
International Finance

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Session 7

Exchange rate regimes and
monetary policy spillovers

Roadmap

1. **Classifying countries by exchange rate regime**
2. Advantages of fixed rates/floating rates
3. Which regime dominates?
4. From the Trilemma to the dilemma?
5. The pseudo “currency war”

XX

- Continuum of exchange rate regimes: From flexible to rigid

FLEXIBLE CORNER

1) Free float

2) Managed float

INTERMEDIATE REGIMES

3) Target zone/band

4) Basket peg

5) Crawling peg

6) Adjustable peg

FIXED CORNER

7) Currency board

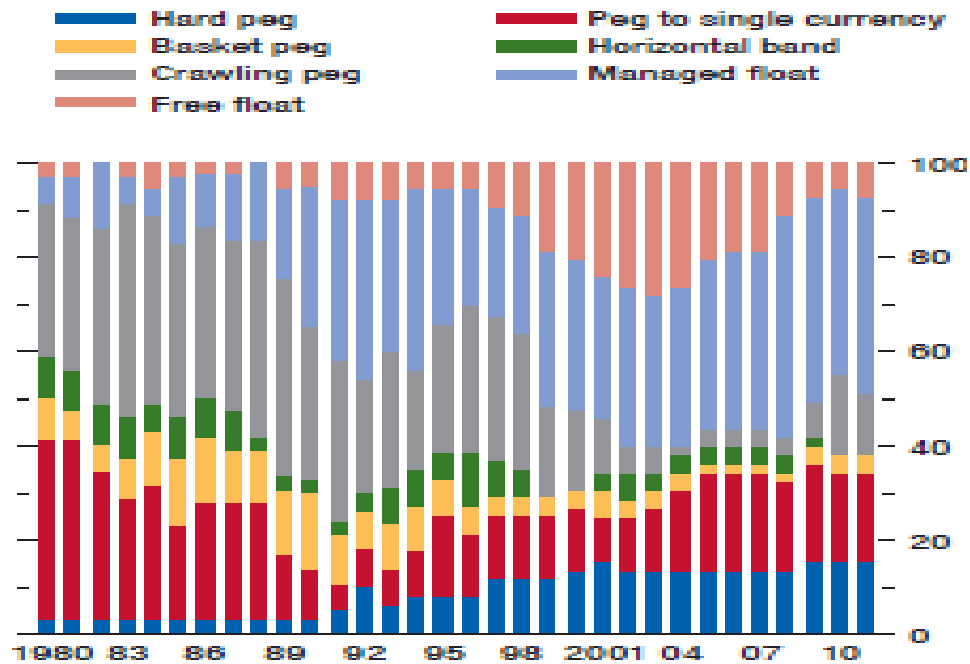
8) Dollarization

9) Monetary union

Trends in distribution of EM exchange rate regimes

- 1973-1985 – Many abandoned fixed exchange rates
- 1986-94 – Exchange rate-based stabilization programs
- 1990s -- Corners Hypothesis: countries move to either hard peg or free float
- Since 2001 -- The rise of the “managed float” category.

Distribution of Exchange Rate Regimes in Emerging Markets, 1980-2011 (percent of total)



Ghosh, Ostry & Qureshi, 2013, "Exchange Rate Management and Crisis Susceptibility: A Reassessment," IMF ARC , Nov.

De jure vs De facto

- Distinction between what countries declare as their official de jure regime, and their actual de facto exchange rate practices. (Reinhart and Rogoff 2004)
 - de jure: what the countries say they do
 - de facto: what they actually do
- Countries listed in the official IMF classification as managed floating, 53 percent turned out to have de facto pegs, crawls or narrow bands

De jure vs De facto

- Many countries that say they float, in fact intervene heavily in the foreign exchange market
 - “Fear of floating” - Calvo & Reinhart (2001)
- Many countries that say they fix, in fact devalue when trouble arises.
 - “The mirage of fixed exchange rates” - Obstfeld & Rogoff (1995).
- Many countries that say they target a basket of major currencies in fact fiddle with the weights.
 - Parameters kept secret - Frankel, Schmukler & Servén (2000).

