



Monetary Policy and Demand for Bank Credit in India and Some EMEs

---A Panel Data Analysis for 2002-2010

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Monetary Policy: Some Challenges



- **Theoretical Challenges**
 - **Monetary Policy versus Fiscal Policy**
 - **Rational Expectations Hypothesis**
 - Irrelevance of anticipated monetary policy suggested by RE models assuming (i) access to information especially about government policy (ii) Complete Flexibility of Wages and Prices
- **Open Economy Considerations**
 - Capital inflows and outflows bring about changes in the balance sheet of the central bank making monetary targeting difficult
 - Interest parity conditions makes interest rate targeting difficult
- **Developing Economy Considerations**
 - Investment in under developed countries subject to greater degree of uncertainty
 - Changes in policy rates are always small and incremental in nature .

Monetary Policy Challenges

-A Discussion



- While fiscal policy is compulsive, monetary policy is only facilitating and may apply only under Walrasian assumptions of general equilibrium and non-existence of quantitative constraints.
- Non Applicability of RE Model--
 - Implicit assumption of rational expectations hypothesis like wage price flexibility not satisfied
 - Non existence of competitive markets and perpetual tendency towards full employment not observed
 - The assumption of availability of information especially about future changes in economic policy is violated and economic agents ordinarily do not have full information.
- Open Economy Issues
 - Monetary policy is relevant in pursuing the short and medium term targets of **price stability**, **exchange stability** and **financial stability**.
 - Central bank need not fix rates of interest but using a very short rate such as the **repo rate** in India, as an instrument, the central bank can send programmed signals to the money and credit markets. This would drive the money market towards generating the corresponding spectrum of market interest rates.
 - money supply is not completely controllable by a central bank, the monetary authority has however to decide the timing and magnitude of sterilisation

Monetary Policy Challenges (Contd.)



- To ensure optimal liquidity and a rate of growth of money supply which is not well outside the targeted range.
- If the domestic currency is under pressure, central bank intervention can bring about **orderly conditions in the foreign exchange market**. At times there is **policy induced non intervention** in the foreign exchange market for realizing the short term goals of monetary policy.
- All this makes monetary policy more difficult and in fact more relevant
- **Developing economy considerations**
 - Output is usually concentrated in a smaller range of goods and services
 - Financial markets are not very deep, making diversification of risk very difficult. To counter the de-stabilising shocks, countervailing monetary policy is all the more important.
 - The operation of market forces in some spheres of a developing economy may be weak, non-optimal or even non-existent. This makes the case for monetary policy directed lending essential.
 - On account of wage-indexation and other structural rigidities in both labour and goods markets, control of inflation through contractionary policy may not be easy. Fiscal distortions like high fiscal deficits, in a developing economy, may result in inflation which can be effectively tackled with a judicious mix of fiscal cum monetary policy.

Changes in Policy Rate (Repo Rate)



- **Reduction in Repo rate has two effects**
 - Decline in discount rate resulting in increase in the present value of expected cash flow
 - Through the term structure, impact of fall in repo rate on medium term lending rates leading to decline in borrowing costs
- **Twin effect on firms' demand for bank credit**
 - For incorporated firms marginal Tobin Q goes up and ex- ante investment goes up
 - For unincorporated firms investment becomes more profitable because of lower borrowing cost and higher present value of expected cash flow from investment

Overview of Selected EMEs



	Trade as % GDP		FDI GDP ratio			Market Cap % of GDP		
	2002	2007-2009	2002	2008	2009	2002	2007	2009
Brazil	26.70	24.70	3.30	2.90	1.65	24.60	102.80	50.76
Chile	65.70	77.80	3.80	9.90	9.39	70.70	129.90	142.76
India	30.00	46.20	1.10	3.60	2.80	50.80	161.35	107.30
Korea, Rep.	64.80	96.90	0.40	0.20	0.70	43.30	107.10	100.25
Mexico	55.50	58.10	3.30	2.10	3.40	15.90	38.90	40.24
South Africa	62.10	65.00	0.70	3.50	1.98	166.50	293.80	278.19
Turkey	48.80	50.10	0.50	2.50	1.24	14.60	44.20	38.08

