MANAGING CAPITAL FLOWS: TOWARD A POLICY VADEMECUM

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*This presentation draws on joint work with Suman Basu, Olivier Blanchard, Marcos Chamon, Rex Ghosh, Mahvash Qureshi, and Pablo Winant. The views expressed in this presentation are those of the presenter and do not necessarily represent those of the IMF or IMF policy.

Cross-border flows: great benefits in theory…

- Growth and risk-sharing benefits:
  - Financial flows complement limited domestic saving in capital-poor economies and, by reducing the cost of capital, allow for increased investment (Kose et al., 2009)
  - Certain types of flows (FDI) can generate technology spillovers and serve as a conduit for managerial and other forms of organizational expertise from more advanced economies (Carkovic and Levine, 2005)
  - International financial flows can serve as a catalyst for financial market development. For example, foreign bank participation can increase competition in the domestic financial market (Mishkin, 2008)
  - Capital flows might impose discipline on macroeconomic policies by increasing the potential costs—sudden shifts in investors' sentiment—associated with weak policies (Tytell and Wei, 2004; Furceri and Zdzienicka, 2012)

...but has fallen short in the eyes of many

- Stiglitz: “Preconditions to make financial globalization work are lacking in many countries.”
- Rodrik: “The association between capital account convertibility and economic growth is weak at best…there is a strong association between financial globalization and financial crises over time.”
- Krugman (May 2017): “financial globalization hasn’t been the force for good that trade has been.”
- Martin Wolf (2004): “the gains from financial globalization have been questionable and the costs of crises enormous.”
- Eichengreen et al. (2001): evidence of a positive association between capital account liberalization and growth is “decidedly fragile.”

With decidedly mixed evidence of gains

- Decidedly mixed evidence on aggregate growth effects
  - Several studies find no significant association between capital flows and growth (e.g., Alesina et al., 1993; Rodrik, 1998), but others report a positive association (e.g., Quinn, 1997; Quinn & Toyoda, 2008)
  - Edison and others (2004) surveys 10 studies and conclude that only three of these provide evidence of positive effects of capital account liberalization
  - Prasad et al. (2003) reviews 14 studies, and find that 11 report no or mixed effects on output growth
  - Kose and others (2009) survey 26 studies, and find that in only three is there robust evidence of positive effects
  - Gourinchas & Jeanne (2006) argue that the welfare benefits from international capital reallocation are positive, but very modest for EMEs
- More supportive evidence based on microeconomic (industry-level) data (Henry, 2007; Furceri, Loungani, and Ostry, 2017)

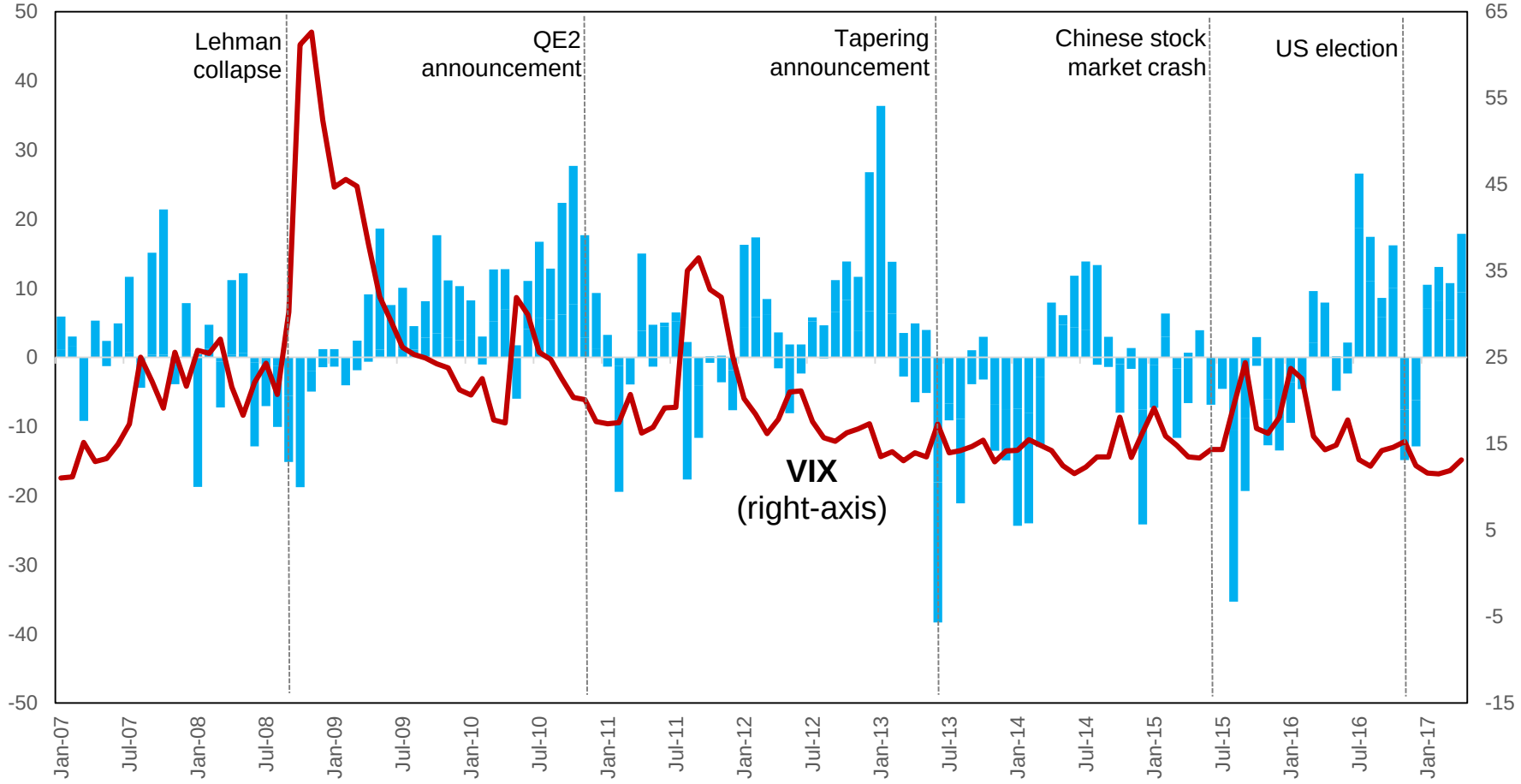
Reflecting institutions, crises, and compostion

- Institutions
  - Financially- and institutionally-developed economies tend to benefit more from liberalization by better absorbing capital flows (e.g., Prasad et al., 2003; Dell'Ariccia et al., 2008)
  - In more financially inclusive economies, benefits tend to be larger and widespread (Furceri, Loungani, and Ostry, 2018)
- Composition matters
  - FDI and portfolio equity tend to be more beneficial for output growth (Borensztein et al., 1998; Blanchard and Ostry, 2017); FDI less prone to sudden stops (Ostry et al., 2016); and debt is highly procyclical
- Crises
  - Liberalization often followed by boom-bust episodes, affecting medium- and long-run economic growth (Diaz-Alejandro, 1985; Demirguc-Kunt and Detragiache 1998; Kaminsky and Schmukler, 2008)

What is the Problem Facing EMEs & FMs?

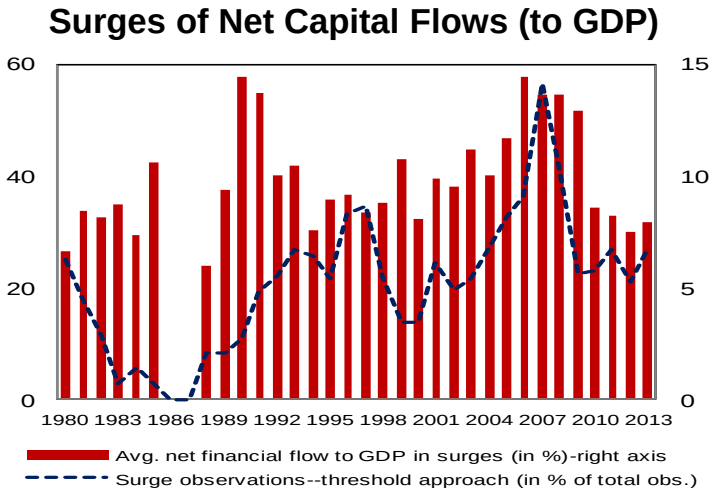
Capital Flows Respond Strongly to Global Financial Conditions

Bond and Equity Fund Flows to EMEs
(billions of US dollars; monthly flows)



Rising Frequency of Surges and Reversals in EMEs

- Inflow surges have been increasing in frequency and magnitude
  - Share of surge observations rose from 10 pct. in the 1980s to more than 30 pct. in 2000s
- Surges are synchronized globally, pointing to common push factors
  - US real interest rate, global risk aversion, commodity prices
- But even in times of global surges, not all EMEs are affected, so pull factors must also be relevant
  - Real GDP growth, external financing need, capital account openness, institutional quality

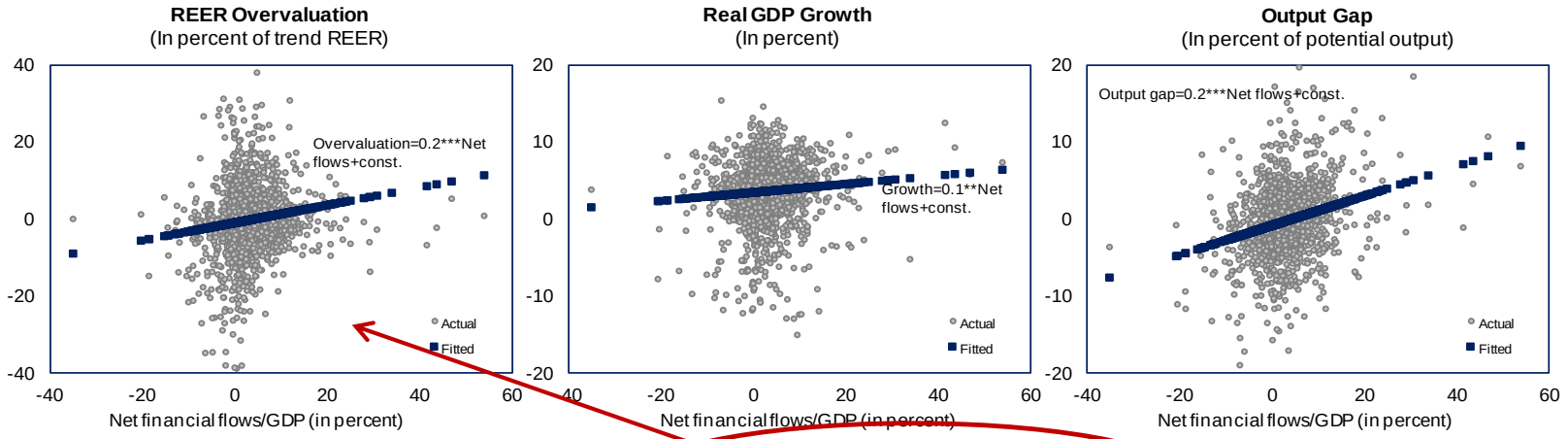


Source: Ghosh et al. (JIE, 2014). Sample=53 EMEs (1980-2013). Surges defined as net capital flow (in % of GDP) observations in the top 30th percentile of a country's distribution and in the top 30th percentile of the full sample's distribution.

