Macroeconomic policy-making in the catch-up phase of a Small Open Emerging Market Economy

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Structure of the presentation

- Macroeconomic policy: EME; catch-up; L market, Supply shocks
- Insights from a SOEME GEM with above features
- Getting the right exchange, interest and inflation rates
- Regulation and coordination with markets
Key points

- Labour market ⇒ Aggregate supply flat but volatile
- More uncertainty, rigidities, less forward-looking behaviour require more moderate interest rate adjustment
- Exchange rate policy using intervention, signaling can support interest rate policy
- Actual exchange rate policy has successfully targeted external balance but neglected other contributions
- There has been sufficient market development and regulatory improvements to allow more flexibility
Policy and Structure

- **Structural catch-up process has reached a critical mass**
  - Openness; technology; youth; hard work; enterprise; diversified sources of growth
  - S, I rates high above 30 percent of GDP

- **Macroeconomic policy has unique possibilities in India, China and US—high growth, labour availability and capital mobility**

- **Debts, deficits, lags, populism and poor governance limit fiscal policy**

- **Monetary policy: inflation or growth? markets or real sector?**
Policy and Structure

- Macromodels routinely underpredict output and overpredict inflation in growth periods (e.g. US in the 90s)

- Large literature on the effect of uncertainty in potential output, in the relevant model, and in parameters on monetary policy

- These considerations in general imply a more moderate monetary response

- Instruments and targets: Interest rates (with help from exchange rates) for cycle; Regulation for asset bubbles
Policy and Structure

- **Aggregate supply and the dualistic labour market**
  - Below potential or full employment output; short-term bottlenecks; high longer-term supply elasticity
  - Forward looking MC facing firms maybe flat (labour market reform would make it more so); but frequent supply shocks (Goyal and Pujari, 2005)
  - Food large share in consumption basket ⇒ e affect CPI inflation; lag from e to CPI shortest Svensson (2000); large share of oil imports ⇒ e affects WPI
  - Appreciation antidote—if in response to temporary supply shocks implies 2 way movement stabilizes markets, reduces inflation as well as required interest rate response
  - But real competitive E rate reqd. so for permanent supply shocks: increase productivity, reduce distorting taxes, subsidies, improve governance
  - Fiscal populism raises costs, pushes monetary policy towards conservatism, but there is a large output cost from demand reduction for little gain in reduced inflation
SOEME GE Model

  - Intertemporal and intratemporal optimization; labour leisure tradeoff
  - CES aggregation over goods and countries
  - Product diversity, monopolistic competition, staggered prices
  - Forward-looking AD, AS; UIP
  - Zero or some average inflation defines optimal flexible price natural output and natural interest rate
  - SOE world prices given; degree of openness

- **Key differences in a SOEME**
  - Two categories of households at subsistence (P), above (R).
    - Consuming and supplying labour
    - P zero intertemporal cons. elasticity, high labour supply
  - Only R can diversify risk through world capital markets
<table>
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<tr>
<th>Component values of</th>
<th>$-y$</th>
<th>$-s$</th>
<th>$-rr$</th>
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<td>$a_t = -0.2231 = \log (.8)$</td>
<td>$y^* = 0$</td>
<td>$c_p = -1.6$ (C_p=0.2)</td>
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<td>Log value of natural rates</td>
<td>Natural rates</td>
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Key Insights on policy

- Why standard policy may not be optimal in an emerging market
- Backward looking behaviour dominates implies low policy rate response to shocks
- Structure and interventions favour flexible DIT over CIT
- Exchange rate channel more effective in reducing inflation at lower output cost in a more open economy—so loss from inability to follow CIT rises with openness. It also rises as a freer float becomes optimal, with less RBI intervention

Key differences in this approach

- Potential output from outcomes
- In transition, productivity differences allow catch-up so supply bottlenecks are not persistent
- Multiple steady-states due to changes in wealth accumulation through the current account and changes in natural rates
- Special labour market features actually flattening aggregate supply, but financial thinness making it more steep
- Shallow financial markets, high volatility, justifying intervention
The Exchange Rate

- **Determinants of exchange rates**
  - Short-term: markets; perception and trade; policy
  - Long-term: macro fundamentals; relative productivity

- **Exchange rate policy can contribute to the three objectives of monetary policy**
  - Real—output growth: IB; EB over time; export growth, economic stimulus
  - Inflation: food, oil, intermediate inputs
  - Financial stability: ↓ speculation; prevent crises; ↑ market depth
Internal Balance

- **Structural: Achieving long-term potential**
  - Absorbing labour; youth; creating skills

- **Stabilization: Monetary autonomy**
  - Impossible trinity: No monetary autonomy with perfect capital mobility and a fixed exchange rate
  - But autonomy to the extent no full CAC and managed floating—flexible exchange rates
  - Intervention, signaling allow E to move independently of interest rates
  - Even if exchange rates vary in a five percent band, six month interest rates can vary ten percent while satisfying UIP.
Closed capital account

more capital mobility

Pure float Indep. Open CA

Super fix loss of M policy

Why the impossible trinity is rare
External Balance

- Change in exchange rates must be sufficient to compensate for inflation differentials and maintain the competitive equilibrium exchange rate.

