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Lessons from the Post-Crisis Decade

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Abstract

A decade after the global financial crisis, the task of building a financial stability policy framework has unfinished business. Fundamental questions about the goal of financial stability and the policies to achieve it were sidelined by the excessive focus on the minutiae of macroprudential policy. Increased responsibilities were given to central banks without a proper discussion about the right degree of delegation and accountability. A comprehensive framework for financial stability should have three pillars: macroprudential policy, microprudential supervision, and financial safety nets. Sufficient operational independence should be given to the agency(ies) responsible for financial stability but determining the goal, institutional architecture, and agency assignments, resolving any policy tradeoffs, and ensuring accountability should be a political responsibility. Even with the best framework, however, given the variety of structural, behavioral, and political economy factors affecting financial stability and our limited understanding of the financial system, securing this goal will remain a challenge.

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Introduction

Traditional policy frameworks that rely on fiscal and monetary policies and microprudential regulation of the financial system failed to contain the risks that led to the global financial crisis a decade ago. In his now classic 2008 intervention, U.S. Federal Reserve Chairman Ben Bernanke called for 'widening the field of vision' of policy-makers and regulators to incorporate a system-wide perspective, in order to identify and mitigate all potential sources of financial instability (Bernanke 2008).

In the years following the crisis, major financial regulatory reforms were launched to address the exposed fault lines. The political impetus was provided by the G20. The Financial Stability Board (FSB)—created for this purpose out of the Financial Stability Forum—was tasked with coordinating these reforms globally and monitoring their implementation. These reforms included, among others, deep changes in sectoral regulations (notably for banks), new or revised global supervisory standards, structural measures to end 'too-big-to-fail' and lower the cost of resolving failing or failed financial institutions, and reforms in OTC derivatives markets (for a comprehensive account of the reform agenda and latest status of implementation, see FSB 2018). They also, crucially, included establishing a new 'macroprudential' policy framework explicitly aimed at the stability of the financial system as a whole, in order to translate Bernanke's 'wider field of vision' into concrete policies.

Today, a decade after the crisis, and after a few wrong turns, this last part of the project is still unfinished. Despite the technical advances in defining the tasks and toolkit of this new macroprudential policy, fundamental questions remain about the ultimate goal—financial stability—and how it can be achieved. In the words of Sir Andrew Large, former Deputy Governor of the Bank of England, too much of the debate so far 'relates to details and technical features [while] much less attention has been paid to viewing the subject [of financial stability] top down and examining how the various difficult areas hang together' (Large 2015).

Moreover, in many cases, the mandate for macroprudential policy was given to central banks—or, at any rate, resulted in a major expansion of the powers of central banks—without a proper discussion about governance and accountability. Central bankers, supported by the IMF, seemed to presume that their new responsibilities should come with the same degree of independence as monetary policy—independence that they were keen to preserve at all costs. Against this background, the recent backlash against central banks in the US, the UK, the euro area and elsewhere on the grounds that they have become too powerful and unaccountable should not have come entirely as a surprise. To be sure, this backlash reflects concerns not only about their new financial stability responsibilities but also about their conduct of monetary policy. Still, it is a useful reminder of the risks of hubris.

As memories of the crisis fade, the political momentum behind the reforms weakens. Before the next turn of the financial cycle puts the financial stability policy framework to the test, it is important to finish the unfinished business and get it right. This essay attempts to make a contribution to this task. The next section provides a brief overview of the evolution of the financial stability policy in the post-crisis period. The third section tackles the three 'big' foundational questions: the goal, boundaries, and governance of financial stability policy. And the final section offers some concluding observations.

The evolution of financial stability policy post-crisis

Before the global financial crisis, prudential supervision was supposed to ensure the safety and soundness of financial institutions. Even at that time, it was understood that focusing on individual institutions was not sufficient to ensure the stability of the system as a whole and an additional 'macroprudential' perspective was necessary (Crockett 2000).[2] It was also understood that other policies, especially monetary policy, could create financial stability risks (for example, when interest rates are held too low for too long). There was indeed a vigorous debate during the period of the 'Great Moderation' in the early 2000s on whether monetary

[2] Indeed, the term 'macroprudential' had been in use since the late 1970s to signify an approach to supervision that 'considers problems that bear upon the market as a whole as distinct from an individual bank, and which may not be obvious at the microprudential level' (see the reviews in Clement 2010; Galati & Moessner 2010).

policy should be used to tame asset price booms. But the prevailing consensus was that monetary policy should stick to its inflation objective and that prudential supervision, aided by market discipline and ideally incorporating both a micro- and a macro- perspective, would be sufficient to maintain the stability of the financial system.

This consensus was shattered by the crisis. Prudential supervision and market discipline were no longer sufficient to deliver systemic stability. What was needed was a separate, totally new policy framework for monitoring and mitigating systemic risk in the financial system. This was the task of macroprudential policy.

Initially, macroprudential policy was defined narrowly by the Bank of International Settlements (BIS) as 'the use of prudential tools with the explicit objective of promoting the stability of the financial system as a whole, not necessarily of the individual financial institutions' (Caruana 2010). The BIS stressed that macroprudential policy alone would be incapable of achieving its objective without the support of other policies: financial stability was a shared responsibility. It also cautioned against unrealistic expectations and warned of the risk of mission creep: 'the word macroprudential is becoming very popular, and we run the risk of using "macroprudential" as a catch-all term to cover all manner of policies. I think we should be careful. [B]road definitions unnecessarily widen the objective to be pursued by supervisors and lessen accountability. […] Confusion about a policy may undermine its effectiveness' (Caruana *op. cit*.).

