Emerging Market Exchange Rate Policies: Stabilizing or Manipulation?

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Stabilization or Manipulation?

- Defining Currency Manipulation
- Stylized Facts
- US Treasury Approach
- Policy Identification

Defining Currency Manipulation

Joint hypothesis:

1. a country can effectively lower the international value of its currency by accumulating foreign reserves
2. intervention-induced currency undervaluation leads to an unfair trade advantage.

Note: the joint hypothesis is one-sided; only polices that result in undervaluation of the currency and trade advantage are at issue.

When is Stabilization Warranted?

- When markets function efficiently free-floating exchange rates serve as global automatic stabilizers:
  - currencies of countries that experience negative demand or supply shocks will weaken, leading to a fall in export prices, and an increase in competitiveness
- If just one country or a small group of countries experience the negative shock, the corresponding rise in counter-party currency values will generally be small as it will be spread across a large group of countries

When is Stabilization Warranted?

- If much of the world experiences the negative economic shock, the process of macroeconomic stabilization is less clear-cut:
  - all countries will feel the need for depreciation, and no country will want the offsetting appreciation
  - this is the scenario in which currency wars are most likely to develop, but exchange rate management is least likely to be effective

When is Stabilization Warranted?

- Other circumstances in which countries are often tempted to intervene:
  - when currency values change in reaction to international capital flows that seem disconnected to domestic macroeconomic fundamentals
  - when governments believe that other countries are (unfairly) manipulating currency values

Can a Country Manipulate over the Long Run?

- *If capital is freely mobile*: undervalued currencies boosts exports, economy eventually overheats, resulting in higher domestic prices
  - price adjustment brings the real exchange rate back to an equilibrium value consistent with desired saving and investment.
- *If capital flows are controlled*: undervalued currencies can be maintained because reserve accumulation can force the private sector to increase its net saving
  - adjustment is absorbed by the domestic interest rate which can deviate from the world interest rate because of the capital controls.

Current Account Adjustment?

- CA surplus: sales of exports exceed demand for imports:
  - CA surpluses tend to be countercyclical – demand for investment goods and intermediate goods decrease during business cycle downturns
  - CA = S – I Investment falls during the boom and savings decrease somewhat (to smooth consumption) but not as much as investment
- Usual adjustment path
  - Investment opportunities increase and growth rises
  - real appreciation of domestic currency (automatic stabilizer role) – makes imports less expensive and exports less competitive
  - Current account reversal
- FX Intervention: slows the process of current account reversal