De Facto Classification of
Exchange Rate Arrangements and Monetary Policy Frameworks
Avril 2013

(Number of countries)	Monetary Policy Framework							
	Exchange rate anchor				Monetary aggregate	Inflation targeting	Other	
	USD	EUR	Composite	Other				
No separate legal tender	8	3		2				
Currency board	8	3		1				12
Conventional peg	15	19	5	5			1	45
Stabilized arrangement	8	1	1		4	1	5	19
Crawling peg	1		1					2
Crawl-like arrangement	4	1	1		4	2	3	15
Pegged within horizontal bands			1					1
Other managed arrangement	1		4		6	1	7	19
Floating					12	19	4	35
Free floating						11	19	30
	44	27	13	8	26	34	39	188

One statistical approach

- One statistical approach to ascertaining de facto regimes:
 - Var (exchange rate) vs.
 - Var (reserves).
- Calvo & Reinhart (2002)
 - note that many countries that de jure say they float in fact have a lower Var (Δe) relative to Var (ΔRes) than many that say they fix !
- Levy-Yeyati & Sturzenegger (2005)
 - classify all countries based on variability of Δe vs. variability of ΔRes .

Discordances

- That de facto schemes to classify exchange rate regimes differ from the IMF's previous de jure classification is by now well-known.
- It is less well-known that the de facto schemes also do not agree with each other !

Correlations Among Regime Classification Schemes

	IMF	GGW	LY-S	R-R
IMF	1.00 (100.0)			
GGW	0.60 (55.1)	1.00 (100.0)		
LY-S	0.28 (41.0)	0.13 (35.3)	1.00 (100.0)	
R-R	0.33 (55.1)	0.34 (35.2)	0.41 (45.3)	1.00 (100.0)

(Frequency of outright coincidence, in %, given in parenthesis.)

GGW = Ghosh, Gulde & Wolf. LY-S = Levy-Yeyati & Sturzenegger. R-R = Reinhart & Rogoff

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Advantages of fixed rates

- 1) Encourage trade \leq lower exchange risk.
- True, in theory, can hedge risk. But costs of hedging: missing markets, transactions costs, and risk premia.
- Empirical: Exchange rate volatility $\uparrow \Rightarrow$ trade \downarrow ?
 - Time-series evidence showed little effect. But more in:
 - Cross-section evidence, especially small & less developed countries
 - Currency unions: Rose (2000).

The Rose finding

- Rose (2000) -- the boost to bilateral trade from currency unions is:
 - significant,
 - \approx FTAs, &
 - larger (2- or 3-fold) than had been previously thought.
- Many others have advanced critiques of Rose research.
 - Re: sheer magnitude
 - endogeneity,
 - small countries,
 - missing variables.
 - Estimated magnitudes are often smaller, but the basic finding has withstood perturbations and replications remarkably well. ii/
- Some developing countries seeking regional integration talk of following Europe's lead, though plans merit skepticism.

Advantages of fixed rates

- 2) Encourage investment
 - cut currency premium out of interest rates
- 3) Provide nominal anchor for monetary policy
 - Barro-Gordon model of time-consistent inflation-fighting
 - But which anchor? Exchange rate target vs. Alternatives
- 4) Avoid competitive depreciation (“currency wars”)
- 5) Avoid speculative bubbles that afflict floating
- 6) External debt in hard currencies less risky
 - original sin of emerging countries

Advantages of floating rates

- Monetary independence
- Automatic adjustment to trade shocks
- Retain seigniorage
- Retain Lender of Last Resort ability
- Avoiding crashes that hit pegged rates

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Which regime dominates?

- Performance by category is inconclusive
- To over-simplify findings of 3 studies:
 - Ghosh, Gulde & Wolf: hard pegs work best
 - Sturzenegger & Levy-Yeyati: floats perform best
 - Reinhart-Rogoff: limited flexibility is best !
- Why the different answers?
 - The de facto schemes do not correspond to each other.
 - Conditioning factors (beyond, e.g., rich vs. poor).

Table 2: Three Empirical Studies of Growth Rates Across Regimes

Which category experienced the most rapid growth?

Ghosh, Gulde & Wolf: currency boards

Levy-Yeyati & Sturzenegger: floating

Reinhart & Rogoff: limited flexibility

Ghosh, Gulde, & Wolf (2000)	Average growth rate (1975-1996)				per capita growth coefficient conditioned	
	All countries		Lower-income		All	
	GDP	per cap	GDP	per cap	per cap	
Float	3.1	1.7	3.6	1.4	norm=0	
Currency board	4.0	3.1	2.9	2.2	+2.1 **	
Regular peg	3.3	0.9	3.3	0.5	-0.8 ***	

Levy-Yeyati & Sturzenegger(2002)	Average growth rate (1974-2000)			Growth coefficient conditioned		
	All		Non-industrial	All		Non-industrial
	IMF	LYS	LYS	IMF	LYS	LYS
Float	1.0	1.9	1.7	Norm = 0		
Fix	1.2	1.5	1.3	- 0.3	- 0.8 **	-1.1 **
Intermediate	2.0	1.0	1.5	+0.5 *	- 1.0 ***	-1.2 ***

Reinhart & Rogoff (2002)	Average growth rate (per cap) All countries (1970-2001)	
	Standard	Excluding dual rates
	Free float	0.5
Peg	1.4	1.7
Ltd.flexibility	2.2	2.6
Mangd. float	1.9	1.5

* significant at 10 % level,
 ** 5% level,
 *** 1% level .

