

India's Currency Regime

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DEA, 4 July 2007

Outline

- The idea of a currency regime
- How might one discover what is the currency regime?
- What is India's currency regime?
- Some implications

Part I

The idea of a currency regime

The currency regime

- “Currency regime” or “Exchange rate regime” is the policy framework governing the currency.
- It can be a manual put out by the government.
It can be an unspoken understanding in the mind of the market.
- It is one of the most important and most complex building blocks of modern open economy macroeconomics.

The two key issues

- What is the exchange rate regime? Primarily three choices:
 1. Hard peg
 2. Peg
 3. Float.
- What do you **say** the true exchange rate regime is?
Distinction between *de jure* and *de facto* currency regime.

Part II

How might one discover what is the currency regime?

Three paths

- Official position
- Intervention data
- Statistical characteristics of exchange rate

Official Position

- The simplest and most transparent case is one in which the central bank operates on rules rather than discretion, and publicly releases documents which define the currency regime. Examples: ERM, New Zealand, Colombia.
- But there is often a gap between the official position and reality.
- In the post Bretton Woods period, 53 per cent of what were claimed to be “managed floats” were *de facto* pegs. Economists have learned to be wary about the claims made by central banks.

Interventions data

Problems of quality of disclosure.

- Frequency: Developing countries often have poor levels of transparency about trading by the central bank.
E.g. Interventions data in India is only released at a monthly frequency, with a long delay.
- Access for the central bank to other instruments of intervention on the currency market.
Sometimes SBI engages in currency trading at the behest of RBI.

Focus on outcomes

Statistical implications that intervention would have for observables, i.e. the statistical characteristics of exchange rates themselves.

A series of empirical strategies which only trust the data.

Part III

What is India's de jure currency regime?

Our evolution

- In 1993, India shifted to a “market determined exchange rate”
- The black market on the rupee largely died out
- But RBI continues to trade extensively on this market.
- While the rate is “determined” on a market, the price coming out of this market is not one which reflects supply and demand.

RBI's official position

The objective of the exchange rate management has been to ensure that the external value of the Rupee is realistic and credible as evidenced by a sustainable current account deficit and manageable foreign exchange situation. Subject to this predominant objective, the exchange rate policy is guided by the need to reduce speculative activities, help maintain an adequate level of reserves, and develop an orderly foreign exchange market.

Real effective exchange rate

REER is the weighted average of nominal exchange rates adjusted for relative price differentials between the domestic and foreign countries.

REER appreciates if the nominal exchange rate appreciates or domestic inflation is higher than foreign inflation.

Nominal vs real rate

“From a competitive point of view and also in the medium term perspective, it is the REER, which should be monitored as it reflects changes in the external value of a currency in relation to its trading partners in real terms. However, it is no good for monitoring short term and day-to-day movements as ‘nominal’ rates are the ones which are most sensitive of capital flows. Thus, in the short run, there is no option but to monitor the nominal rate.” (Bimal Jalan, 2002)

Part IV

What is India's de facto currency regime?

I.Reinhart and Rogoff classification

- Monthly absolute percent changes: If the absolute monthly percent change in the exchange rate is equal to zero for four consecutive months or more, that episode is classified (for however long it lasts) as a *de facto* peg.
- Probability of the monthly exchange rate change remaining within a one percent band over a rolling 5-year period: If this probability is 80 percent or higher, then the regime is classified as a *de facto* peg or crawling peg over the entire 5-year period.

De facto peg

- A currency regime is classified as a *de facto* peg to a given currency when the volatility of the exchange rate against this currency is low, owing to policy efforts by the central bank.

II. Calvo-Reinhart metric of exchange rate flexibility

$$\lambda = \frac{\sigma_{\epsilon}^2}{\sigma_i^2 + \sigma_{R/p}^2}$$

σ_{ϵ} is the exchange rate volatility

σ_i is the interest rate volatility

$\sigma_{R/p}$ is the volatility of reserves expressed in local currency at constant prices

Calvo and Reinhart (2002)

Probability of a near non-change in the currency over a one-month horizon

Feb 1979 to March 1993: 84.5

March 1993 to Nov 1999: 93.4

This suggests that the currency was *less* flexible in the “post-reforms” period after March 1993.

Using monthly data, they find that λ takes the same low value of 0.03 for India in both the “pre-reforms period” (1979-1993) and the “post-reforms” period (1993-1999).