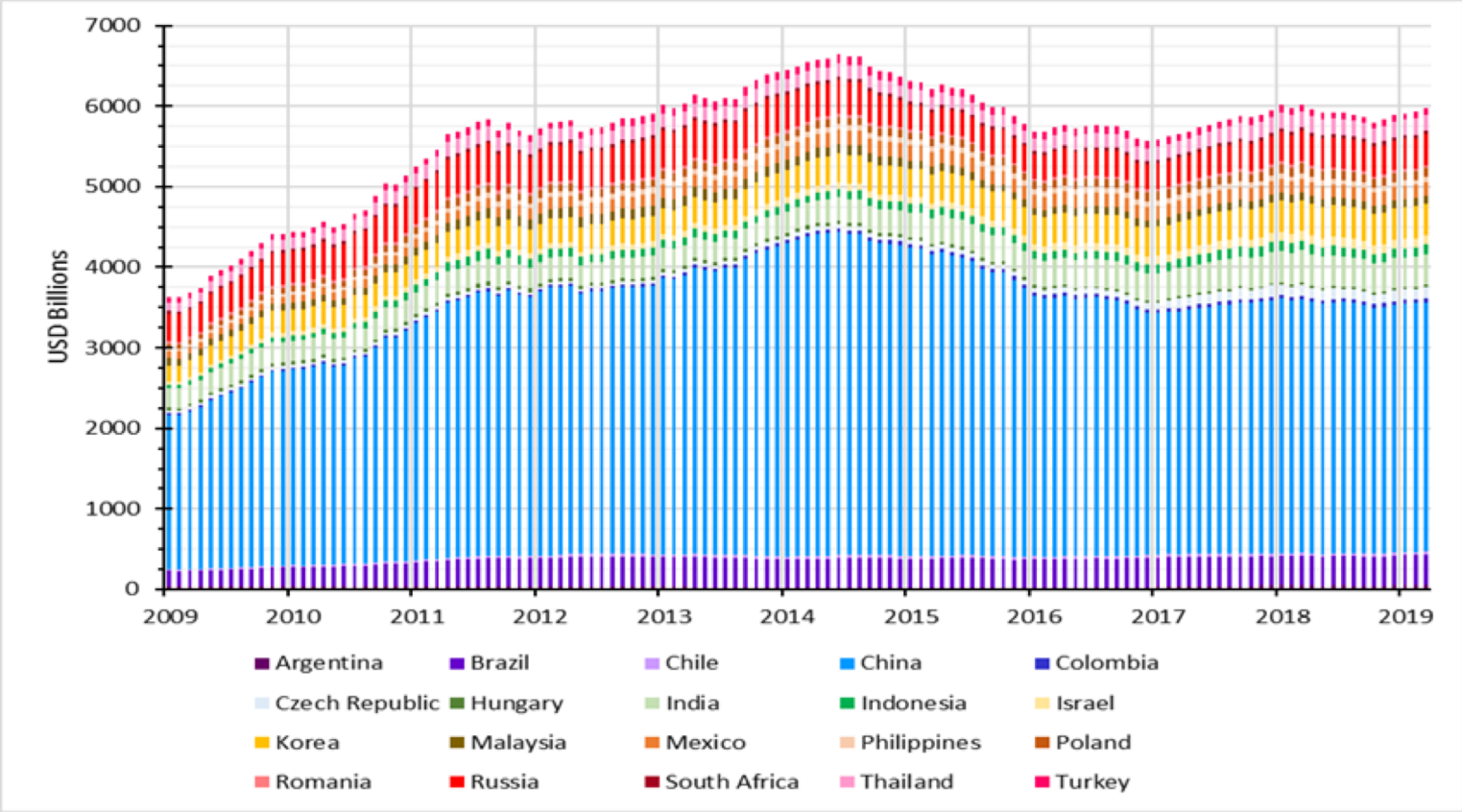
FXI Stylized Facts

- Foreign exchange intervention polices are widely used, both by countries that self-describe as floaters and countries that explicitly manage the value of their exchange rate (within broad and narrow bands)
- Survey evidence indicates that Central Banks believe that interventions are effective (at influencing currency values and trends).
- Intervention operations are most often used during turbulent periods, when market volatility is high, when countries experience unusually large capital inflows or outflows, when exchange rates move dramatically

Data

- Countries: Argentina, Brazil, Chile, China, Colombia, Czech Republic, Hungary, India, Indonesia, Israel, Korea, Malaysia, Mexico, Philippines, Poland, Romania, Russia, South Africa, Thailand, Turkey
- Time Period: post GFC (2009-2019)
- FXI source: IMF's Special Data Dissemination Standard (SDDS) Reserve Template
  - marked-to-market, end-of-month value of foreign currency assets in usd (excludes: gold, SDRs, reserves held at IMF, IMF loans, assets held in special purpose govt funds, swap arrangements)

FX Reserve Accumulation by Country



FX Reserve Ranking: %GDP

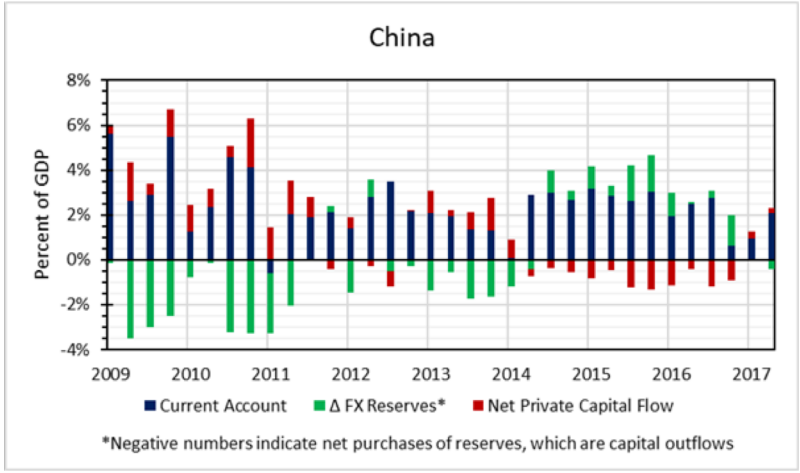
Δ FX Reserves (% of GDP)	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
Czech Republic	-2.6	28.8	11.0	6.2	0.6	5.3	1.1	-1.2	0.1	0.9
Israel	0.5	4.1	2.7	1.6	1.5	2.3	1.1	0.1	5.1	7.5
Thailand	0.6	6.6	3.6	0.1	-2.5	-2.9	1.5	-0.1	9.4	9.0
China	-0.5	1.1	-2.9	-4.7	0.2	5.3	1.5	4.5	7.4	9.1
Korea	0.8	1.2	0.1	0.4	1.3	1.4	1.6	0.9	2.0	7.2
Philippines	-2.7	-0.1	-0.1	0.6	-1.4	0.8	2.3	5.0	8.3	2.6
Poland	0.4	-0.3	4.3	-1.0	0.0	-0.4	1.9	1.0	2.4	2.8
Indonesia	-0.9	1.3	1.1	-0.6	1.4	-1.4	0.2	1.5	3.9	1.9
Brazil	0.1	0.2	0.3	-0.3	0.2	-0.5	0.8	2.6	2.2	2.3
Chile	0.3	-0.6	0.9	-0.6	-0.2	-0.2	-0.2	5.5	1.1	0.6
Colombia	0.2	0.2	0.1	-0.1	1.0	1.6	1.4	1.1	1.1	0.2
India	-0.6	1.8	0.4	1.5	1.4	0.3	-0.1	-0.3	0.5	0.9
Mexico	0.1	-0.2	0.0	-1.4	1.2	1.2	1.4	1.9	2.0	0.0
Malaysia	-0.1	2.7	0.3	-6.8	-4.5	-1.4	2.0	8.2	3.7	0.4
South Africa	0.2	0.8	0.4	-0.8	-0.1	0.2	0.4	1.1	0.8	0.7
Argentina	1.5	2.6	2.3	-0.9	0.2	-1.9	-0.6	-1.2	0.8	-0.4
Romania	-2.1	2.1	0.6	0.0	-4.9	1.0	0.0	-0.7	3.6	2.6
Turkey	-1.5	-0.9	-0.1	-1.6	-0.4	1.2	2.5	-0.3	1.3	-0.3
Russia	1.6	2.4	0.0	-1.5	-6.1	-0.8	1.7	0.4	1.7	-0.6
Hungary	1.6	1.3	-5.8	-6.7	-2.9	2.2	-2.7	1.6	1.6	6.4