TABLE 3. RATE AND VOLATILITY OF REAL PER CAPITA GDP GROWTH (% PER YEAR)

		IMF			LYS			Industrials			Non-Industrials		
		FLOAT	INT	FIX	FLOAT	INT	FIX	FLOAT	INT	FIX	FLOAT	INT	FIX
Observations		409	749	883	615	562	864	202	104	120	413	458	744
DGDPPC	Means	1.0	2.0	1.2	1.9	0.8	1.5	1.9	1.6	2.3	1.9	0.6	1.4
	Medians	1.7	2.3	1.2	2.2	1.4	1.0	2.3	1.8	2.1	2.1	1.1	1.3
VOLGDPPC	Means	4.1	3.2	5.0	3.5	4.0	4.8	2.2	1.8	1.9	4.1	4.4	5.2
	Medians	2.4	2.2	3.9	2.3	3.0	3.6	1.8	1.8	1.6	2.8	3.6	4.0

Source: IMF's International Financial Statistics

Exchange rate classifications: IMF, de jure from IFS, LYS de facto from Levy-Yeyati and Sturzenegger (2000)

Levy-Yeyati & Sturzenegger (2001): floats work best.

Which dominates?

- No one exchange rate regime is right for all countries or all times
 - Answer depends on circumstances, of course.
- Traditional criteria for choosing - Optimum Currency Area.
 - Focus is on trade and stabilization of business cycle.
- 1990s criteria for choosing –
 - Focus is on financial markets and stabilization of speculation.

Optimum Currency Area Theory (OCA)

- Broad definition:
 - An optimum currency area is a region that should have its own currency and own monetary policy.
- This definition can be given more content:
 - a region that is neither so small & open that it would be better off pegging its currency to a neighbor, nor so large & heterogenous that it would be better off splitting into sub-regions with different currencies.

OCA criteria

- Small size and openness
 - because then advantages of fixing are large.
- Symmetry of shocks
 - because then giving up monetary independence is a small loss.
- Labor mobility
 - because then it is possible to adjust to shocks even without ability to expand money, cut interest rates or devalue.
- Fiscal transfers in a federal system
 - because then consumption is cushioned in a downturn

The endogeneity of the OCA criteria

- Bilateral trade responds positively to currency union
 - Rose (2000).
- A country pair's cyclical correlation rises too
 - (rather than falling, as under Eichengreen-Krugman hypothesis).
- Implication: members of a monetary union may meet OCA criteria better ex post than ex ante
 - Frankel & Rose (1996).

Popularity in 1990s of institutionally-fixed corner

- currency boards
 - (e.g., Hong Kong, 1983- ; Lithuania, 1994- ; Argentina, 1991-2001; Bulgaria, 1997- ; Estonia 1992-2011; Bosnia, 1998- ; ...)
- dollarization
 - (e.g, Panama, El Salvador, Ecuador)
- monetary union
 - (e.g., EMU, 1999)

1990's criteria for the firm-fix corner

- Regarding credibility:
 - a desperate need to import monetary stability, due to:
 - history of hyperinflation,
 - absence of credible public institutions,
 - location in a dangerous neighborhood, or
 - large exposure to nervous international investors
- A desire for close integration with a particular neighbor or trading partner

Level of financial development

- Aghion, Bacchetta, Ranciere & Rogoff (2005)
 - Fixed rates are better for countries at low levels of financial development: markets are thin.
When financial markets develop, exchange flexibility becomes more attractive.
 - Estimated threshold: Private Credit/GDP > 40%.
- Husain, Mody & Rogoff (2005)
 - For richer & more financially developed countries, flexible rates work better
 - in the sense of being more durable &
 - delivering higher growth without inflation.

External shocks

- An old wisdom regarding the source of shocks:
 - Fixed rates work best if shocks are mostly internal demand shocks -- especially monetary;
 - Floating rates work best if shocks tend to be real shocks -- especially external terms of trade.