Despite these warnings, the scope of macroprudential policy expanded quickly. Macroprudential policy was given three tasks: boosting the resilience of the financial system by building buffers against systemic shocks; smoothing the financial cycle; and containing vulnerabilities arising from interconnectedness within the financial system and from institutions that are 'too big to fail' (FSB/IMF/BIS 2011; IMF 2013; IMF/FSB/BIS 2016; Constâncio 2016). It was, of course, still recognized that other policies could have an impact on financial stability. But instead of seeing financial stability as a shared responsibility, the IMF elevated macroprudential policy to a central position, with the macroprudential authority expected to 'provide guidance', demand 'more forceful action', or 'correct biases' in areas as diverse as financial regulation, bank resolution, and monetary, tax, competition, and housing policies (IMF 2013). Given how incomplete was our understanding of systemic risk, the financial cycle, and interconnectedness, this expansive view of macroprudential policy was nothing less than astonishing.

At the same time, there was in most countries a substantial expansion in the responsibilities of central banks, which were given a key role in the framework for macroprudential policy. This was not surprising: central banks were well established, had considerable in-house resources and expertise, the independence to move quickly without—at least initially—having to worry too much about the political repercussions of their actions, and access to an international network. But this expansion in responsibilities meant that central banks were left to operate in unfamiliar and politically contentious territory, in charge of a policy that was still immature.

It should be noted that not all central bankers were happy with this concentration of responsibilities in their hands. As Mervyn King, then Governor of the Bank of England, put it in 2013: 'if central bankers are the only game in town, I am getting out of town!'[3] Their voices may have been prescient, but they were the exception.

Today, at the end of the first post-crisis decade, and despite the substantial progress made, the framework for financial stability policy is still unsettled. Important foundational questions, like the definition of the financial stability goal, remain open. The preoccupation with the technical minutiae of macroprudential policy has made us lose sight of the bigger issues that must be addressed first. And the rush to put central banks on the front line without a proper debate about delegation, governance, and accountability looks in retrospect like a mistake, given the increasing criticism they are coming under. This is the unfinished business in financial stability policy, and to this we turn next.

[3] Quoted in Tucker (2018) as Mervyn King's response to Raghuram Rajan in the first Andrew Crockett Memorial Lecture at the BIS in June 2013.

Foundations of an effective financial stability policy framework

Put simply, the key questions at the foundation of any policy framework are the *what*, *who*, and *how*: *What* is the goal? *Who* is responsible for delivering it? And *how* are they to pursue it and be held accountable for it? In light of the experience of the last decade and the current state of financial stability policy, all three questions need re-assessing from first principles. The next three sections address in turn the goal, boundaries, and governance of financial stability policy.

Goal

Financial stability is defined negatively as the absence of instability. To be sure, the economic literature on financial instability and financial crises predates the global financial crisis. But in the pre-crisis period, the focus was on exchange rate or banking crises (Bordo 2017). Post-crisis, the definition of financial instability was broadened to include 'any disruption to financial services caused by impairment of all or parts of the financial system that has the potential to have serious negative consequences for the real economy' (CGFS 2010, FSB/IMF/BIS 2011, IMF 2013, IMF/FSB/BIS 2016). For the purposes of this definition, 'financial services' include credit intermediation, risk management, and payments services. Central to this definition is the concept of systemic risk, in other words, the probability that a shock could turn into a financial instability event.

This definition of financial stability suffers from two major shortcomings.

The first is that it lacks a sound theoretical basis. Almost anything could trigger a severe disruption to financial services: external shocks, excessive risk-taking, asset price volatility, housing booms, lax macroeconomic policies that lead to unsustainable public or private indebtedness, failure of systemically important financial institutions due to fraud or mismanagement, herd behavior among investors, a sudden shock to depositors' confidence,… the list can go on and on, and the potential shocks could be either endogenous or exogenous to the financial system. But there is no comprehensive theory linking all these potential shocks to systemic risk through well-understood transmission mechanisms. It is also not clear how systemic risk reacts to specific policy measures.

In addition, structural, behavioral, and political economy factors, many outside the control of policy-makers, can have a major impact on financial stability. The direction and magnitude of this impact is often ambiguous, depending on a host of other circumstances, and sometimes counterintuitive.

- For example, one issue that has been extensively studied is the impact of competition in the banking system on financial stability. Intuitively, more competition, by putting pressure on profits, can be expected to lead banks to take more risk, thereby increasing systemic risk (Allen & Gale 2004). But it has also been argued that lower lending rates as a result of more competition improve borrowers' viability, thus lowering credit risk (Boyd & De Nicolo 2005). The empirical evidence, to which economists would normally appeal to settle an issue like this, is inconclusive: there is large cross-country heterogeneity. It appears that the impact of competition on financial stability depends on several factors, including the level of institutional development, the quality of bank supervision, and the degree of leverage (see, among others, Delis 2012, Beck et al. 2013, Freixas & Ma 2014). On the face of this evidence, the OECD concluded that 'studies exploring the complex interactions between competition and stability in retail and commercial banking come to the ambiguous conclusion that competition can be both good and bad for stability. Policy measures that strike an acceptable balance remain elusive.' (OECD 2011).
- Another structural issue that has an impact on financial stability is the quality of corporate governance in financial firms. Theoretical and empirical research shows that better corporate governance (in both financial and non-financial firms) is associated with lower stock price volatility, lower costs of borrowing, and deeper and more liquid capital markets. Weaknesses in corporate governance were major factors behind past financial crises in some emerging market economies. Intuitively, therefore, improving corporate governance should lower systemic risk. The findings of recent work by the IMF, however, are more nuanced. Stronger corporate governance does not

necessarily reduce the probability of financial crises, although it appears to reduce their impact on the balance sheets of individual firms. Furthermore, the effect varies for different aspects of corporate governance (board independence and the quality of risk management are important; executive compensation much less so) and is state-dependent: a preponderance of large institutional shareholders—who are able to exercise tighter control over management than small individual shareholders—is associated with less risk-taking by individual firms in "normal" times but more risk-taking when the system is already in a period of stress (IMF 2014, 2016).

