

Macroprudential frameworks: cross-border issues¹

Nikhil Patel

Abstract

Drawing on a recent survey of emerging market economy central banks, this note highlights the different channels through which the influence of macroprudential measures can extend beyond national borders, and discusses the need and scope for international cooperation of macroprudential measures.

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¹ This note has been prepared by Nikhil Patel and the box by Stefan Avdjiev.

Introduction

Given the globally interlinked financial system, the influence of macroprudential measures can extend beyond national borders. Spillovers can arise through many channels, ranging from global banks' regulatory arbitrage and national authorities' ring-fencing to global investors' choices in response to capital flow restrictions.

Based on our central bank survey, this note discusses some of the cross-border issues associated with macroprudential frameworks. Section 1 focuses on direct cross-border effects, including those stemming from regulatory arbitrage. Section 2 discusses the scope for international coordination and the role of international organisations in facilitating such coordination.

1. Cross-border effects and regulatory arbitrage

In principle, cross-border effects of macroprudential measures can be both positive and negative. The most natural positive effect concerns the public good aspect of financial stability, wherein actions enhancing financial stability in one country benefit also others. For instance, policies that prevent the build-up of systemic risk in one jurisdiction may reduce the probability of crises that subsequently spread elsewhere. But cross-border effects can also be negative, particularly if they induce regulatory arbitrage. In such a case, macroprudential measures in a particular country can end up shifting part of the risks to other jurisdictions. Such negative effects are particularly challenging when agencies do not have sufficient control over all institutions operating within their jurisdictions. For example, branches of foreign banks operating in a country that are not completely subject to national regulation may step in when domestic banks face tighter regulation, undoing some of the intended impact.²

Survey responses note instances of regulatory arbitrage (Table 3). For example, the Reserve Bank of South Africa notes that the introduction of countercyclical capital buffers (CCBs) by the Bank of England (BOE), Swiss National Bank (SNB) and others affected the South African economy through the amount of capital held by banks with parents or subsidiaries in these countries. Similarly, Cabezas and Jara (2016) show that Chilean banks responded to higher capital requirements abroad by increasing their domestic lending. Taking the example of residential real estate purchases, the Monetary Authority of Singapore (MAS) illustrates how Singapore was recently involved in cross-border spillovers both as a receiver in 2009–2011, when foreign demand from countries implementing tighter macroprudential policies contributed to an increase in property prices, and subsequently as a propagator, when overseas property purchases by Singapore residents increased as MAS stepped up its measures to cool property prices. Furthermore, by documenting a positive correlation between the use of macroprudential instruments across countries and international debt issuance by nonfinancial firms, Arslan (2017) shows that regulatory arbitrage is not

² This is an issue even within one country, when tighter restrictions on banks may result in risks shifting to less regulated non-banks (Arslan (2017)).

limited to banks or financial institutions. Non-banks may also borrow abroad, bypassing local banks.³

Looking beyond our survey responses, the literature is replete with evidence of sizeable cross-border spillovers, both from prudential and capital flow management measures.⁴ Box A summarises recent research on the spillover effects of prudential policies, focusing in particular on work done in the context of the International Banking Research Network (IBRN).

Although the existing literature seems to point to significant negative spillovers, there are at least two caveats. First, identifying positive spillovers is econometrically more challenging, not least because financial stability is hard to measure. Second, publication bias is likely to overstate the prominence of spillovers. Indeed, the majority of central banks in our survey reported that cross-border spillovers are not a significant issue (Table 3). Furthermore, as pointed out by the note by the MAS, alternatives to macroprudential measures may involve even bigger spillovers.

Summary of responses to the question: “Have you been affected by macroprudential measures taken by other economies?”

Table 3

Yes (7)	No (11)	Maybe/inconclusive (4)
South Africa, Malaysia, Brazil, China, Chile, Mexico, Singapore	Saudi Arabia, Poland, Hong Kong, Thailand, Peru, Hungary, Russia, Israel, Korea, Czech republic, Turkey	Philippines, Colombia, India, Indonesia

³ The central bank of Peru however emphasises that the share of firms in Peru that have access to international markets is small, and hence regulatory arbitrage of this form is not feasible for them.