- Regions experiencing largest surges also tend to subsequently experience the largest drop in net flows—heightening the challenge of managing volatility

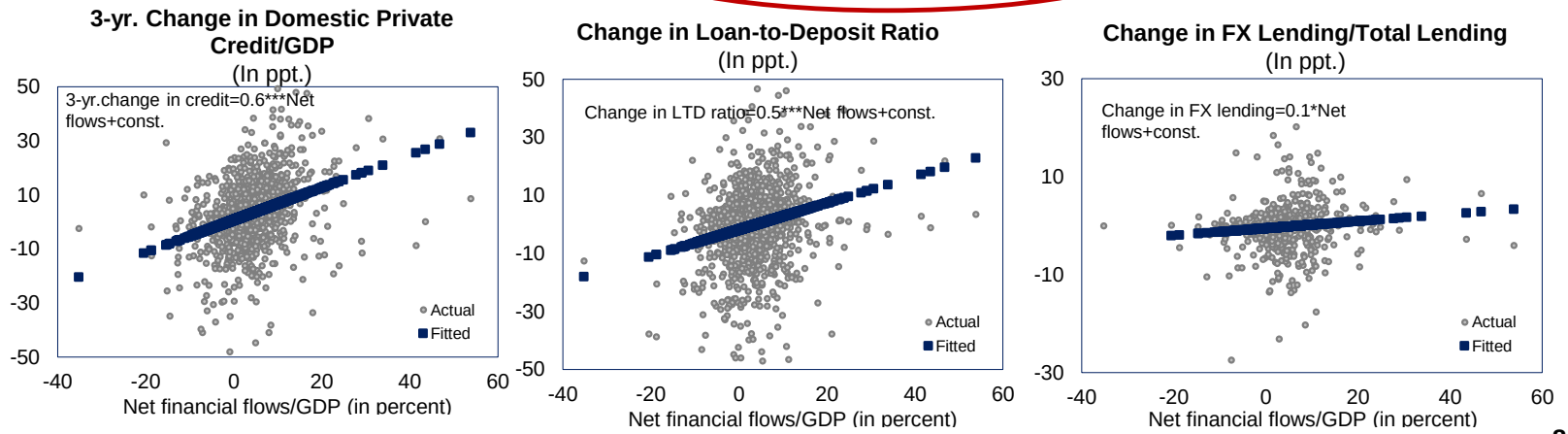
Surges Lead to Macro/Financial-Stability Risks

- Macroeconomic imbalances



- Financial vulnerabilities

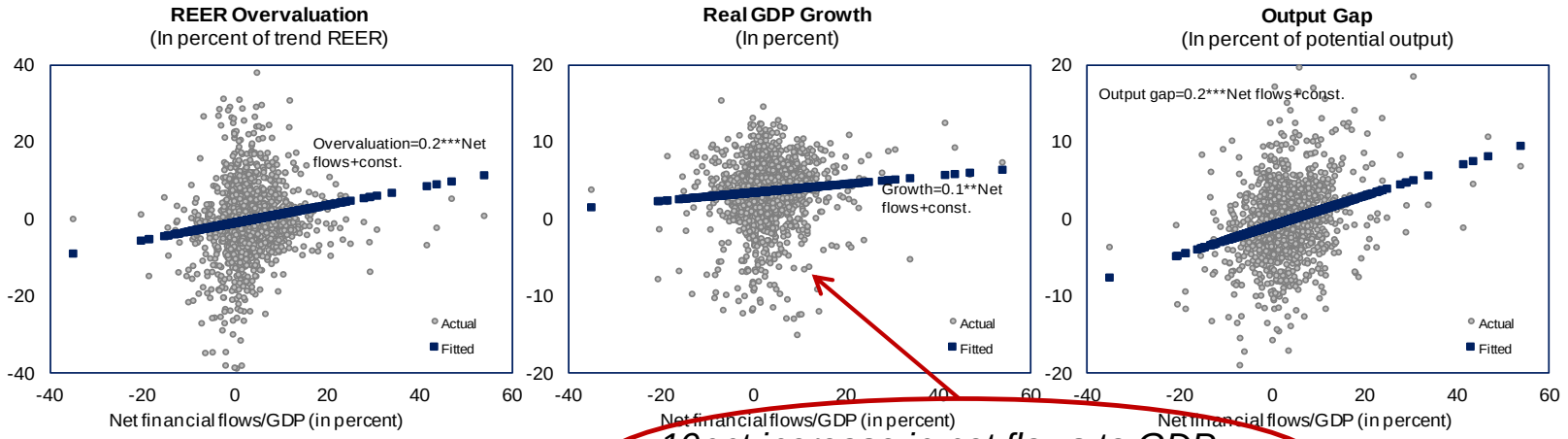
10ppt increase in net flows to GDP increases overvaluation by 2 ppt



Note: Net financial flows (to GDP) are lagged one period.

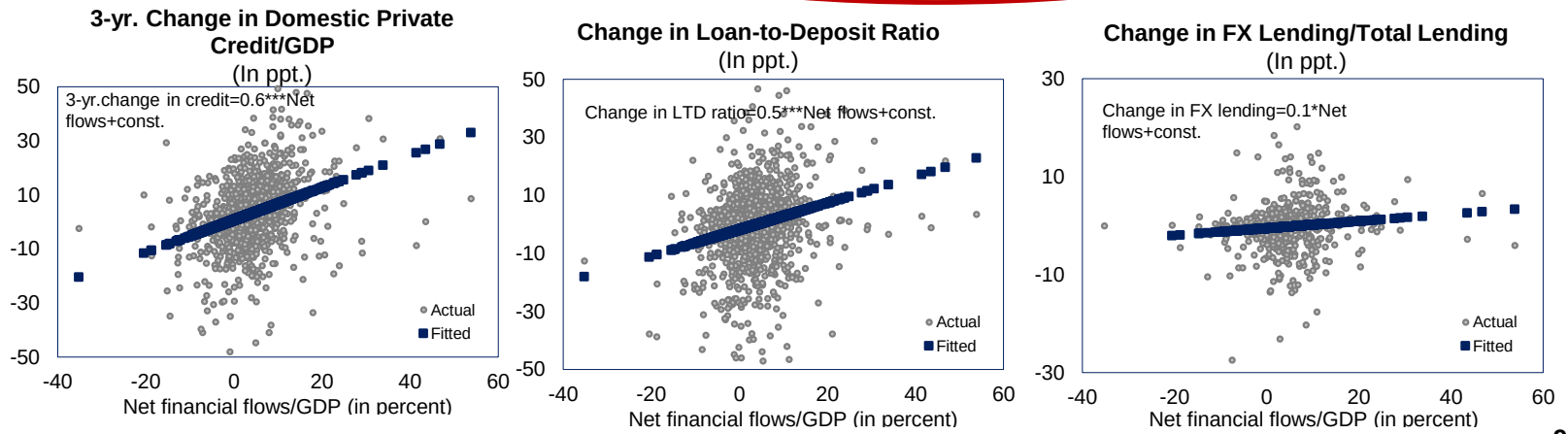
Surges Lead to Macro/Financial-Stability Risks

- Macroeconomic imbalances



- Financial vulnerabilities

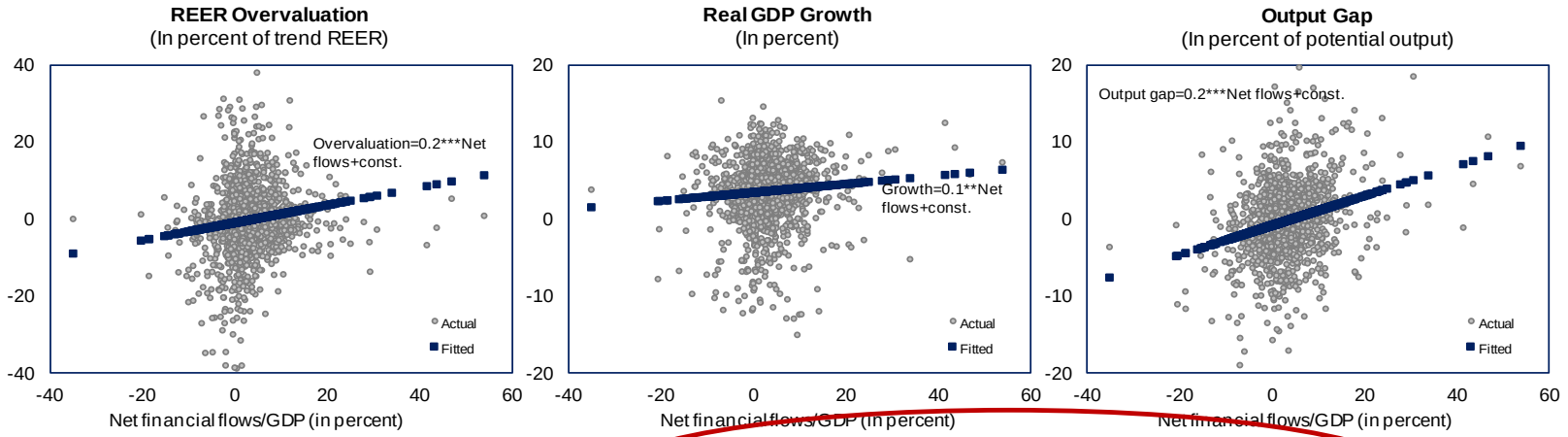
10ppt increase in net flows to GDP increases real GDP growth by 1 ppt



Note: Net financial flows (to GDP) are lagged one period.

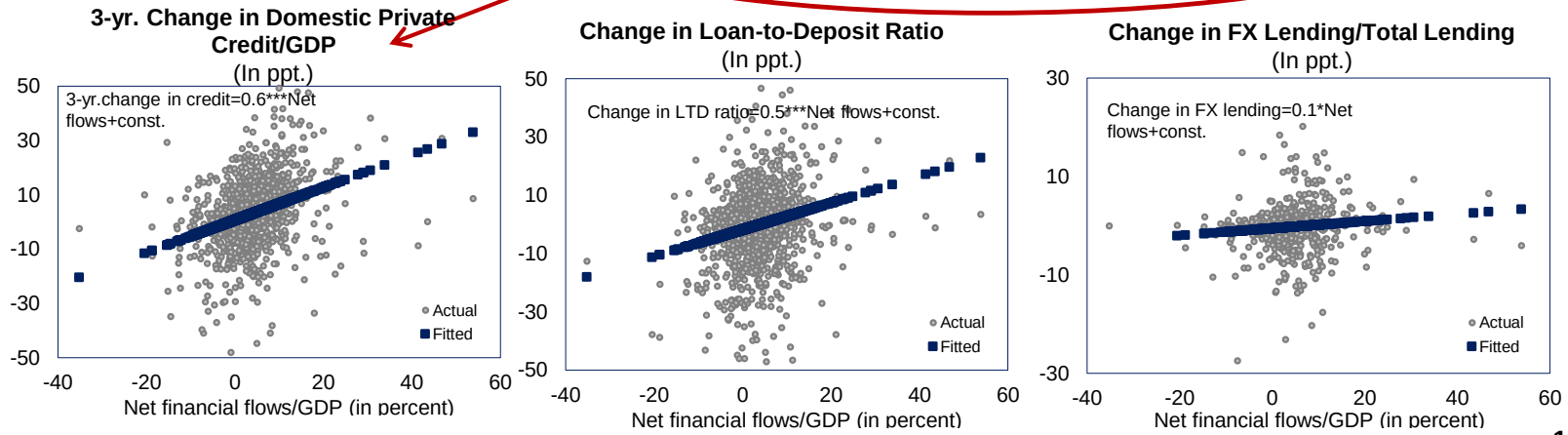
Surges Lead to Macro/Financial-Stability Risks

