BANK FOR INTERNATIONAL SETTLEMENTS

How should prudential and monetary policies in open economies react to "current global conditions"?

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Session questions

- **Context**: current global conditions of unconventional monetary policy (UMP) combining zero lower bound (ZLB)+quantitative easing (QE)+forward guidance (FG); "low rates for long and now forever?" Negative interest rate policy (NIRP); what does it mean for policy frameworks of small open economies (SOEs) and other open emerging market economies (EMEs)? "New" versus "old normal" now with more volatility for exchange rates (ERs), intensity of capital flows (KFs), persistence of capital account deficits (CADs)? High cost of global financial crisis (GFC) seems to indicate bias to preventive policies that lean against the wind (LAW)

- So, **debate about "how" to LAW (with or without monetary policy (MP)?, about how to mix "prudential" instruments** (micro (MiPs) & macroprudential policies (MaPs), capital flow management (CFMs) & **with other macroeconomic policies** (MP but also fiscal policy (FP))

- Also when to use buffers? When is procyclical tightening needed? **Debate about "when" to LAW, timing, signalling & implementation of these instruments**

- Are other tools needed under floating exchange rate regimes (ERRs)? Textbook tightening MP might exacerbate KFs; hence **debate about LAW with foreign exchange (FX) interventions & sterilisation, and/or using CFMs**

- Finally, can **MaPs be globally coordinated**? If yes, which ones (eg, counter-cyclical capital buffers (CCCBs), CFMs, reserve requirements (RR) , provisioning rules (Prov))? If not, how do countries view the trade-offs (spill-overs)? **Debate about LAW alone or with little help from my friends, ie, some form of "policy coordination"?**

Quick answers…

- **MaPs provide more degrees of freedom** for policymakers in SOEs and EMEs; can complement use of "blunter" instruments like MP; but using MaPs needs macro consistency/credibility; still need for active, consistent FP and MP; we discuss here a proposal of an **integrated inflation targeting (IIT)** framework, especially for EMEs

- For EMEs, **more instruments also means more challenges** (eg, more "subtle" communication) to avoid impression of (fiscal/monetary) complacency by policymakers

- **Buffers (FX, liquidity) useful when** (first you need to have them), then despite all, **accumulation of excesses leads to self-fulfilling financial crisis** eg, booms → asset price overvaluation & equity euphoria → imbalances → financial crisis

- Array of microeconomic and macroeconomic policies; but each can have a **specific transmission mechanism**; → understand/model these mechanisms; FX intervention & sterilisation important and useful but can be (very) costly

- Global macroeconomic policies useful but complex; CCCBs in place; global MaPs and **policy coordination** together with other policies interesting but complex?

More complicated issues for SOEs with post-GFC UMP: how to manage impossible trinity and LAW with MaPs and MP?

- Before the GFC: typical "movie" that central banks in SOEs knew very well: manage "Calvo sudden stops"; escape "original sin"; main lesson was to "behave well", "keep your house in order"; build credibility, strong fundamentals to control risk premia

- During/after the GFC: central banks in SOEs under UMP's "easy global money" (ZLB, QE + FG) also face "new "movie" with large, intense "sudden floods" of "hot money"

- And now? Taper tantrum, "back to the past"? 2016-17 succession of political "tail events", "back to the future"? Risk-on/off? Flight away from ZLB or flight to quality?

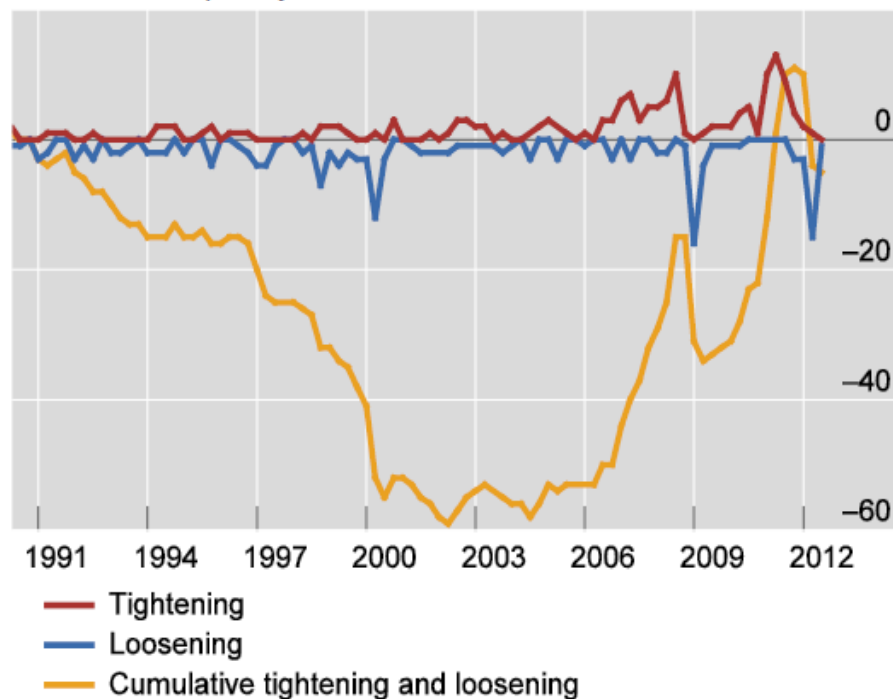# Good news: SOEs/EMEs can LAW with large toolkit of MaPs to address various types of vulnerabilities and several components of the financial system

