

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

Ashima Goyal
Professor, IGIDR

ICRIER
*Open Economy Macro and Finance Seminar
Series*

11 November 2008
New Delhi

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 \Rightarrow 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?**

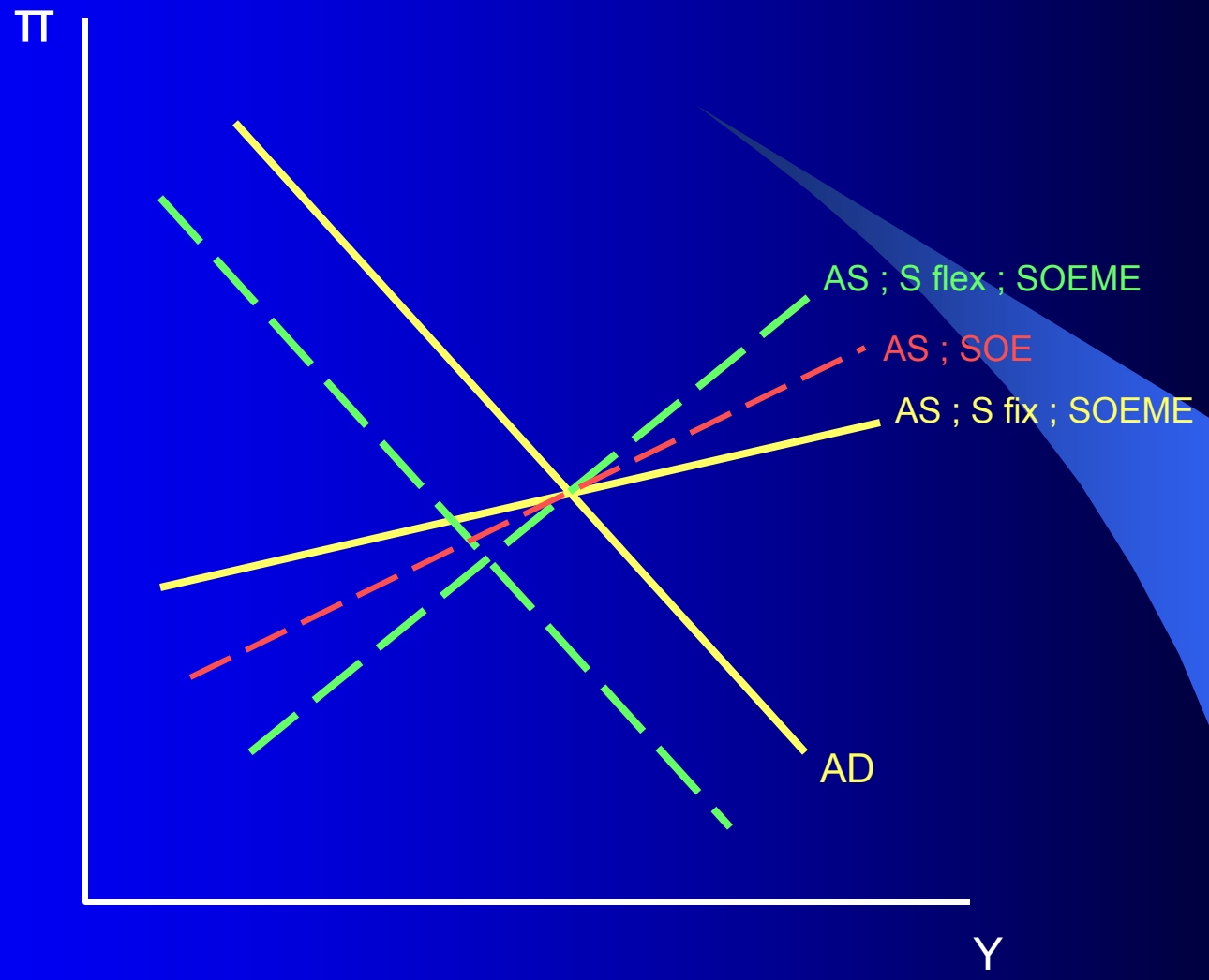
Policy and Structure

- ❑ 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 \Rightarrow e affect CPI inflation; lag from e to CPI shortest Svensson (2000); large share of oil imports \Rightarrow 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