Overview of Selected EMEs



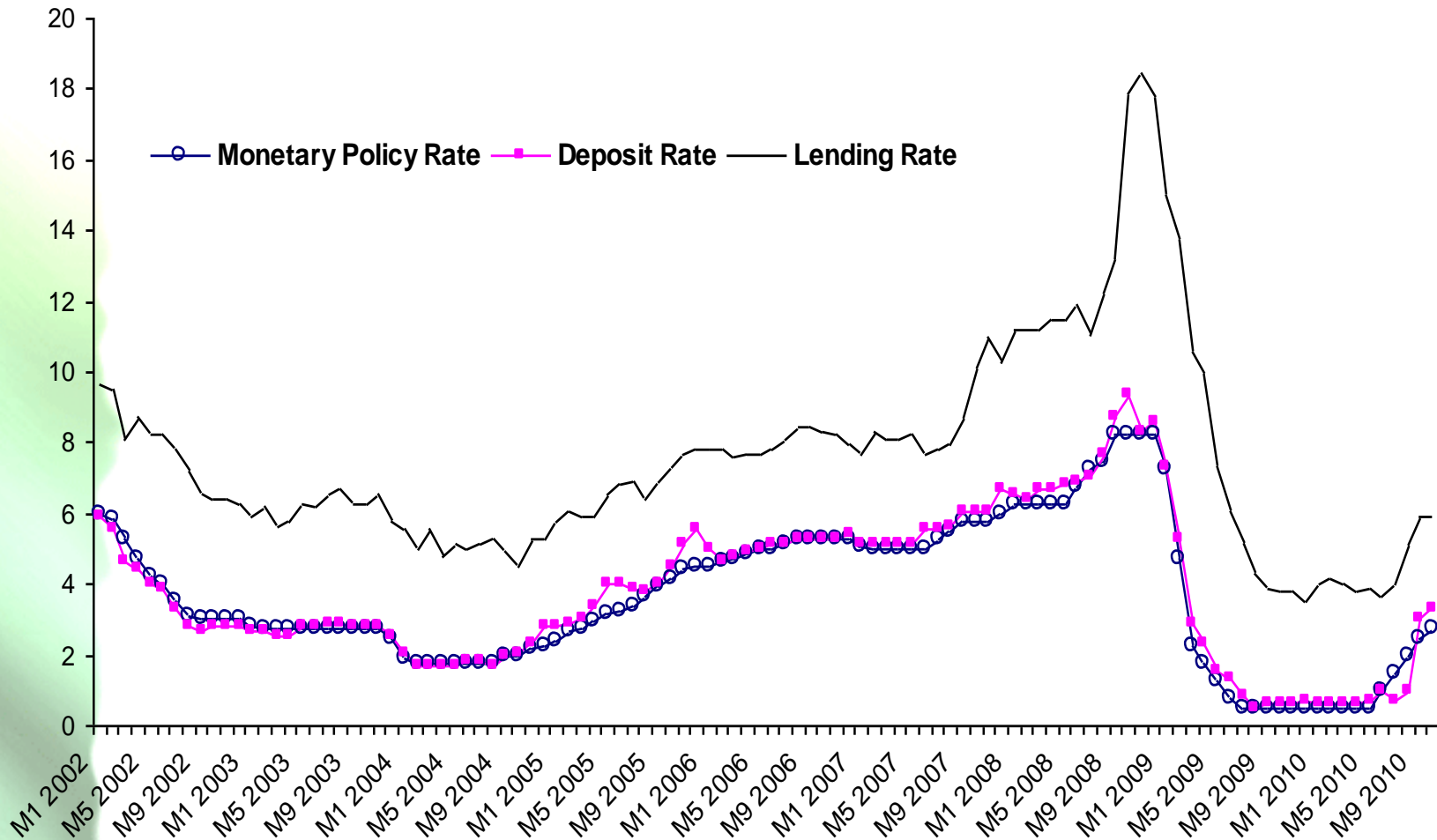
	Composition of GDP 2008 (percent)			Per Capita Income 2009		Population 2009 (Million)	GDP growth 2002-2009	CPI Inflation Rate 2002-2009
	Agri.	Industry	Services	USD	USD PPP			
Brazil	6.7	28.0	65.3	8220	10498	191	3.4	6.9
Chile	3.9	43.8	52.3	9515	14315	16	3.6	3.5
India	17.5	28.8	53.7	1031	3015	1199	7.6	6.0
Korea	2.5	37.1	60.3	17074	27938	48	3.9	3.1
Mexico	3.8	37.1	59.1	8133	13608	107	1.6	4.5
South Africa	3.3	33.7	63.0	5823	10229	49	3.6	5.3
Turkey	8.6	27.6	63.7	8711	12465	70	4.6	15.9

