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Macroprudential Policy and the International Monetary System: Triangulation or Strangulation?[1]

The 2007/08 financial and economic crisis prompted a large and obviously overdue overhaul of an international economic system that had proved fatally frail. The official sector set up two programmes. One, entrusted to the Financial Stability Board[2], was to overhaul the rules of the game for the financial system itself. It is international insofar as the aim has been to apply a shared framework to countries' regulatory systems — in particular, for banking — so that they cater for internationally active firms and global markets. The other was to reform the International Monetary System (IMS) itself, whose flaws had led to unsustainable global macroeconomic imbalances. In the real world, the two sets of problems were linked. The drivers of global current account imbalances had also led to a compression of global real interest rates and an associated appreciation in asset values, which provided the collateral that helped fuel the credit boom in the West. And when the US subprime bubble burst, contagious infection via capital markets spread the damage globally, irrespective of current account positions.

[1] My thanks to Kristin Forbes (MIT) and Gita Gopinath (Harvard) for conversations prior to writing this; to Dietrich Domanski and Philip Turner (both Bank for International Settlements) for comments; and to Asfandyar Nadeem (Harvard) for the diagram. Views and mistakes are mine.

[2] The previous Financial Stability Forum was put on a slightly more formal footing to pursue this work.

Notwithstanding those linkages, for a variety of not very good reasons the two reform programmes have proceeded largely in parallel universes, and with very different results. The collective reforms of the financial system have made good progress[3], while the *top-down* efforts on the IMS got nowhere slowly. That is basically because G-20 officials got stuck on the inevitable issue of how to get to a world of more symmetric adjustment to cumulative current account deficits. Guess what, the surplus countries didn't want to play ball.

The best that could be said is that things would have been even worse if countries had not had to engage in semipublic debate. But the stalemate was serious because the world hardly stands still while officials and ministers go to meetings.

It is, therefore, interesting and important that over the past few years a number of large emerging market economy (EME) countries have deployed measures to influence the *composition* of capital inflows. These innovations were *bottom up*. As such, they are reminiscent of the introduction of inflation targeting by New Zealand, Sweden and others in the late 1980s; after a period in which money targeting had stumbled, a few countries introduced a new kind of monetary regime, with academics and the international financial institutions playing catch up when they later rationalized the innovations of policymakers in the vanguard. Similarly, in the

[3] See Tucker, "Financial reform, stability and central banking", Brookings 2014.

recent developments, EME policymakers 'just did it', framing many of their actions as newly fashionable 'macroprudential' policy , and leaving us to try to make sense of how much it changes the international order. The IMF has already published a serious of interesting papers, and academics are on the case[4].

After reviewing the background to these developments, I am going to address three (related) issues they throw up: is this a sensible use of macroprudential policy; could it be employed in ways that perversely delay more fundamental reforms; and what should be the institutional framework for deploying macroprudential instruments in this way — in particular, should they be in the hands of central banks and other regulators, or should decisions be taken by elected politicians? I shall conclude with some suggestions for the US Treasury's Office for Financial Research (OFR), and for the international community.

Background: *gross* capital flows and the vulnerability of national balance sheets

Time and again policymakers have had to be reminded that *gross* capital flows matter as well as net flows. In the 1990s Asian crisis, the sectors under pressure varied according to who had borrowed short term in foreign currencies in external markets. In Thailand, it was the government; in Korea, the banks; but in Indonesia, the nonfinancial corporate sector. The rapid withdrawal of hot money triggered combined liquidity and exchange-rate-regime crises. In a

[4] For the IMF, see a series of papers by Jonathan Ostry, Atish Ghosh and their colleagues. Academics engaged include Kristin Forbes, Olivier Jeanne, Anton Korinek, and Helene Rey.

nutshell, lessons included the importance of developing domestic capital markets, so that local savers and borrowers could meet without the currency transformation entailed by international-market intermediation; the virtues of floating exchange rates; and the importance of monitoring and managing *national balance sheets*. The latter was the central theme of one the key official sector reports to ministers (the 'Draghi Committee Report')[5]. Some EMEs took it to heart, accumulating fx reserves to build a "fortress balance sheet", and thereby self-insuring against shocks rather than relying on external insurance from the IMF. But the lessons weren't just intended for EMEs. In the early stages of the current crisis, for example, Euro Area (EA) central banks borrowed dollars from the Fed to on-lend to needy local banks, even though the current account position of the currency-area as a whole was broadly balanced. The dollars were lent as the vulnerabilities in Europe would otherwise have flowed back violently to the US, just as the US subprime crisis had spilled over to Europe in the first place. The balance sheet weaknesses were intertwined.