⁴ Exchange rate misalignments triggered by macroprudential measures can also give rise to spillovers. Such measures can – intentionally or unintentionally – steer the exchange rate away from equilibrium, thereby delaying the process of external adjustment and making the eventual adjustment more painful. This is particularly a concern when the currency area, GDP area and the decision-making unit do not coincide (a violation of the “triple coincidence” according to Avdjiev et al (2016)), since in these cases exchange rates can be affected even if the country is not directly involved in any external imbalance from a national perspective.

Recent research on international prudential policy spillovers

Based survey data on cross-country differences in banking regulations and on bank flows from 26 source countries to 120 recipient countries, Houston et al (2012) show how banks are quick to transfer funds to markets with fewer regulations. Aiyar et al (2014), who quantify the aggregate impact of capital regulation, estimate that just under a third of the reduction in credit growth that could be achieved from increases in capital requirements on regulated banks is “undone” by an increase in lending by foreign branches that are not subject to the same requirements.⁵

Increased recourse to prudential and, in particular, macroprudential policy measures in the wake of the financial crisis has fuelled a debate about the transmission mechanisms and cross-border spillovers. A recent BIS paper (Avdjiev et al, 2016) provides a global perspective on the international transmission of prudential measures in the context of a research initiative of the International Banking Research Network (IBRN).⁶ The paper combines the BIS international banking statistics (IBS) with the IBRN prudential instruments database to analyse the effect of various prudential measures on international lending. The focus on home (lending) – destination (borrowing) country pairs allows the authors to simultaneously estimate both the international transmission and the local effects of such measures.

The results suggest that both loan-to-value limits and local currency reserve requirements on banks significantly affect international bank lending, with better capitalised banking systems and those with more liquid assets and less core deposits reacting more. In particular, a tightening of LTV limits in a borrowing country leads to a statistically significant increase in international bank lending to the residents of that country (Table A, column 1). By contrast, tighter LTV requirements in the country where banks are headquartered does not affect international lending. But not all banking systems react in the same way. Systems with better capitalised, more liquid and smaller (in terms of the balance sheet size) banks react more strongly.

A tightening of local currency reserve requirements is associated with increases in international bank lending, regardless of whether it is implemented by the country of the borrower or the home country of the lending bank (column 2). The international transmission of changes in home country local currency reserve requirements is affected by bank business models: banking systems that are better capitalised or less reliant on core deposits tend to respond with a greater expansion in their international claims.

The BIS study complements a number of country-specific studies using bank-level data. A meta-analysis of the country-specific findings (Buch and Goldberg (2016)) highlights three main findings. First, prudential instruments often produce cross-border spillovers through bank lending. Second, such spillovers vary across prudential instruments and banks. Bank-specific factors like balance sheet conditions (including capitalisation and liquid asset shares) and business models drive the amplitude and direction of spillovers on lending. In particular, balance sheet factors matter most consistently for cross-border effects, even though they cannot always explain cross-sectional differences in domestic lending by banks. Third, international spillovers of prudential measures to loan growth have not been large on average. Nevertheless, the studies may be understating the impact by considering a sample period in which relatively few countries implemented country-specific measures.

⁵ A recent study by Forbes et al (2015) analysing the cross-border impact of changes in Brazil’s tax on capital inflows between 2006 and 2013 shows that fund managers were quick to react by shifting funds away from both Brazilian bonds and equities, and into countries viewed less likely to alter their regulations.

⁶ The IBRN brings together researchers from central banks and international organisations to analyse issues pertaining to global banks. The first initiative was launched in 2013 and the results published in the *IMF Economic Review*. Contributions from national central banks explored how funding shocks to parent banks were transmitted to foreign countries through cross-border banking, while an umbrella paper performed a meta-analysis. This second initiative seeks to understand how lending, risk-taking and funding respond to prudential measures implemented in home and foreign markets. It will be published in the *International Journal of Central Banking* in 2017.