- Macroeconomic imbalances



- Financial vulnerabilities

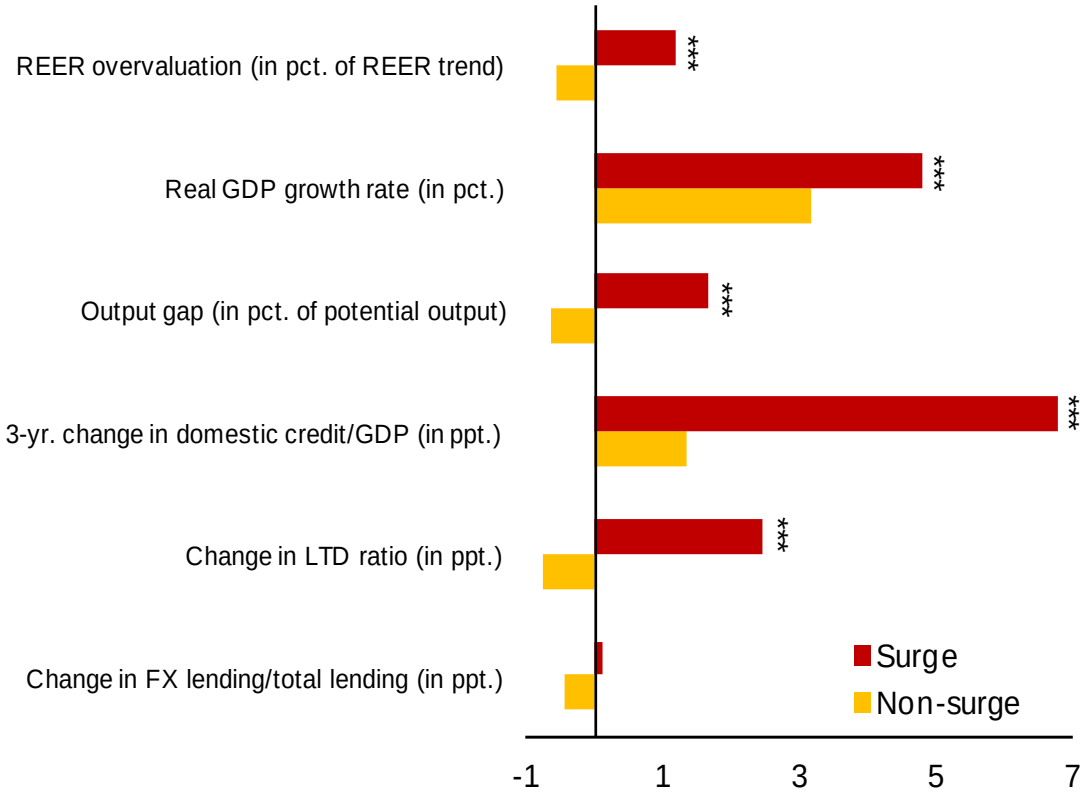
10ppt increase in net flows to GDP increases rate of credit expansion by 2 ppt per year



Note: Net financial flows (to GDP) are lagged one period.

Surges Differ from Normal Times

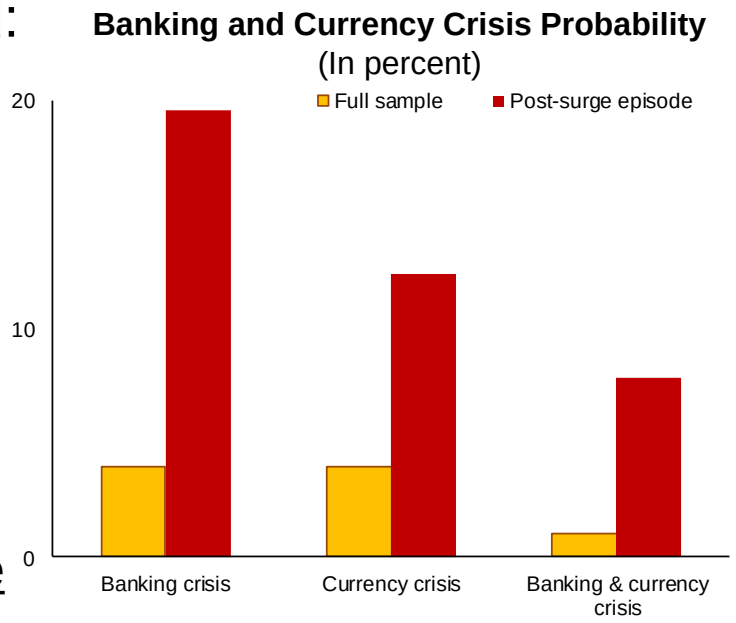
Macroeconomic and Financial Vulnerabilities in Surges vs. Non-Surges



Note: *** indicates difference between the means of the two groups (surges, non-surges) is statistically significant at the 1 percent level.

Surges Appreciably Raise Crisis Risk

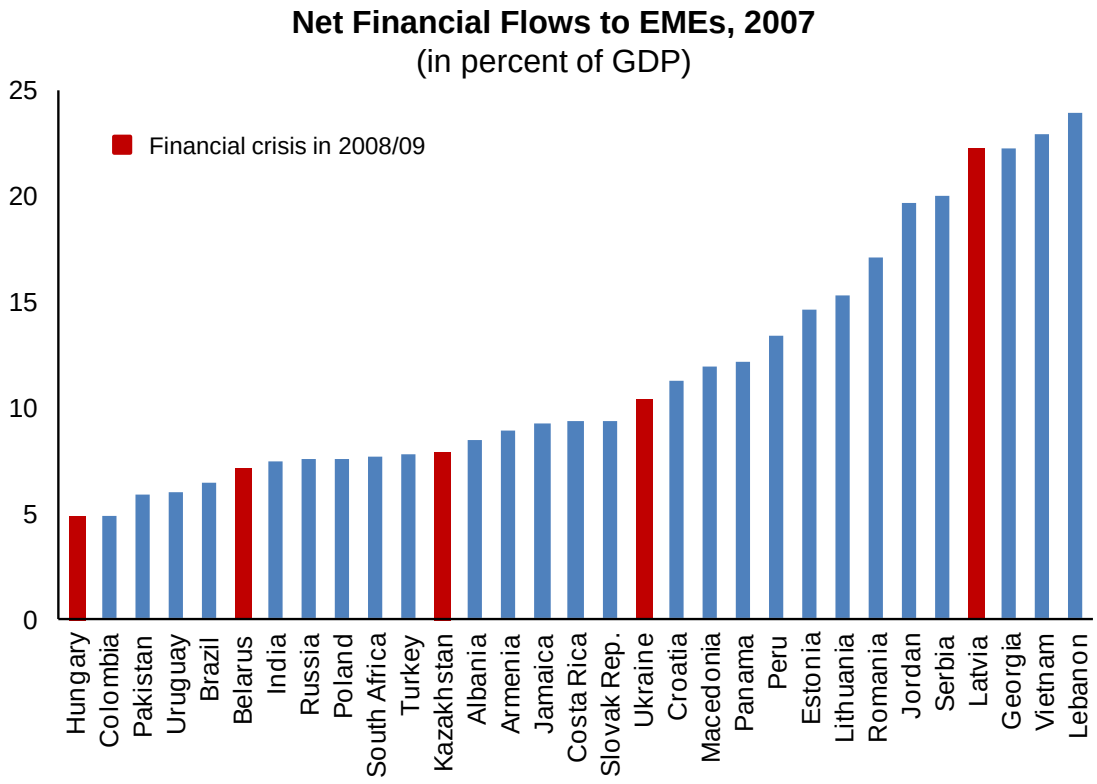
- Increase in net financial flows of 5 percent of GDP raises crisis probability by about 1 percentage point (unconditional prob.: 4 pct.)
- Main factors contributing to crisis likelihood:
  - Change in domestic credit (in percent of GDP)
  - Currency overvaluation
- Crisis likelihood by <u>type of flow</u>:
  - Portfolio and other investment flows, <u>but not FDI</u>, increase crisis probability
  - Within portfolio flows, <u>debt more likely to cause a financial crisis than equity</u>



Note: Post-surge crisis probability is defined as a (banking/currency) crisis within two years after a surge episode ends; see Ghosh, Ostry, Qureshi (AER, 2016).

But Not All Surges End in a Crash

- Several EMEs, for instance, experienced large inflows in the run-up to the GFC, but only one-sixth subsequently experienced a financial crisis



Source: IMF's IFS and WEO databases, and Laeven and Valencia (2013).

EME Policies Affect the Crash Probability

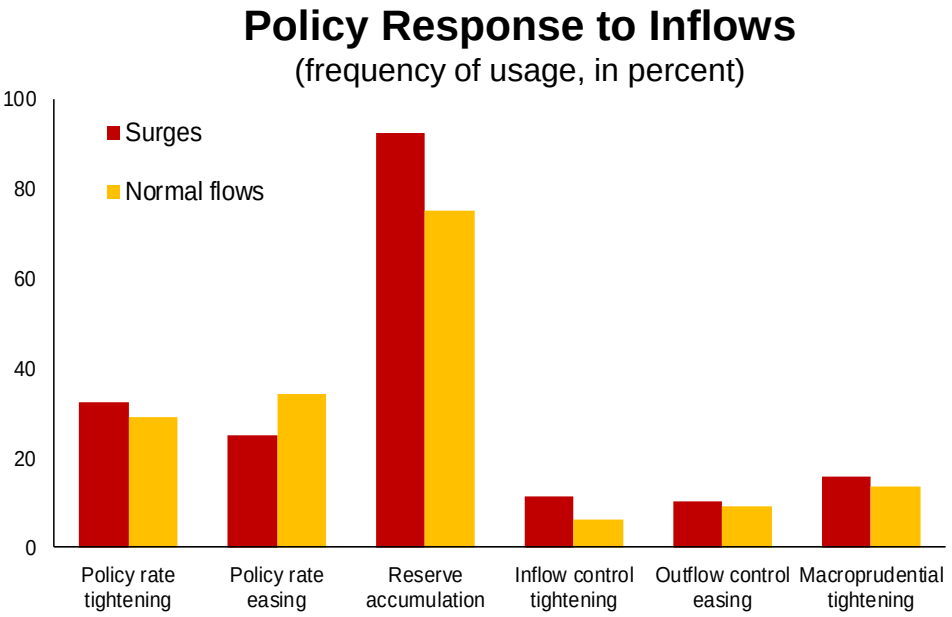
- Crash definition: banking or currency crisis occurring within two years of surge end (Ghosh, Ostry, and Qureshi, AER P&P, 2016)
  - Given a surge, but unconditioned on other variables, crash prob. is 20 percent
- Crash probability is affected by global factors, as well as by EME policies which affect domestic imbalances
  - Global factors: US interest rate, commodity prices, and global risk aversion
    - Predicted crisis prob. is 7 ppt. higher if US real interest rate rises by 100 bps (relative to no change in interest rates)
  - Domestic factors: Crash probability is higher when the surge experiences…
    - Greater credit expansion, economic overheating, currency overvaluation
    - Smaller stock of foreign exchange reserves
    - Smaller share of FDI (predicted crisis probability is 12 ppt. lower if surge is FDI-driven)
    - Higher debt inflows/accumulation of bank foreign liabilities (predicted crisis probability is 11 ppt. higher if surge is debt-inflow-driven)