The trials of both the Asian EMEs in the 1990s and the EA more recently are examples of capital flight exacerbating a homegrown problem. But capital does not flee solely due to crisis in recipient countries. The problems might begin in the providing country(ies), with capital pulled back home to help sort out problems there or simply to reduce activity away from a lender's

[5] See the 2000 Report of the Financial Stability Forum Working Group on Capital Flows, which was presented to G-7 and G-20 Ministers. The working group was chaired by Mario Draghi. I served on it. Looking back, it seems to have been relatively neglected even at the time, barely being mentioned in IMF documents or speeches.

core-franchise markets. This has been a potent channel of contagion during the recent crisis. An example would be Euro Area banks abruptly pulling out of trade finance in Southeast Asia in 2011/12. Thus, an excess of flighty liabilities can be a source of vulnerability even if domestic economic fundamentals are broadly sound.

Arguably most frustrating for recipients, the initial flight of capital needn't be prompted by a crisis anywhere at all. It might simply be a 'rotation' of short-term capital from one set of opportunities to others elsewhere: game over, move on. That has come to the fore over the past few years as short-term capital first poured in to a number of EMEs — pushing up exchange rates and asset values, and loosening internal credit conditions; then withdrew; and most recently returned. EME financial conditions deteriorated abruptly in the middle of last year when it looked as though the Fed would begin to 'taper'— ie slow the pace of *expansion* of — its monetary stimulus. Perversely, EMEs that had nurtured reasonably liquid domestic capital markets were amongst the worst hit, as entry had been easier[6]; this fits with talk of 'proxy hedging' in broadly correlated, more liquid markets in earlier episodes.

The common thread is a vulnerable, fragile liability structure in part of the national balance sheet. A country with an external surplus should be better protected, but only if it can translate that into 'collateral' to underpin funding that enables it to weather an external run on a particular

[6] See Eichengreen B and P Gupta (2013), "Tapering talk", World Bank working paper.

sector , with resources redistributed smoothly within the economy by private markets (or, in last resort, the central bank).

The importance of the pattern of *gross* capital flows and of the structure of the national balance sheet should not get lost again. It needs to be institutionalized into IMF surveillance and advice[7].

But the prescriptions in the Draghi Committee Report were incomplete. In particular, the working group did not sufficiently recognize that strengthening domestic macroeconomic and regulatory regimes would not suffice; it did not grasp the revolution needed to embed a *macroprudential* approach to supervision, although it drew on the concept; and it very consciously danced around the question of what instruments countries could employ to manage those national-balance-sheet vulnerabilities sourced in the *unregulated* private sector[8]. In the intervening decade or so, there have been two important developments in ideas. First, academics and policymakers have, at long last, started to take seriously the so-called *carry-trade*. Second, the financial-system reform programme for 'advanced' economies has brought to the fore 'macroprudential' policy instruments as a means to mitigate the pro-cyclicality of the credit system. Together, they have contributed to a change in "what counts as a good argument" when capital flows are debated.

[7] Some of the flavour of this is usefully captured in the IMF's revised 'Integrated Surveillance Decision', but (so far as I can tell) national balance sheets are not mentioned — reflecting, I would guess, a mindset revolving around flows.
[8] The Report's executive summary covered government, banking and other regulated financial institutions.

The cross-border carry-trade

For anyone familiar with financial markets, a prevalent trading strategy and a key mechanism behind short-term price developments has long been the cross-border, cross-currency carry trade. But until recently, this was frequently met with disbelief in official circles — because how could anyone bet rationally against uncovered interest parity (sic) — and neglected amongst academic *macro*economists. That myopia impoverished debates about the IMS, which in a world of freely flowing capital should be thought of as the international monetary And Financial system: IMFS not IMS.