- Financial deepening or financial development is a key goal for many developing and emerging market countries. However, its implications for financial stability are not clear. On one hand, by facilitating risk diversification and creating deeper and more liquid financial markets, financial deepening can enhance stability. On the other, by promoting leverage and risk-taking beyond the point that a still-immature financial system can handle, it can have the opposite effect. Research by the IMF suggests that the relationship between financial deepening and financial stability is bell-shaped: at low levels, more financial deepening is associated with greater stability; but there is a certain point beyond which there 'too much finance' and additional financial deepening increases vulnerabilities (IMF 2015b). Possible explanations include the increased size and complexity of financial systems that could lead to a 'catastrophic meltdown' (Rajan 2005) and the fact that, if some risks are unknown or poorly understood, herd behavior by investors can increase financial instability (Gennaioli, Schleifer & Vishny 2011).

This discussion highlights that we still have no comprehensive theory or model for the behavior of the financial system, its interactions with the real economy, and its sensitivity to policies. And this makes achieving financial stability, however this goal is defined, very hard.

The second major shortcoming of the standard IMF/FSB definition of financial stability is that it is not easy to translate financial stability into a practical, measurable operating target for policy. The closest candidate, containing systemic risk, is as nebulous as the notion of financial stability itself. Systemic risk is not directly observable. Although several metrics have been proposed, they are model-based estimates, not hard data. Contrast this with monetary policy: the operating target for price stability adopted in most countries—maintaining a single, well-defined aggregate price index close to a numerical target or within a specified range—is simple, clear, and measurable. Even when the numerical target is not explicit, as in the case of the U.S., everyone knows how price instability is measured, and this metric is regularly made publicly available by an independent authority.

Having a vaguely defined goal that can be at best imperfectly approximated for a complex system whose workings are not fully understood raises daunting challenges for financial stability policy. How can we measure success? Since risk can never be fully eliminated, what is an acceptable degree of risk? How can the policy-maker's (or society's) risk tolerance be determined? How do we trade-off the benefit of avoiding a future tail event—a financial crisis—whose probability and economic impact are not known with any precision, against the cost of financial stability measures today? There are no good answers to these questions yet.

Unfortunately, policy-makers in the real world cannot afford to wait until all these questions have been answered and they have the perfect policy framework at their disposal. For them, there are two practical ways forward.

- The first is to agree on a measure of systemic risk among the available model-based estimates and articulate explicitly an arbitrary but transparent degree of 'risk tolerance' of the policy authorities. This is not as far-fetched as it may sound. It is, in essence, the approach used by the U.S. Federal Reserve in designing the stress tests mandated by the Dodd-Frank Act, which are a key component of the U.S. financial stability policy framework. The hypothetical stress scenarios are designed with specific numerical parameters measuring their severity,[4] and banks that fail the tests are required to

[4] In designing the 'adverse' and 'severely adverse' macroeconomic scenarios required by the Act, the Federal Reserve has adopted the so-called 'recession approach', in which the future paths of key economic variables in the scenarios are

take corrective action. It should be possible to use a similar approach in defining a broader financial stability 'standard': when systemic risk is assessed to exceed this standard, policy action would be required. The pitfall of this approach—which also applies to the Federal Reserve's design of stress tests—is that systemic risk has many dimensions, not all of which are known. A policy designed to maintain financial stability in the face of certain kinds of systemic risk does not guarantee that the financial system would be able to cope with *all* sources of systemic risk, and may thus lead to a false sense of security.

- Another possible way forward is based on ideas developed outside the field of economics, specifically the notion of 'discursive governance' for independent regulatory agencies discussed in Gehring (2004). This approach starts by acknowledging that there is no practical financial stability metric and instead strives to establish a process of challenging the decisions of the financial stability policy authority, forcing it to explain its rationale and act upon the comments. This could be accomplished, for example, through regular scrutiny by the government, parliament, an independent council, or an international organization such as the IMF. The idea is that this process will, over time, help forge a consensus on the collective systemic risk tolerance, and thus the implicit operating target for financial stability policy. This is essentially the approach advocated by Large (2015).

The two approaches are not mutually exclusive. Until a good, comprehensive systemic risk proxy is broadly accepted, it would make sense to use the existing, imperfect metrics for at least some types of systemic risk, define thresholds for taking policy action, and hold the financial stability authority accountable for this action. At the same time, it would be important to complement this approach with a process of challenge and dialogue that would help promote a better common understanding of the ultimate objective of financial stability policy, as well as broader acceptance of the cost of the measures necessary to achieve it.

Boundaries

The experience of the global financial crisis showed that traditional macroeconomic policies and microprudential regulation and supervision could not, by themselves, deliver financial stability. A new policy framework was needed, with financial stability as an explicit goal. But what would be the boundaries of this new framework? What policies and instruments should it encompass?

The question was complicated by the fact that macroeconomic policies—especially lax monetary policies in the US during the 'Great Moderation'—were widely seen as having contributed to the crisis. If so, shouldn't monetary policy in the future be aimed at financial stability? And what about housing and other policies, like tax or competition, that had, to a greater or lesser extent, also played a role in the buildup of vulnerabilities that led to the crisis?

Two answers have been proposed to this question.

- The IMF, as we saw earlier, took the view that the financial stability goal should be assigned to macroprudential policy, while monetary and other policies should maintain their separate objectives. Recognizing, however, that these other policies can also have an impact on financial stability, the IMF elevated macroprudential policy to a central position, with the macroprudential authority—ideally, for the IMF, the central bank— expected to guide and, if necessary, demand adjustments in all other policies (IMF 2013).
- The BIS, on the other hand, has continued to maintain that policy measures in the financial sector alone cannot deliver financial stability. Instead, (micro- and macro-) prudential regulation, monetary policy, and fiscal policy, in addition to pursuing their separate goals, should each be systematically aimed at stemming financial sector vulnerabilities in a coordinated way, in the context of an integrated 'macro-financial policy framework' (BIS 2016).