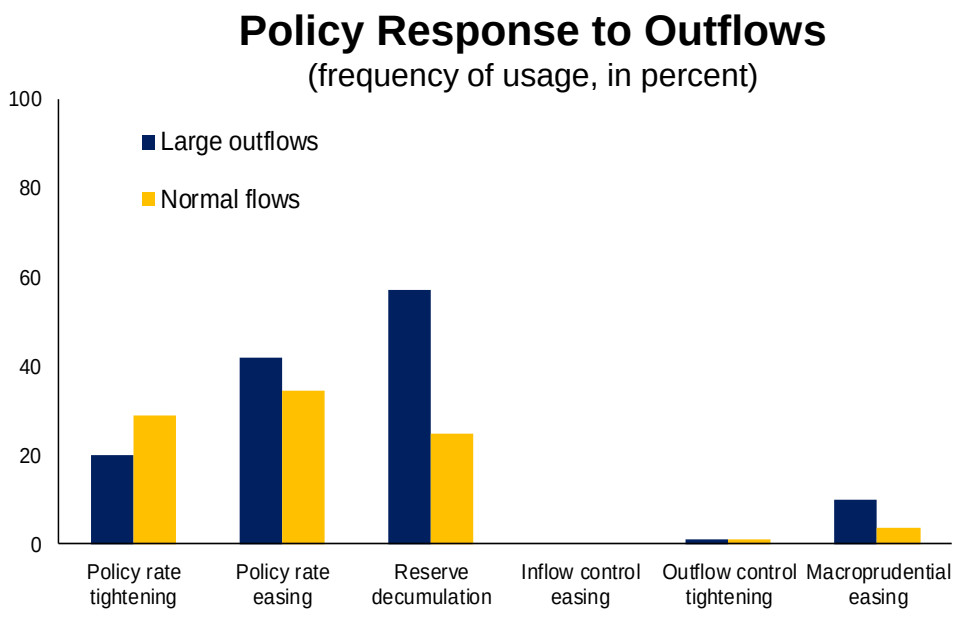
Really Important to Manage the Surge Well

- Capital flows bring many risks, while growth benefits depend on type of flow: Blanchard, Ostry, Ghosh and Chamon (AER, 2016)
- Global push factors (largely exogenous to recipient countries) are important determinants of surge and crash risk
  - Countries therefore need latitude to adopt "insulation" policies
  - Policies may be countercyclical or structural, especially to improve the composition of inflows
- A range of policies seem salient
  - Exchange rate management/FXI, monetary, fiscal, macroprudential, and capital controls—all have a role to avoid macro and financial vulnerabilities
  - Structural policies also important to improve the mix of flows toward less risky types of liabilities (e.g., FDI)
  - Policies may need to be coordinated globally: Keynes and White; global rules may be needed when coordination is impossible (Ostry and Ghosh, 2016)

Which Policies Do EMEs Actually Use?

EMEs Use a Range of Policies to Manage Flows



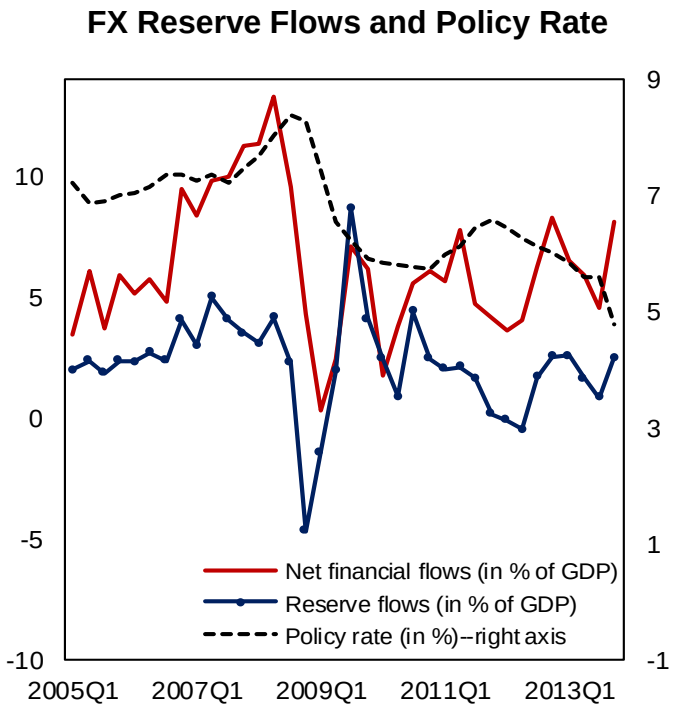


Note: Quarterly data for 51 EMEs over 2005-2013. Sample comprises those observations for which information on all policy instruments are available.

- Most commonly: FX intervention (Ghosh, Ostry, and Qureshi, 2017)
- Also monetary policy: Typically raise the policy rate during inflow episodes
- Macroprudential measures and capital controls used though less frequently
- But no evidence of countercyclical fiscal policy in response to flows

Reserves and Capital Flows Co-Move Strongly

- On average, FX intervention absorbs 30-40 percent of the flow
- Although there is significant variation across individual countries
  - Asian and some European EMEs intervene heavily
  - Heterogeneity in intervention behavior across Latin American EMEs
- Intervening countries include ITers
  - Even countries that are generally skeptical of intervention have intervened (e.g., Chile, during inflows episode in 2011; Mexico, facing outflow episodes after the US election)

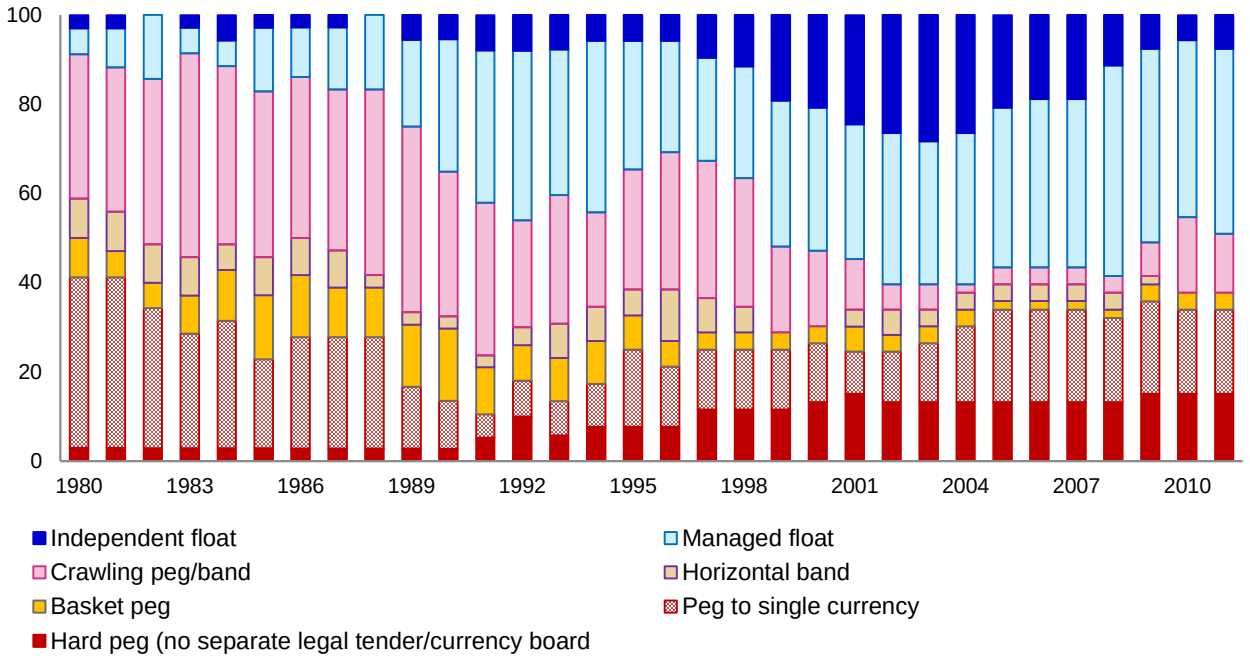


Source: Calculations based on IMF IFS and WEO databases; see Ghosh, Ostry, and Qureshi (IMF WP, 2017).

Use of FXI Reflected in Move Toward Managed Floats

- Popularity of managed floating in EMEs has increased over time (Ghosh, Ostry, and Qureshi, IMFER, 2015)
- Defying the traditional bipolar recommendation (choose peg or float)

Distribution of ER Regimes in EMEs: De Facto Classification, 1980-2011 (in percent)



Source: Ghosh, Ostry and Qureshi (2015).

Managed Floats Achieve Low Crisis Risks…

Vulnerabilities and Crisis in EMEs: IMF's De Facto Classification, 1980-2011

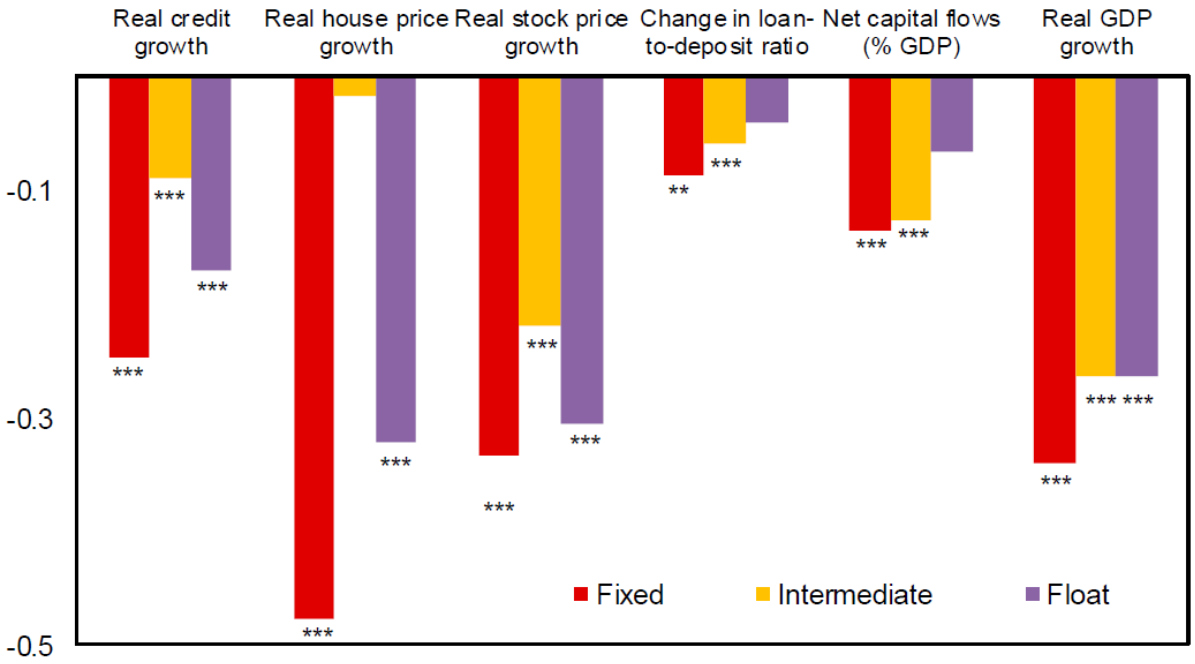
	Financial vulnerabilities			Macro vulnerabilities		Crisis[a]			
	Credit boom[b]	**Foreign borrowing[b]**	**FX lending[b]**	**Fiscal balance[b]**	**REER deviation[b]**	**Bank**	**Currency**	**Debt**	**Growth**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Hard pegs	**6.1**	**14.3**	**58.9**	**-2.7**	**0.3**	**3.0**	**1.0**	**2.0**	**10.5**
Intermediate	**2.4**	**9.4**	**36.1**	**-3.6**	**0.2**	**4.7**	**5.2**	**1.9**	**4.4**
Peg to single currency	3.5	12.3	34.9	-4.6	0.9	3.6	5.2	2.8	6.9
Basket peg	8.8	10.7	49.2	-1.9	-0.2	5.4	1.1	1.1	8.3
Horizontal band	5.1	9.9	44.5	-4.5	0.6	7.0	2.8	1.4	3.4
Crawling peg/band	1.1	8.3	35.1	-3.4	0.8	7.4	7.4	2.3	3.1
Managed float	1.2	8.0	35.4	-3.5	-0.7	2.7	4.9	1.5	3.3
Independent float	**0.8**	**7.3**	**29.4**	**-3.2**	**-1.6**	**1.2**	**2.4**	**0.6**	**3.8**