Recently, thankfully, there has been extensive academic work on the carry trade[9]. It concludes that the carry trade exists (!); that the returns on a diversified portfolio of carry trades are uncorrelated with (the main) equity markets, are not significantly skewed, but do have (smallish) fat tails; and that the returns partly reflect high aversion to losses in very low probability circumstances. This fits with the casual empiricism of some policymakers: traders put on lots of carry trades; run like fury at signs of trouble; and move, albeit less abruptly, when a larger spread becomes available elsewhere. There are all sorts of possible explanations, including regulatory

[9] I am obliged to Gita Gopinath for alerting me to the work of Martin Eichenbaum and colleagues in this area. For a summary, see Craig Burnside, M Eichenbaum and S Rebelo , "Understanding the profitability of currency-trading strategies", NBER Reporter 2012, Number 3: Research Summary; and "Carry trade and momentum in currency markets", 2011. Brunnermeier M, S Nagel and L Pedersen (2009), "Carry trades and currency crashes" make the connection to macro conditions. Earlier research on the 'forward premium puzzle' attracted less interest in policy circles.

influences. For example, regulatory measures of market risk have typically cued off historical outturns rather than, at the other end of the spectrum, an assumption that something like uncovered interest parity will hold over time, which would entail much higher equity cover. The stress-based market-risk capital requirements being introduced by Basel may be a middle course.

But whatever the drivers, these traders are studious central-bank watchers. The carry-trade strategy is obviously fuelled by relative monetary conditions: policy in a globally traded currency being easy and being expected to remain easy for a while. That exactly characterizes US monetary policy since late 2008. And with the borrowed-leg of the carry trade being in the world's premier reserve currency rather than, as a decade ago, in the yen or Swiss franc, the phenomenon might have reached a new intensity at times in recent years. Just as it is belatedly being recognized that persistently easy conventional monetary policy can lead to a reduction in term premia through a search for yield *along* a yield curve[10], so the cross-border carry trade is liable to have a more pronounced effect on exchange rates and recipient-country asset prices than in the standard Mundell-Fleming set up. These spillovers to domestic financial conditions from monetary policy in the major economies aren't limited to countries that have chosen to have an exchange-rate peg. And they can be observed without deploying the concept of 'global liquidity', which arguably adds a further dimension not explored here.

[10]See Stein J and S Hanson (2012), "Monetary Policy and Long-Term Real Rates". The result was replicated for the sterling yield curve, as reported in Tucker (2012), "National balance sheets and macro policy".

Of course, this isn't the only cross-border trading strategy, and not all entail borrowing short-term. Research is needed on international spillovers from the broader 'search for yield' phenomenon. That can see long-only asset managers purchasing overseas securities in the expectation of short-term gain when headline (i.e., risk-unadjusted) yields at home are cyclically low and fundamentals in the recipient country seem ok, only to exit in a herd when conditions change. More generally, there is less research on how returns are affected by the types of asset acquired by cross-border traders. But what is clear is that 'host' authorities don't believe that good economic and financial fundamentals provide sufficient insulation, if only because of the 'herd of elephants in a pond' problem[11]. Indeed, good fundamentals might even encourage hottish money. EME authorities have, therefore, acted on their own observation that over the past few years short-term money was pushing up exchange rates, equity markets, property values and fuelling local credit booms.

Countercyclical macroprudential tools

A credit-fuelled property boom that enfeebled its banking system was, as it happens, what helped to tip the West into crisis in the first place. Three lessons are relevant here. First, in contrast to the post-Asian crisis debates, there has been far more emphasis on *dynamic adjustments* to

[11]Andrew Sheng made that picture popular over a decade ago when reviewing the Asian crisis, "The new international architecture", 1999.

prudential constraints as booms develop[12]. It is not regarded as sufficient to introduce a newly improved set of *static* rules and regulations for finance. Amongst other reasons, that is because, however well designed for broadly normal circumstances, any set of rules can be overwhelmed by the feedback mechanisms between credit conditions, asset values and risk appetite in an exuberant upswing[13]. That is the *cyclical* dimension of macroprudential policy. Second, the authorities have been reminded that it is the state of *the system as a whole* that matters, not that of individual firms looked at atomistically. If firms have all lent to the same borrower(s), or to each other, or funded themselves from the same source(s), the system is vulnerable. That is the *cross-sectional* dimension of macroprudential policy. Third, there has been a renewed appreciation of the fragility of borrowers heavily reliant on short-term wholesale funding[14] , with constraints planned on the maturity mismatches of banks (and perhaps more widely). Connecting those three lessons, at least some macroprudential authorities in the West are contemplating being able to make countercyclical variations in bank liquidity regulations if and when the system becomes excessively mismatched. And some policymakers have aired the possibility of placing limits on funding from 'hot money'.

[12] See Financial Stability Board/IMF/BIS (2011), "Macroprudential Policy Tools and Frameworks: Progress Report to G-20".
[13] See Tucker 2014, *op cit*.
[14] See, for example, Governor Daniel Tarullo (2013), "Macroprudential regulation", Federal Reserve Board.