Changes in Policy Rate and Commercial Bank Lending and Deposit Rate in India

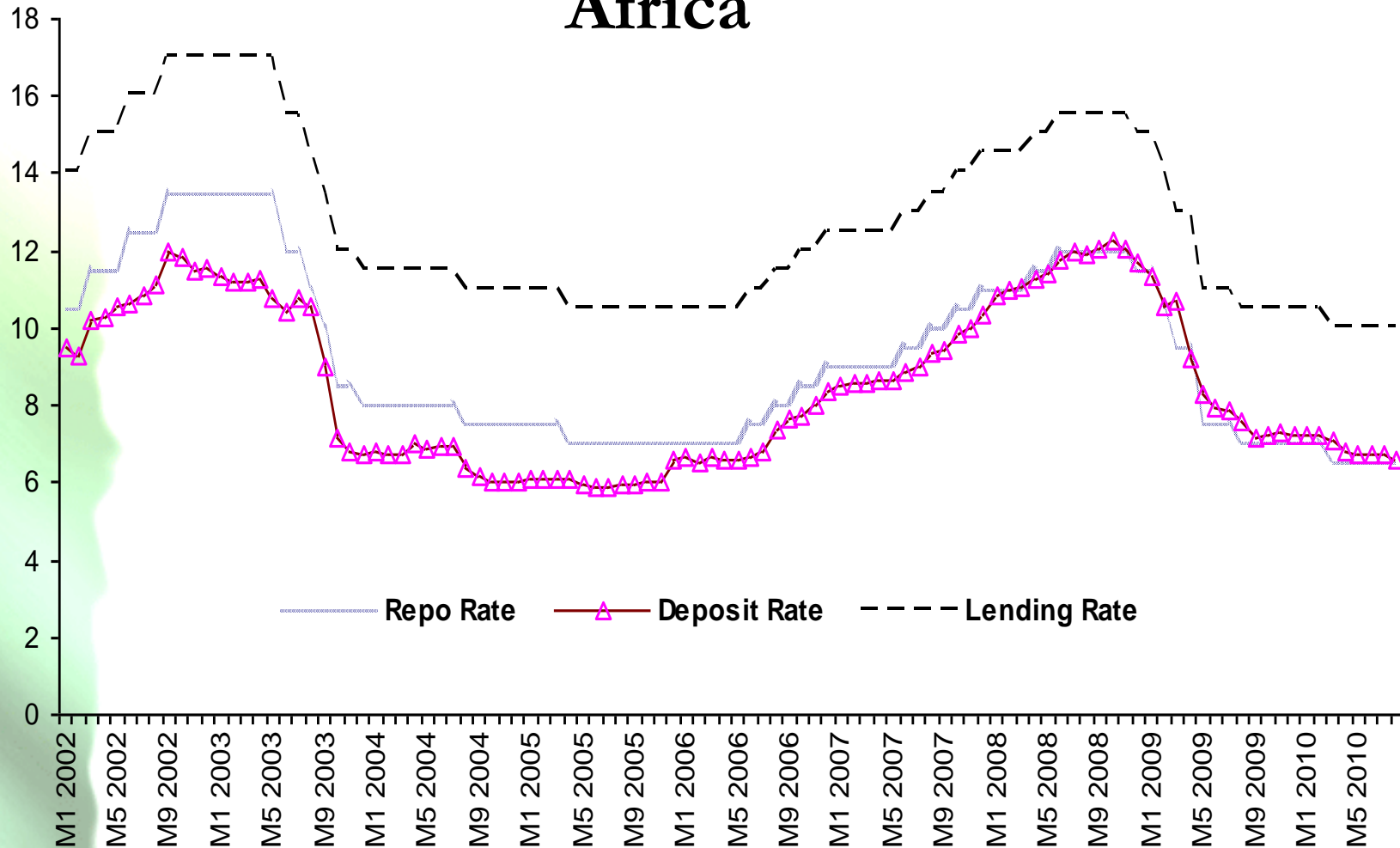


Repo Rate	Reverse Repo Rate	Lending Rate	Deposit Rate
(-)50 bps 5 th March 02	(-)50 bps 5 th March 02		(-)25 bps 18 th May 02
(-)25 bps 27 th June 02	(-)25 bps 27 th June 02		(-)25 bps 24 th Aug. 02
(-)25 bps 30 th Oct. 02	(-)25 bps 30 th Oct. 02	(-)50 bps 9 th Nov. 02	(-)50 bps 14 th Sep. 02 (-)75 bps 64 th Nov. 02
	(-)50 bps 7 th Mar. 03	(-)50 bps 6 th Dec. 03	(-)25 bps 18 th Jan. 03 (-) 25 bps 10 th May. 03
(-)100 bps 25 th Aug. 03	(-)50 bps 25 th Aug. 03	(-)25 bps 18 th Sep. 04	(-) 25 bps 6 th Dec. 03 (-) 25 bps 17 th Jan. 04
	(+)25 bps 27 th Oct. 04		(+)50 bps 4 th Dec. 04
	(+)25 bps 29 th Apr. 05		(+)25 bps 31 st Dec. 05
(+)25 bps 26 th Oct. 05	(+)25 bps 26 th Oct. 05		
(+)25 bps 24 th Jan. 06	(+)25 bps 24 th Jan. 06		(+)50 bps 18 th Mar. 06
(+)25 bps 9 th Jun. 06	(+)25 bps 9 th Jun. 06	(+) 50 bps 6 th May. 06	
(+)25 bps 25 th Jul. 06	(+)25 bps 25 th Jul. 06	(+) 25 bps 5 th Aug. 06	(+)100 bps 5 th Aug. 06
(+)25 bps 31 st Oct. 06		(+)50 bps 6 th Jan. 07	(+)50 bps 20 th Jan. 07