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specified to reflect conditions that characterize post-war U.S. recessions. It has furthermore decided to use the unemployment rate as the central metric of the severity of the recession scenario, and has specified precise parametric changes (a 3 to a 5 percentage point increase in the unemployment rate or an increase to a minimum of 10 percent, whichever is greater, in 6-8 calendar quarters) to define the 'severely adverse' scenario (Federal Reserve, 2013).

Both answers are problematic. Assigning the goal of financial stability to macroprudential policy alone maintains an apparent 'Tinbergen Rule' simplicity; but elevating it to a central coordinating role is clearly unrealistic, given the lack of a well-defined goal and the still-limited understanding of how—or whether—macroprudential tools work.[5] On the other hand, the notion of financial stability as a shared responsibility of several policies has some intuitive appeal; but it is not clear how an all-encompassing 'macro-financial policy framework' would actually work or how monetary and fiscal policies would resolve potential conflicts between the pursuit of financial stability and their other objectives. Moreover, as discussed in more detail below, the empirical literature has cast doubt on the feasibility and effectiveness of using monetary policy to pursue financial stability objectives.[6]

What is needed is a systematic and rigorous approach to the question of the appropriate boundaries of the financial stability policy framework. Such an approach may be found outside the confines of economic literature.

Political scientists studying policy design have developed three criteria for optimal 'policy mixes,' i.e., bundles or portfolios of policies that pursue the same or related objectives (Howlett & Rayner 2007; Briassoulis 2009; Howlett & Cashore 2009; Rayner & Howlett 2009).[7]

- *Coherence*, when different policy goals are intrinsically connected and co-exist in a logical fashion;
- *Consistency*, when the instruments of different policies reinforce each other and contribute to the achievement of all the goals of the policy mix; and
- *Congruence*, when multiple goals and instruments work together in a mutually supportive fashion most of the time and conflicts are unlikely and infrequent.

These criteria can be used to determine the optimal boundaries of financial stability policy. Macroprudential is the only policy that has financial stability as its sole objective: it has no other competing goals. Policies that are coherent, consistent, and congruent with macroprudential policy should fall within the ambit of the financial stability policy framework: they should have financial stability as an explicit—though not necessarily the sole—objective and be pursued jointly. This does not necessarily require that authority for all of them should be vested in the same agency; but at a minimum, it requires that they be conducted in a coordinated fashion, since their combination is likely to deliver better results for their (coherent) objectives than the pursuit of each of them separately. On the other hand, policies that are not coherent, consistent, or congruent with macroprudential policy should maintain their distinct goals and be pursued independently of financial stability considerations.

The rest of this section applies these criteria to a number of policies that have at different times been identified as potentially having an impact on financial stability—in addition to macroprudential policy, which of course is coherent, consistent, and congruent with itself. Table 1 summarizes the results.

[5] In a recent IMF paper, the authors note that '[d]espite considerable progress over the past years in assessing the effectiveness of macroprudential policies, many questions remain unanswered. In particular, the literature has so far not fully succeeded in rigorously quantifying the effects of various macroprudential measures' (Alam *et al*. 2019).
[6] The BIS acknowledges this objection to an integrated macro-financial policy framework, noting that 'there is as yet no consensus on the balance of benefits and costs' of using monetary policy to pursue financial stability objectives (BIS 2016).
[7] More recent contributions in the theory of policy design focusing on complex 'policy packages' have explored issues of governance, lobbying, and regulatory capture (Del Rio & Howlett 2013; Howlett & Rayner 2013), but the three optimality criteria remain relevant and adequate for the purposes of the discussion here.

Table 1. Scope of the Financial Stability Policy Framework			
Policies	**Optimality criteria**		
	Coherence	Consistency	Congruence
Macroprudential policy			
Microprudential regulation & supervision	Yes	Yes	Yes
Financial safety nets	Yes	Yes	Yes
Monetary policy	No	Sometimes	Sometimes
Fiscal policy	No	No	Sometimes
Competition policy	No	No	No
Housing policy	No	No	No

Microprudential regulation and supervision

Microprudential regulation and supervision is perhaps the most straightforward. Its goal—the safety and soundness of individual financial institutions—is not sufficient to ensure the stability of the financial system as a whole but is coherent and intrinsically linked with it: failure of the prudential supervision of individual systemically important institutions (or infrastructures) can precipitate a systemic crisis no matter how sophisticated the macroprudential framework is. In addition, given that macroprudential policy uses mostly microprudential instruments, the toolkit of the two policies is consistent. As anticipated by Crockett (2000), in using these instruments regulators should keep both micro- and macro- perspectives in mind. Lastly, the two policies are congruent: they are most effective when implemented in close coordination. Tensions may arise under very specific circumstances: for example, at the onset of a crisis, when microprudential supervisors may ask individual institutions to reduce risk exposures by deleveraging while, at the same time, macroprudential policy-makers may be taking steps (e.g., reducing countercyclical capital buffers) to ensure continued flow of credit to the real economy. But these tensions are infrequent and, assuming effective coordination arrangements, relatively easy to resolve.

Financial safety nets

This term encompasses a wide range of arrangements, rules, and institutions aimed at containing the impact of a systemic crisis and minimizing the costs to the economy and to taxpayers. They include structural rules separating—or introducing firewalls between—different types of banking activities, like the Volcker rule in the U.S. or the recommendations of the Vickers Commission in the U.K.; arrangements for the recovery or resolution of failing ('going concern') or failed ('gone concern') banks and other financial entities; deposit insurance; emergency liquidity assistance (ELA) arrangements; and arrangements for inter-agency

cooperation in the event of a systemic crisis.[8] Although many of these pertain to the period *after* the onset of a financial crisis, their goals are coherent with macroprudential policy because putting credible financial safety nets in place *before* a crisis can lower systemic risk.