Macroprudential tools for capital-flow management

Although that part of the new regulatory policy framework was developed at a separate table from the one debating the IMS, it will be obvious enough how and why the ideas travelled. It was not as though controls on *short-term* capital flows had not been aired before. John Williamson had done so in the mid-1990s, for example[15]. Further, Chile had actually employed controls on inflows during the 1990s, eventually lifting them as they were increasingly circumvented; and, in a different vein, Malaysia resolutely defied convention by defending itself with *out*flow-controls in the late-1990s[16]. But none of that had become mainstream, with the emphasis remaining on EMEs strengthening their financial and regulatory systems[17]. Thus, after some agonizing, the executive summary of the 2000 Draghi Committee Report did not include the conclusion in the main text that "… in some circumstances, certain controls on inflows could serve prudential purposes and their use could, therefore, be considered." Since then, the *ideational* atmosphere has been transformed by the changes I have described [18]. Once it is admitted that 'hot money' exists and will, because of apparently systematic returns, continue to hunt for yield across borders; and once leading banking authorities agree that they sometimes need to mitigate or choke off excessive short-term borrowing; then how, it can be asked, could

[15] "The management of capital flows", 1995, translation from the Spanish original on Peterson Institute website; and also B Eichengreen (1999), "Toward a new financial architecture." There is an account of the earlier debates in Olivier Jeanne's "Capital mobility and regulation," 2012,

[16] Zeti Aziz, now governor of the central bank, was also on the Draghi Working Group.

[17] See, for example, Maurice Obstfeld's 2005 "Reflections upon re-reading 'The Capital Myth'".

[18] See, for example, H Rey (2013), "Dilemma Not Trilemma: the global financial cycle and monetary policy independence", Federal Reserve Bank of Kansas City.

there be objections to sovereign nations addressing similar vulnerabilities from short-term inflows? After all, banks run maturity mismatches as part and parcel of providing monetary services to the economy, whereas a nation's balance sheet is hardly meant to look like a bank's!

This is an important part of the backdrop to the policy innovations by a number of EME countries in recent years. Some have applied temporary capital controls. Others faced with surging capital inflows have employed macroprudential tools to build the resilience of their domestic financial systems or, more ambitiously, to dampen a consequent domestic credit boom (e.g., Hong Kong)[19]. And others still have deployed what are described as macroprudential measures to influence the composition of capital in-flows, seeking to deter short-term debt in-flows, particularly into the banking sector. Each can be regarded as a capital-flow management (CFM) tool, but only the second and third would typically be called 'macroprudential'.

Three questions about macropru and capital flow management

That sets up my three questions: will this new turn in policy work; is it a placebo, or worse; and, what is the institutional framework, including who should take decisions to deploy these policy instruments? More broadly, is this a brilliant instance of policymakers innovating by borrowing ideas from the financial-reform programme and applying them to mitigate hazards from flaws in

[19] See Dong He, "Hong Kong's approach to financial stability", HKMA, 2013.

the IMS? Or is it a misguided attempt to legitimise creeping capital controls under this season's fashionable 'macroprudential' banner, while in fact avoiding confronting the need for more fundamental reforms? Triangulation or strangulation?

Can macroprudential policy mitigate threats from hot international savings?

On whether this use of macroprudential policy ('macro-pru') can work, some research suggests that it is more effective than temporary capital controls[20]. Why? The answer lies in an important and not so subtle feature of core macro-pru measures — a feature that is as relevant to understanding 'cyclical' macro-pru in a purely domestic setting.

A prevalent refrain of the academic literature on macro-pru is that it acts as a Pigouvian tax[21]. This works nicely in models, but misses a big point — about what policymakers have in mind, as well as arguably about the political economy of macroprudential policy. There is a problem with simply setting a tax to offset the negative externalities of distortions in private markets that lead banks (and others) to become excessively leveraged and maturity-mismatched, driving a wedge between private and social welfare. Namely, that if the tax doesn't work and the boom continues, the fragility of the banking sector (or country) has increased. Second, although not the objective,

[20] See K Forbes, Fratzscher M and Straub R, 2013, "Capital controls and macroprudential measures; what are they good for?"; Ostry J, A Ghosh, M Chamon and M Qureshi, "Managing capital inflows: the role of controls and prudential policies"; and Eichengreen and Gupta, *op cit*.
[21] Eg Anton Korinek (2011), "The new economics of capital controls imposed for prudential reasons".

if the tax produces income, the government might well have spent it on favoured projects or on reducing taxes for key supporters; there might even be a deterioration in the fiscal position if any revenue from the tax on finance is mistakenly perceived as annuity-like. If the government then has to bailout the banks (or other firms), the public are unlikely to see any link between taxes paid earlier by the financial sector and the extra taxes (or reduced public services) *they* face post-crisis. In other words, the Pigouvian tax had better succeed in shifting incentives.