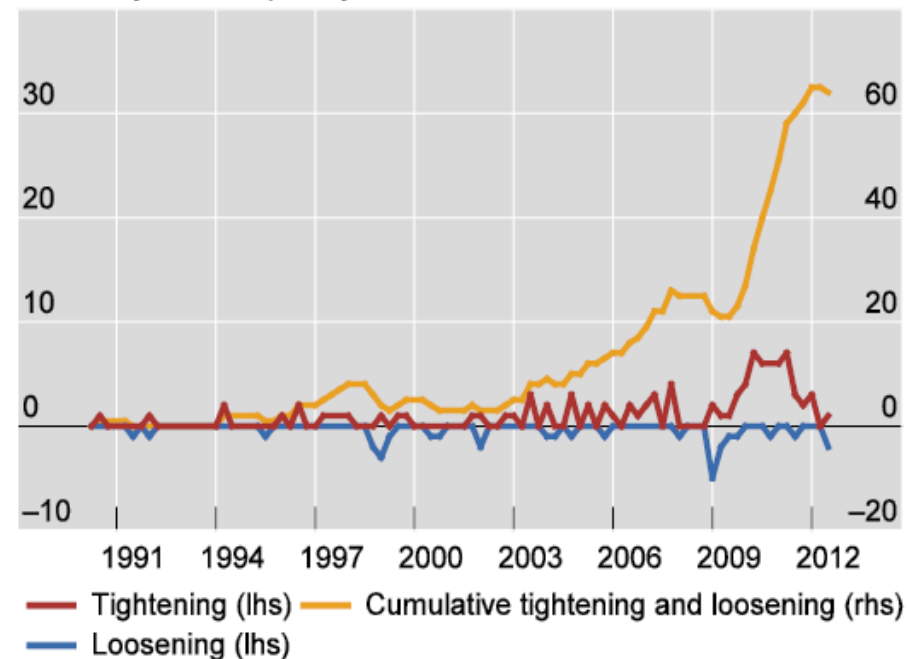|		Financial system component				
		Individual Bank or deposit-taker		Non-bank investor	Securities market	Financial infrastructure
		Balance sheet*	Lending contract			
Vulnerability	**Leverage**	capital ratio risk weights provisioning profit distribution restrictions credit growth cap	LTV cap debt service / income cap maturity cap margin/haircut limit			
	Liquidity or market risk	liquidity / reserve requirements FX lending restriction currency mismatch limit open FX position limit	valuation rules (eg. MMMFs)	local currency or FX reserve requirements	central bank balance sheet operations	exchange trading
	Interconnectedness	concentration limits systemic capital surcharge subsidiarisation				central counterparties (CCP)

Source: CGFS

Examples of more intensive use of MaPs over time: price(*) / quantity(**)-based MaP policy action

Price-based policy actions

Quantity-based policy actions

— Tightening
— Loosening
— Cumulative tightening and loosening

— Tightening (lhs)   — Cumulative tightening and loosening (rhs)
— Loosening (lhs)

The yellow lines denote the cumulative sum of tightening actions (each +1) and loosening actions (each –1) starting from Q1 1990.

(*) Price-based: Reserve requirements (RR); liquidity requirements (LCR); risk weights on housing loans (RW); provisioning rules (DProv).

(**) Quantity-based: Credit growth limits; maximum loan-to-value ratio (LTV); maximum debt service-to-income ratio and other lending criteria (DTI); exposure limits to the property sector.