(+)25 bps 31 st Jan. 07		(+)50 bps 17 th Feb. 07	(+)50 bps 17 th Feb. 07
(+)25 bps 31 st Mar. 07		(+)75 bps 14 th Apr. 07	(+)60 bps 30 th Jun. 07
(+)25 bps 12 th Jun. 08		(-)50 bps 8 th Mar. 08	(-)50 bps 17 th Nov. 07
(+)50 bps 25 th Jun. 08		(+)50 bps 5 th Jul. 08	(+)50 bps 5 th Jul. 08
(+)50 bps 30 th Jul. 08		(+)75 bps 16 th Aug. 08	(+)50 bps 23 rd Aug. 08 (+)50 bps 4 th Oct. 08
(-)100 bps 20 th Oct. 08			(-)50 bps 6 th Dec. 08
(-)50 bps 20 th Nov. 08		(-)50 bps 15 th Nov. 08	
(-)100 bps 8 th Dec. 08	(-)100 bps 8 th Dec. 08	(-)25 bps 6 th Dec. 08	
(-)100 bps 5 th Jan. 09	(-)100 bps 5 th Jan. 09	(-)75 bps 3 rd Jan. 09	(-)100 bps 17 th Jan. 09
(-)50 bps 4 th Mar. 09	(-)50 bps 4 th Mar. 09	(-)25 bps 11 th Apr. 09	(-)25 bps 14 th Mar. 09
(-)25 bps 21 st Apr. 09	(-)25 bps 21 st Apr. 09	(-)25 bps 4 th Jul. 09	(-)25 bps 4 th Apr. 09 (-) 25 bps 9 th May 09 (-) 25 bps 20 th Jul. 09 (-) 25 bps 1 st Aug. 09 (-) 25 bps 10 th Oct. 09
(+)25 bps Mar. 10	(+)25 bps 21 st Mar. 10	12	
(+)25 bps Apr. 10	(+)25 bps Apr. 10	12	
(+)25 bps Jul. 10	(+)25 bps Jul. 10	8*	(+) 25 bps 21 st Aug.10
(+)25 bps Aug. 10	(+)50 bps Aug. 10	8*	(+) 25 bps 2 nd Oct.10