As conceived by macroprudential regulators themselves, it is better to make the banks (and possibly other financial institutions) hold a higher than usual level of capital (or, as appropriate, more liquid assets, including possibly unremunerated central bank reserves). By raising the cost of expanding their balance sheets and, thus, of extending credit, that might work like a Pigouvian tax, helping to quell the boom. But even if it doesn't work in that sense, with the boom continuing to rumble away, the bust will be less traumatic as the banks have more capital (or liquidity) and so are less likely to fail[22]. This is cyclical macro-pru as a means to enforce increased self-insurance. There is nothing very complicated going on here; for a given portfolio, if capital is increased by 10 percent, resilience to loss is increased 10 percent. The primary objective becomes *resilience*. One can think of it as a more robust policy than relying solely on the tax effects.

[22] This is why policymakers have stressed that the liquidity buffer required by Basel *must* be usable.

I hope the connection to employing macro-pru as a CFM tool is clear. Even if hot money is not deterred but, on the contrary, continues to pour in to a country, financial-sector recipients can be made more resilient against the risk of its sudden exit through a higher stock-liquidity requirement, and/or through enhanced capital adequacy if the problem is likely to be borrower defaults as a credit bubble deflates. Given the well-documented coincidence of banking, currency and sovereign crises, that is potentially worth quite a lot — particularly if the policy is, where necessary, applied beyond banking. I think that probably helps to explain research findings that some macroprudential policies work better than other CFM tools at containing the costs of hot-money inflows.[23]

The problem of circumvention is also slightly better. Even if circumvented, a macroprudential tightening of regulatory requirements can make the *core* financial system stronger. But circumvention is not costless. Regulatory arbitrage is endemic. Stability-threatening inflows are not rendered harmless if prudential measures divert them away from de jure banks into 'shadow banking'. This creates major political economy problems. At the least, it needs to be possible, as now in the UK, to alter the perimeter of regulation reasonably expeditiously but with democratic legitimacy.[24]

[23] For example, see Forbes et al and Ostry et al, *op cit*.
[24] This is a central theme of Tucker 2014.

Can macro-pru be abused as a Capital Flow Management tool?

In the way I have cast it, macroprudential policy can legitimately be used to mitigate growing vulnerabilities from the pattern and effects of capital inflows. Those vulnerabilities might flow directly from the nature of the inflows; e.g., short-term-debt claims on financial institutions, for which a policy response might be increased reserve requirements or stock-liquidity requirements. Or the vulnerabilities might arise indirectly; e.g., a credit and asset price boom, against which banks and other lenders might be required to hold more capital (or borrower-collateral) than under the Basel norm.

But there is plainly a risk that, at least while it remains in fashion, the 'macroprudential' epithet will be applied to CFM tools that have a wider, macroeconomic *purpose*, such as forestalling a warranted appreciation in a country's exchange rate. This obviously matters in terms of international welfare and politics. As a general matter, leaning against an exchange rate appreciation that is fundamentally warranted amounts to trying to grab a larger share of global demand, risking an escalation of beggar-thy-neighbour policies that leave lots of the world worse off. By contrast, macroprudential measures that reduce the probability of domestic crisis can make the world a less risky place for neighbours and further afield.

That is not entirely cut and dried. For example, macro-pru measures taken in one country might deflect "hot money" to a neighbouring or otherwise similar economy. While that may be most

likely for quantitative capital controls[25], the tax element of a macroprudential measure could have a similar effect if it reduced available headline returns. This matters collectively if threats to global stability would be greater from the 'neighbouring' economy blowing up.

More broadly, properly used macro-pru tools might have macroeconomic effects globally as well as nationally. For example, if countries insure against hot money by constraining short-term fx liabilities (say in banks and government debt) rather than by holding increased fx reserves, national saving might end up lower[26] and, if the economies concerned were in aggregate reasonably large, the global real rate of interest may end up higher.

So there should be provision for collective surveillance of spillovers, positive and negative, from macroprudential policy, obviously involving both central banks through their Basel dialogue, and the IMF through its Spillovers and other reports.

But the central point stands: that unlike capital controls designed to avoid needed macroeconomic adjustment, proper use of macroprudential measures designed to reduce national tail risks can be good for the rest of the world. Which brings me to my third and final issue: what should be the framework for employing macroprudential policy as a CFM measure?