□ Basic Model Structure—M Policy in a SOE (Gali and Monacelli 2005, Svensson 2000)

- ✍ 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 1: Value of natural rates due to each component

	Constant term	$a_t = -0.2231 = \log (.8)$	$y^* = 0$	$c_p = -1.6$ ($C_p=0.2$)	$\kappa=0.1$ ($K=1.1$)	Log value of natural rates	Natural rates
Component values of							
\bar{y}	-0.4901	-0.1413	0	0.3773	0.0873	-0.1667	$\bar{Y} = 0.85$
\bar{s}	-0.8450	-0.1413	0	1.3373	-0.0127	0.3384	$\bar{S} = 1.4$
\bar{rr}	0.01	0.0024	0	-0.0319		-0.0185	-0.0185
Coefficient values of							
\bar{y}	-0.2313	.6332	-0.1572	-0.2358	0.8734		
\bar{s}	-.3989	0.6332	-0.5572	-0.8358	-0.1266		
\bar{rr}	0.01	-0.0109	-0.00039	0.0193			

□ 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

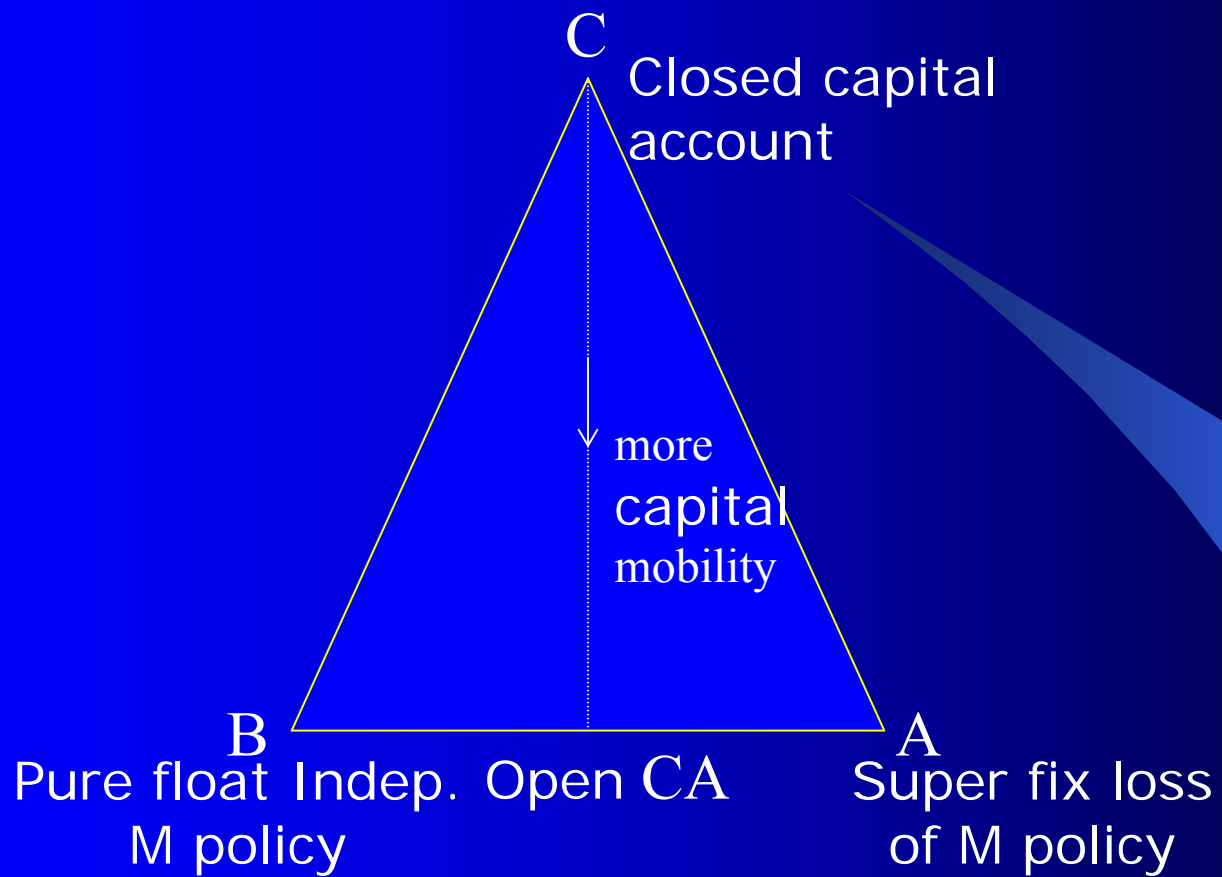
Internal Balance

□ 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.



