

# Macprudential Policy: What We've Learned, Don't Know and Need to Do

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**Abstract:** Over the last decade, macroprudential policy has made important advances and become more widely used. We have a better understanding of its goals and tools, and are accumulating evidence that it can be effective on its direct targets, albeit often with unintended leakages and spillovers. There has been less progress, however, in terms of understanding: the ramifications of these leakages and spillovers, the optimal calibration of various tools, and how to identify the next risks as the financial system evolves. A top priority is better understanding the new vulnerabilities developing as risks shift outside the perimeter of existing regulations.

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During a discussion of the 2008 financial crisis, the Queen of England asked, "Why did no one see it coming?" One recurring theme in attempts to answer this question is an insufficient understanding of macroprudential risks—of vulnerabilities in the broader financial system and mechanisms by which shocks can spread and be amplified through the system. The "best practice" macroeconomic framework in 2008, which relied on central banks for price stability and microprudential regulators for the stability of individual institutions, was missing this crucial focus.

Countries around the world have learned this lesson, however, and most have established some type of macroprudential authority and adopted an array of macroprudential tools. The

"best practice" macroeconomic framework now involves 3Ms: macroprudential policy, monetary policy and microprudential supervision. But is their sufficient progress? Can macroprudential tools live up to their promise of meaningfully reducing systemic financial vulnerabilities? Can they prevent the next shock—from wherever it emerges—from evolving into another costly crisis? If not, what more should be done?

The term "macroprudential" seems straightforward (stability of the entire financial system), but quickly becomes complicated when constructing specific policies, applying them, and assessing their effectiveness. It includes a diverse set of tools and vulnerabilities. Even translating the goal of financial stability to specific targets and policies is not straightforward.

As macroprudential policies have been adopted more widely over the last decade,

however, we are beginning to accumulate evidence on their effectiveness, making this an opportune time to assess their successes and shortcomings. This paper explores what we have learned (Section I), what we don't know (Section II), and what we need to do to make macroprudential policy more effective in the future (Section III).

The discussion suggests that we have made substantive progress in terms of understanding the goals and developing a toolkit for macroprudential policy. We are also beginning to accumulate evidence that many of these tools can successfully accomplish their specific goals, albeit often with unintended leakages and spillovers. There has been less progress, however, in terms of understanding: the ramifications of these leakages and spillovers, how to calibrate various tools, and how to identify the next set of risks as the global financial system evolves. In particular, there is more to do in terms of monitoring the new vulnerabilities that develop as individuals, banks, and other firms adapt and shift risky exposures outside the regulatory perimeter.

## I. What We've Learned

The increased attention to macroprudential policy over the last decade has meaningfully improved our understanding of its goals, tools, effectiveness, and unintended consequences.

### A. Goals and Tools<sup>1</sup>

Unlike monetary policy—which can be succinctly summarized as focusing on one goal (such as 2% inflation) and accomplished through a small number of tools (such as adjusting an interest rate)—macroprudential policy involves more amorphous goals and many more tools. It is even hard to assess if macroprudential policy has been successful if “success” is a crisis that never happened.

With these caveats, progress has been made in defining three broad (and related) objectives for macroprudential policy: (1) addressing excessive credit expansion and building resilience in the overall financial system; (2) reducing key amplification mechanisms of systemic risk; and (3) mitigating structural vulnerabilities related to important institutions and markets. Macroprudential policy should improve the economy's ability to withstand shocks and allow the financial system to function effectively under adverse conditions.

<sup>1</sup> For progress on these goals and tools, see CGFS (2010), IMF-FSB-BIS (2016), Cecchetti and Schoenholtz (2017) and Forbes (2018).

Progress has also been made developing a macroprudential “toolkit” that includes: (1) capital and reserve instruments; (2) liquidity instruments; (3) credit instruments; and (4) structural institutions. Individual countries have adopted different combinations of these tools, reflecting their history, institutions, political priorities, and vulnerabilities.