The various safety nets are also consistent and congruent with macroprudential policy and reinforce measures aimed at reducing systemic risk. This was powerfully illustrated by the arguments underpinning the Bank of England's post-crisis capital framework for banks. The total amount of capital the Bank considered appropriate for the banking system as a whole (around 11 percent of risk-weighted assets) was deliberately set *lower* than other estimates—notably those made by the Basel Committee in the aftermath of the crisis—because 'effective arrangements for resolving banks' and 'other structural changes since the crisis,' including the ring-fencing of major UK banks, 'reduce both the probability of crisis and the economic cost of bank failure' (Bank of England 2015). The Bank of England clearly considers that these safety nets contribute directly to financial stability.

Monetary policy

Given the evident—at least with the benefit of post-crisis hindsight—potential of monetary policy to create or amplify financial sector vulnerabilities, the pre-crisis consensus that it should stay exclusively focused on price stability came into question. During the last decade, a growing body of research has started exploring the benefits and costs of using monetary policy—specifically, the short-term interest rate—for financial stability goals.

It is true that the short-term interest rate operates through the same channels as several prudential policy instruments, notably capital requirements (Cecchetti & Kohler 2014), so it could, in principle, be used to achieve *either* monetary policy *or* financial stability objectives. It is also true, as the BIS and others have pointed out (IMF 2015a, Borio 2016), that a monetary policy of 'leaning against the wind' in good times, i.e., keeping interest rates higher than would be justified purely on price stability grounds, could help mitigate financial stability risks. These arguments, however, still leave open the question which policy can be *more effective* in achieving each of the objectives: in other words, which policy could achieve either objective at the lowest cost for the real economy.

While this question is not settled, the weight of empirical evidence suggests that that monetary policy would make a poor and inconsistent financial stability tool (see also the survey in Aikman *et al*. 2018a).

- After reviewing the literature, the IMF found that while a policy of 'leaning against the wind' can indeed lower systemic risk, macroprudential policy action is generally more effective, and concluded that, given the limited understanding of systemic risk and the transmission channels of various policies, monetary policy should 'generally' not deviate from the objective of price stability (IMF 2015a). This was confirmed in a paper by Fahr & Fell (2017), who found that monetary policy is relatively more effective in ensuring price stability than in mitigating systemic risk, while conversely, macroprudential policy aimed at moderating the financial cycle is relatively more effective in ensuring financial stability compared to the short-term interest rate. Blanchard & Summers (2017) also concluded that using monetary policy to fight asset bubbles 'has a good chance of being ineffective and possibly counterproductive' as the interest rate is a poor instrument for decreasing risk and suffers from long transmission lags.
- In a Federal Reserve Board paper (Ajello *et al*. 2016) estimated the economic costs of using interest rates to reduce vulnerabilities in the financial system and concluded that they are large relative to the benefits. Svennson (2017) argued that these costs are likely to be higher still, given that this policy would make the economy weaker at the onset of a crisis, thus worsening its severity.
- Aikman *et al*. 2018b analyzed empirically the joint non-linear dynamics of credit, financial conditions, and monetary policy and found that the transmission mechanism of monetary policy to longer-term

[8] The term 'financial safety nets' is used here for the first time with such a wide scope. The term was used in a similar context in IMF (2009), but its scope in that paper was much more limited (mainly to the resolution regime and deposit insurance).

yields is blunted in high-credit states. This suggests that, regardless of the costs of doing so, the effect of using the short-term interest rate to 'lean against the wind' is state-contingent: this policy may not work at all in high-credit states of the world.

Against this background, how would the three optimality criteria apply to monetary policy? The goal of price stability does not appear to be intrinsically linked to financial stability: achieving one does not necessarily deliver the other, and many crises—including the global financial crisis—have erupted in an environment of price stability. In addition, pursuing price stability through monetary stimulus in a deflationary or near-deflationary environment may actually undermine financial stability by encouraging excessive risk-taking. As recent experience shows, this tension is not easy to resolve. Finally, although the short-term interest rate can in principle by used to mitigate systemic risk, the empirical evidence suggests that this is neither efficient nor always effective, raising questions about consistency and congruence.

Fiscal and other policies

Fiscal policy has multiple dimensions beyond aggregate demand management, including tax efficiency, distributional fairness, and other long-term goals that are far removed from systemic risk. However, even the relatively narrow goal of managing aggregate demand in order to close the output gap and achieve full employment is not intrinsically linked to systemic risk or the stability of the financial sector. Some fiscal policy instruments—notably taxation—can, under certain circumstances, be congruent with financial stability objectives, for example, by helping deflate asset bubbles in certain sectors, like housing. The reverse could, in theory, also be true: macroprudential policies aimed at smoothing the financial cycle could support countercyclical fiscal policies. But this could only happen when the financial and business cycles are synchronized. Moreover, given our still-limited understanding of macroprudential tools, there is no evidence that this mutually-reinforcing effect would be significant. On the other hand, if the financial and business cycles are not synchronized or if fiscal policy is at least partly driven by broader goals—as is often the case in the real world—conflicts between fiscal and macroprudential policies would be likely to arise and, given the deep differences in the governance arrangements for each, hard to resolve.

The farther we move from the financial sector the harder it is to make the case that policies such as competition and housing are coherent, consistent, and congruent with macroprudential policy. Of course, this is not to ignore the potential impact these policies could have on financial stability: policies will always have spillover effects on other areas. But this does not require that they be subsumed into a common policy framework.

The optimal boundaries of financial stability policy

In conclusion, the analysis shows that macroprudential policy, microprudential supervision, and financial safety nets meet the criteria for an integrated policy portfolio or framework. They have different objectives (containing systemic risk, maintaining the safety and soundness of individual institutions, ensuring orderly least-cost resolution of financial entities, protecting small depositors, limiting moral hazard, or safeguarding the interests of taxpayers) but these are intrinsically connected and coherent with each other and with the ultimate goal of financial stability. Their instruments are consistent (in some cases, overlapping) and may, to some extent, be used interchangeably. And each of them contributes to, or at least does not detract from, achieving the goals of the others. Financial stability can really be thought of as a shared responsibility of these three policies.