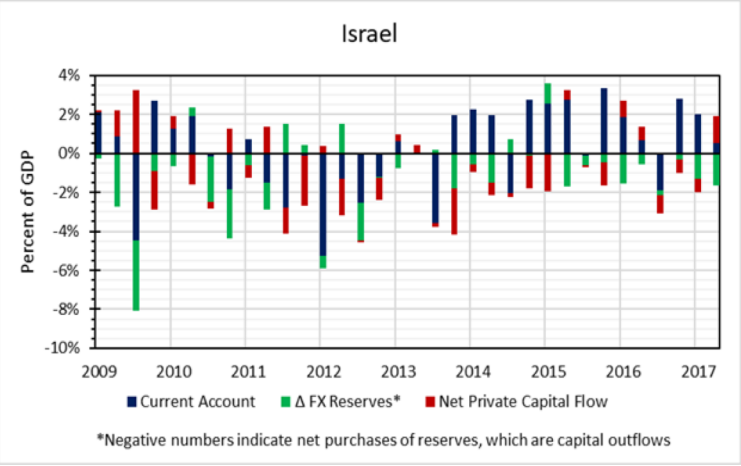
Ranking: Intensity and Persistence

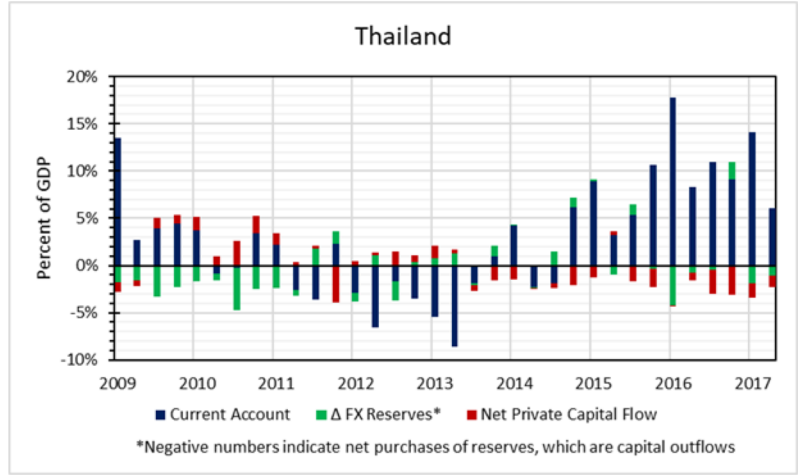
Net Purchases (# of months)	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
Israel	6	12	9	7	6	9	7	6	8	10
Czech Republic	6	7	7	7	7	8	8	4	5	8
Hungary	6	7	2	3	5	9	6	7	7	8
Malaysia	6	11	8	5	5	7	11	9	7	6
Thailand	4	9	8	5	4	5	8	6	9	9
Poland	6	5	9	4	4	5	9	8	7	8
Romania	5	9	7	5	3	6	5	6	7	6
China	6	11	3	2	7	9	8	9	11	10
Russia	9	11	6	5	1	4	9	8	7	8
Korea	9	9	5	6	8	8	10	7	8	11
Philippines	3	6	8	9	5	8	9	9	10	10
Indonesia	4	9	8	3	10	6	8	7	11	8
Chile	5	4	7	5	5	6	6	10	6	7
Brazil	6	7	7	7	9	6	9	10	11	9
Argentina	6	8	8	6	6	0	5	5	7	6
Turkey	6	6	7	3	7	7	9	7	9	5
Mexico	5	5	6	3	8	9	9	9	11	5
India	5	11	6	8	9	7	7	7	7	8
Colombia	6	4	7	5	11	12	12	10	10	7
South Africa	5	6	5	5	4	5	8	7	6	8