a/ In percent of exchange rate regime observations. Bank, currency, and debt crises from Laeven and Valencia (2012). Growth collapses are defined as those that are in the bottom fifth percentile of growth declines (current year relative to the average of the three previous years), and correspond to a fall in the growth rate of real GDP of about 7.5 percentage points. Regimes are lagged one period.
b/ Credit boom measures 3-year cumulative change in ratio of private sector credit to GDP (in percentage points). Foreign borrowing measures bank foreign liabilities/GDP (in percent). FX lending measures ratio of FX bank loans to total bank loans (in percent). Fiscal balance measures general govt. net lending/GDP (in percent). REER deviation measures deviation of REER from trend (in percent of trend).

- Managed floats experience lower vulnerabilities and fewer crises than hard pegs and other intermediates, and are not much more crisis-prone than floats

…By Limiting Transmission of Global Shocks

Response of Macro/Financial Variables to Higher Global Risk Aversion



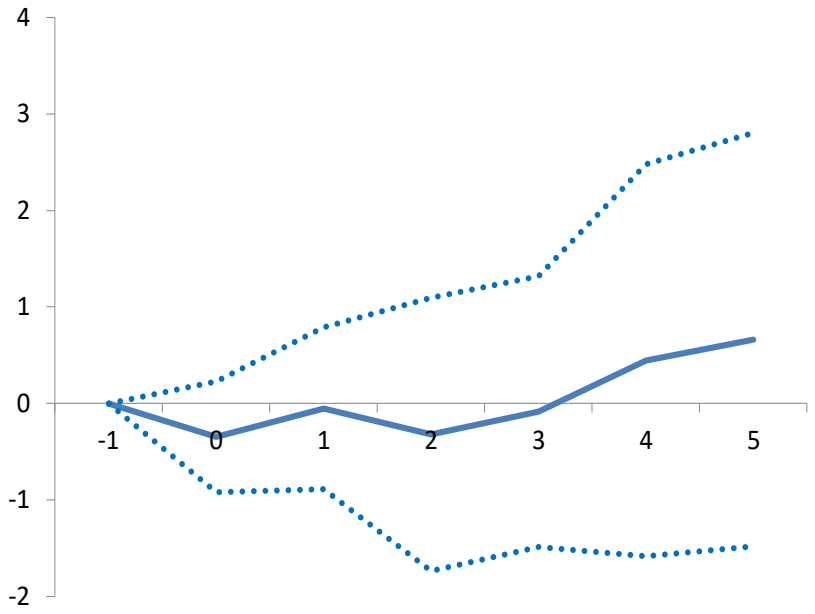
Source Obstfeld, Ostry, and Qureshi (2017).
Note: Figure shows unconditional correlations across countries between the (log) VXO index and the three-quarter moving average of the variables listed above.

- Managed floats a sweet spot: in the face of cross-border financial spillovers, EMEs can reap much of the insulation benefits of flexibility with limited exchange rate volatility (Obstfeld, Ostry, and Qureshi, 2017)

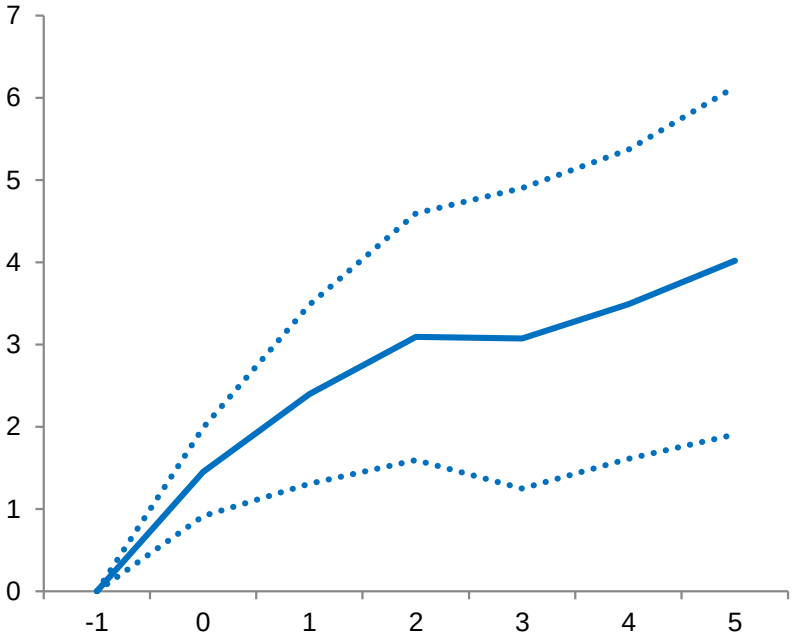
Distributional Considerations Also Salient

Insignificant output gains but significant increases in inequality

Panel 1. Output (%)



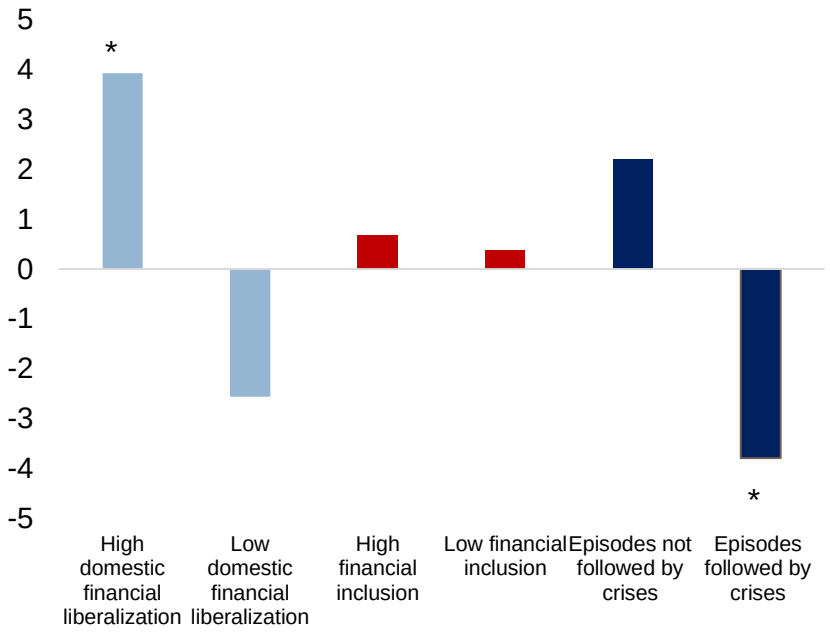
Panel 2. Gini (%)



Note: The solid lines indicate the response of output (inequality) to a capital account liberalization episode; dotted lines correspond to 90 percent confidence bands. The x-axis denotes time. t=0 is the year of the reform.

EFFECTS DEPEND ON INSTITUTIONS

Panel 1. Output (%)