Large (2015) outlined a similar proposal for a framework with three pillars: macroprudential policy, microprudential supervision, and recovery and resolution. The scope of his framework is very similar to ours, except for the third pillar, which is narrower in scope. But his proposal was not sufficiently fleshed out, there was no rationale tying the three pillars together, and no explanation for why the boundaries were drawn that way.

While a number of other economic policies can have a direct or indirect impact on financial stability, it seems reasonable to limit the scope of financial stability policy to these three components. These can be most

effective in mitigating systemic risk. And while it is important to understand and monitor the effects of other policies on financial stability, it is generally better to let them focus on their own objectives and use the three pillars of financial stability policy to offset these effects, if necessary.

Governance

In the aftermath of the global financial crisis, countries overhauled not only their financial regulations but also their regulatory institutional architecture. Unlike the former, where reforms were coordinated and monitored by the Financial Stability Board, the changes to the institutional architecture differed markedly from country to country (IMF 2013, Lim *et al.* 2013). To this day, there is no single 'best' model for the institutional architecture of financial stability policy (CGFS 2010, BIS 2011, IMF/FSB/BIS 2016).

Nevertheless, as we saw, in almost all countries these institutional changes resulted as a matter of fact in more powers being given to the central bank. This was enthusiastically championed by the IMF. Laying out the first 'key principles for macroprudential policy,' the Fund stressed that to ensure the macroprudential authority's willingness and ability to act, the central bank should 'play a key role' regardless of the specific institutional arrangements (IMF 2013). Indeed, the Fund went further than that: in two of the three 'institutional models for macroprudential policy-making' it outlined in the same paper, authority for macroprudential policy rests with the central bank. As regards the third one, in which macroprudential authority rests with a committee outside the central bank, the Fund recommended that this committee be chaired by the central bank. And if the committee were chaired by another agency, notably the Treasury, the Fund cautioned that, in order to 'safeguard the independence of the participating agencies' (notably the central bank), this committee should not be given hard powers (IMF *op. cit*. pp. 29-30).

Central banks had by then secured a zealously-guarded and much-vaunted 'independence'—meaning independence from the government—in the conduct of monetary policy. The consensus among economists was that an independent central bank, focused on a (usually explicit) inflation target, was the best institutional arrangement for delivering price stability (Cukierman 2008).[9] It therefore followed that the central bank should enjoy the same degree of independence in the discharge of the new responsibilities assigned to it. This unspoken assumption explains the IMF's preoccupation that the architecture of macroprudential policy should above all preserve the independence of the central bank: after all, if central bank independence is an unalloyed good for price stability, it would be the same for financial stability.

This assumption is wrong. *First*, as Bean (2017) has pointed out, central bank independence is a bit of fiction: central banks are ultimately creatures of the state, and their powers come from (and can be taken away by) the state.[10] Rather than talk about central bank independence in the abstract, it is more helpful to think in terms of specific tasks that are delegated by the state to the central bank, and the precise principal-agent arrangements that are appropriate for each task. *Second*, and more important, financial stability is fundamentally different than price stability—as the discussion in the preceding sections has made clear. Even if the central bank were to be given sole responsibility for financial stability, it does not follow that it should have the same degree of independence as it does for monetary policy.

Before we can decide the role of the central bank, there is a more fundamental question that needs to be addressed: should the responsibility for financial stability be delegated to an independent agency—such as the central bank—or should it stay with the government? And if the former, what degree of delegation is appropriate?

Economic theory provides the tools to address this question. In their now-classic investigation of the delegation of policy tasks from politicians to technocratic agencies at arm's length from the government, Alesina and Tabellini outlined four principles of delegation (Alesina & Tabellini 2007, 2008). A policy task should be delegated to a technocratic agency if:

1. The task is such that politicians cannot make a credible commitment to fulfill it (due to time

[9] Whether this would also automatically lead to closing the output gap and full employment or that requires a 'divine coincidence' (Blanchard & Gali 2005) is a separate discussion, outside the scope of this paper.
[10] The one possible exception is the European Central Bank, whose powers derive from an international treaty.

inconsistency, short-termism, or the influence of strong vested interests with stakes in the outcome).

2. The policy goal—and thus the criteria of good performance—can be specified *ex ante*.
3. Social preferences around the policy goal are reasonably stable.
4. The policy does not have far-reaching distributional consequences.

If, on the other hand, these conditions are not met, the policy task should remain with the government, who will be held accountable at the ballot box.

Despite some disagreement, especially as regards the distributional consequences of monetary policy in a world of persistently low interest rates and large-scale asset purchases, the consensus has so far been that monetary policy meets these criteria and should therefore be delegated to an agency—the central bank—that is independent from the government.

Financial stability policy, however, is another story. It arguably meets the first of the four criteria for delegation: time inconsistent preferences are likely to make credible commitment of politicians to financial stability extremely challenging. But it fails the other three criteria. The goal of financial stability policy is, as we have seen, vague and non-observable, so it is not possible to define *ex ante* criteria of success. Social preferences for financial stability—or the degree of tolerance for the risk of financial instability—are not well-defined and unlikely to be stable. It is therefore difficult for a technocratic agency to optimize the trade-offs between a vague and non-observable benefit in the future and the very visible cost of measures to contain systemic risk today: it will inevitably be seen as imposing its own preferences on society. And many of the measures to contain systemic risk, such as limits on high loan-to-value mortgage loans, have significant distributional consequences.

A different governance model is needed for financial stability policy: one that addresses the time inconsistency problem but also distinguishes between 'political' and 'technical' decisions. Not all decisions pertaining to financial stability can—or should—be taken at the same level. Some, such as defining the objective, determining the level of systemic risk tolerance, establishing accountability and inter-agency cooperation arrangements, and designing the institutional architecture itself, are decisions that should be made at a level *above* the designated agency. These decisions are fundamentally political and should be the product of the political process in each country (Large 2015, Tucker 2016a, 2016b, 2018). Once these issues are settled, the responsibility to achieve the established objective may be delegated to the agency or agencies responsible for financial stability policy, together with the power, independence, and resources necessary to carry out this task effectively.