Extending the Calvo-Reinhart measure

Comparability We use weekly data.

Evidence We find that in the period after 1999 also, λ_t has remained at very low levels.

Conclusion Continued regime of little exchange rate flexibility.

Source: Patnaik (2003).

III. Cross-currency volatility

Hypothesis: INR is substantially pegged to the USD. Under this H_0

1. INR/USD volatility will be much lower than that of INR against other currencies.
2. The volatility of INR against other currencies will assume values of the kind seen with other cross-currency volatilities in the world.
3. (This does not mean that INR/USD volatility is stable - it can fluctuate but about a low level).

Symptoms of pegging to USD

Cross-currency volatility (daily returns, 4/1993 - 1/2007)

	USD	GBP	EUR	JPY
INR	0.291	0.575	0.663	0.738
USD		0.508	0.606	0.697
GBP			0.465	0.721
EUR				0.705

IV. Regression based approach

Frankel and Wei (1994)

$$d \log \left(\frac{\text{INR}}{\text{CHF}} \right) = \beta_1 + \beta_2 d \log \left(\frac{\text{USD}}{\text{CHF}} \right) + \beta_3 d \log \left(\frac{\text{JPY}}{\text{CHF}} \right) + \beta_4 d \log \left(\frac{\text{DEM}}{\text{CHF}} \right) + \epsilon$$

If there is pegging to the USD, then $\beta_3 = \beta_4 = 0$ while $\beta_2 = 1$.
If there is no pegging, then all the three betas will be different from 0.

R^2 values near 1 suggest reduced exchange rate flexibility.

Interpretation of Frankel-Wei regression

Fixed If India runs a fixed exchange rate to the USD, then every fluctuation in the INR/CHF rate merely reflects a fluctuation in the USD/CHF rate. The regression yields $\beta_2 = 1$, $\beta_3 = \beta_4 = \beta_5 = \sigma_\epsilon = 0$ and $R^2 = 1$.

Floating A floating rate is characterised by high values of σ_ϵ and a low R^2 . A floating rate does not mean that $\beta = 0$. If (say) Japan is important in trade and financial transactions, the JPY will be significant. The coefficients reflect the true trade and financial linkages present in the economy.

Pegged Under a pegged INR/USD rate, we see $\beta_2 = 1$, and near-zero values for $\beta_3, \beta_4, \beta_5$. The size of σ_ϵ , and the regression R^2 , convey how tight the peg is. Low values of σ_ϵ , and hence high values of the R^2 , are associated with a less flexible exchange rate. If a basket peg is in operation, the regression will show the weights of the USD, the JPY and the EUR in the basket.

Regression results

Period	USD	JPY	EUR	GBP	σ_ϵ	R^2
1 April 1993 to 31 Dec 2006	0.9560 (88.2)	0.0286 (3.6)	0.0522 (2.2)	0.0213 (1.6)	0.2904	0.8411

Bottom line

The *de facto* currency regime is a rupee-dollar pegged exchange rate.

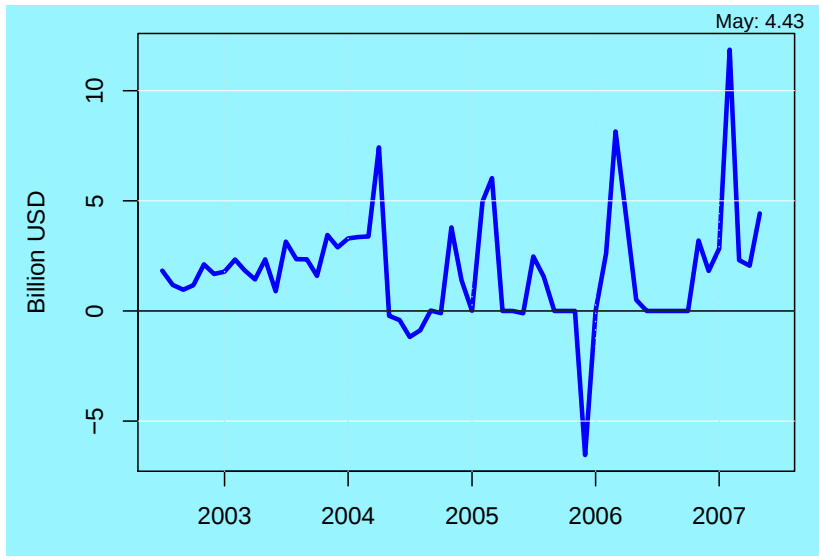
Part V

Some implications

How is the pegged exchange rate implemented?

