impact of policy actions on the institutions. The hierarchy can also result from different legal treatment of the objectives.[16]

Establishing hierarchy is not straightforward, and decision-making will remain difficult even though a policy impasse is avoided. Retaining some degree of flexibility in the process may be beneficial, particularly as the concept of systemic risk is still maturing and the understanding of possible policy instruments and theories is still developing. Ultimately, the weight put on respective policy objectives is a matter of national and political preference.

The detailed design will influence the quality of the process and ultimately whether the final policy decision has strong, well-examined, and analytical foundations that consider the objectives of both sets of policies. An override function might be comprehensive or constrained, automatic or more flexible, or perhaps dependent on certain criteria being met. When assessing a possible override by the macroprudential authority, two constraints need to be examined:

- ***Minimum prudential standards.*** A macroprudential override, if considered, must not compromise the minimum standards applied by the microprudential supervisor. While an override could be considered in exceptional circumstances, this is not appropriate as a steady-state approach, not least because the international consensus on microprudential standards would break down if routinely set aside. This constraint does not exclude the use of a macroprudential override in cases where national supervisors apply requirements above the internationally agreed-upon minimum level.

- ***Independence.*** An override procedure could have an impact on the independence of the authority which is subject to the override. The Principles for Effective Banking Supervision include a principle articulating a standard for the independence of the microprudential supervisor.[17] Whether a specific macroprudential override would be

[15] The relation of the Financial Policy Committee and the Prudential Regulation Authority in the United Kingdom is a straightforward example of macroprudential hierarchy.

[16] In Peru, the mandate of the microprudential supervisor to keep deposits safe is specified in the Constitution, while containing systemic risk is not mentioned there. See Jácome, Nier, and Imam (2012).

[17] BCP Principle 2 states: "The operational independence, accountability, and governance of the supervisor are prescribed in legislation and publicly disclosed. There is no government or industry interference that compromises the operational independence of the supervisor. The supervisor has full discretion to take any supervisory actions or decisions on banks and banking groups under its supervision."

compatible with supervisory independence would need to be assessed in its local context, and in terms of whether it would impede the supervisor's full discretion to take supervisory actions or decisions on individual banks and banking groups under its supervision. One way to reduce this tension may be to allow for well-motivated exceptions to the override in specific cases in which the effect on an individual institution is not considered acceptable by the microprudential supervisor.

C. Communication Policy

As with other financial and monetary policies, articulating the policy framework and signaling by the authorities can be important tools in and of themselves. A communication strategy related to particular macroprudential actions should ideally be embedded in a previously articulated policy framework. This will help condition market expectations and avoid misinterpretation of the authorities' actions. It is also essential that the microprudential and macroprudential authorities be seen to act as part of a jointly coordinated strategy. In this context, a recommendation or other public communication need not necessarily signal disagreement between the authorities because it can also be used as part of a coherent strategy to communicate to the market and the public, to foster understanding, and to condition expectations.

VI. CONCLUSIONS

The complexity of the interactions, as well as the tendency for systemic risk to evolve over time, do not allow for pre-determined clear borders between microprudential and macroprudential policies that would apply across a wide range of countries and circumstances.

In seeking to align microprudential and macroprudential policies, no single approach is likely to satisfy the range of jurisdictions, with their different existing structures and experiences. The still-considerable uncertainties surrounding the impact of the policies, and our evolving understanding of systemic risk, also call for a flexible approach toward arrangements aimed at furthering coordination between the two. However, it may be possible to discern guiding principles that could assist an individual country choice toward approaches that promote the quality of policy formulation and proposals, reduce tensions, and provide greater policy certainty and clarity of outcome.

There are strong complementarities between both policies that should be exploited through arrangements that are conducive to close and constructive collaboration among the authorities concerned. Such arrangements should be based on clarity regarding the respective mandates and roles of the microprudential and macroprudential authorities, and on a clear allocation of instruments between them. To achieve the required high quality of policy formulation, open dialogue, shared information and analysis, and mutual understanding are the prerequisites of a coordinated communication strategy between the authorities and are

crucial to effectively guide market expectations. Credibility of overall policy action requires that the authorities to speak with one voice.

Even if the abovementioned arrangements are in place, there may still be instances when tensions arise between the policies, in particular at the credit cycle turning points and in the downturn phase. There are a number of good practices that can help mitigate such tensions. Tensions are less likely to arise if sound and resilient levels of capital are in place at the peak of the cycle. Stress tests that involve both microprudential and macroprudential authorities can be an important vehicle to come to a common assessment of such resilience. If capital buffers need strengthening, it may help if the objective is formulated in amounts of capital rather than capital ratios, although experiences to date appear to provide mixed outcomes. More generally, reaching an agreement will be facilitated if the microprudential supervisor participates in macroprudential policy formulation, and takes into account the latter's systemic risk assessment when setting Pillar 2 requirements. A sound resolution framework should be available that enables the microprudential supervisor, if necessary, to remove a weak institution from the system in an orderly manner without causing contagion risks.

To help ensure policy certainty and clarity of outcome, some structural or hierarchical measures may be considered to deal with exceptional situations when differences of view between the authorities persist. Such measures could include cross-representation of the authorities in each other's governance structures, assignment of both mandates to one institution, or giving the power to make "comply or explain" recommendations. Ultimately, a policy impasse could be avoided by introducing a hierarchy between the policies, where one authority has the power to override the decision of the other. But establishing such a hierarchy is not straightforward and entails costs in the form of loss of independence of one of the two policies.