- Asian recipe: competitive Re; LA dangers of overvaluation; but large country—domestic demand.


- See outcomes - are exports adversely affected?
  - Since 2002 export growth above 20% in Rs and $s
  - April-August 2008, 35.1 % Sept. 10 %(M growth 37.7%)
Exchange Rate Policy

- Policy Stance: Exchange rate market determined but limit volatility if it occurs
- 1990s fix and depreciation during volatility-implicit shifting band
- Active intervention—volatility; passive intervention—level and trend, leads to reserve accumulation (DRG project)
- 2004-06 two-way movement 5%, 2007 appreciation 11%, 2008 depreciation 20%
- Short periods of relative fixity—managed
End of Month Exchange Rate
# Yearly Volatility of the Exchange Rate

<table>
<thead>
<tr>
<th>Years</th>
<th>Monthly high-low % change</th>
<th>Standard Deviation</th>
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<tbody>
<tr>
<td>1993</td>
<td>0.9</td>
<td>0.2</td>
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<tr>
<td>1994</td>
<td>0.2</td>
<td>0.05</td>
</tr>
<tr>
<td>1995</td>
<td>12.2</td>
<td>2.7</td>
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<td>1996</td>
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<td>7.8</td>
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<td>4.3</td>
<td>1.4</td>
</tr>
<tr>
<td>2002</td>
<td>2.3</td>
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<tr>
<td>2003</td>
<td>5.3</td>
<td>1.7</td>
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<tr>
<td>2004</td>
<td>6.9</td>
<td>2.1</td>
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<tr>
<td>Feb- June 2005</td>
<td>1.3</td>
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<tr>
<td>2005</td>
<td>6.9</td>
<td>2.1</td>
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<tr>
<td>2006</td>
<td>6.6</td>
<td>2.1</td>
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<tr>
<td>Feb- March 2006</td>
<td>1.3</td>
<td>0.4</td>
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<tr>
<td>2007</td>
<td>12.8</td>
<td>3.6</td>
</tr>
<tr>
<td>2008 September</td>
<td>16.2</td>
<td>4.5</td>
</tr>
</tbody>
</table>

Source: calculated with data from [www.rbi.org.in](http://www.rbi.org.in)

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Market stability—hedging

- Eliminating exposure to price movements

- Two-way movement induces hedging
  - Develops currency markets towards the long-term goal of floating in mature markets
  - Limits sensationality by limiting the impact of exchange rates on bottom-lines

- Informal; formal market instruments—derivatives

- Financial innovation can reduce the cost of hedging
  - Insurance contract with someone with the opposite currency exposure essentially costless but OTC structured product; futures, exchange traded
Market stability--incentives

- But FX derivatives can also be used for speculation—give more leverage; East Asia
- If don't hedge speculate on a subjective one-way price movement
- So inducement to hedge and absence of G warranties, including on currency value, are important (sub-prime crisis again shows the importance of incentives)
- 2007 rupee expected to strengthen to 32 so bets using opaque structured derivatives, losses on reversal
- 10% movement increases the risks to such speculation
- If volatility limited within a (10%) moving band and temporary supply shocks used as triggers—e appreciated if oil shock
  - Traders would move with the wind, buy when appreciating.
Market stability—surprise?

- Does policy have to surprise markets, to prevent speculative one-way positions, or can markets help policy achieve its objectives?
- Change conditional on a random shock cannot be predicted and is two-way, no decision delay
- In addition a credible CB can signal to markets; strategic
- Greater uncertainty about fundamentals makes more information revelation optimal (DRG project)
  - Under inflows just reduce passive intervention for appreciation, but under outflows announcing limited appreciation could achieve it with less reserve loss
- Market response: monetary policy can target the domestic cycle.
- Agent heterogeneity in FX markets: informed players gain at the expense of others
- But regulations also reqd. for market development and safety
**Principle**

- PIT
- Information

**Indian Regulation**

- Market integrity
- Disclosure
- Transparency
- Restriction, Size
- Uneven abilities
- VaR, risk models
- Reduce procyclicality
- CCIL, Netting, Liquidity, Counterparty risk red.
  *But FX special features*

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Principles → Flexibility (US)

Arbitrage, Incentives

Indian context

Externalities
  - Efficiency
  - Payments crises

Technology
  - Government

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FX Market Regulations

Special features of FX markets
- Huge number of transactions
- Portfolio unwinding not speculation
- Decentralized, less transparent, no incentives to share information on order flows
- Traders: limits function of performance, share profits, absorb losses

Regulatory concerns
- Herding—one-way positions
- Information and service to retail, SMEs
- Accounting norms
- Skewed participation of banks
- Limits on instruments, individuals and indirect hedging being relaxed
- Projected not past performances
- AML; KYC; self-assessment—dynamic hedging
FX Market Regulations