[25] See Forbes K, M Fratzcher, T Kosta and R Straub (2012), "Bubble Thy Neighbor: Direct and Spillover Effects of Capital Controls", NBER WP 18052.
[26] This would depend, inter alia, on how the private sector as a whole adjusted.

The need for a clear institutional framework

There are two ways into this. First, how to frame criteria to distinguish prudential controls from other CFMs. Second, what should be the division of labour between central banks and finance ministries.

Efforts to date on the first strike me as in some respects flawed. One suggested criterion is that the prudential capital-flow measures will apply only to banks and other regulated firms[27]. But that rests on too limited a view of 'macroprudential'. Measures aimed at mitigating or limiting vulnerabilities in the aggregate balance sheet of the household sector or of business can be macroprudential in spirit.

Another criterion is that, in contrast to straight capital controls, prudential measures wouldn't make distinctions based on residence; they do not discriminate. I think that's right in principle, although in practice the world is complicated. Sometimes the only flows that matter to the incipient vulnerability will be from nonresidents[28]. On other occasions, as domestic capital markets and investment management develop, some of the 'hot money' will be the fruits of domestic savings, managed at home but held abroad, moving in and out tactically.

[27] See Ghosh A, "Managing risks associated with volatile capital flows", IMF.
[28] Note that the Draghi Committee Report conclusion on capital-inflow controls quoted above talks about their serving a 'prudential purpose'. It did not try to draw a hard and fast distinction between the two types of measure at a mechanical level.

I think part of the answer has to be that, when announcing macro-pru measures affecting capital flows, *countries should make clear their purpose and the supporting analysis*. That analysis would need to be framed in terms of national or sectoral balance sheet vulnerabilities that, absent the policy action, would be a material threat to financial stability. It would not legitimise, for example, "Action X was taken as a macroprudential step to mitigate vulnerabilities in the national balance sheet rendered by an appreciating exchange rate undermining the viability of the export sector, with hysteric effects". Just using the word 'macroprudential' doesn't make a policy substantively macroprudential. Macroprudential policy is not a cure for the Dutch disease. Where countries are resorting to capital controls plain and simple to influence their exchange rate and terms of trade, they should say so; and the IMF should keep them honest.

Turning now to the other way into the design of a framework —which agency, central bank or finance ministry, should decide on the use of macro-pru policy instruments as CFM tools — here there are surely some well-established principles to draw on. First, government — executive branch and legislature — should establish the overall regime. Second, and consistent with that supervening principle, the finance ministry not the central bank must establish the currency regime and, more broadly, exchange-rate policy. Third, given prospective time-consistency problems with cyclical macroprudential policy settings[29] and, more broadly, given the short-run attractions of booms to elected politicians, decisions on the deployment of cyclical

[29] The question of whether and how cyclical macroprudential policy faces issues of credible commitment has not been sufficiently researched.

macroprudential instruments affecting regulated institutions should be delegated, within a clear framework, to an *independent* central bank or other agency.

Central banks (and other financial regulators) have no business deciding alone to take CFM measures that are not expressly and defensibly macroprudential. Thus, whatever its substantive merits or demerits, it should not be for central banks/regulators to decide on Charles Goodhart's proposal that "macroprudential" tools be used to control short-run capital flows once trade deficits exceed an agreed threshold irrespective of whether there is a national balance sheet vulnerability[30].

The use of macro-pru as a CFM tool makes it all the more important to get right the political economy of macroprudential regimes more generally. I think it is necessary to distinguish between:

a) Adjusting requirements on institutions subject to microprudential regulation in order to increase their collective resilience. (Macroprudential)
b) Introducing new requirements for institutions within the regulatory net but not usually subject to prudential supervision, or extending the regulatory net, to make them more resilient taken as a whole. (Macroprudential)

[30] C Goodhart (2013), "International Monetary Regimes", paper for Banca d'Italia conference in memory of Curzio Giannini.

c) Applying tighter requirements to the terms on domestic lending by regulated institutions to households and firms, to make the lenders more resilient. (Macroprudential)

d) Stopping households and firms borrowing from nonresidents (or bringing the proceeds home) in order to circumvent (c). (Macroprudential-motivated CFM[31])

e) Taxing or barring inflows in order to influence current account positions and/or the exchange rate. (Not macroprudential, even if the tax is , say, an unremunerated reserves requirement on banks)