More examples of intensive use of MaPs: countries using capital requirements (Kreq), RRs and loan-to-values (LTVs)
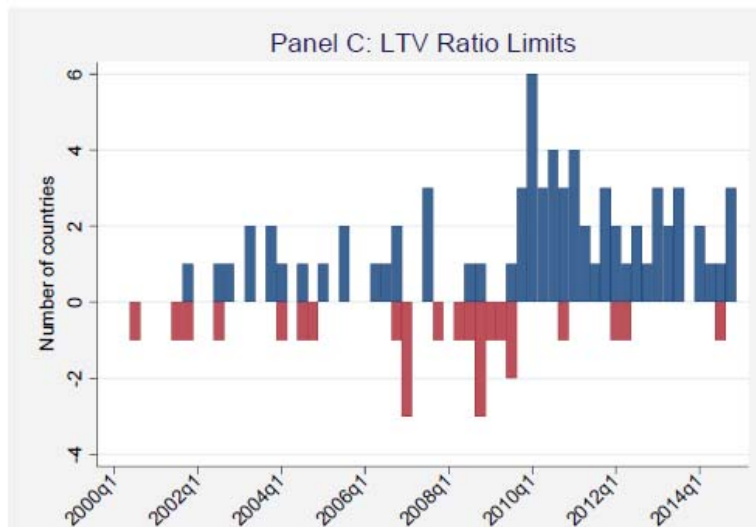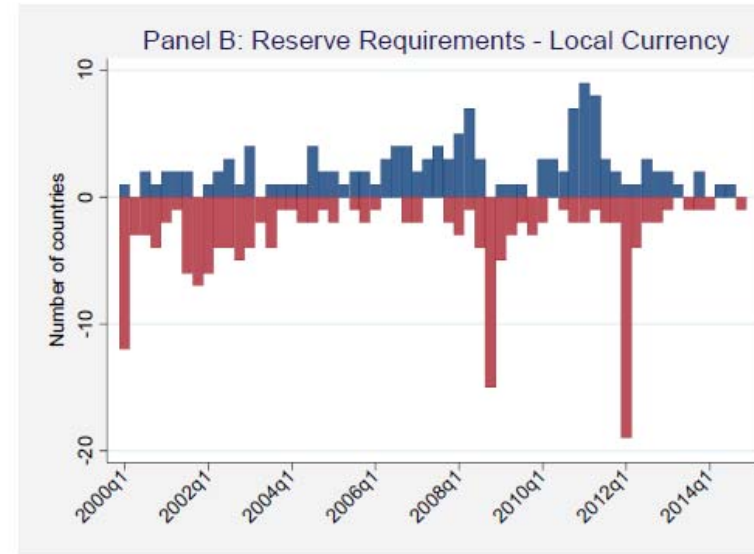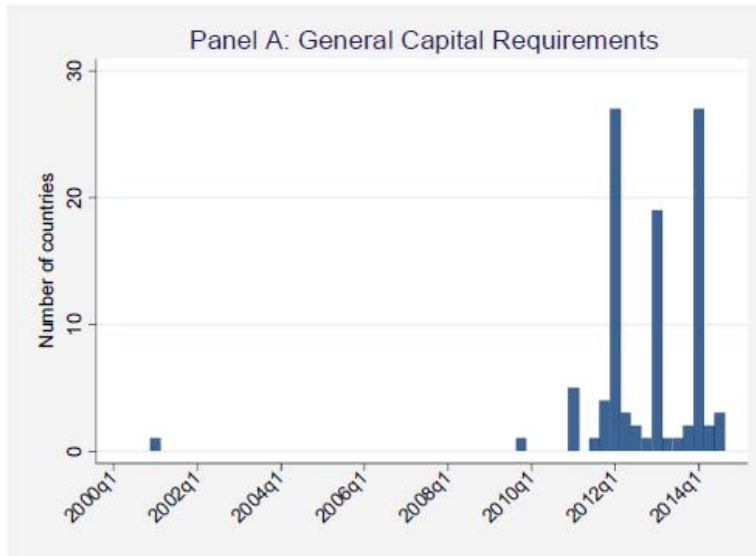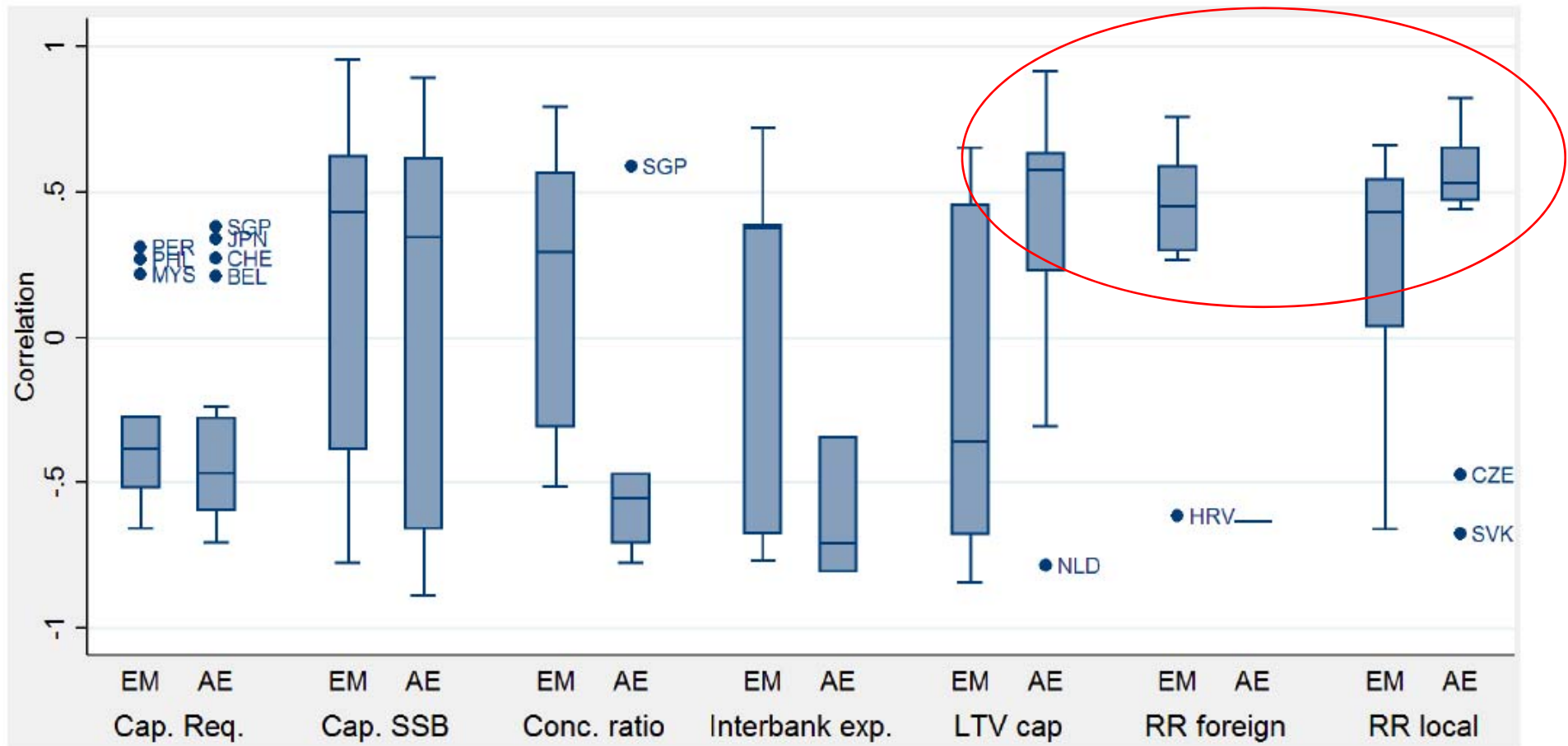