Impact of regulatory changes on international claims		Table A
	Loan-to-value limits	local reserve requirements
DestP	4.39***	1.13*
HomeP	-0.45	3.10**
Log Total Assets*HomeP	-15.56***	-0.91
Capital Ratio*HomeP	7.20***	3.56***
Illiquid Assets Ratio*HomeP	-0.67***	0.00
International Activity*HomeP	0.07	-0.03
Net Intragroup Liabilities*HomeP	-1.06	1.45
Core Deposits Ratio*HomeP	-0.37*	-0.52**

2. Scope for international cooperation of macroprudential measures

While the literature correctly cautions that not all forms of cross-border spillovers call for policy intervention,⁷ macroprudential measures provide a clear example of a case in which they often do. The global financial system is characterised by deep cross-border linkages dominated by a handful of global entities whose operations span multiple jurisdictions. Since their operations usually do not fall under the oversight of one national regulator, this is one instance in which the need and scope for coordination arises naturally, as evidenced by the process put in place to identify Globally Systematically Important Banks (G-SIBs) under the Basel committee on banking supervision (BCBS). On the other hand, some macroprudential risks and instruments may be more localised and provide limited rationale for coordination. For instance, as pointed out by the Monetary Authority of Singapore in their note submitted for this meeting, LTV limits on car loans to limit concerns over households taking on too much leverage to buy cars had the desired effect of limiting such borrowing in Singapore, but both the problem and the solution were domestic in scope and cross-border coordination in the form of similar measures taken by other jurisdictions would not have been appropriate.

In general, international negotiations involving sovereign entities face two prominent challenges. First, international negotiations are bound to be lengthy and repeatedly fall victim to political hurdles. Secondly, public goods such as financial stability tend to be underprovided, since the costs are borne privately but benefits

⁷ Formalising this notion in an open economy model, Korinek (2016) shows that international coordination will lead to better outcomes only if (i) national policy makers have market power (ie their actions affect international prices), (ii) they do not have a sufficient set of external policy instruments, or (iii) international financial markets are inefficient. These conditions are clearly not satisfied in the modern global financial architecture characterised by a few prominent financial centres and large entities that operate across multiple jurisdictions.

are shared with other countries.⁸ As pointed out by the Bank of Mexico, this problem is particularly pronounced in the case of co-ordination on macroprudential measures, because financial stability is a special kind of public good, for which the benefits are uncertain and are realised over a longer horizon but the costs are immediate and tangible.

Countries may choose to deal with these challenges in different ways. One alternative is to identify key partners with whom coordination will have high benefits and work with them *bilaterally*.⁹ A trend in this direction has been evident in international trade agreements, where the WTO and other large multilateral discussions are marred by political disagreements and delays.

The alternative is to rely on international organisations to broker agreements.¹⁰ If this works, it can secure the greater benefits that, in theory, multilateral initiatives can bring. As argued in the note by the Bank of Mexico, The approach is most beneficial if the benefits from cooperation, ie lower systemic risk, accrue more rapidly as the number of parties involved in the coordination process increases than the costs of coordination. This appears to be the case for macroprudential efforts, as suggested by the fact that multilateral initiatives in this area (eg the Basel Committee) seem to be more prevalent than bilateral ones. One reason might be that such coordination tends to be done by technocratic institutions such as central banks or regulators, which operate at an arm's length from the political process.¹¹

The feasibility of coordination to a large extent depends on the distribution of costs and benefits across countries. In some cases the handful of countries that host global banks and act as financial centers are those who obtain most of the benefits from coordination and bear most of the costs. In this case, one template for a multilateral coordination effort would be to start with these central jurisdictions, and progressively involve other members for which the benefits are relatively small and may outweigh the costs only if the existing group is of sufficient size. This in fact parallels the evolution of the Basel Committee which started with 10 members in 1974 and has since expanded its membership to include 45 institutions from 28 jurisdictions.