Intermediate regimes

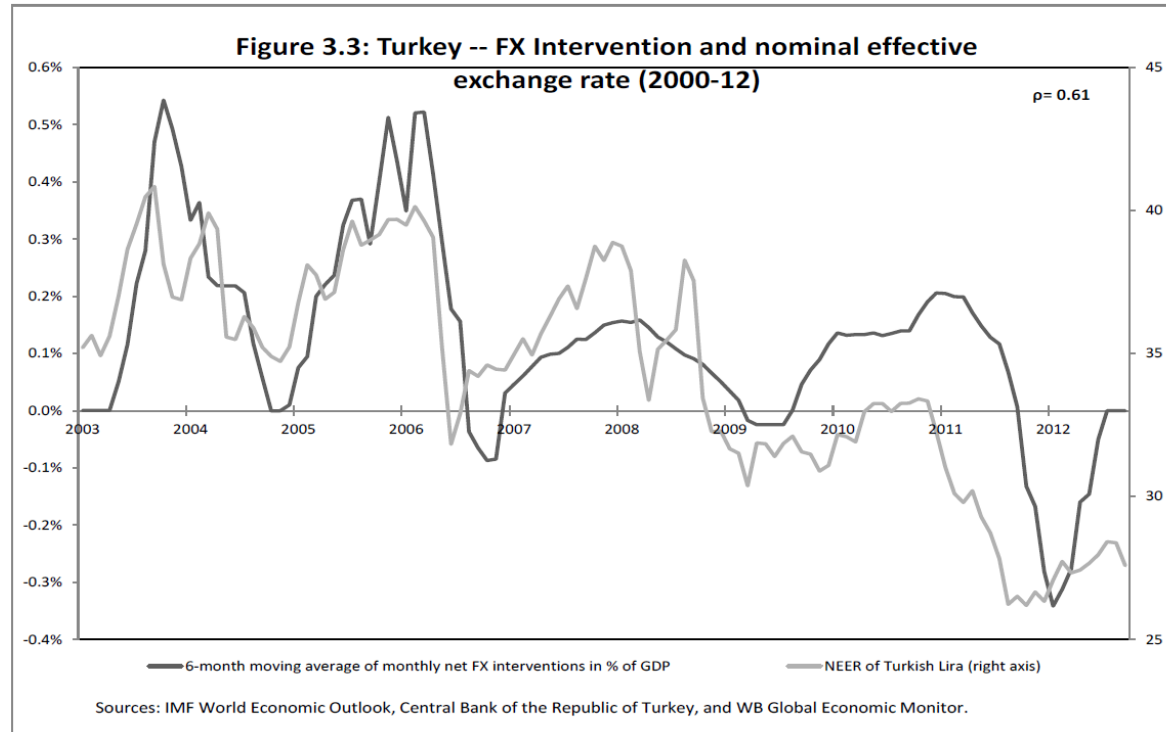
- target zone (band)
 - Krugman-ERM type (with nominal anchor)
 - Bergsten-Williamson type (FEER adjusted automatically)
- basket peg
 - weights can be either transparent or secret
- crawling peg
 - pre-announced (e.g., tablita)
 - indexed (to fix real exchange rate)
- adjustable peg
 - escape clause, e.g., contingent on terms of trade or reserve loss)

The Corners Hypothesis

- The hypothesis:
 - “Countries are, or should be, abandoning intermediate regimes like target zones and moving to either one corner or the other: rigid peg or free float”.
- Origins:
 - 1992-93 ERM crises -- Eichengreen (1994)
 - Late-90’s crises in emerging markets – Fischer (2001).
- But the pendulum swung back,
 - from 61% of IMF staff in 2002, to 0% in 2010.
 - Many developing countries follow intermediate exchange rate regimes.
 - The theoretical rationale for the corners hypothesis never was clear

Managed float (“leaning against the wind”):

- Turkey’s central bank buys lira when it depreciates, and sells when it is appreciates.