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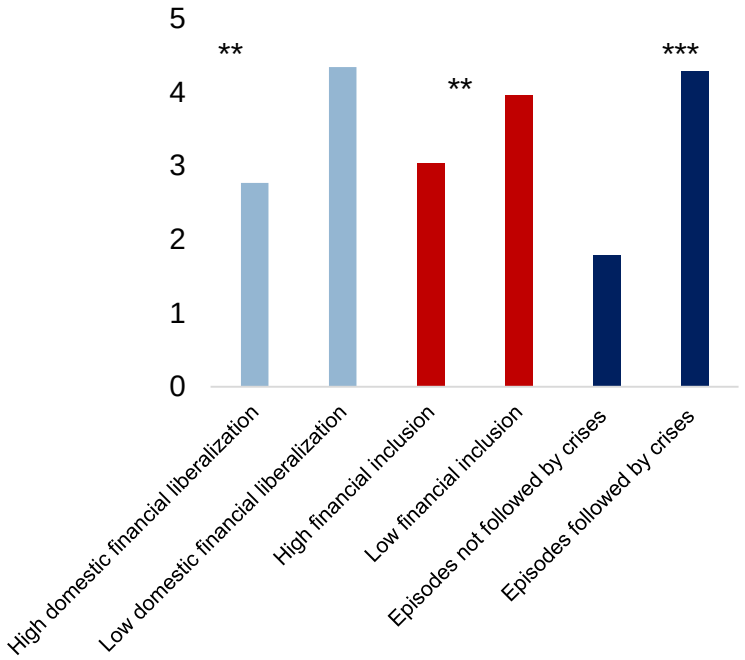
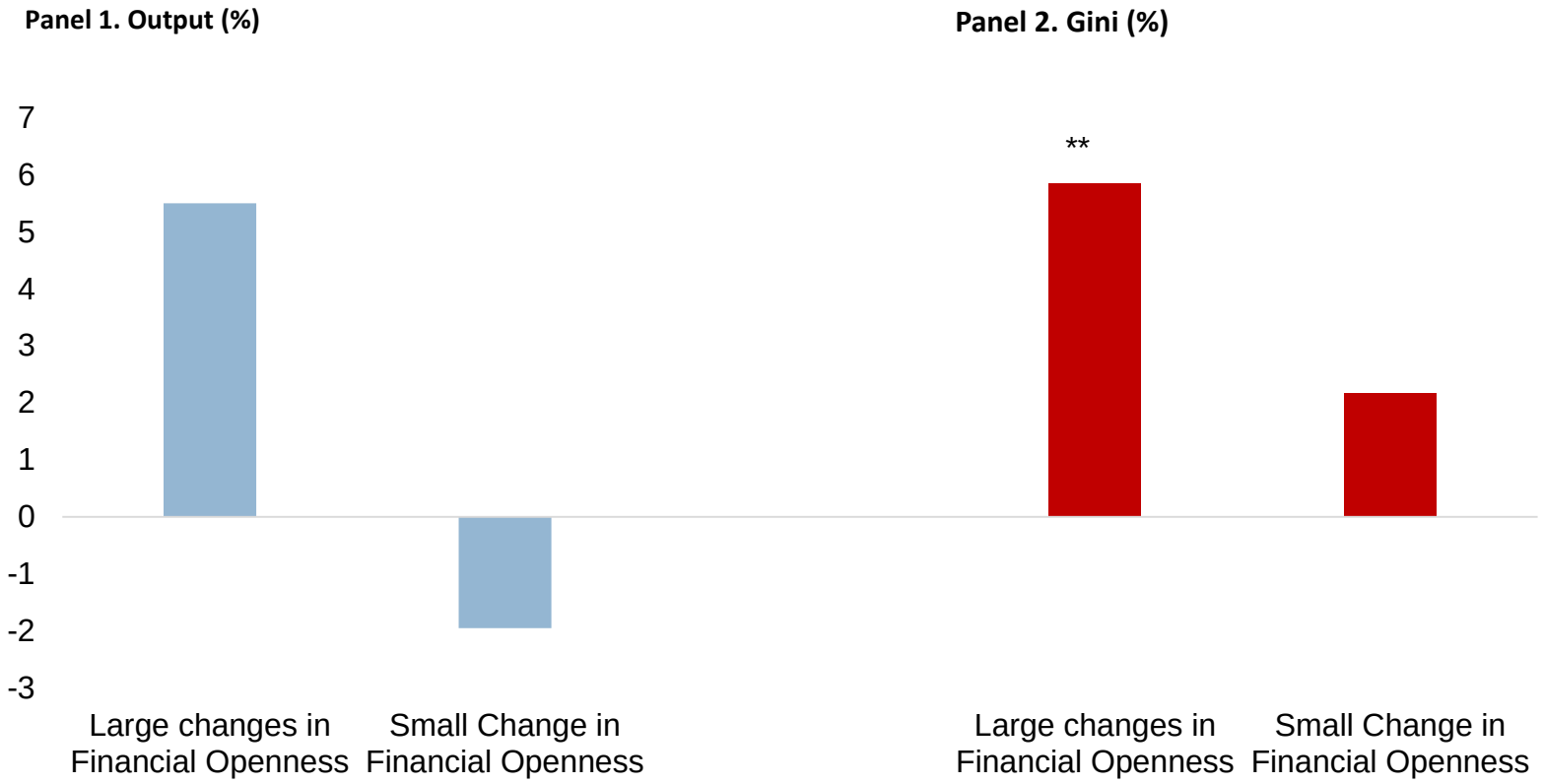


Note: Medium-term effects (that is, after five years of the reform). ***,**,* denote significance at 1 percent, 5 percent and 10 percent, respectively.

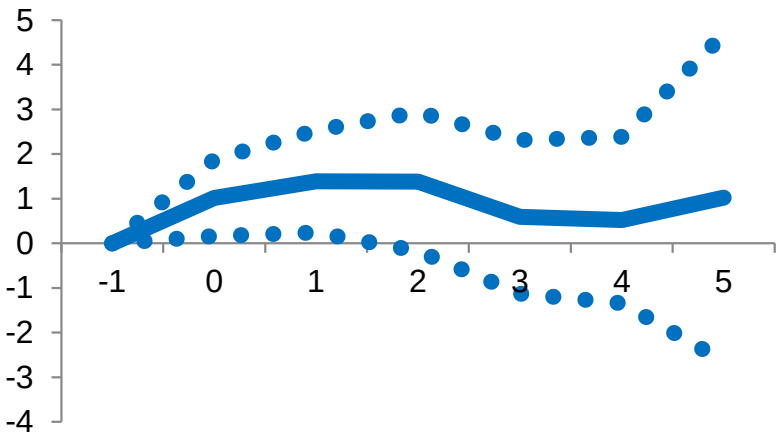
… and on the extent of capital flows



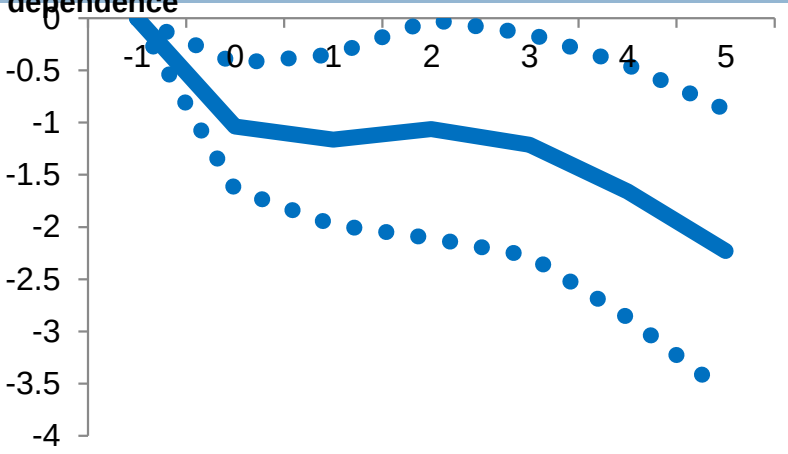
Note: Medium-term effects (that is, after five years of the reform). ***,**,* denote significance at 1 percent, 5 percent and 10 percent, respectively. Blue (red) bars denote the medium-term response (that is, five years after the reform) of output (inequality). Flows defined as the cumulative 5-year change in total asset and liabilities as percent of GDP after the reform.

Sectorally, significant decline in labor share

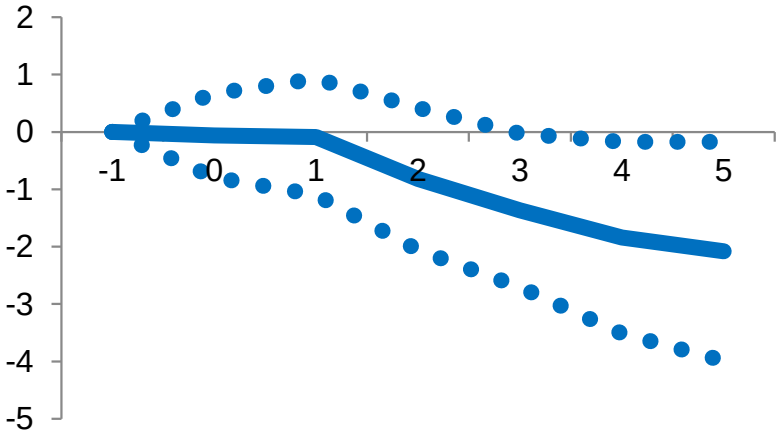
Panel 1. Output (%)—external financial dependence



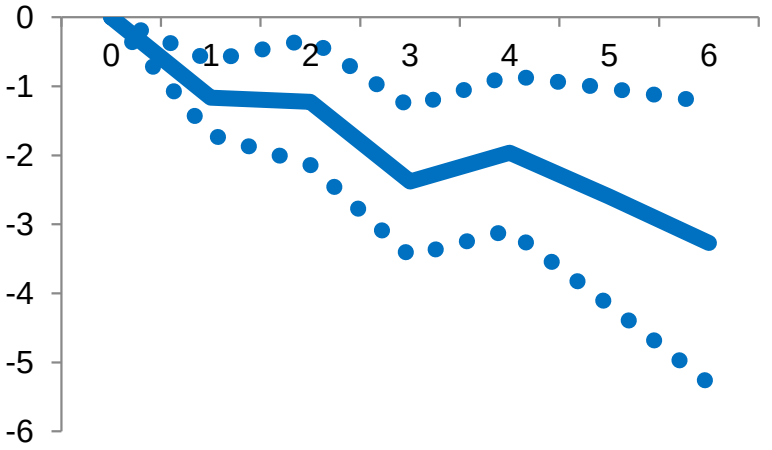
Panel 2. Labor share (ppt)—external financial dependence



Panel 3. Labor share (ppt)—natural layoff rate



Panel 4. Labor share (ppt)—EOS >1



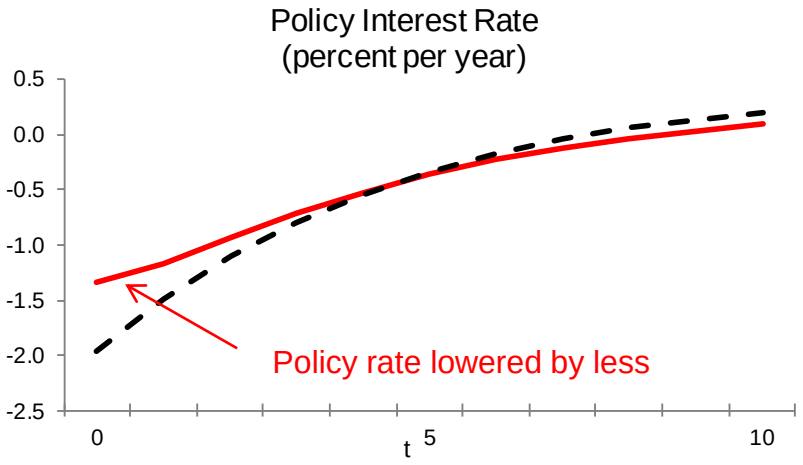
Note: Solid line denotes the differential effect of capital account liberalization episodes between a sector with a high external financial dependence/layoff rate/elasticity of substitution (at the 75th percentile) and a sector with a high external financial dependence/layoff rate/elasticity of substitution (at the 25th percentile).

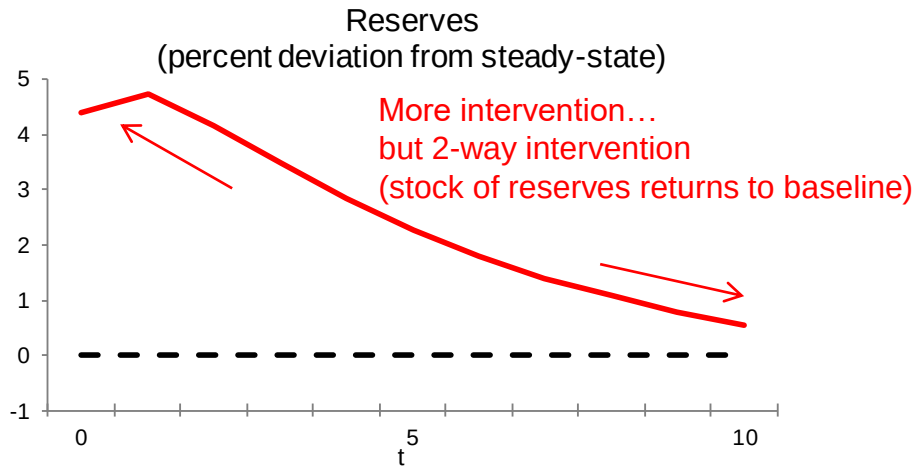
Role of FX Intervention

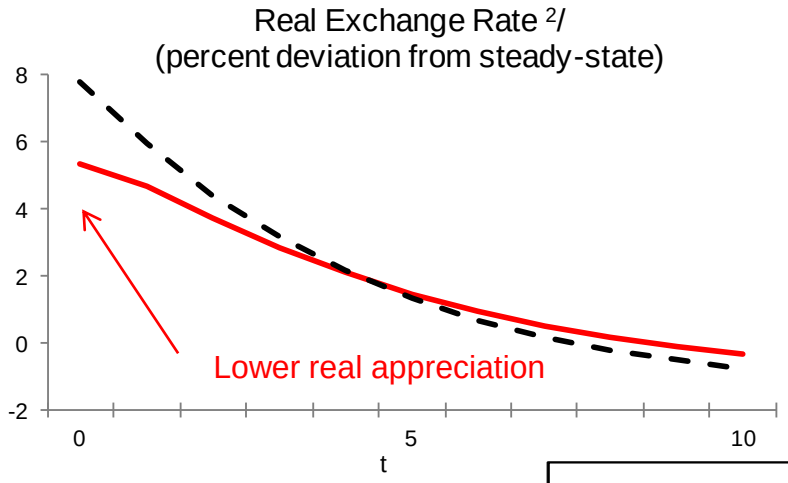
So How to Use FXI in Managed Floats?