- Technology CCIL FX-Clear
  - Netting
  - Lower counter party and settlement risk
  - Operational benefits
  - Guarantee for forwards from trade date
  - Only net exposure

- Retail innovations; accessibility for small players
  - Friedman and futures

- Low margin, high volume principle
  - Air, mobiles
  - Suiting different customer needs
Market stability—inflows

- Problems of volatility—Inflows and FX reserves
  - FX assets -Oct. 10, 08: $265b (market determined exchange rate!)
  - Over April-Sept 07 $49b added; April-Oct 08 $34b reduction

- If inflows are a temporary disequilibrium, they cannot determine the long-run rupee value
  - Appreciation incorrect, reserves have to rise
  - Insurance against volatility
  - Outflows (FPI $13b) and CAD (oil) in 2008; two-way movement in reserves also

- Permanent inflows absorption through growth, capacity creation, fuller capital account convertibility, and some rupee appreciation
  - A well-designed path to convertibility should reduce the instability of markets but realize their strengths
Market stability—flows

- Incentive structures have to substitute for controls; ensure policy and individual responses do not amplify shocks
- Market design should induce laying-off risk, reduce pro-cyclicality.
- Specific sectoral policy should encourage innovation, induce more competition.
- Countercyclical macroeconomic policy that supports trend growth, two-way movement of exchange rates, and a transparent exchange rate policy all contribute to crises proofing, which is a precondition for CAC.
Inflation and exchange rates

- **Oil shocks: why were 2000s different from the 70s?**
  - Labour productivity, substitution away from oil, more flexible markets, lack of concurrent adverse shocks, monetary policy
  - 2008 sharp spike (peak $147 July 11); international food price rise 2007-08:45.3%

- **So sharp policy response CRR, repo rate raised to 9% despite impeding slowdown**
  - Low per capita income democracy imply inflation sensitivity, esp. for food
  - Prices rigid downwards so allow first round price increases
  - Anchor inflationary expectations prevent second round wage-price cycle

- **In hindsight, as commodity cycle reversed sept.--supply shocks temporary, appreciation antidote underutilized**
  - March07 USD 40 CPI March 6.7-9.5; June 5.7-7.8; Oct falling again, WPI 3%
  - March08 WPI 7%; May depreciation began, June WPI 12%
Monthly Inflation and Appreciation

- WPI
- CPI-IW
- Av. E Appre
Inflation and interest rates

- Countercyclical interest rate policy
  - Inflation targeting?
    - Not necessary since politics implies sharp response to inflation
    - But if inflation due to supply shocks, appreciating exchange rate and improving agricultural productivity more effective than raising interest rates
  - Responding to a slowdown, external demand shock?
    - Reversal of commodity prices to reduce inflation; mfg index falling since August, so no second round effect; base effect wear off in March09; unless cyclicals, admin prs, fall
    - Ltd. depreciation and lower interest rates to boost demand
  - Growth I led, infrastructure cycle, but firms sensitive to interest rate and consumer demand
    - Domestic credit has to substitute for frozen intl. mkts.
Asset Inflation, interest rates

- Asset bubbles and monetary policy
  - **Argument:** EMEs narrow markets so low interest rates lead to asset price booms
    - Counter: High interest rates make productive investment more unviable than speculation
  - **Global liquidity, argument:** Low global interest rates imply fund managers take risks, flood into EMEs
    - Counter: But if EME interest rates kept higher than global arbitraging inflows; own firms borrow abroad, ECBs rise
  - **Countercyclical prudential regulation, deeper markets, and surprises to moderate asset price inflation; slow CAC**
Interest rate arbitrage

- UIP and inflows
  - How the closed economy was opened
  - The effect of international interest rates
  - Partly as a result of Indian tightening and opening of the arbitrage gap
    - Rapid rise in ECBs, NRI deposits, Reserves
  - Sterilization measures
    - MSS; CRR raised, uneven spikes in liquidity, smooth functioning of LAF corridor affected
    - Cost 3% gap between Indian and US treasury bills
  - 2008 rise in risk premium, outflows due to US obligations
    - Dollar sales, liquidity squeeze, reverse sterilization measures
Smoothing interest rates

- Softening and narrowing gap with international rates will support catch-up growth process
  - Falling rates also required for current domestic cycle
  - World excess of savings imply low long-run interest rates
  - FDI, sovereign funds will come to India if growth sustained
  - Domestic savings also high
  - But Indian long-run interest rates highest in the world
  - Puzzle? Banks have to lower spreads
  - Financial repression or regulatory indulgence?
Myths and reality

- Rupee market determined
- But high reserves and intervention
- No monetary autonomy with capital mobility
- But using structure gives degrees of freedom to suit domestic cycle
- High government debt and deficits imply interest rates cannot fall
- But falling interest rates and rising growth rates have reduced these most effectively
- India cannot grow without reforms

Removing inefficiencies can boost the Indian virtuous growth cycle; but it has strong roots; and itself facilitates reform

Thank You