### *B. Effectiveness*

As these macroprudential tools are being more widely used, a body of research is beginning to provide evidence on what does—and does not—work.<sup>2</sup> Although this literature is still in its infancy, and the observations and period for which to assess their impact is limited, the evidence suggests that many macroprudential tools can influence their immediate objective. For example, papers show that raising bank reserve requirements reduces aggregate credit growth, and housing-related policies restrain household credit growth. A smaller set of studies shows that limits to foreign currency (FX) exposures reduce bank borrowing and lending in FX.

Several studies have a more ambitious goal, of assessing whether macroprudential policies

attain the ultimate goals of building broader financial resilience and supporting economies during downturns. This is more challenging, and the initial evidence is mixed, but generally supportive.<sup>3</sup> Several papers find that regulations can support the supply of credit during downturns, crises, and/or recoveries. Martin and Philippon (2017) show how macroprudential regulations could have reduced unemployment during the 2008-12 recession in the Eurozone.

### *C. Unintended Consequences*

A final set of results emerging from this literature is that macroprudential policies often have unintended leakages and spillovers.<sup>4</sup> Leakages are shifts in lending or credit to other institutions in the same country, while spillovers are shifts to other countries. The evidence suggests these leakages and spillovers regularly occur and can be significant.

Two studies provide concrete examples. Aiyar *et al.* (2014) shows that increased capital requirements on UK domestic banks causes foreign banks to increase their UK lending, with this “leakage” about one-third of the contraction in lending by UK banks. Ahnert *et*

<sup>2</sup> For evidence and cites, see Cerutti *et al.* (2015), Buch and Goldberg (2016), IMF-FSB-BIS (2016) and Forbes (2018).

<sup>3</sup> Also see Cerutti *et al.* (2015), IMF-FSB-BIS (2016) and Forbes, Fratzscher and Straub (2015).

<sup>4</sup> For evidence, see Avdjiev *et al.* (2016), Buch and Goldberg (2016), Agénor and da Silva (2017) and Forbes (2018).

*al.* (2018) shows that tighter regulations on FX bank borrowing causes companies to increase FX debt issuance, with this “leakage” about 10% of the initial reduction on bank FX borrowing.

Studies focusing on the international spillovers from macroprudential regulation also often find significant effects, but usually smaller in magnitude. For example, Buch and Goldberg (2016) finds that macroprudential tools can generate significant cross-border bank credit spillovers, but the magnitudes are usually moderate and sometimes insignificant. Forbes *et al.* (2017) finds larger spillovers in global capital flows—but this may reflect its focus on the UK, a major banking center.

## II. What We Don’t Know

Despite these advances in our understanding of macroprudential policy, there is still much that we do not know. I will focus on three areas crucial for these regulations to meaningfully bolster financial resilience: the new risks from the leakages and spillovers, appropriately calibrating the regulations, and targeting the next shock rather than focusing on the past.

### A. *Incorporating the Risks from Leakages and Spillovers*

An assessment of macroprudential policy should incorporate the leakages and spillovers

discussed above, including any new vulnerabilities introduced.

Although the evidence suggests that the magnitude of these leakages (and especially spillovers) tends to be meaningfully smaller than the direct effects of the macroprudential policies, it is important to put these results in context. The unintended effects can still be meaningful when assessed relative to the size of the sector where the risks shift. For example, consider Ahnert *et al.* (2018), which shows tighter FX regulations on banks generate a leakage of “only” 10% (measured as the increase in corporate FX debt issuance relative to the reduction in bank FX borrowing). This is equivalent, however, to a 15%-20% increase in FX corporate debt issuance for emerging markets such as Brazil and Indonesia. This is a meaningful impact on a market that is not under the purview of macroprudential regulators.