Why the impossible trinity is rare

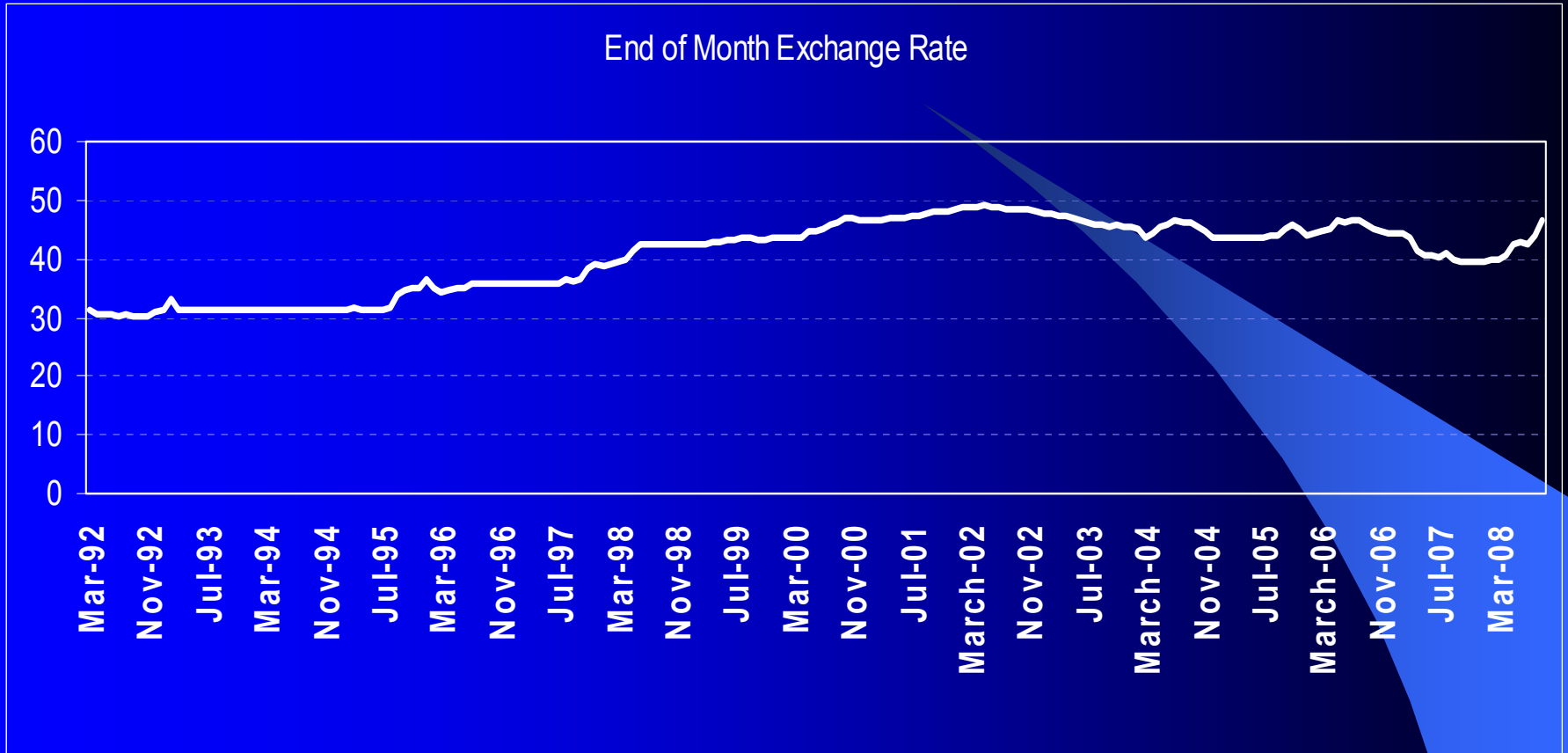
External Balance

- ❑ 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
- ❑ Nominal appreciation after 2002 against the dollar; but some two-way movement over 2004-06; double-digit appreciation in 2007, depreciation in 2008.
- ❑ REER (1993-4:100, 36-cty export wts) changes not large until 2007. Index 104.7 in 2007-08—safe if productivity increases. Reversed in 2008.
- ❑ 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