Numbers are in red if the yearly sum of monthly foreign reserve accumulation was at least 2% of GDP

Balance of Payments (% GDP)







US Treasury Approach

- Omnibus Trade and Competitiveness Act of 1988
- Requires the Secretary of the Treasury to provide biannual reports on the international economic and exchange rate policies of the major trading partners of the United States.
- Under Section 3004 of the Act, the report must consider whether any foreign economy manipulates its rate of exchange against the U.S. dollar to prevent effective balance of payments adjustments or to gain unfair competitive advantage in international trade.

US Treasury Criteria

- Trade Facilitation and Trade Enforcement Act of 2015
- Currency manipulation criteria:
  - bilateral trade surplus with the United States that is at least $20B
  - current account surplus of at least 3 percent of GDP
  - one-sided intervention (net purchases of foreign currency) conducted repeatedly and totaling at least 2 percent of GDP over a 12 month period

New Treasury Thresholds (2019)

Criteria	Benchmark	Previous threshold	New threshold
Major Trading Partner Coverage	Total Bilateral Goods Trade (Imports plus Exports)	12 largest trading partners	$40 billion[1]
(1) Significant Bilateral Trade Surplus with the United States	Goods Surplus with the United States	$20 billion	$20 billion
(2) Material Current Account Surplus	Current Account Balance	3% of GDP	2% of GDP
(3) Persistent, One-Sided Intervention in Foreign Exchange Markets	Net FX Purchases	2% of GDP	2% of GDP
	Persistence of Net FX Purchases (months)	8 of 12 months	6 of 12 months

[1] As of 2018, 21 trading partners exceeded this threshold.

Current Accounts and Reserve Accumulation in 2009

	Current Account			Reserve Accumulation			
	Balance (% of GDP, Trailing 4Q) (1a)	3 Year Change in Balance (% of GDP) (1b)	Balance (USD Bil., Trailing 4Q) (1c)	Net Accumulation (% of GDP, Trailing 4Q) (2a)	Net Accumulation (USD Bil., Trailing 4Q) (2b)	Net Accumulation (USD Bil., Trailing 2Q) (2c)	Net Accumulation (# of months that year) (2d)
Argentina	2.2	2.2	7.3	-0.4	-1.4	-1.4	6
Brazil	-1.6	-1.6	-26.3	2.3	37.7	13.2	9
Chile	1.9	1.9	3.3	0.6	1.0	3.2	7
China	4.8	4.8	243.3	9.1	466.8	324.1	10
Colombia	-2.0	-2.0	-4.7	0.2	0.4	0.9	7
Czech Republic	-2.3	-2.3	-4.7	0.9	1.8	0.1	8
Hungary	-0.8	-0.8	-1.1	6.4	8.3	11.0	8
India	-2.8	-2.8	-38.4	0.9	12.0	-48.2	8
Indonesia	1.8	1.8	10.6	1.9	11.2	-1.9	8
Israel	3.3	3.3	6.8	7.5	15.6	16.9	10
Korea	3.7	3.7	33.1	7.2	64.7	-27.3	11
Malaysia	15.0	15.0	31.4	0.4	0.8	-34.7	6
Mexico	-0.9	-0.9	-7.9	0.0	0.1	-13.2	5
Philippines	5.0	5.0	8.4	2.6	4.4	2.0	10
Poland	-4.1	-4.1	-17.9	2.8	12.5	-2.2	8
Romania	-4.7	-4.7	-8.1	2.6	4.5	-0.7	6
Russia	3.8	3.8	50.4	-0.6	-7.3	-94.2	8
South Africa	-2.7	-2.7	-8.1	0.7	2.2	0.9	8
Thailand	7.9	7.9	22.2	9.0	25.2	14.9	9
Turkey	-1.8	-1.8	-11.4	-0.3	-1.8	-10.0	5

Numbers in red denote that the amount or percentage exceeds the US Treasury 2019 "manipulator" or "monitoring list" criteria