Even more difficult to assess is what any corresponding shifting of risks implies for broader financial stability. Continuing with the example above, who holds this new FX debt? Are these entities aware of the risks related to their new currency exposure? Will they remain solvent if there is a large currency movement? If not, will their failure generate broader systemic risks? Although this reduction in bank FX risk undoubtedly builds resilience in a critical sector, this shifting of risks outside the

regulated sector may not only introduce new vulnerabilities—but risks that are less understood, not monitored, and harder to prepare for. If these new FX-related exposures are dispersed and diversified, there may be less systemic implications, but if they are concentrated and feed into financial interrelationships, they could amplify risks in unexpected ways that are harder to address.

### *B. Calibrating the Regulations*

A second issue about which we need to learn more is how to appropriately set and calibrate different regulations—especially given the inherent political challenges.

Macroprudential regulations have costs and benefits, and calibrating their levels to find the optimal balance is not straightforward. Very tight regulations on certain types of exposures would significantly reduce the risks related to those exposures, but could also significantly harm economic growth. If the economic slowdown was large enough, it could even increase the risks of financial instability in the future. Setting tighter regulations will also increase incentives for borrowers to shift outside the regulated sector, increasing the risks related to leakages and spillovers.

Aggravating this challenge of finding the optimal level at which to set macroprudential regulations is the limited experience of how

tight these regulations should be to provide sufficient protection during a downturn. Many of these tools have only been widely used over the past few years—a period of recovery—providing limited experience of how much resilience they provide during a period of financial stress. Will the current levels of macroprudential regulations prove stringent enough to provide the expected financial stability when the next downturn hits? Stress tests attempt to answer this question, but it is extremely difficult to model the various interactions. The only true test will come with the next downturn.

Moreover, even if we knew how to calibrate regulations optimally, there are challenging political hurdles. Tighter regulations usually entail immediate costs (such as reduced access to credit), while the benefits may not appear for years—or even be impossible to measure at all (*i.e.*, a crisis avoided). Any macroprudential authority influenced by the political cycle would be tempted to adopt less stringent regulations. Uncertainty about optimal calibration only adds to this bias. Why would any politically sensitive authority adopt costly regulations if there is uncertainty about whether they are even necessary?

A clear example of how these challenges can bias macroprudential authorities to being “soft” is use of the counter-cyclical capital buffer

(CCyB). The CCyB is a macroprudential tool that has widespread academic and policy support and a well-defined framework. It could cushion economies against “booms” as well as “busts”. Although many countries have a framework in place to use the CCyB, as of 2017 only about six countries have tightened it at all. None have tightened it or varied it as aggressively as suggested by basic calculations on its optimal use (*i.e.*, Hanson *et al.*, 2011).

### *C. The Source of the Next Shock*

A final concern about the current state of macroprudential policy is if it is sufficiently preparing for the next shock. Macroprudential regulations today prioritize addressing the vulnerabilities behind the 2008 crisis. This makes sense, and there has been meaningful progress, especially in requiring that the banks at the heart of the last crisis are better capitalized and less leveraged. But where will the next shock come from? Could changes in the global financial system—including those aimed at building bank resilience—be sowing the seeds of the next crisis?

One potential vulnerability is the “shadow” financial system—the range of non-bank institutions involved in financial transactions

(such as hedge funds, pension funds, insurance companies, securitization vehicles, money market funds, and mortgage funds). Most macroprudential regulations focus on banks, leaving these “shadow” institutions outside the regulatory perimeter or subject to oversight by other bodies, which are usually less powerful, adopt less stringent regulations, and are less focused on macroprudential risks. In fact, many of the leakages from macroprudential regulations are diverting financial flows to this shadow financial system.

Moreover, these “shadow” institutions could be a source of broader financial vulnerabilities. For example, if tighter regulations on banks’ mortgage exposures cause consumers to shift to other sources of housing finance (such as pension funds)—then another key sector of the economy could become exposed to the housing market.<sup>5</sup> Or, as non-bank institutions take on the “leakage” of FX exposure that was previously held by banks, if these non-bank financiers have bank loans and become insolvent after a large currency movement, the banks would still be negatively affected by FX movements.