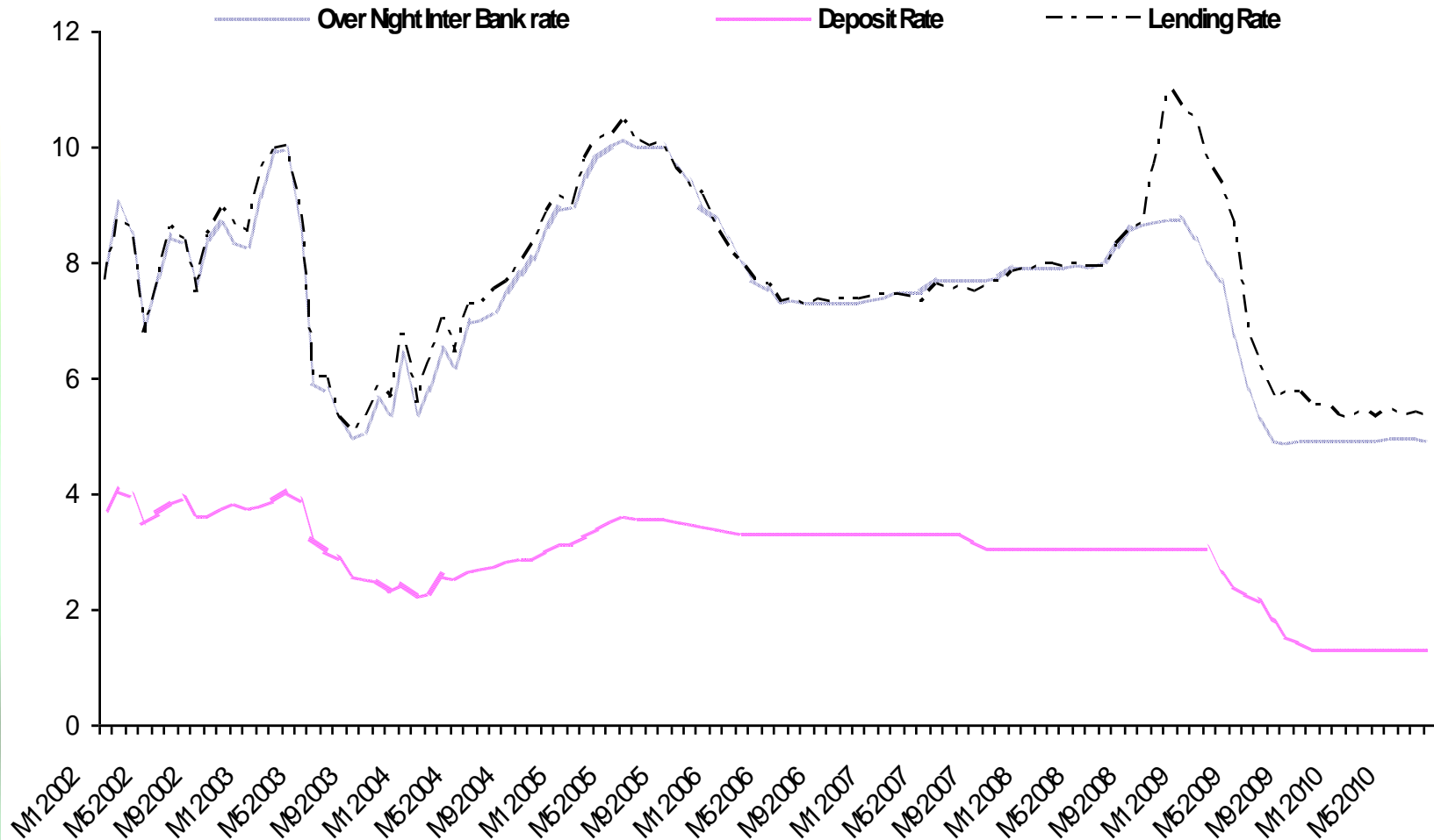
Changes in Policy Rate and Commercial Bank Lending and Deposit Rate, Chile