Source: Cerutti, Correa, Fiorentino, and Segalla (2016), IMF

Large and growing literature confirms effectiveness of MaPs in both AEs and EMEs (eg metric as it affects credit growth)

- Borio and Shim (2007): 18 Asian and European economies, MaPs reduce domestic bank credit growth

- Lim et al (2011): 40 economies, RR and provisioning rules (Prov) reduce private sector real credit growth; RR, Prov, maximum LTV and maximum debt service-to-income ratio (DTI) and other limits on lending criteria reduce the procyclicality of credit growth

- Kuttner and Shim (2013): 57 economies, DTI slows real housing credit growth

- Claessens et al (2014): maximum LTV and DTI and limits on FX lending reduce growth in leverage and asset growth

- Cerutti et al (2016): MaPs reduce real domestic bank credit growth, LTV and DTI effective to control household credit

- Başkaya et al (2016): quantity-based MaPs slow total credit growth irrespective of level of financial development; price-based MaPs slow credit growth at higher levels of financial development

Distribution of correlations between intensity changes in MaPs and real credit growth

- More intensive use of MaPs suggests countercyclical purpose (eg RR in EMEs)

Source: Cerutti, Correa, Fiorentino and Segalla, IMF, 2016
Only statistical significant correlations at 10% level or less are plotted.