Roadmap

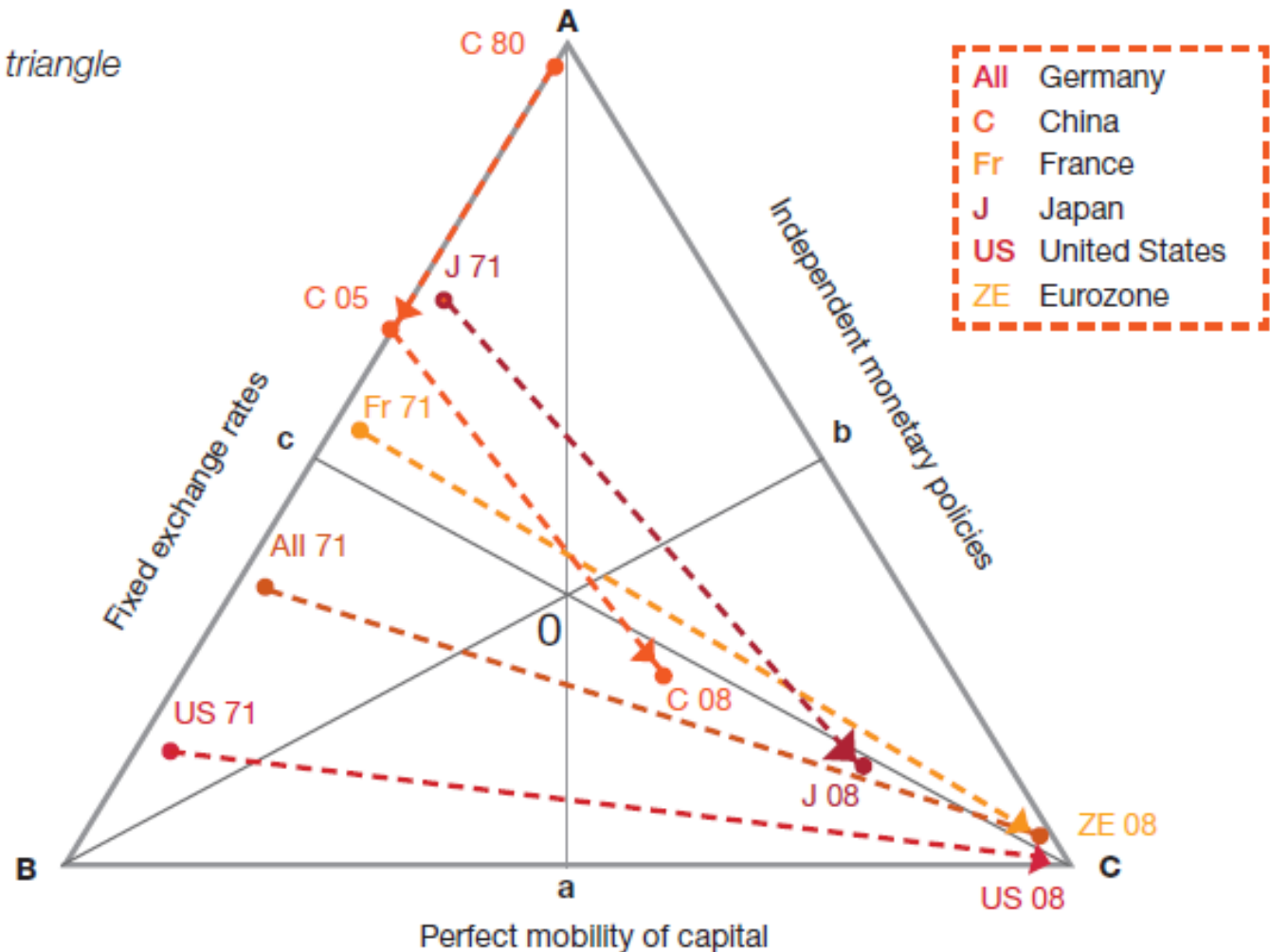
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The impossible Trinity

- A country must give up one of three goals:
 - Exchange rate stability (by Hard Peg)
 - Monetary Independence
 - Perfect Mobility of capital (absence of capital control)

Diagram 6

The Mundell triangle



B aO c = Preponderance of strict exchange rate rules and good mobility of capital

C aO b = Preponderance of flexible exchange rates and good mobility of capital

A bO c = Preponderance of exchange capital control at the discretion of national authorities

From the Trilemma to the Dilemma

- World Financial integration lead to a global financial cycle (Rey, 2013)
 - Dependent of the US monetary policy (and EMU)
 - Cycles of risk aversion (panic/euphoria)
- No more autonomy of local monetary policies (even with foating)
- The need of capital controls
- The Dilemma