Designing cooperation arrangements is much more challenging when the costs and benefits are not aligned across countries. For example, EMEs subject to spillover effects from capital flows from financial centres stand to gain a lot if the latter decide to cooperate by internalising these spillover effects. Reciprocity may not be feasible in this case, as financial centers have little to gain and may even risk violating their mandates that are essentially domestically oriented.

The Basel agreement on reciprocity in the implementation of the Basel III countercyclical capital buffer (CCB) provides an important example of coordination

⁸ See Olson (1965) for a seminal contribution showing how coordination is harder to achieve as the size of the group increases.

⁹ Several recent studies provide guidance to identify the right partners to engage in coordinating macroprudential actions-see for instance Morrisson and White (2009) and Giordani et al (2014).

¹⁰ The note by the People's Bank of China endorses this view.

¹¹ The note of the National Bank of Poland however notes that arbitration by international bodies is not without problems. It does not eliminate all hurdles associated with negotiations. And a centralised approach may create frictions and constrain powers of national authorities, which may not be desirable, particularly from the perspective of a small country that may not be viewed as systemically important.

on macroprudential regulation. Designed to overcome the problems associated with global banks bypassing national regulation on capital requirements, this agreement stipulates that when the CCB is activated in any given country, all countries are meant to apply the same buffer to exposures to that country.

This, however, is the only example of multilateral reciprocity for macroprudential tools. Moreover, even for the CCB the effectiveness of implementation remains untested given the relatively short history, and in the European Union, there is an explicit 2.5 per cent cap.

References

Aiyar, S, C W Calomiris and T Wieladek (2014): "Does Macro-Prudential Regulation Leak? Evidence from a UK Policy Experiment", *Journal of Money, Credit and Banking*, 46(s1), 181–214.

Alegría, A, R Alfaro and F Córdova (2016): "The impact of financial stability reports' warnings on loan to value ratio".

Arslan, Y (2017): "Implementation and Effectiveness of Macroprudential Frameworks", background paper for this meeting.

Avdjiev, S, R. McCauley and H. S. Shin (2016): "Breaking free of the triple coincidence", *Economic Policy* 31: 409–45.

Avdjiev, S., C. Koch, P. McGuire, & G. von Peter (2016): "International prudential policy spillovers: a global perspective." *BIS Working Papers No 589*.

Buch, C, M, and L Goldberg (2016): "Cross-border prudential policy spillovers: how much? How important? Evidence from the International Banking Research Network" (No. w22874). *National Bureau of Economic Research*.

Cabezas, L, and A Jara (2016): "International Banking and Cross-Border Effects of Regulation: Lessons from Chile" (No. 790) *Central Bank of Chile*.

Das, U., M Quintyn and K Chenard (2004): "Does Regulatory Governance Matter for Financial System Stability? An Empirical Analysis" *IMF Working Paper, no. 04/89*.

Domanski, D, & T Ng (2011): "Getting effective macroprudential policy on the road: eight propositions" *BIS Papers, 1*, 89.

Forbes, K, M Fratzscher, T Kostka, and R Straub (2016): "Bubble thy neighbour: portfolio effects and externalities from capital controls" *Journal of International Economics*, 99:85–104.

Giordani, P. E, M Ruta, H Weisfeld and L Zhu (2014): "Capital flow deflection".

Houston, J. F, C Lin and Y Ma (2012): "Regulatory arbitrage and international bank flows" *The Journal of Finance*, 67(5):1845–1895.

Korinek, A. (2016): "Currency wars or efficient spillovers? A general theory of international policy cooperation".

Morrison, A. D and L White (2009): "Level playing fields in international financial regulation" *The Journal of Finance*, 64(3):1099–1142.

Olson, Mancur (1965). "The logic of collective action." Harvard University Press.