This means that the concept of independence needs to be 'unpacked' in order to determine the appropriate degree of delegation. Independence is multi-layered, encompassing political independence (no interference by the government), goal independence (the authority of the agency to set its own policy goal, e.g., the central bank setting the inflation goal), and operational independence (the ability to select and use policy instruments with autonomy).[11]

Based on this distinction, Balls *et al*. (2018) have suggested that while the agency(ies) responsible for systemic risk monitoring and macroprudential policy should enjoy operational independence, they should be subject to an additional layer of political oversight, in order to ensure political legitimacy. The next section takes this suggestion a step further and presents a governance model that distinguishes between the 'political' and 'technical' levels of financial stability policy-making for each of the three core components of the framework discussed in the previous section.

A high-level governance model for financial stability policy

Table 2 outlines a governance model for financial stability. The three columns are the three components of financial stability policy: macroprudential policy, microprudential supervision, and financial safety nets. The

[11] Interestingly, even in the case of monetary policy, the few empirical investigations that have tried to distinguish between these various layers found that instrument/operational independence is key for price stability, while political/goal independence does not matter (see, for example, Debelle & Fischer 1994, Balls *et al*. 2018).

four rows cover four key aspects of policy development that apply to any kind of policy (design, prerequisites, analytics, and operations/implementation) and distinguishes between aspects that are determined at the 'political' level (i.e., at a level above that of the agency(ies) tasked with carrying out the policy) and the 'technical' level (i.e., the level of the agency).

Table 2. A Governance Model for Financial Stability Policy

Aspect	Decision level	Policy component		
		Macroprudential policy	***Microprudential supervision***	***Financial safety nets***
Design	Political	Definition of financial stability objective and of risk appetite Perimeter of financial regulation and policy Institutional architecture and legal framework for financial stability: agency responsibilities, mandates, powers, Incentives and arrangements for inter-agency coordination and conflict resolution International burden-sharing arrangements Accountability		
Prerequisites	Political	Operational and budgetary independence of relevant agencies Legal protection of supervisors/agency officers Adequacy of agency resources in relation to the assigned objectives		
Analytics	Technical (agency)	Systemic risk assessment Monitoring and analysis of market trends System-wide stress tests, network analysis, assessment of interconnectedness Cross-border cross-sector spillovers Data gaps	Understanding of business models/risk profiles Supervisory risk assessment/ratings Solvency & liquidity stress tests for supervised firms (banks, insurers, asset managers, CCPs, etc.) Assessment of operational and other risks Data gaps	Analysis of liquidity needs for ELA/MMLR/ liquidity insurance framework, as applicable Contingency planing and crisis management simulations ('war games') Assessment of deposit insurance reserves Data gaps
Operations	Technical (agency)	Thresholds/triggers for policy action Macroprudential tool selection, design, and calibration Designation of systemically important firms Information-sharing and cooperation Communication with industry and public, incl. Financial Stability Reports	Supervisory approach On- and off-site inspections, benchmarking, outlier analysis, and other techniques, as applicable Licensing/authorization of financial firms Group and conglomerate supervision Compliance assessment, corrective action framework, fines and adjudication Assessment of regulatory gaps Information-sharing and cooperation Communication with industry and public	Implementation of structural reforms/ring-fencing Normal and emergency liquidity windows, operations, collateral rules, etc. Resolvability of financial firms Information-sharing and cooperation Communication with industry and public

The first row covers fundamental questions of policy design: the definition of the basic elements of the framework (such as the objective of financial stability policy, the degree of risk appetite, the degree and means of protection of taxpayer money in resolution, the extent of coverage of deposit insurance, etc.); the institutional architecture (the agencies and their respective responsibilities, their hierarchy, the degree of independence they are granted, the accountability arrangements, etc.); as well as any international commitments made in the context of financial stability objectives (such as burden-sharing arrangements). These fundamental questions cut across all three components of financial stability policy. They should not—indeed in most cases cannot—be delegated to technocrats in independent agencies but should be decided at the political level, by elected politicians at the parliament or in government. To have legitimacy, they should reflect to the highest possible degree broadly accepted social choices.

The second row covers the prerequisites for successful policy implementation. These are the necessary conditions that would enable the agencies tasked with various components of financial stability policy to carry out their tasks effectively: operational independence, legal protections, adequate budgetary and human resources, etc. Despite differences in the details, these prerequisites also apply to all three components of financial stability policy. Because of their nature, ensuring most of these prerequisites requires action at the political level. For example, granting legal protection to supervisors in the conduct of their duties in accordance to the legal regime of each country, or providing budgetary resources (or a Treasury backstop) for the operations of the agency(ies) in charge of financial stability, can only be done at the level of the legislature.

The third row covers the analytical underpinnings of each of the three components of financial stability policy. Each of these components requires extensive investment in analytical techniques, both to identify potential sources of systemic risk and to mitigate it. Most of the emphasis in recent years has

been on developing analytical tools for systemic risk monitoring, such as system-wide stress tests, network models, analysis of spillovers and interconnectedness, etc. But both microprudential supervision and financial safety nets also use analytical tools of the type highlighted in the respective columns in Table 2. Indeed, as the financial sector—and our understanding of it—evolves, these tools need constant extension and refinement. These elements are delegated to the level of the agency.

The fourth row covers operational aspects of policy implementation. For macroprudential policy, this includes developing and calibrating a toolkit, triggers for policy action, criteria for designating systemically important financial firms, etc. For microprudential supervision, it includes developing and refining the supervisory approach (e.g., risk- or compliance-based, market- or firm-based); the toolkit used for supervision (off-site monitoring, on-site inspections, trend or outlier analysis, benchmarking, etc.); the machinery for assessing compliance, punishing non-compliance, and the process of appeals against supervisory decisions and adjudication; etc. For financial safety nets, key operational issues include the design of normal and emergency liquidity facilities; the implementation of ring-fencing, if relevant; the resolvability of financial firms; funding arrangements for deposit insurance, etc. For all three policy areas, two critical operational aspects are functioning information-sharing and cooperation arrangements, both cross-agency and cross-border (such as Memoranda of Understanding); and a well-developed communications policy, both with the industry and with the public. Most of the elements in this row may be delegated to the technical level, but with political oversight over the menu of tools the agency(ies) may use, especially if these have significant distributional consequences.