Currency Manipulation Designations

Country	Currency Manipulator	Monitoring List
Argentina		
Brazil		
Chile		
China	2009, 2010, 2012	
Colombia		
Czech Rep		
Hungary		2013, 2017
India		
Indonesia		
Israel		2009, 2010, 2011, 2013, 2014, 2015, 2016, 2017
Korea	2012	2009, 2010
Malaysia		2009, 2010, 2012, 2017, 2018
Mexico		
Philippines		2009, 2010, 2011, 2012
Poland		
Romania		
Russia	2009, 2010, 2011, 2012	
South Africa		
Thailand	2016, 2017	2009, 2010, 2011
Turkey		

Policy Identification

- Countries do not use intervention policies at random times; they are most likely to intervene in reaction to unwanted currency movements, making it difficult to disentangle causality.

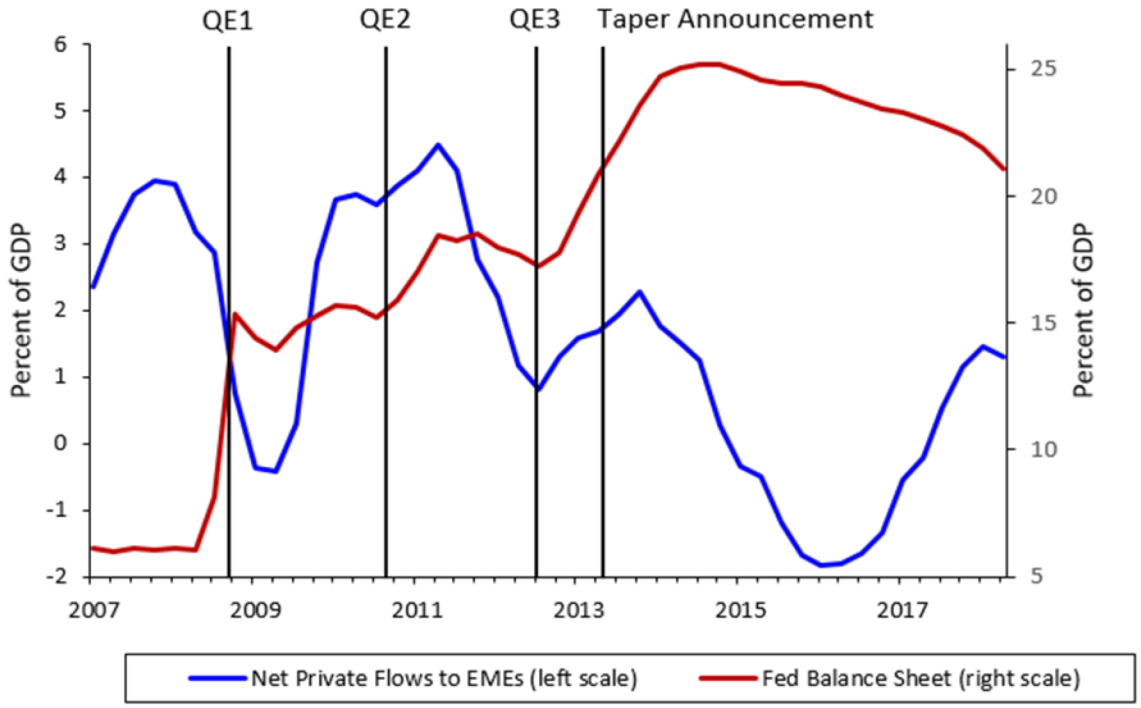
- Ideal counterfactual experiment: compare movements in the exchange rate and trade balances for a country that intervenes with an identical country that does not

- Identification strategy relies on the exogenous nature of US policy shocks from the point of view of each EM in the sample, and exploits the cross-section variation of intervention responses to these exogenous shocks.

Policy Identification

- Two specific US policy shocks examined:
  - announcement of QE2 in the last quarter of 2010
  - Taper announcement in the second quarter of 2013
- Synthetic control approach: needed because the economic characteristics of the non-intervening EMs are unlikely to perfectly match those of the interveners
  - differences in exchange rate may have more to do with country-specific characteristics than with intervention
  - uses the pre-event period to estimate optimal weights for each of the potential control countries to create an "identical twin" country that is used for the post-event counterfactual comparison

Policy Identification External Shocks



Exchange Rate Experiments

- Outcome variable:
  - quarterly end-of-period bilateral exchange rate with respect to the US dollar (in log changes)
- Explanatory variables:
  - standard quarterly predictors (monetary and growth differentials) as well as variables that measure country i and aggregate market volatility
- Pre-event window: one year prior to each Fed announcement
- Post-event window: one year after the Fed shock
  - windows are relatively short in order to avoid confounding impacts of other potential policy shocks.