Distribution of correlations between intensity changes in MaPs and policy rates

● More intensive use of MaPs suggests complementarity with MP
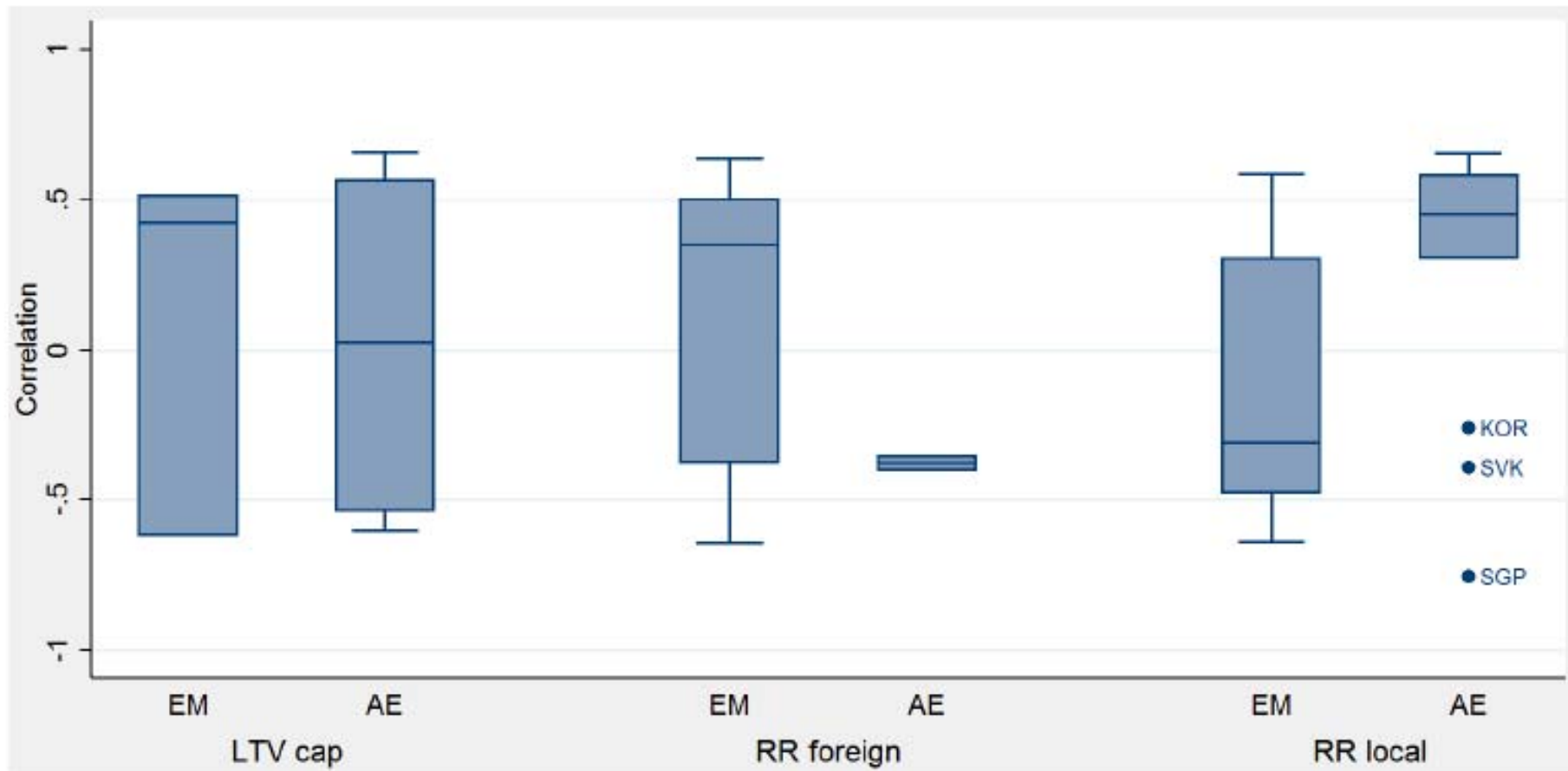
Source: Cerutti, Correa, Fiorentino and Segalla, IMF, 2016.
Only statistical significant correlations at 10% or less are plotted.

Typical SOE/EME policy dilemma when trying to lean against the wind (LAW) in environment with

- typical SOE policy dilemma: with floating exchange rate regimes (ERRs) and under an IT framework; monetary policy (MP) has limited effectiveness in response to "sudden flood" of capital;

- <u>Constraint</u>: hiking policy rate to restrain credit growth and reduce inflation, can attract more capital flows (KFs); exacerbate local credit cycle instead of smoothing credit growth; opposite outcome than intended policy action;

- <u>Intuition for policy response</u>: use a timely and more aggressive set of MaPs; as a complement to a well-calibrated MP response (and also FP); complement with a set of FX interventions, with adequate sterilization;

- <u>Objective</u>: help to smooth excessive capital flows, reduce local asset prices and exchange rate (ER) over-valuation; and help control inflation pressure/expectations