The elements listed above are not an exhaustive list of tasks for the financial stability policy-maker. They serve as an illustration of what each aspect of policy is supposed to cover. The contents of each cell in Table 2 will also be different from country to country, reflecting the characteristics of its financial system. For example, the analytical and operational aspects of policy would look very different in a small, emerging marker country with a relatively closed bank-dominated financial system and in an advanced economy with a complex and globally interconnected system. Nevertheless, the three components of financial stability policy and the four aspects of policy development apply to all cases. The model covers all relevant elements of financial stability policy but is sufficiently flexible to accommodate a wide variety of country circumstances.

Institutional architecture

Based on this governance model, what agency or agencies should be given the responsibility (as well as the authority, autonomy, and resources) for the analytical and operational aspects of financial stability policy?

The central bank already has a major presence in that space and, clearly, a key role to play. It has a comparative advantage in systemic risk monitoring and risk analytics for the financial sector (stress tests, network modeling); access to data and the infrastructure to use them; and in most cases, well-developed in-house expertise. It is responsible for several aspects of the financial safety nets. And in countries where it is also in charge of the microprudential oversight of (at least parts of) the financial sector, it has direct control over instruments that can be used for macroprudential purposes. Especially in the latter case, it is thus tempting to assign overall responsibility for financial stability to the central bank.

But usually there are other agencies involved in various components of the financial stability framework, such as the capital markets supervisor, insurance supervisor, or the deposit insurance agency, and their operational independence is equally important. The Treasury should also be directly involved in decisions that may have implications or create financial risks for the taxpayer. And the government, through the Treasury, should retain overall political oversight—and accountability—for major financial stability policy decisions, including the foundational aspects of design and prerequisites from Table 2.

Therefore, some sort of committee is necessary to guide financial stability policy. Given the need for high-level political oversight, the Treasury is probably best placed to chair this committee, although the UK model, with a separate Financial Policy Committee at the central bank, whose powers and tools are subject to political oversight, also works well. And just as political oversight and accountability are important for the legitimacy of the committee, so is the operational independence of each participating agency, as well as the cooperation among them, for its effectiveness.

Beyond these general principles, however, there is no recipe for an 'optimal' institutional architecture and assignment of agency responsibilities. In every country, the mandate, powers, and governance of the central bank and various financial sector supervisory agencies are state- and history-contingent. In other words, how well an agency functions in a particular country depends on this country's circumstances (political system, political culture and traditions, institutional arrangements for other policies, etc.), as well as on the past (previous episodes of financial instability, what were seen as the failures that led to them, and the policy reactions of the authorities). As well, institutions evolve slowly and are subject to historical path dependence: past institution-shaping decisions constrain and influence the choices that are available when reforms become necessary. And reforms to the financial stability policy architecture, such as the ones that took place after the global financial crisis, are not implemented in a vacuum but in the context of the existing institutional setup in each country. For all these reasons, it is likely that there will continue to be a diversity of institutional arrangements for financial stability policy around the world.

Concluding observations

The last decade saw an unprecedented wave of reforms aimed at covering the fault lines exposed by the global financial crisis. Importantly, these reforms included steps to build a new macroprudential policy framework dedicated to financial stability that would complement the existing arsenal of macroeconomic and microprudential policies.

Despite the substantial progress, establishing this new policy framework proved challenging. Fundamental questions about the ultimate goal of financial stability, the role of other policies in achieving it, and their relationship with macroprudential policy remain unsettled. These questions deserved more attention at the outset, but they were sidelined by the excessive focus on macroprudential policy. It has also by now become clear that the institutional architecture of the new framework and, in particular, the role of central banks, has not been thought out properly. The rush to assign increased responsibilities for financial stability to the central banks, combined with what appeared to be a preoccupation with preserving maximum independence at all costs, prevented a proper discussion on the right degree of delegation of the new policy functions. That this took place at the same time as central banks were expanding into unorthodox monetary policy triggered

an inevitable backlash against their powers and perceived lack of accountability.

The central thesis of this paper is that to complete the unfinished business in financial stability policy, we need to address some foundational issues by going back to first principles. We need to put our focus on financial stability, not just macroprudential policy. We need to provide a definition of the goal and to determine a range of policies, including macroprudential, that may be used to achieve it. Within the boundaries of financial stability policy, we should acknowledge that macroprudential policy is still work in progress: while technical work is of paramount importance and should continue, especially in the areas of systemic risk assessment and tool calibration, in several other areas we should be open to learning from the wide range of country experiences. Last but not least, we need to recognize that, regardless of the particular institutional arrangements in each country, articulating and defining the goal of financial stability and deciding on any trade-offs that may arise between this and other policy goals is the task of democratically accountable governments, not unelected bureaucrats. The agency(ies) in charge of the various components of financial stability policy should have operational independence but be subject to political oversight and be held accountable for their actions.

It would be tempting to think that once we address these issues and put in place a governance framework like the one presented in this paper, financial stability would be assured. Unfortunately, this is not so. There are still considerable gaps in our understanding of the financial system. Structural factors, collective behaviors, and incentives of economic agents may have as much impact on financial stability as policies, and this impact is not well understood. As a result, no matter how sound the framework, how advanced the analytics, and how sophisticated, resourceful, and committed the policy authorities, financial stability is a goal that will remain elusive for some time to come. It will thus be important to remain aware of the limitations of financial stability policy, manage expectations of what it can deliver, and continue to expand the frontier of our understanding of the functioning of the financial system.

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