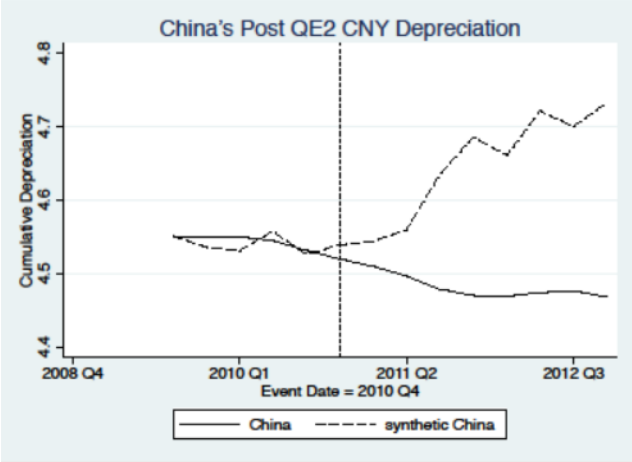
Current Account Experiments

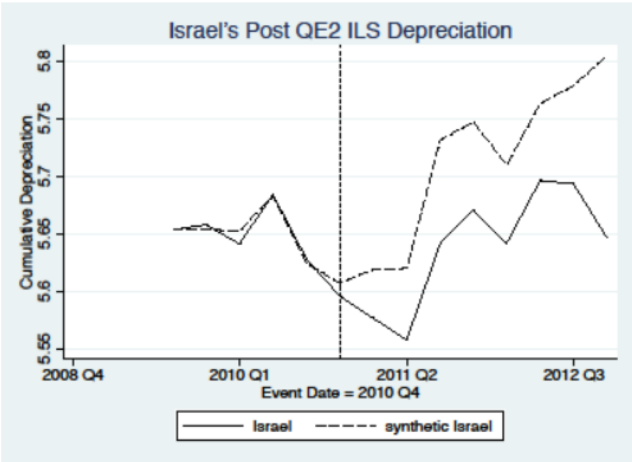
- Outcome variable:
  - annual current account (as a share of GDP)
- Explanatory variables:
  - subset of those used in the IMF's External Balance Assessment (EBA) model (excluding the variables capturing FXI, capital controls and terms of trade)
- Event date: 2009
- Pre-event window: starts in 2005
- Post-event window: through 2018

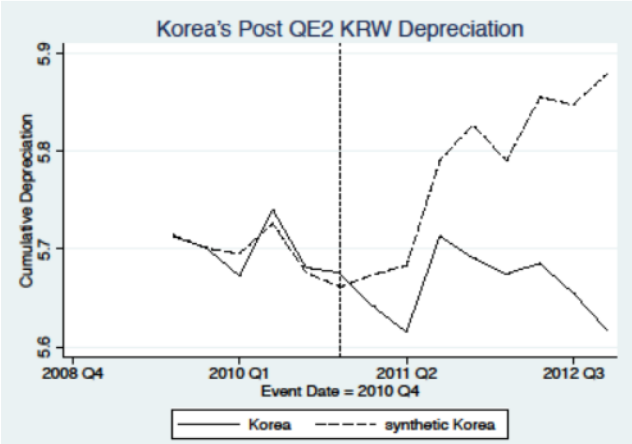
Intervener and Control Countries

Country	QE2 (2010 Q4)		Taper Tantrum (2013 Q2)		Trade Surplus (2010-)	
	(Net) Reserve Accumulator	Control	(Net) Reserve Seller	Control	Manipulator	Control
Argentina		x	x			x
Brazil	x		x			x
Chile	x			x		x
China	x			x	x	
Colombia		x		x		x
Czech Rep		x		x		x
Hungary	x			x	x	
India		x		x		x
Indonesia	x		x			x
Israel	x			x	x	
Korea	x			x	x	
Malaysia	x		x		x	
Mexico	x			x		x
Philippines	x			x	x	
Poland	x		x			x
Romania	x		x			x
Russia	x		x		x	
South Africa		x	x			x
Thailand	x		x		x	
Turkey		x		x		x

Synthetic Control Comparisons (QE2)