Another example in Brazil – FX interventions using domestic non-deliverable forward (DNDFs)
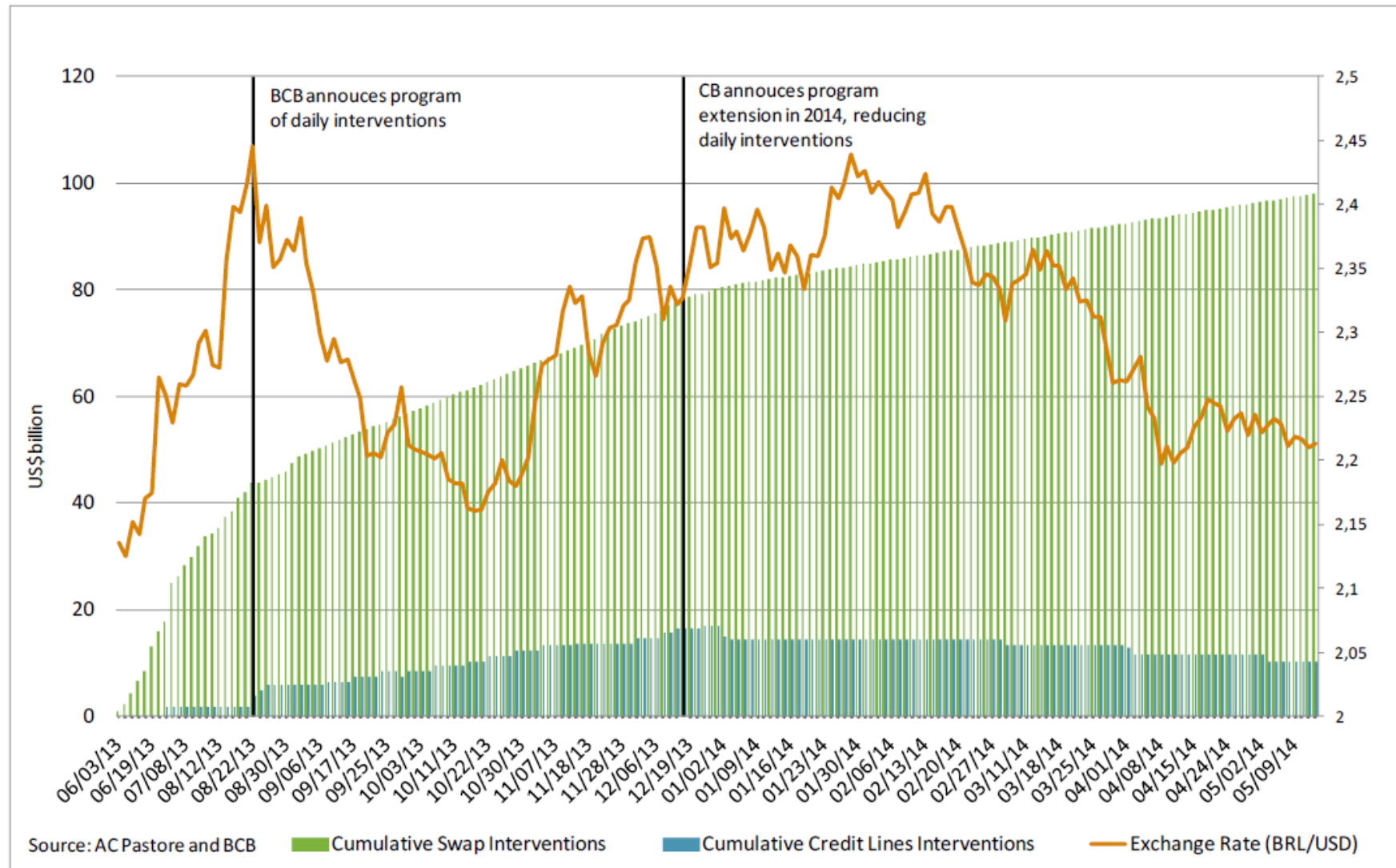
Source: García and Volpon, 2014

Typical political economy reality check when trying to LAW (SOEs/EMEs but also advanced economies)

- Local political economy factors tends usually (always?) to hamper the implementation of the optimal "policy mix" that combines several policy instruments (eg when countercyclical fiscal policy is either "missing" or "overdone", tendency is to rely on excessive usage of MP; this could happen at the ZLB or at the other, upper higher bound for the policy rate)

- FX interventions against excessive K inflows and/or to reduce excessive volatility (FX spot interventions, DNDFs, CFMs) begin usually on a temporary basis; but temporary can become longer; in the absence of other supportive policies and consistent macro framework, sterilization and other FX interventions can become costly (interest rate differentials) and come under increasing political questioning; hence policy credibility and long-term macroeconomic consistency are key

- Using multiple instruments to reach multiple objectives might work well for a while but sooner or later credibility issues arise together with communication hurdles: MaPs, FXs are substitutes or complements to MP? Tinbergen-based communication strategies to assign policy instruments to its objective might be short-lived

Challenges when MP incorporates a financial stability (FS) objective: under IT, difficult questions might arise...

- <u>Credibility of the central bank</u>? Adding a financial stability objective to monetary policy may trigger mixed policy signals; could weaken the perception of the central bank commitment to price stability; could destabilise expectations

- <u>Which measure of financial stability to target</u>? FS is hard to define; a multiple dimension concept much more difficult to measure with a single indicator like inflation with a single number reflecting CPI; FS can be relate to changes in asset prices, financial conditions, financial cycle, credit growth, deviation from an indicator's "stable" level or at "steady state"; but then deviations vis-à-vis what exactly? Some "trend"? Calculated using what technique (eg, a statistical filter, an "equilibrium" level for credit volume, for a credit/output gap, etc)?

- <u>How and when to implement policy</u>? Which mix of policy instruments can best produce the desired degree of counter cyclicality without excesses in any direction? Should policies be front-load or not (the "punch bowl" story)? How aggressively to react? How to sequence and combine communication? How would the typical "open mouth operations" function for FS? How/when would it be followed with actual MaP policy action, more difficult for capital requirement than RR?

Analytical debates LAW for FS conducted with MP ongoing: how to evaluate welfare gains/losses; general/partial equilibrium?