As another example, consider recent shifts in cross-border capital flows, shifts that partly reflect tighter bank regulations. Gross cross-

<sup>5</sup> See Forbes (2018) for evidence of this in Iceland. In 2016 pension funds in Iceland originated over half of new mortgages by value.

border banking flows collapsed by over two-thirds between 2007 and 2017. Since cross-border banking flows tend to be the most volatile type of capital flow and played a key role in the severity of the 2008 crisis, this has undoubtedly increased the resilience of financial systems around the world to the types of shocks behind the 2008 crisis.

But what about the next set of shocks? As international banking flows have declined, portfolio debt flows now constitute a larger share of gross global capital flows. Portfolio debt flows can also be volatile, and along with cross-border debt flows, are key drivers of the sudden “surges” and “stops” that correspond to periods of financial instability (Forbes and Warnock, 2014). Portfolio debt flows could also be particularly vulnerable to the current changes in global interest rates. Are macroprudential regulations nimble enough to address these new types of vulnerabilities?

### **III. What We Need to Do**

This paper has highlighted a number of successes of macroprudential policy. There is a more coherent framing of its goals, a more developed toolkit of policies to target these goals, and an emerging body of evidence documenting that these tools can significantly affect their primary targets, albeit with unintended consequences. The elevated

importance of macroprudential policy, combined with its more widespread use, has undoubtedly helped improve the resilience of financial systems.

These successes, however, are only a start, and likely not nearly enough to avoid another financial crisis in the future. There are key issues around macroprudential policy about which we do not have sufficient understanding, such as on the new risks generated from the leakages and spillovers, on how to calibrate the different regulations (especially given political incentives), and on the potential risks to financial stability outside the mandates for most macroprudential authorities.

On a more positive note, there are a number of steps that economists and policymakers can take to address these shortcomings.

First, more academic research is needed on macroprudential regulations. This is not an easy field to delve into. It requires learning a substantial number of acronyms and technical language—none of which is taught in graduate school. Nonetheless, it would be well worth the effort. Few academics have yet ventured into this area, and the rapid adoption of different regulations across countries over the last decade has provided a wealth of data and potential evidence. Careful research could have substantial impact on policy at the highest level and should be a priority for economists—

especially for a profession that was slow to see the vulnerabilities that led to the 2008 crisis.

A second area for progress is on designing institutions to support the optimal use of macroprudential policy. Although most countries have some type of committee or institution in charge of macroprudential regulations, there is little consistency and “best practice” yet.<sup>6</sup> Tightening macroprudential regulations can be politically challenging, as the costs are immediate and apparent, while the benefits are more amorphous and may not appear for years. The CCyB example suggests that regulations are not being sufficiently tightened to provide the resilience that is hoped for. The optimal macroprudential authority should be independent and somewhat insulated from the political cycle, while at the same time maintaining a high degree of transparency and accountability, as macroprudential regulations can affect consumers, firms, and the broader economy. Several frameworks show promise—such as the Financial Policy Committee at the Bank of England—but careful analysis is needed of which frameworks are most effective and politically viable across the business cycle.

A final area where more progress is needed is creative thinking about future risks—and

especially those arising outside the purview of most regulators. Macroprudential regulations currently focus on where the last set of vulnerabilities arose, especially in banks and mortgage markets. These are critically important, but the next crisis could start in other sectors. In fact, the success of existing regulations in reducing the risks in banks could be contributing to the build-up of vulnerabilities elsewhere, such as by shifting exposures to currency and liquidity risk to the corporate sector and shadow financial system—sectors about which regulators have less information and where entities may be less prepared to handle surprises.

Macroprudential policy has made impressive progress and significantly reduced the probability of another crisis unfolding in the banking system as it did in 2008. Macroprudential policy still has some way to go, however, to ensure that there is not another crisis and economists are not asked again by a future monarch: “Why did no one see it coming?”

<sup>6</sup> See IMF-FSB-BIS (2016), Edge and Liang (2017), and Forbes (2018) for key issues.

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