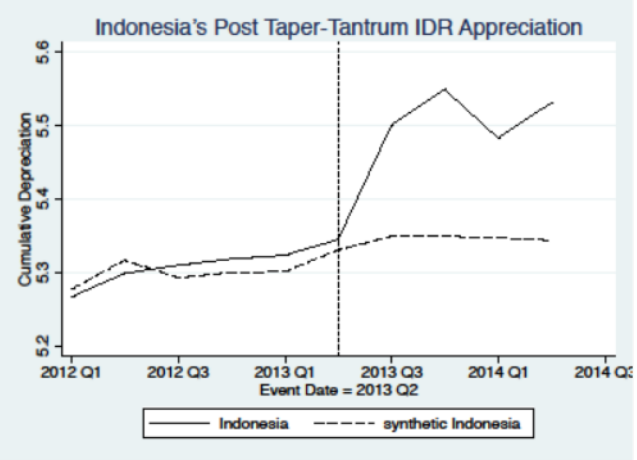


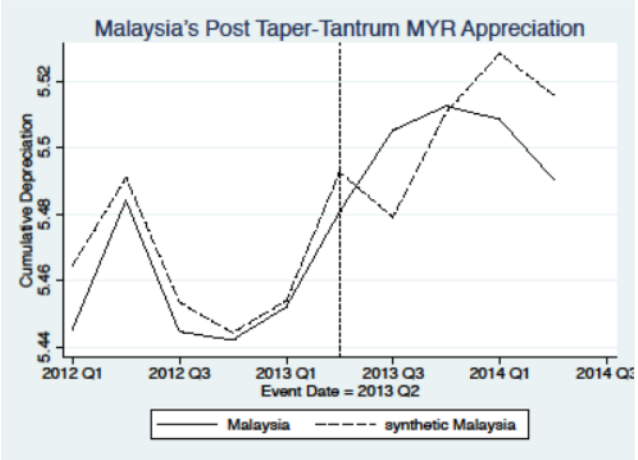


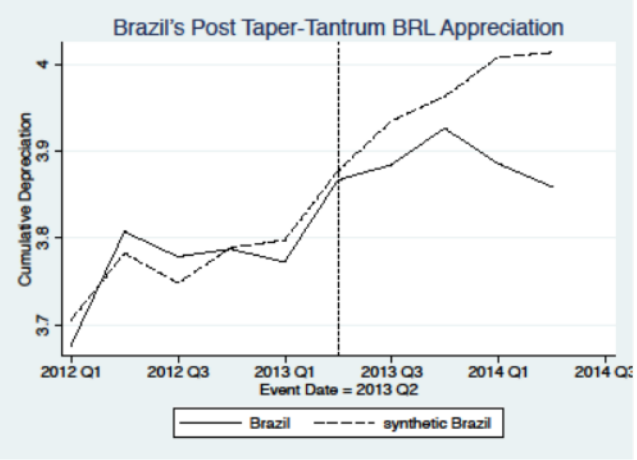


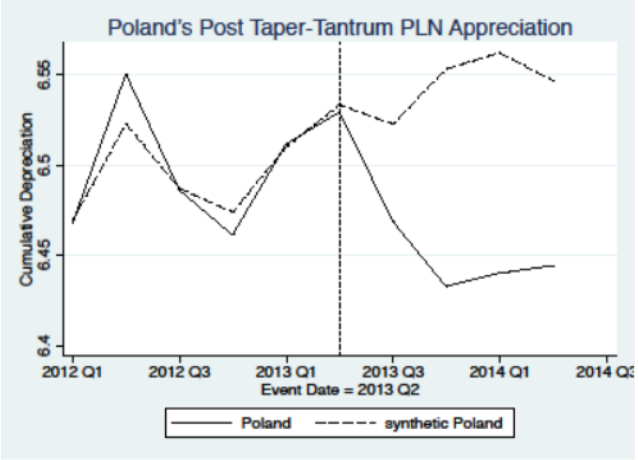
In all cases the exchange rate of the counterfactual synthetic twin is higher (more appreciated) than the actual exchange rate in the post QE2 period. Provides causal link between reserve accumulation and a less appreciated currency.

Synthetic Control Comparisons (TT)