Of those, on my view of the world, the first three --- (a) to (c) --- would be decided and applied by a jurisdiction's macroprudential regulator. For clarity, let me stress that (a) includes, where warranted, measures to build resilience against excessive short-term *foreign currency* liabilities, irrespective of whether the funding is from residents or abroad. Measures of type (b) fall to the macroprudential authority because the domain is firms, funds or practices within the *micro*-regulatory net. Measures of type (d) would be macroprudential but decided by elected politicians, as the application is to households and businesses outside any reasonable *micro*-regulatory net. Such measures might, though, be taken only with technical advice from the main macroprudential authority, since that would help to underline their purpose. By contrast,

[31] Direct controls on household balance sheets, eg loan-to-value (LTV) ratios, are open to circumvention unless accompanied by capital controls. That is distinct from imposing LTV caps on domestic lenders, which is akin to a raised sectoral capital requirement. See Tucker (2012), "The good things in life require stability", FT op-ed.

measures of type (e) would be decided by politicians and would *not* carry the 'macroprudential' label.

Broadly, policies on net flows and policies applying directly to otherwise unregulated residents are for government; a policy should be described as 'macroprudential' only if it is directed at stability-threatening balance-sheet vulnerabilities; and some government-led policies could be macroprudential, e.g., (d), but many CFM measures would not be. This is a somewhat different set up from that implied in some IMF papers, as (d) is recognized as macroprudential on grounds of the objective it serves.[32]

There will be other, no doubt better, classifications, but the big point is that a country's regime needs to determine which agency is responsible for which instruments, and why. That, and transparency, strike me as necessary conditions to guard against 'macroprudential' becoming a term of approbation for everything and anything while it remains in fashion.

Distinguishing capital controls and macroprudential policy

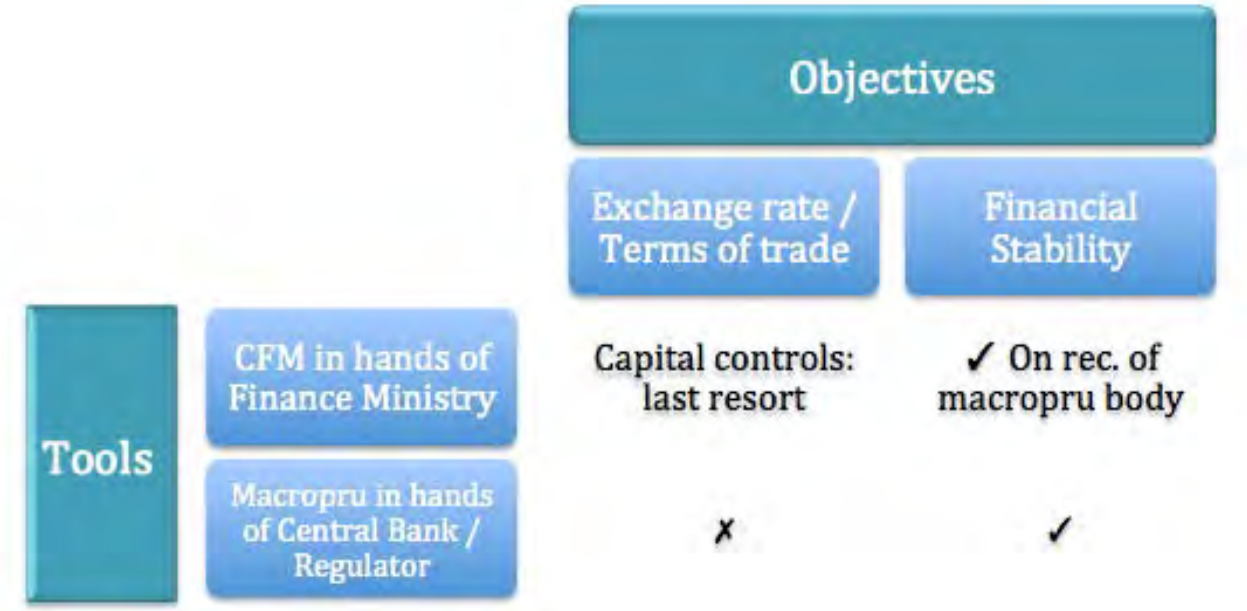
Summing up, confusion arises in discussions about using macroprudential policy to influence the composition of capital flows because a distinction between, on the one hand, those instruments that discriminate between residents and nonresidents and, on the other hand, those that do not so discriminate does not map cleanly onto a distinction between macroeconomic and financial

[32] It is also different from the four categories in the policy section of Helene Rey's "Dilemma not Trilemma" paper, *op cit*.

resilience objectives. Nor is it the case that regulators/central banks control all macroprudential instruments if, as I argue, they are defined in terms of the objective of financial resilience. That is because macroprudential measures might, probably in very rare circumstances, be taken in respect of domestic residents not subject to *micro*regulation. But getting clarity on the boundaries matters because, unlike capital controls designed to prevent a warranted exchange rate appreciation, well-designed macroprudential policy can have positive spillovers, by reducing tail risks.