Years	Monthly high-low % change	Standard Deviation
1993	0.9	0.2
1994	0.2	0.05
1995	12.2	2.7
1996	11.6	2.8
1997	11.3	2.9
1998	11.6	3.2
1999	2.8	0.9
2000	7.8	2.4
2001	4.3	1.4
2002	2.3	0.8
2003	5.3	1.7
2004	6.9	2.1
Feb- June 2005	1.3	0.4
2005	6.9	2.1
2006	6.6	2.1
Feb- March 2006	1.3	0.4
2007	12.8	3.6
2008 September	16.2	4.5

Source: calculated with data from www.rbi.org.in

Daily Exchange Rate July 2005-Sept.2007



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

Indian Regulation

PIT

Market integrity

Information

Disclosure
Transparency

Principles → Flexibility (US)



Arbitrage, Incentives

Restrictions, Size
Uneven abilities

Indian context

Externalities

Efficiency
Payments crises

VaR, risk models
Reduce procyclicality

Technology

Government

CCIL, Netting, Liquidity,
Counterparty risk red.
But FX special features

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-Sept07 \$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

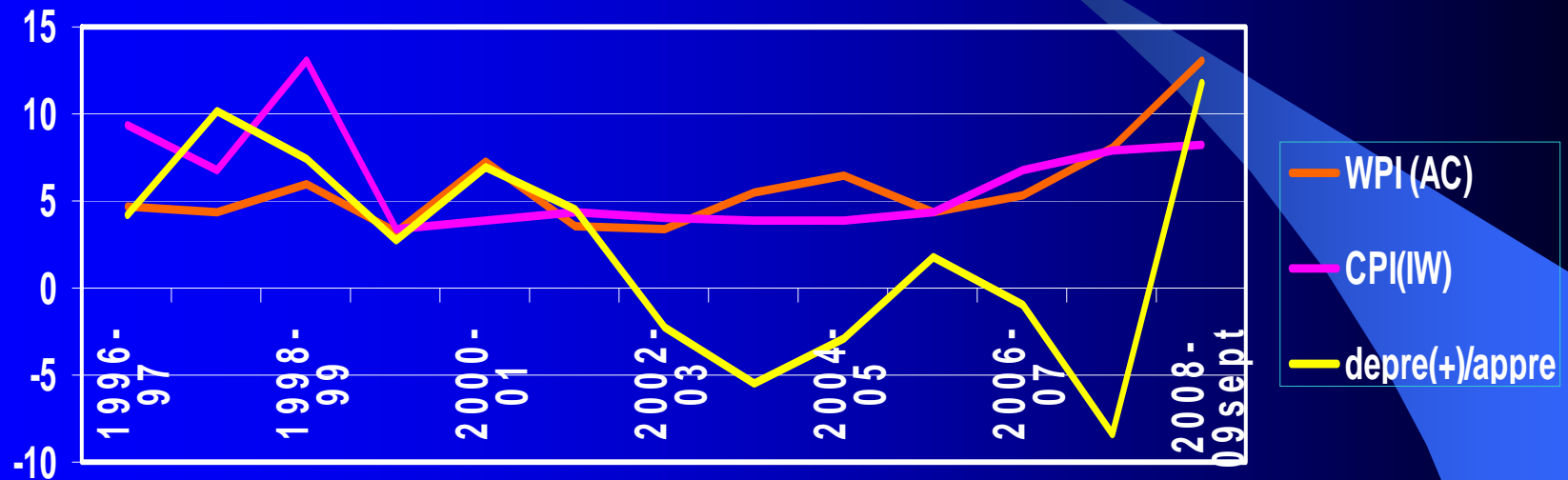
Market stability—inflows

- ❑ Incentive structures have to substitute for controls; ensure policy and individual responses do not amplify shocks
- ❑ Market design should induce laying-off risk, reduce procyclicality.
- ❑ 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* .