Independent
Monetary Policy

Perfect Mobility of
capital



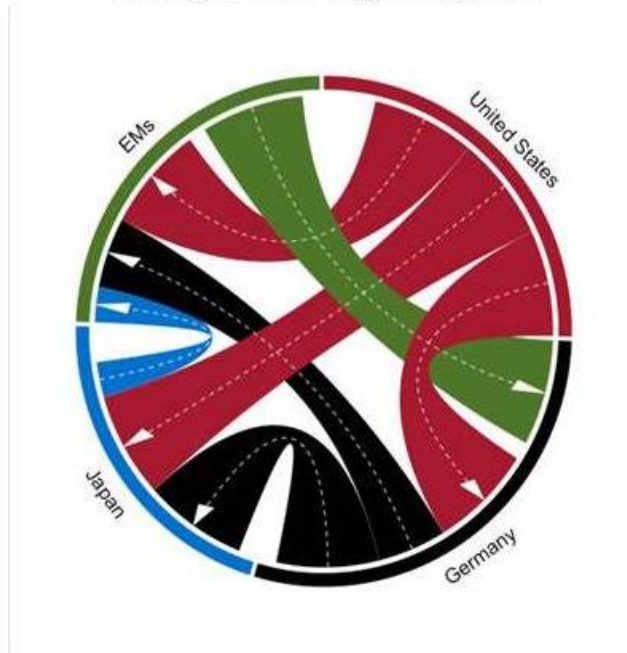
Also for the Fed

- The Fed is also attentive to development in the rest of the World (especially ECB)
 - 2014-2015: Accommodative MoPo by the ECB with QE
 - Rise of the dollar
 - The Fed will normalize (rise interest rates) later
 - See also Grexit risk

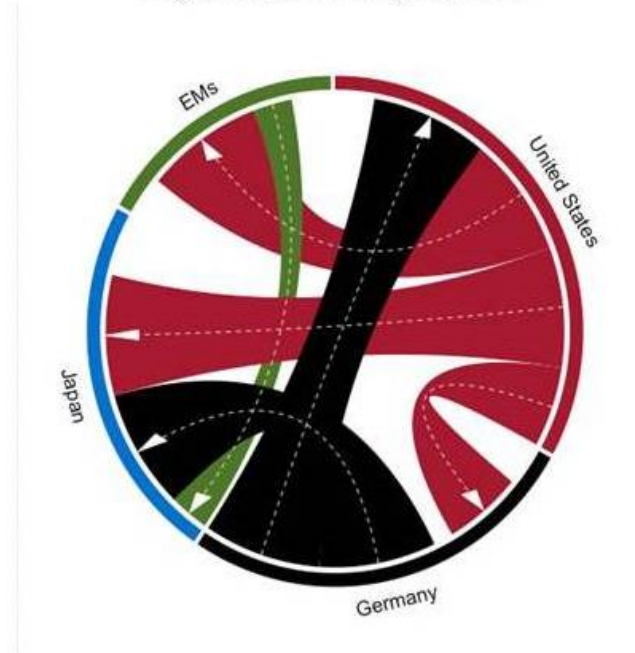
Causality of interest rates variations

Chart 1. The Changing Relationship Between U.S. Treasuries and German Bunds

January 1, 2010–August 21, 2014



August 22, 2014–July 10, 2015



Sources: Bloomberg, L.P.; and IMF staff estimates.

Note: The Jackson Hole Economic Policy Symposium was held on August 22, 2014. The arrows indicate the direction of the Granger Causality. The width of bands indicates the significance of the chi-squared statistic from the Granger causality test. The widest band represents significance at the 1 percent level, the medium band at the 5 percent level, and the narrowest at the 10 percent level. The analysis is based on daily data.

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The 1920s and 1930s currency war

- The seminal event:
 - The return of the French franc to the gold standard at a considerably depreciated level in 1926
 - To restore Trade surplus that leads to considerable gold inflow from other countries into France
- Then a cascade of devaluations
 - Australia,
 - Dutch East Indies (now Indonesia), Finland, Brazil, Poland, Canada and Argentina
 - in 1929 Uruguay, Argentina and Brazil
 - United Kingdom (September 19, 1931)
 - In 1931, 17 countries left the gold standard and/or substantially devalued their currencies.
 - In 1932 and early 1933, eleven more countries followed. From April 1933 to January 1934, the U.S. finally devalued the dollar by 59%

The pseudo « currency war »