- For some (Svensson (2015)) if there is no permanent output loss from a financial crisis, then <u>MP too "blunt" an instrument</u>; MP action can produce more cost (lower output, higher unemployment, lower inflation) than using other instruments, eg MaPs; decisions can be done using a cost-benefit of policy intervention. For this line, there is no significant gain (lower probability/depth of crisis) using MP

- For others (Borio et al (2016), Filardo et al (2016)), it is important to LAW early so as not to allow imbalances to distort resource allocation in the economy; <u>LAW with MP is better to allow the economy to hover around a "financial equilibrium";</u> cost-benefit analysis cannot be done only in the period when crisis occurs but throughout the cycle

- Intense debate around two visions that show difference in reading of the dynamics of the economy, the financial cycle and the way welfare loss function is designed; finally, issue is also to assess welfare gains/losses under partial or general equilibrium frameworks

Logical intuition: conduct LAW combining MP and MiPs/MaPs

- Given these two opposite views, seems intuitive to apply Tinbergen principle: you have two objectives (reduce-control financial systemic risk and control output-inflation gaps), and also two instruments (the central bank policy rate and regulatory-micro/macro-prudential tools (MiP & MaP))

- Seems logically sound to assign/apply: (a) the policy rate to address output-inflation (its counter-cyclical effects are well known); even if its effects on financial risk are less known; and (b) use MiP & MaP to address systemic risk that is now well-known; even if their effects on output-inflation are less known;

	CB rate	MiP & MaP
Output-inflation	Yes, counter-cyclical effects known	??
Risk	??	Yes, counter-cyclical effects known

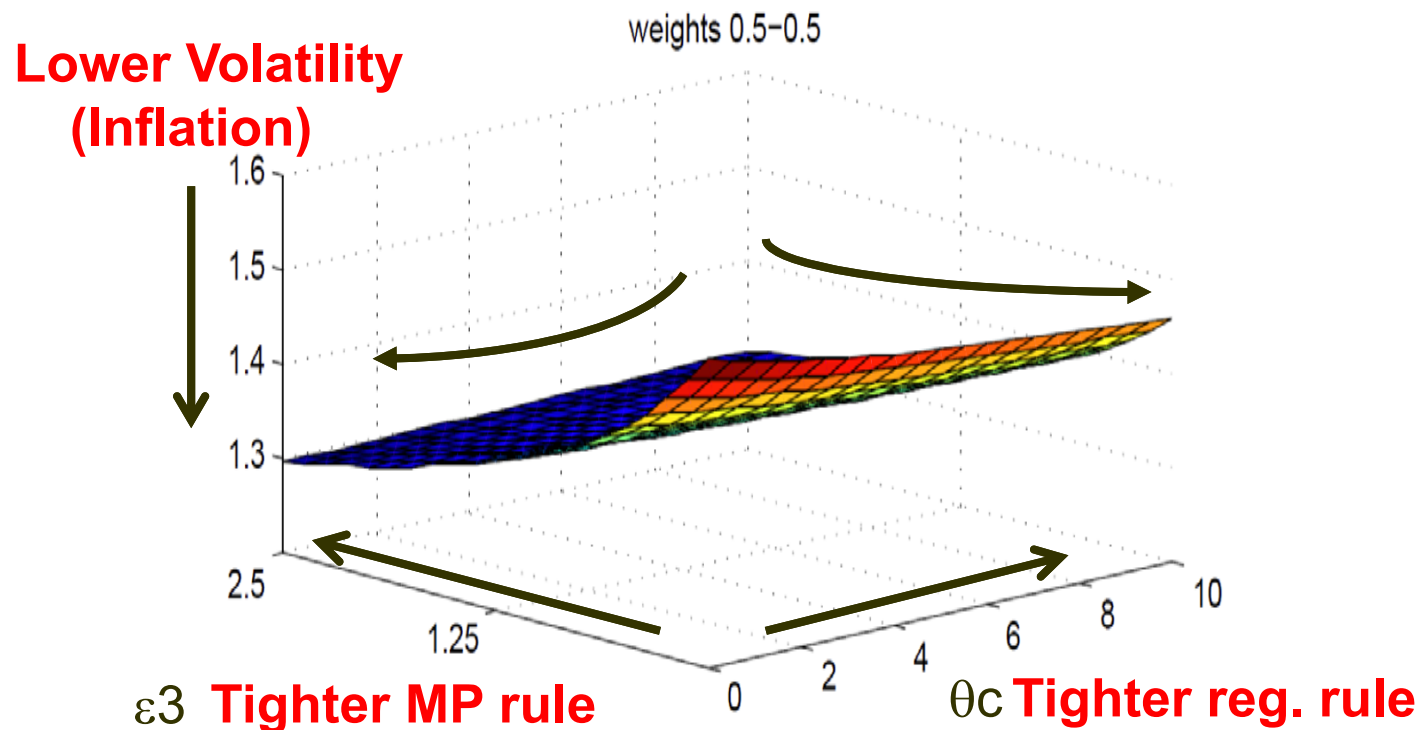"The road to hell is paved with good intentions" (and good/bad intuitions)

MP & MaP in an integrated inflation targeting (IIT) framework

- Combining MP & MaPs in an integrated policy framework seems the logical **intuitive policy response** because MaP alone cannot successfully achieve both macro stability and FS; and MP alone exacerbates credit boom, asset and ER overvaluation; but naturally, sound policy response requires much more than simple good intuition

- Challenge: depart from intuition to move to robust analytical models with empirical validation and successful implementation; for inflation targeters in EMEs, one proposal is an **IIT framework** (Agénor and Pereira da Silva (2013)):

  - a flexible IT regime where the CB's policy rate reaction is augmented to include a FS objective;

  - the policy interest rate is set to respond directly to a ("carefully defined") measure of FS ("excessive" rapid credit); and

  - MP and MaP policies are calibrated jointly to achieve macroeconomic (price) and FS.