ANNEX I. OVERLAP OF MICROPRUDENTIAL AND MACROPRUDENTIAL TOOLKITS: SOME EXAMPLES FROM PRACTICE

Instrument	Micro	Macro
Minimum Capital Requirements for Individual Institution	×	
Capital Risk Weights	×	×
Pillar 2 Capital Requirements	×	×
Countercyclical Capital Buffer		×
Capital Conservation Buffer	×	
Systemic Capital Surcharge		×
Dynamic Provisioning	×	×
Leverage Ratio	×	×
Large Exposure Limits	×	×
Loan-to-Value Limits	×	×
Debt-to-Income Limits	×	×
Foreign Exchange Limits	×	×
Liquidity Requirements	×	×
Risk Management Standards	×	
Licensing Standards	×	

ANNEX II. STYLIZED ROLES OF MICROPRUDENTIAL AND MACROPRUDENTIAL POLICIES TOWARD SYSTEMIC RISK IN ADVANCED COUNTRIES

	Model I: Australian Model	Model II: EU/US Model	Model III: UK Model
Systemic risk identification and analysis	Macroprudential	Macroprudential	Macroprudential
Action request to limit systemic risk	Microprudential	Macroprudential	Macroprudential
Tools control/ activation to limit systemic risk	Microprudential	Microprudential	Separately Macroprudential and Microprudential

ANNEX III. BASIC ELEMENTS OF MICROPRUDENTIAL AND MACROPRUDENTIAL TOOLKITS

The microprudential policy toolkit requires, at a minimum:

- A set of risk-based quantitative instruments to establish capital and liquidity requirements for individual institutions;
- Effective supervisory powers over institutions (e.g., licensing, governance, risk management, sanctions, and powers to take corrective actions).

A number of studies seek to identify and classify macroprudential instruments.[18] The macroprudential toolkit authority requires, at a minimum:

- Prudential instruments constructed to have an impact on the procyclicality of the financial system (e.g., countercyclical capital buffers) or on the contribution of a financial institution to systemic risk (e.g., Systemically Important Financial Institution surcharges);
- Prudential instruments to address a buildup of systemic risk in specific segments of the market (such as loan-to-value ratios) and instruments aimed at constraining general or specific leverage in nonfinancial sectors (such as debt-to-income ratios);[19]
- Tools to address systemic liquidity concerns.

The macroprudential authority, potentially, can use also nonprudential tools that influence the incidence of systemic risk and which could be reassigned to macroprudential policy from other public policies, such as some types of financial transaction taxes/levies,[20] reserve requirements, or capital controls.[21] Actually, the use of such instruments may reduce the "competition" over some of the (prudential) instruments, which can be especially helpful in the context of addressing liquidity risk by both policies. The macroprudential authority should also have the right to issue formal recommendations to activate tools outside its direct control.

Outside these minimum sets of tools, there is a range of instruments that both policies may want to use permanently or occasionally. In such cases, there is need for a mechanism to reach an understanding on their use, respecting pre-agreed principles. Measures to address concentration risk or to limit foreign exchange risk might fall into this category, where up to certain limits (e.g., a maximum exposure of 25 percent of an institution's capital) they would remain a microprudential standard, grounded in the need to avoid excessive risk within any individual institution.

[18] See CGFS (2010), Bank of England (2011), Group of Thirty (2010), IMF (2011a and b), Lim and others (2011), Longworth (2011), and Schoenmaker and Wierts (2011).

ANNEX IV. FINANCIAL CYCLE AND STYLIZED POLICY REACTIONS

Part of the Cycle	Microprudential Objective and Actions	Macroprudential Objective and Actions
Boom Strong credit and asset price growth, higher risks (but seems contained), high returns, over-optimism, and weakening underwriting standards. Expansive leveraging.	*No need to intervene (banks are highly profitable and can replenish capital and liquidity if needed).* Intervention in underwriting standards to probe the more marginal and "frothy" deals would be very desirable.	*Address causes of systemic risk, correcting excessive imbalances and/or strengthen financial system resilience.* Build up strong countercyclical capital and liquidity buffers.
Bust type-I (resulting in no crisis) Slowdown in credit growth, stable or falling asset prices, lower returns, no confidence lost.	*Preserve stability of financial institutions.* Stabilize (or increase selectively) capital and liquidity *ratios*; some restrictions on dividends, more scrutiny.	*Avoid serious deleveraging* Release countercyclical capital and liquidity buffers built.
Bust type-II (resulting in crisis) Deleveraging, substantial fall in asset prices due to fire sales, substantial financial loses, confidence lost.	*Regain confidence in institutions.* Increase capital and liquidity ratios because the minimum was wrong compared to risk, extensive scrutiny, and possible forbearance.	*Regain confidence in financial system and avoid deleveraging.* Decrease capital and liquidity buffers—if they are deemed enough—or increase them if they are the source of lack of confidence.
Recovery Cautious re-leveraging, Moderate credit and asset price growth.	Maintain capital and liquidity ratios rebuild during crisis or increase if needed.	No need to intervene.

[19] These tools are used by some supervisors to address microprudential concerns. It is beneficial if the microprudential supervisor has a say in their use through active participation in the process of setting macroprudential policies.

[20] For example, financial stability levy in Korea.

[21] Capital controls can be used in specific situations related, for example, to the buildup of a domestic asset bubble financed without intermediation of the domestic financial system. For more guidance related to the use of capital flow measures see IMF (2012a).

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