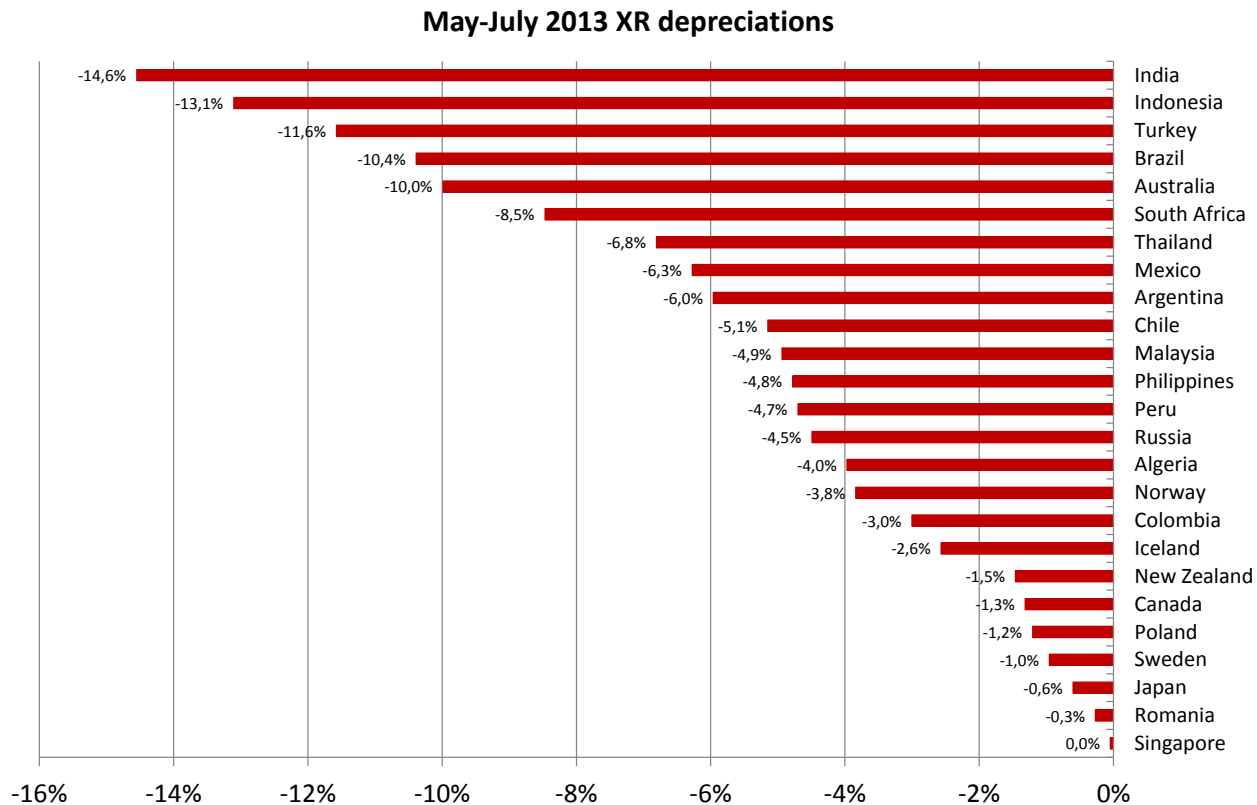
- In 2010, The Brazilian Finance Minister claims « We are in the mids of an international currency war »
 - After a 10 month rise of the real against the dollar
 - The real: one of the major overvalued major currency (according to Goldman Sachs)
 - Threatens competitiveness then problems to export
- The context:
 - Strong accomodative monetary policiy by the Fed (ZIRP + QE)
 - Leads to a low and flat yield curve
- But not a « currency war »
 - Just collateral effects with the Fed fighting internal disequilibria
 - High unemployment (low output gap) and deflation risk

The pseudo « currency war »

- Few years later (2013):
 - the inverse problem
 - When the Fed wants to taper
- Will continue in 2015 and 2016 with the Fed rising interest rates