It is helpful to think in terms of a 2x2 matrix, mapping tools (and who controls them) to objectives. As seen below, this helps to clarify that only one cell in the matrix is affected by IMF policy that capital controls should be employed only as a last resort[33]: namely, when the objective is macroeconomic, appreciation is not warranted, and other macroeconomic policies have been exhausted.

[33] IMF (20120, "The liberalization and management of capital flows: an institutional view".



An interesting exercise would be to use the matrix to classify the measures taken by countries in recent years to mitigate the effects of capital inflows. Were the objectives always clear and justified effectively?

Implications for the Office for Financial Research

What I have been discussing carries important implications for the US Office for Financial Research, as well as for the Federal Reserve and the US Financial Stability Oversight Council.

Threats to stability can come from many sources. Contagion across borders matters. Spillovers from one country's policies have a nasty habit of boomeranging back. The acute nervousness here in Washington during the worst of the euro-area crisis testifies to that. There is national self-

interest here, not just altruism. I would suggest, therefore, that the OFR has to take an interest in the evolution of cross-border vulnerabilities.

In a narrow but very important sense, that means publishing analysis of the U.S.'s own national balance sheet, just as the Draghi Report recommended nearly fifteen years ago. It also means taking an interest in how policies and developments in the US can affect vulnerabilities elsewhere, and vice versa.

The essence of vulnerabilities lies in *stock* positions; balance sheets. They obviously reflect gross and net flows of *funds* — and by international standards, the U.S. has excellent flow-of-funds data, the envy of some other countries[34]. But in today's world those data, while essential, are not sufficient. The stock of risk in balance sheets is affected by flows of *risk*, whether or not bundled together with flows of funds. The essence of derivatives is precisely to unbundle risk and funding. Stability will not be secured in the future if macroprudential policymakers focus only on overt funding vulnerabilities, not least because derivatives can carry latent liquidity risks. At the least, the OFR needs, therefore, to maintain its interest in derivatives Trade Repositories being reconfigured to make them useful for macroprudential surveillance and analysis, not only for market regulation — work being led internationally by the ECB's Benoit Coeure, who is

[34] In the United Kingdom, the Bank of England has called for much richer flow-of-funds data given its use over many years of the US data.

speaking here later today. But, more ambitiously, the next step should be *flow-of-risk data*. I urge you and your international colleagues to pursue this.

Conclusions

Macroprudential policy is changing the face of regulation. But, just as important, through the actions of a number of large EMEs it is quietly transforming thinking and policy on the operation of the international monetary system. This can be for the good, offering ways forward that side-step stale and, in a world where power matters, probably intractable debates about symmetric adjustment to net imbalances. If one source of contagion and potential distress from global capital flows could be mitigated — the problem of hot money — the fault lines elsewhere in the IMS might be debated more cleanly. But macro-pru's current popularity as a solution to the problems of international finance leaves it open to abuse. It should not become a fashionable cover for closet exchange-rate policies. The answer to my opening question is that extending macro-pru from domestic financial stability issues to address national balance sheet vulnerabilities can definitely be virtuous triangulation, but vigilance is needed against the risk of strangulation.

The solution lies partly in careful design of domestic macro-pru regimes, with clear objectives and a clear allocation of instruments. In particular, central banks and regulators should not set external policy; across-the-board capital controls are unavoidably part of national and

international politics. But, in addition, the IMF and others need to nudge the world towards a regime where the use of macro-pru as a CFM tool is expected, or perhaps even required, to be publicly explained and justified in terms of balance-sheet vulnerabilities that represent a material threat to stability.

Meanwhile, national authorities everywhere need to get back to what the Draghi Committee Report urged so long before the recent crisis: identify and mitigate material vulnerabilities in national balance sheets, focus on stocks as well as flows, and on gross not just net flows. Only that way can domestic authorities grasp how spillovers from their own domestic policies could flow back to them via global capital markets and international finance. I very much hope that, with the Federal Reserve, the OFR can pick up that baton for the US.