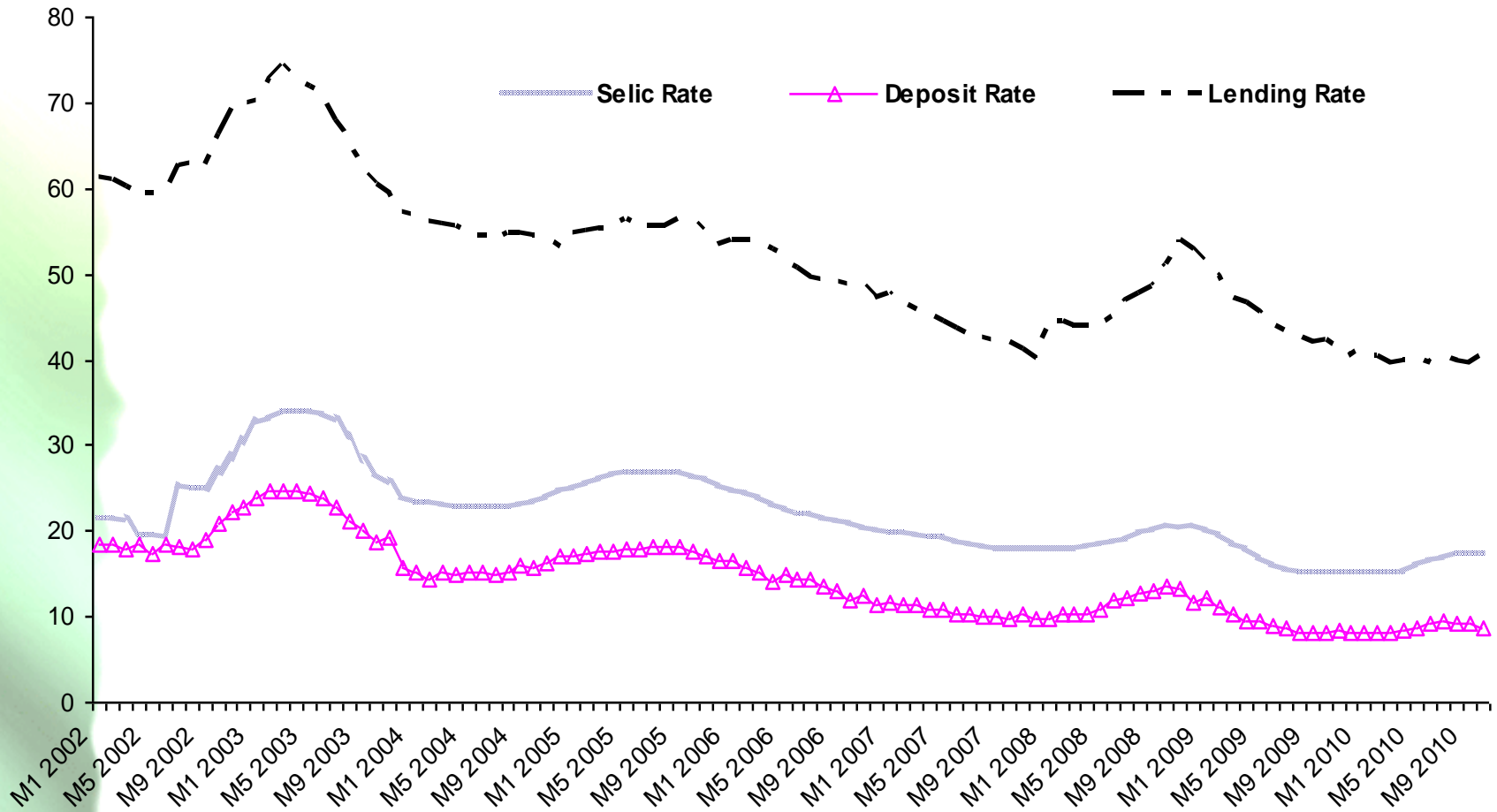
Changes in Policy Rate and Commercial Bank Lending and Deposit Rate, South Africa