Remember Stylized facts

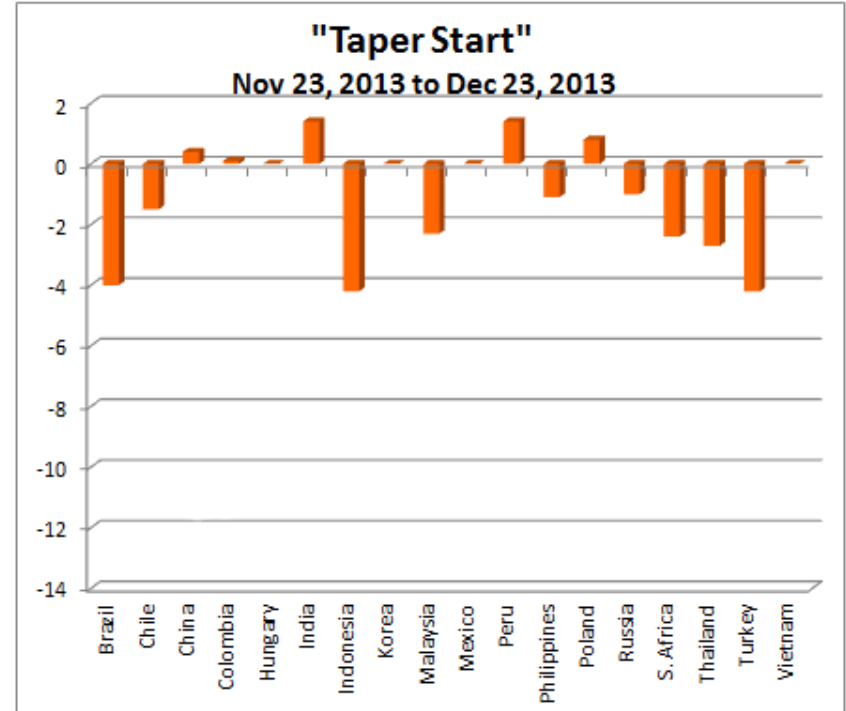
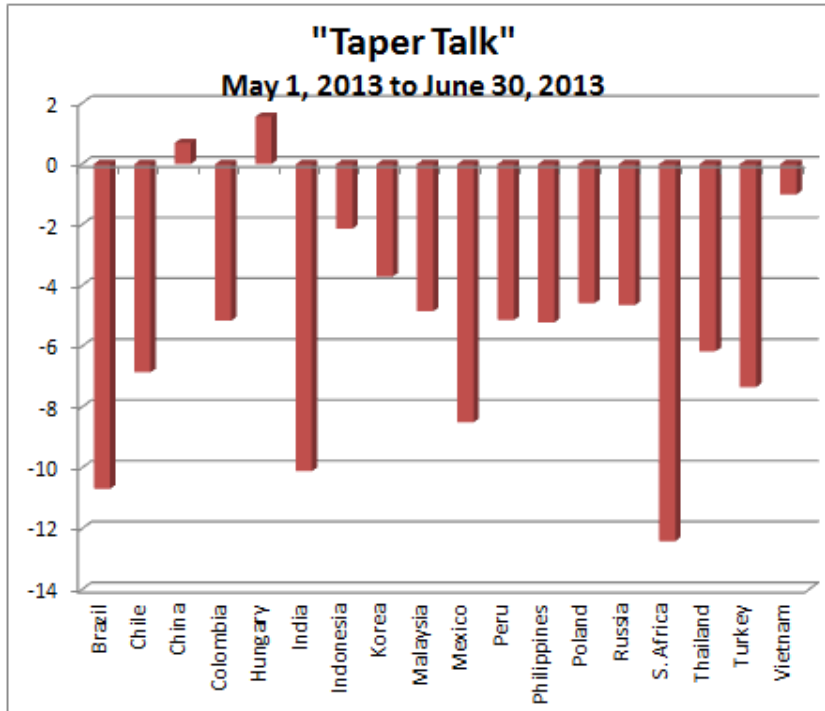
- Emerging pseudo-crises (Spring-Summer 2013 on the Taper tantrum)



Sources: BIS, monthly data from 1994 to 2015. Computations by the author.

Remember Stylized facts

- What moves FX markets?

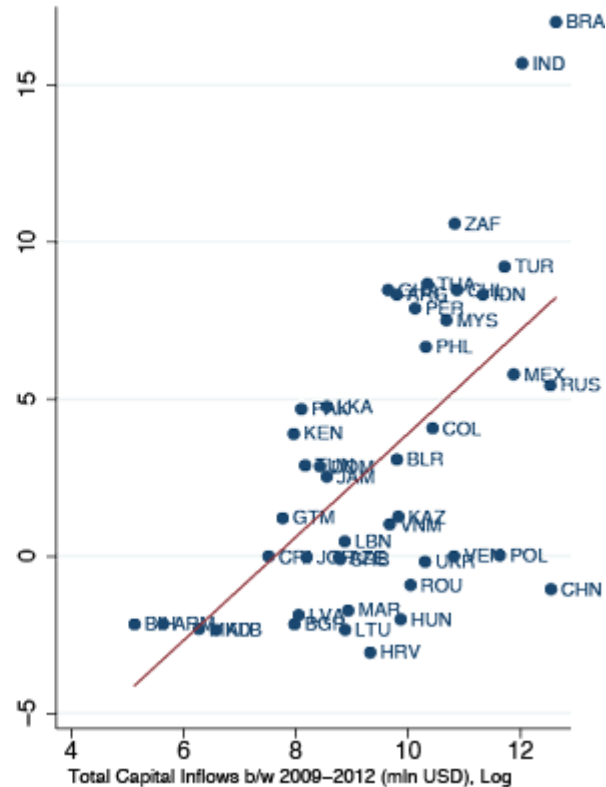


Remember

A. % Change in Real Exchange Rate



B. Size of the Financial Markets



See you next week....