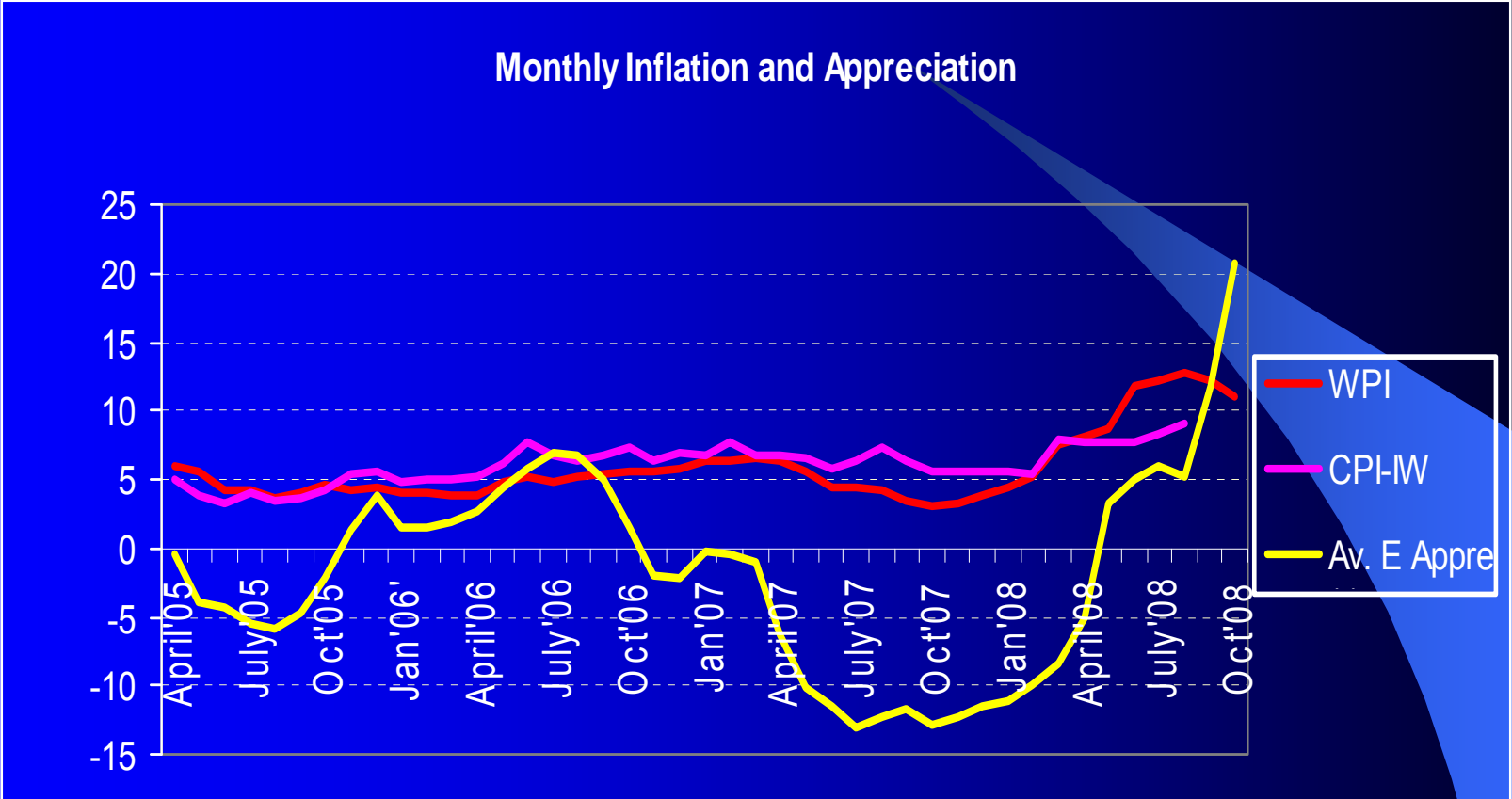
Inflation and exchange rates

- ❑ 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%

Yearly inflation and appreciation



Monthly Inflation and Appreciation



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 cyclical, 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**

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