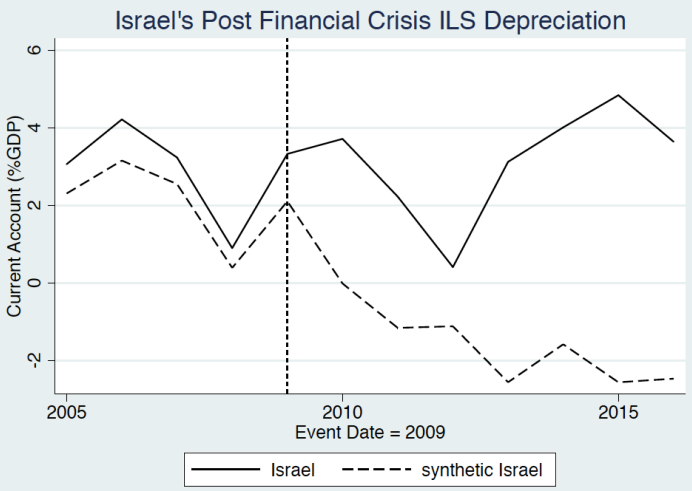


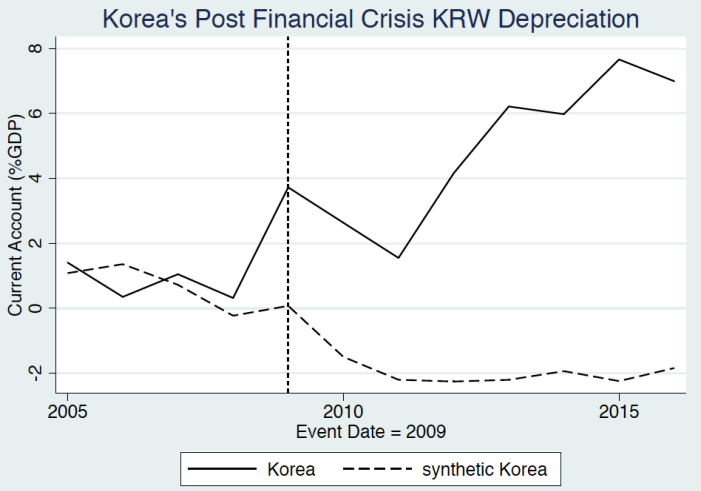


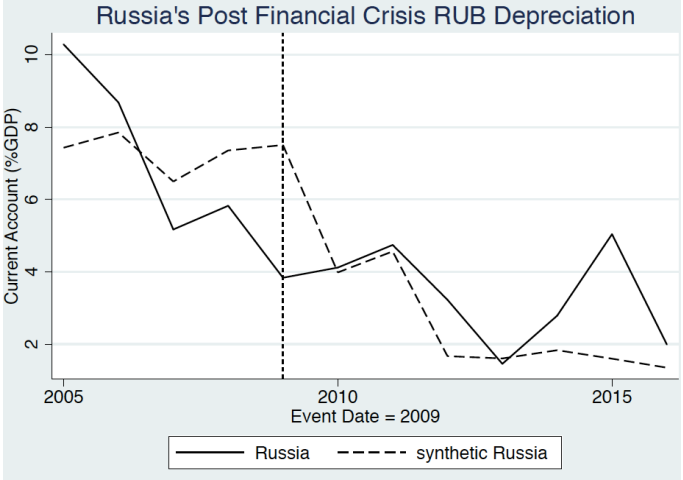


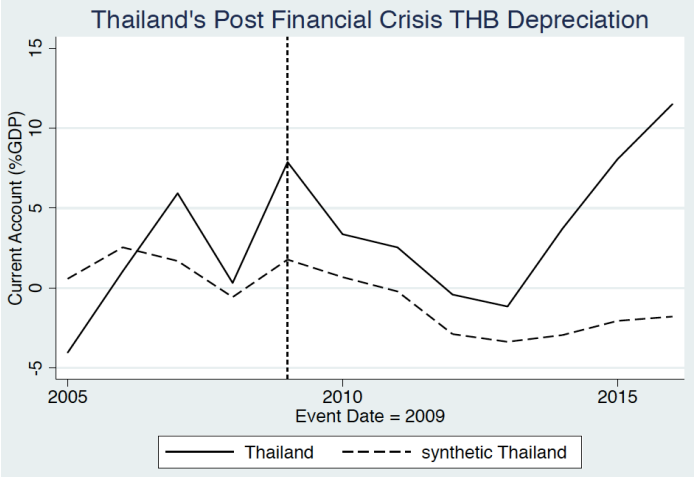
Indonesia and Malaysia go in the expected direction, they show the exchange rate of the counterfactual synthetic twin is lower (less appreciated) than the actual exchange rate in the post Taper period. Brazil and Poland show the opposite relationship.

Synthetic Control Comparisons (CA)









Synthetic twin is a good match only for Israel and Korea; all graphs suggest the actual current account surplus is larger than the synthetic twin.

Conclusions

- Findings suggest that the first part of the currency manipulation hypothesis cannot be rejected:
  - reserve accumulation can effectively lower the international value of a currency
- Evidence from the Taper Tantrum episode suggest that the effects of FXI are two-sided: reserve sales can effectively strengthen a currency
  - FXI can be *both* stabilizing and manipulative
- Case for manipulation: rests on causal evidence that FXI-induced currency weakening leads to an improvement in the trade balance
  - evidence for this (using the synthetic control approach) is weaker, but suggestive

Research Agenda

- There is general agreement across countries that monetary policy should focus on "own economy" objectives, while at the same time "best practice" has largely converged: central bank independence, inflation-targeting, unconventional polices at the ZLB.
- "Best practice" for exchange rate policy?
  - Role for intervention and capital controls
  - Conditions for acceptable "persistence" of trade imbalances