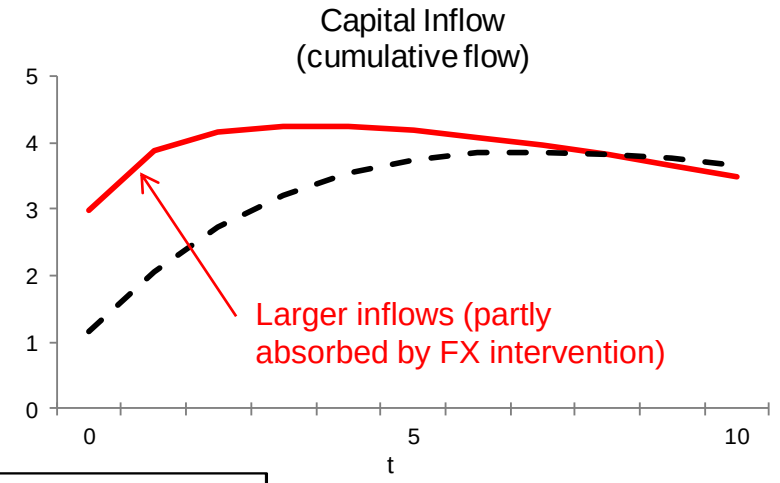
- Given rising popularity of managed floats, need to understand better the optimal FX intervention strategy for inflows and outflows
- Rationale for intervening during a capital flows episode:
  - External financial shocks causing ER volatility may be harmfully transmitted to the real economy via balance sheet effects in domestic financial and corporate sectors
  - Hysteresis—tradable sector firms don't come back following ER appreciation
- But is sterilized FX intervention compatible with IT in EMEs?
  - In practice, EME IT-ers do react to the exchange rate
    - A 10% REER appreciation lowers the policy rate by 0.3 ppt (controlling for π^e)
    - A 10% REER appreciation is associated with a 3.8% increase in reserves
- During an outflows episode, there is an additional consideration:
  - Reserves may run out

Using Two Instruments During Inflow Episode





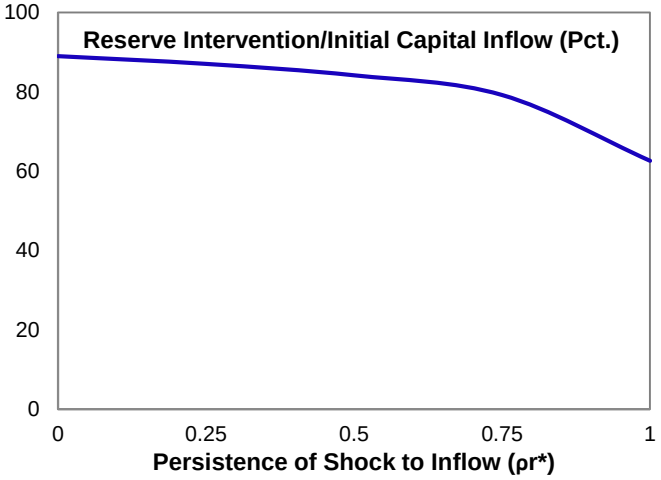


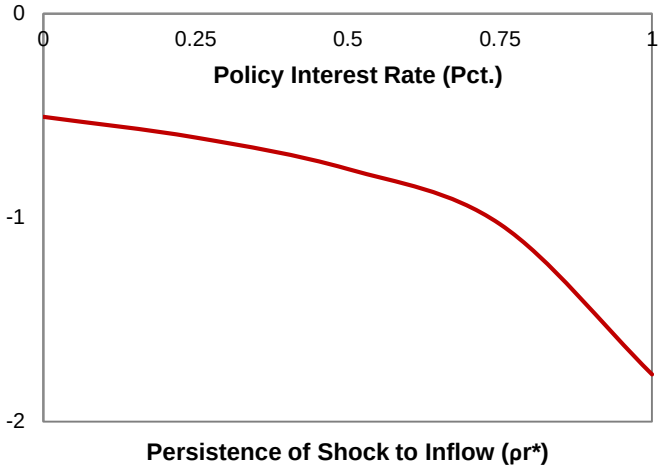


IT with FX intervention
IT (no FX intervention)

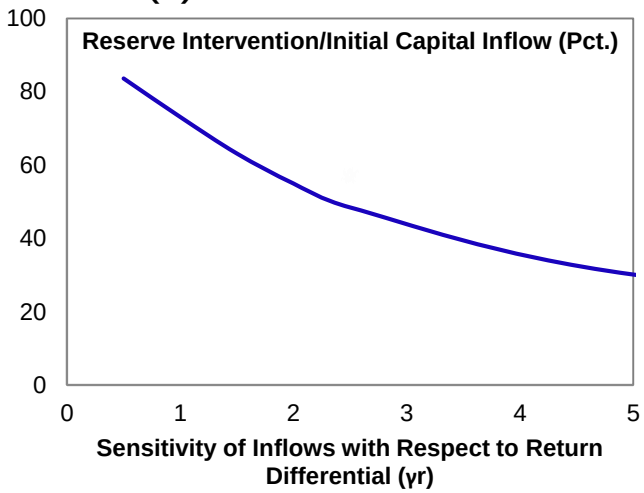
FX Intervention Should Be Larger When…

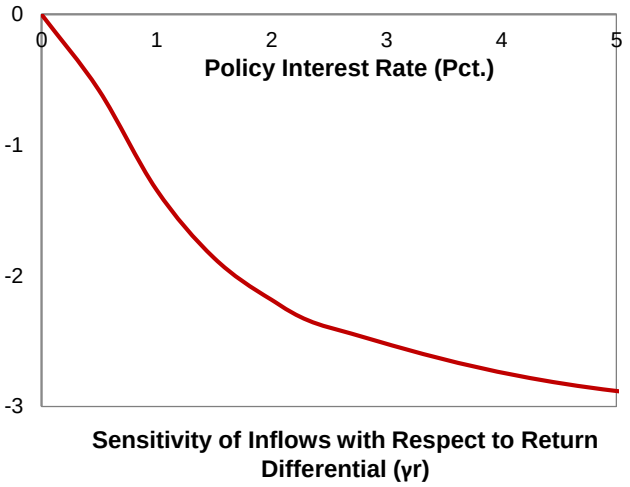
(i) The shock to inflows is less persistent





(ii) Inflows are less sensitive to the return differential



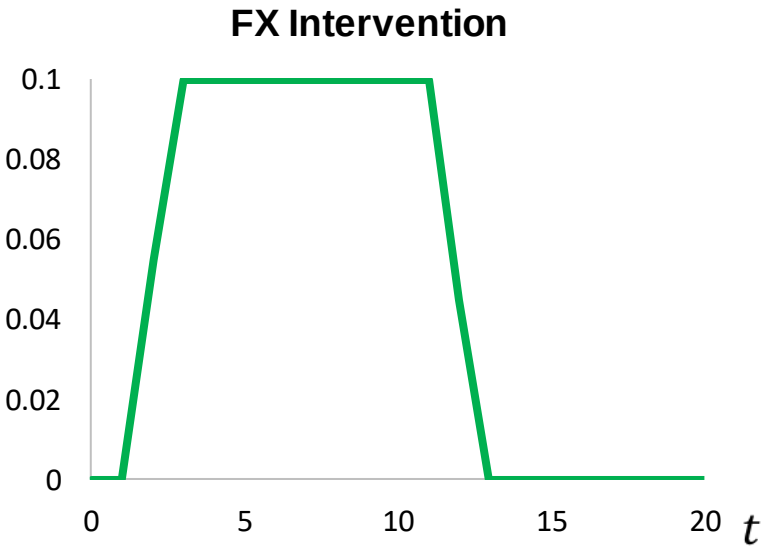


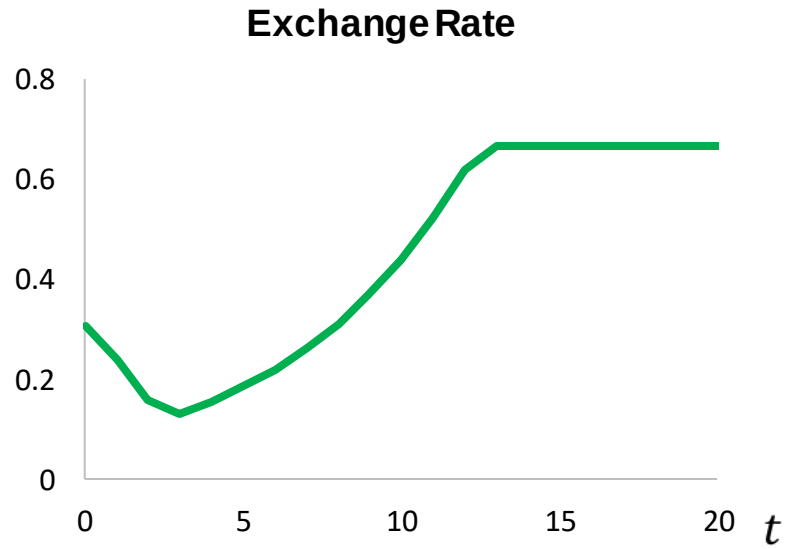
Outflow Episodes are Different

- Sterilized FX intervention during outflow episodes faces additional obstacles relative to the inflows case (Basu, Ghosh, Ostry and Winant, ARC, 2017, forthcoming *IMFER*)
  - The stock of reserves may be depleted if the central bank attempts to fully and indefinitely offset the shock
  - Possibility of panic by unsophisticated investors
- With these dangers in mind, reluctant to recommend intervention except to counter severe market dysfunction
  - Reserves deemed "wasted" if the exchange rate eventually depreciates
  - Fear of "counterproductive" interventions: central banks may invite speculative attacks and worsen the depreciation