- Primarily by RBI trading on the currency market
- Occasionally used interest rates - e.g. January 1998.

Currency trading by RBI

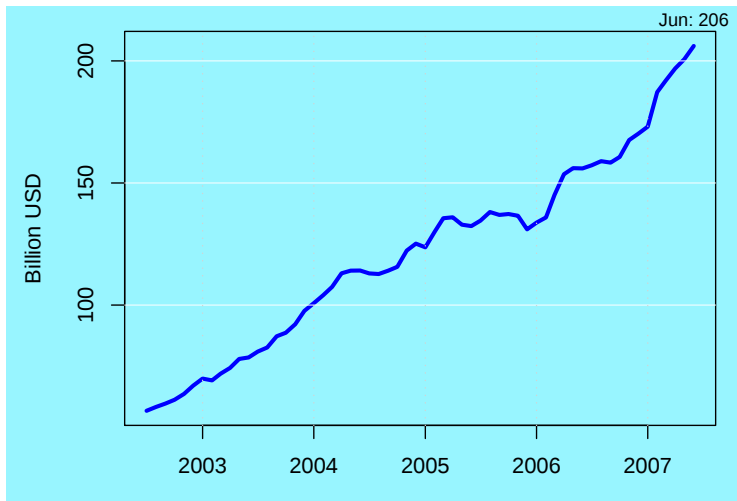


Rising reserves

Reserves grew rapidly in many Asian countries after the crisis.
Competing explanations:

1. Reserves as “insurance”: the price of harnessing the efficiency gains of an open trade account and an open capital account.
2. Buying USD as a tool for affecting the exchange rate.

Reserves build-up



India had adequate reserves $\approx$ 2002

Trade based measures Import cover. 11.3 months at end-March 2002.

Liquidity based rules Example – “Guidotti rule”: Reserves enough for one year’s capital account liabilities? Satisfied by 2002.

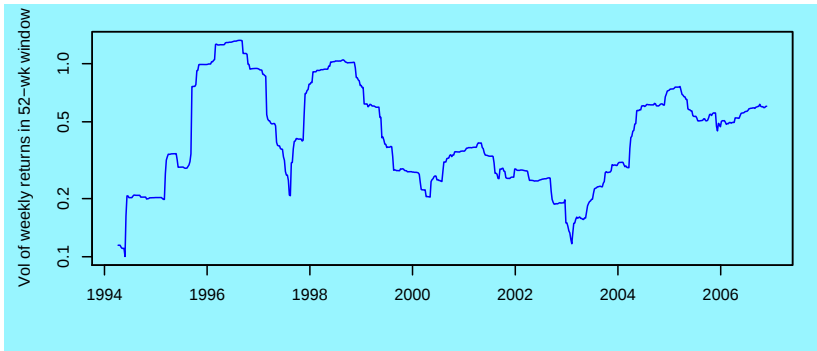
Money based measures Most extreme – “Can the central bank buy all the currency in the system?” Satisfied by 2001-02.

Debt-based indicators Ratio of volatile foreign capital to reserves. Dropped below 50% by March 2002.

Part VI

Consequences for the economy

Fact: Currency flexibility fluctuates



But the private sector is confused

- There are no announcements from RBI about when INR/USD vol will be higher or lower.
- This complicates currency risk management for the firms.

Moral hazard and one-way bets

Moral hazard If the private sector expects that RBI will deliver low INR/USD vol, they will take unhedged USD exposures.

One-way bets Pegged exchange rates often yield periods where you can be pretty certain about which way a currency will go. The private sector earns speculative profits on this.

Part VII

Summary

Summary

- Hard peg / peg / float
- De facto vs. de jure
- India is a de facto pegged exchange to the USD
- RBI does not tell you this.
- Reserves are being built up owing to implementing the pegged exchange rate; there is no insurance motive for holding so much.
- Currency flexibility fluctuates
- Moral hazard / one way bets.

The really important implications of the pegged exchange rate are seen in the coming three talks.

Further reading

- *India's currency regime and its consequences*, by Ila Patnaik, EPW, March 2007. URL <http://www.epw.org.in/articles/2007/03/11182.pdf>
- An NIPFP working paper which is an extended version of this: <http://www.nipfp.org.in/wp49-ila.pdf>

Thank you.