Combining monetary policy and macroprudential policy: is it effective? DSGE evaluation

- Increasingly large body of literature testing combinations of MP with MaPs under a general equilibrium frameworks/models (eg DSGEs with financial frictions and/or fully modelled financial sectors), despite recent Romer's critique, responses by Blanchard, Korinek, Brunnermeier; so far, most useful instrument available for policymakers that want to assess welfare implications of mixing MP and MaPs

- Standard technique (Agénor et al (2013)): DSGE compares welfare indicator under two different policy response frameworks aiming both at achieving "economic" stability defined as a weighted average of both FS and price stability; FS itself is defined as volatility of housing prices:

  1. MP reacts with an augmented-Taylor rule where an FS indicator is part of the CB policy rate reaction = f [inflation gap, output gap, $\varepsilon 3$(credit gap)]

  2. Standard MP + MaP rule reacts through a countercyclical capital buffer (CCB) rule (θc) applied to RWA (capital) of banks, as in Basel III

With 50%-50% weights (of financial & price stability): policy instruments are **complements not substitutes** to achieve lower volatility (vertical axis) of economic stability: this example shows a simple numerical optimality of combining two rules (θc) and ($\varepsilon 3$); it is not a proof of the existence of an analytical optimal policy rule….

Lower Volatility (Inflation)

weights 0.5−0.5

$\varepsilon 3$ **Tighter MP rule**

θc **Tighter reg. rule**

Source: P-R Agénor, K Alper and L A Pereira da Silva: "Capital requirements and business cycles with credit market imperfections,", *Journal of Macroeconomics* 34, September 2012), 687-705.

What type of coordination is needed and which agencies?

- Even if we had an "ideal", well calibrated DSGE for EMEs or another tool, combining a mix of MP and MaP, there are other practical challenges. <u>Who implements what and where</u>? (eg De Paoli and Paustian (2013))

    ▪ Are both MP and MaPs the sole responsibility of the CB or of the CB and a FS agency? Both the CB and the FS agency are independent?

    ▪ Do you have the monetary policy committee (MPC) at the central bank (CB) and the financial stability committee (FSC) sitting "elsewhere", or at the CB?

- <u>Coordination of both committees, the MPC and FSC</u>. There are risks to credibility if the two committees provide systematically too far apart or conflicting signals about macroeconomic and financial stability

- <u>Coordination of sectoral/macro MaPs</u>. Using central bank's policy rate or even a an economy-wide CCCB may be too "aggressive" to address well-identified local asset price bubbles (eg housing); should the FSC also consider the combination of **sectoral/macro prudential** tools, (eg LTVs, DTI and RR, CCCB) ?

Research agenda for IIT: "the devil is in the details"

- There are key and complex pre-conditions before an IIT with an augmented "Taylor rule", combining an inflation gap, output gap and credit growth gap policy rule could be implemented in IT-EMEs:

    1. What **credit gap measure** to use? (eg a real or a nominal credit gap, broad measure of aggregate credit or only a component of total credit, including or not public sector banks, relevant in large EMEs?)

    2. How to estimate the **"reference" growth rate** (eg, using statistical filters and/or a trend). What about EMEs' process of financial deepening, should it be subtracted from the calculation? Can the reference growth rate be that of a desirable path of an sustainable equilibrium credit-to-GDP ratio that could be related to local growth strategies in EMEs?

- The research agenda has also to deal with **credibility** and **expectations** of "new policy rules"; in EMEs with fragile credibility, CBs might be affected by the introduction of any "hint" of new policy regime

Conclusion: Research agenda is still a long and winding road…

- Healthy debate about LAW requires various types of models for assessment of its welfare effects (general equilibrium, open framework, but also reduced forms and smaller models); careful choice/comparison of various methodologies are needed to estimate a "reference credit growth" to identify financial (in)stability

- Which MaPs can be used in coordination with MP? Research needs to study/model carefully their transmission mechanism into financial/real variables. It is most likely too simplistic to model MaPs as an additional "cost" channel to lending rates

- Institutional setup to coordinate MP and MaP: the tale of two Committees, the MPC versus the FSC; where should they be? What should be their composition?

- Target horizons are different for price or macroeconomic stability (short-term), and financial stability (more longer-term), there could be path dependency issues

- Credibility in a IIT framework? Strong communication and keeping IT transparency are both required for an IIT (eg essential for anchor expectations)

- How would international policy coordination through MP and/or MaP policies play a possible role? Spill-overs & spill-backs exist; can we identify benefits from MP and/or MaP coordination? Research needs to evaluate using two countries DSGEs?

- Speculative footnote: with now availability of "big data", perhaps monitoring of financial risk could be done almost at individual household level; are we going towards "nano-prudential" policies? What risks for influencing behavior, etc.?

Thank you

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