Optimally Promise Intervention in the Future

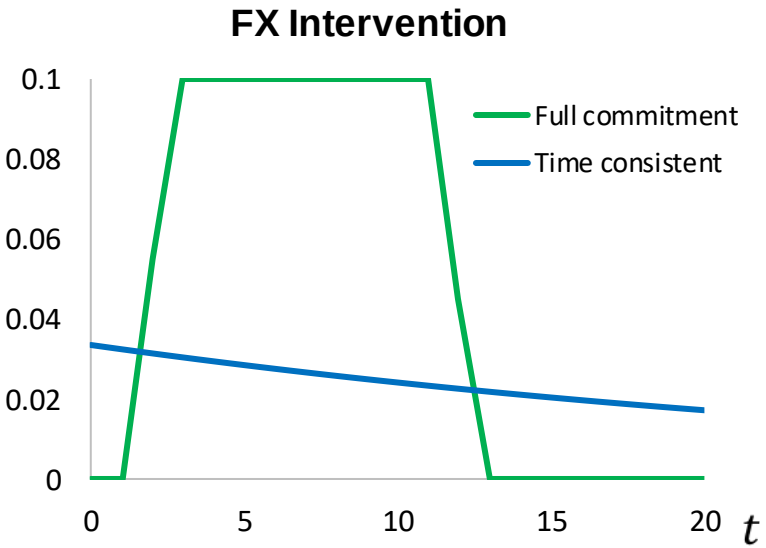
- Solution is to postpone intervention
  - No intervention today
  - Promise to begin intervening in the future
  - Aggressive intervention until reserves run out
- Importance of the CB's word and investors' expectations: pre-intervention appreciation owing to expected future intervention; depreciation during intervention because reserves expected to run out

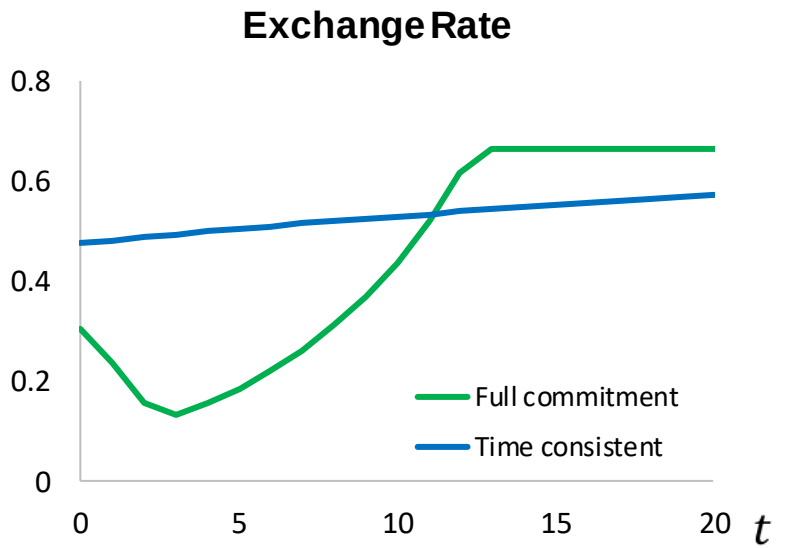




There is a Time Consistency Problem

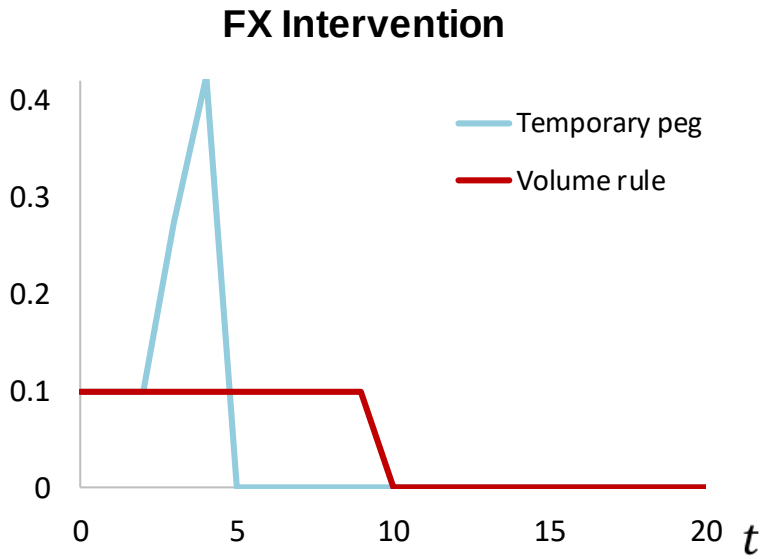
- Time consistency: CB re-optimizes in every period, ignoring promises
  - In every period, incentive to break FC promises and postpone promised FXI
  - So investors' expectations depend only on remaining reserves
- CB optimally intervenes in every period, but not aggressively
  - Immediate intervention necessary because promises alone are not stabilizing
  - But always keep some reserves to be able to influence investors' expectations
- So exchange rate depreciates more sharply as soon as shock begins

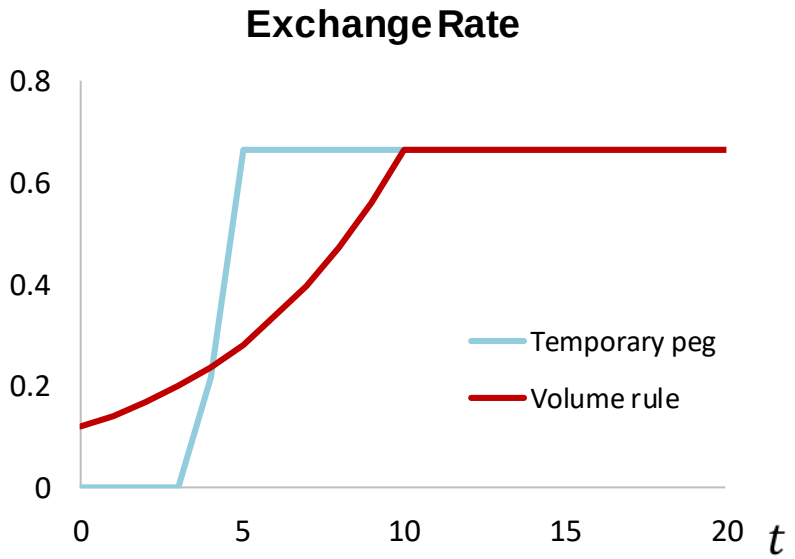




Rules Can Improve Welfare Above Discretion

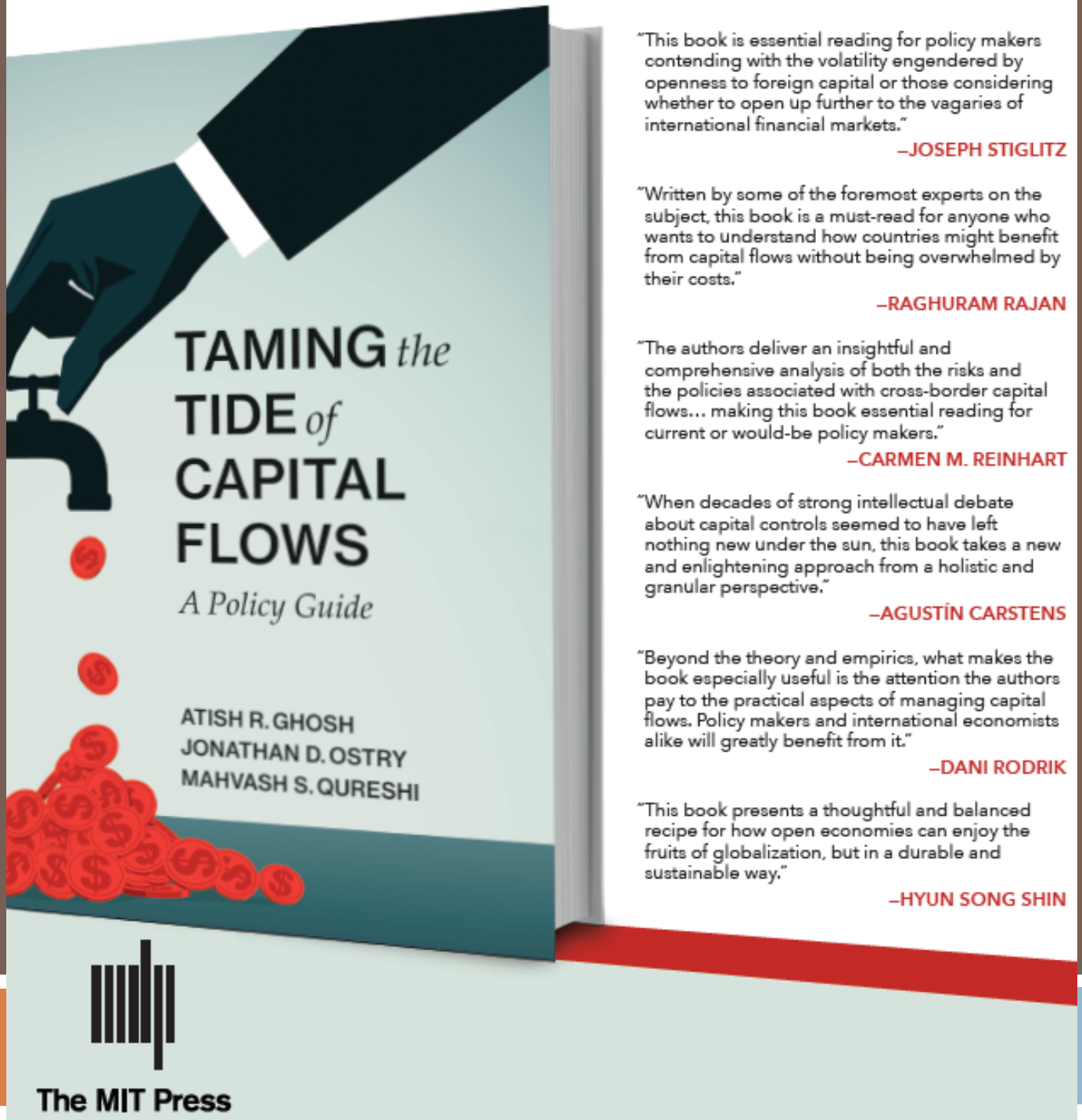
- Welfare loss under TC is especially large when reserves are low and shock is persistent—in these cases, rules may help
  - Temporary peg: keep exchange rate at target until reserves run out
  - Volume intervention rule: offset a fixed fraction of the shock
- Both rules are worse than the FC solution, but can improve on the TC solution by increasing investors' expectations re. future interventions
- Other tools to raise expectations also help (e.g., forwards, NDFs)
- Higher expected FXI raises welfare by reducing the initial depreciation





Bringing It All Together

- Rising frequency of surges and crashes in capital inflows means that EMEs should deploy an expanded policy toolkit
  - FXI, macroprudential, and capital controls on top of traditional macro policies
  - Distributional consequences should also be taken into account
  - IMF policy advice has shifted since the GFC
- In practice, EMEs heavily use FX intervention to manage capital flows
  - Absorb 30-40 percent of the flow
  - Also policy rate, macroprudential and capital controls; but no fiscal offset
- FX intervention is a useful tool during both inflow and outflow episodes
  - "Benign neglect" of exchange rate simply not an option for EMEs
  - No reason why caring about the ER is inconsistent with an IT framework
  - During outflow episodes, the possibility that reserves may run out does not remove desirability of FXI, but does generate a new time consistency problem
  - Which can be limited by use of intervention rules and forward intervention



"This book is essential reading for policy makers contending with the volatility engendered by openness to foreign capital or those considering whether to open up further to the vagaries of international financial markets."

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