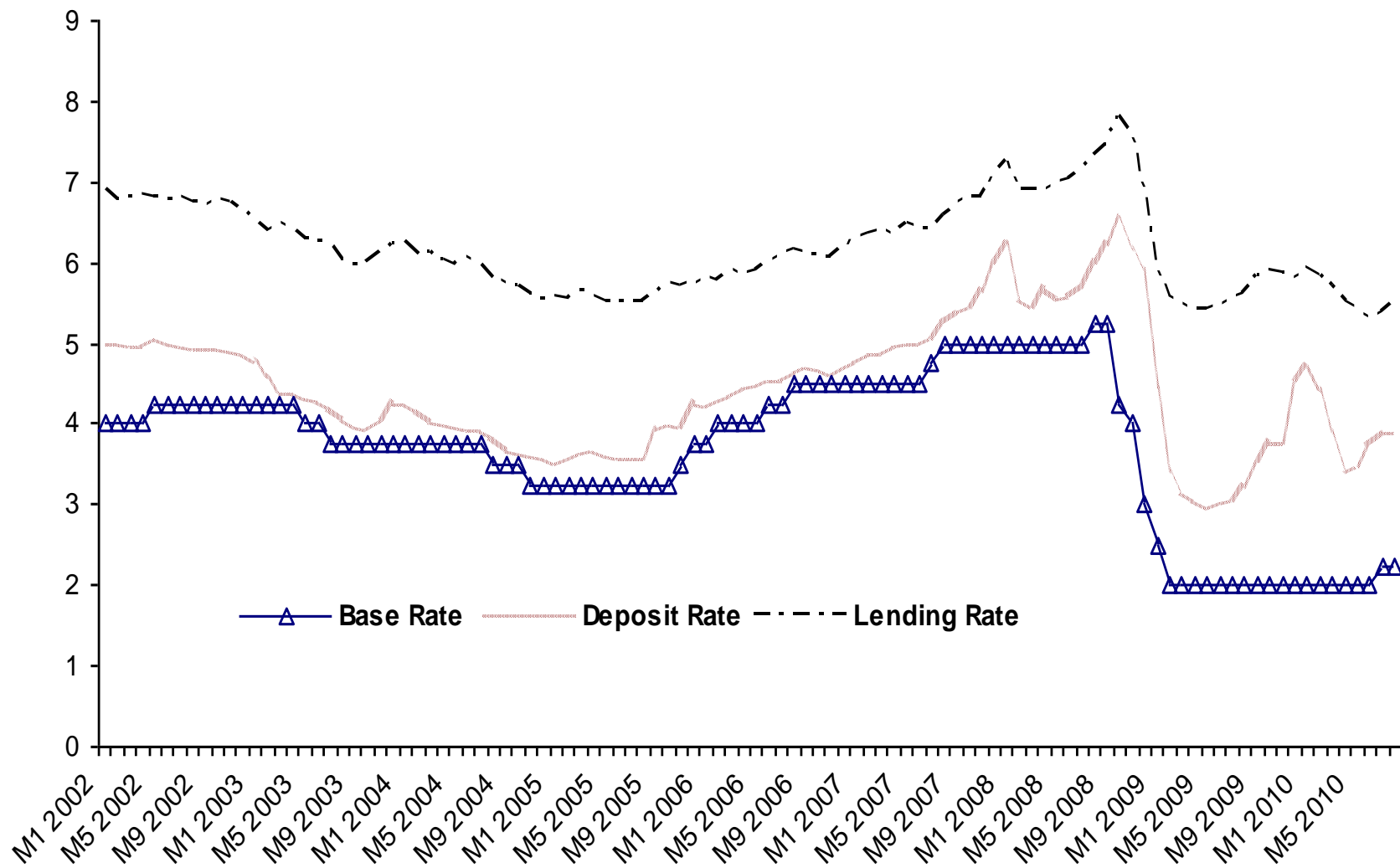
Changes in Policy Rate and Commercial Bank Lending and Deposit Rate, Mexico



Changes in Policy Rate and Commercial Bank Lending and Deposit Rate, Brazil



Changes in Policy Rate and Commercial Bank Lending and Deposit Rate, South Korea



Model Specification



- The focus of the present study is on the impact the monetary policy induced changes in the policy rate (repo rate for India for instance) on economic activity. Under the Policy Rate Channel of monetary policy transmission, a change in the policy rate will exercise its short run impact on the pace of economic activity through change in demand for bank credit.
- In order to control for other determinants of firm's demand for bank credit, we have introduced other variables
 - ratio of CPI to WPI (impact of demand pressure)
 - volume of exports (foreign demand)
 - Moving average of stock price indices (stock market signal)

Log Real Bank Credit to Firms = f(Policy Rate, Log Exports in US Dollars, Log CPI/WPI, Log Moving Average of Stock Price Index)

Data & Methodology



- Monthly data within the period from January 2002 to August 2010
- Data set includes a total of $104 \times 7 = 714$ observations
- **Main source of Data: *International Financial Statistics (IFS)***, compiled and maintained by International Monetary Fund
- Panel data techniques are used for obtaining Generalised Least Squares (GLS) estimates for the equation specified above
- Levin, Lin and Chu (2002) panel unit root test is used to check for the presence of unit roots
- Random Effect and Fixed Effect models are used for conducting panel data estimation

Result: Panel unit Root test



Series	Test Statistic	Prob.
Log Real Bank Credit	-2.08	0.01
Log Exports	-2.30	0.01
Policy Rate	-2.39	0.00
Log Moving average of Stock Prices	-2.32	0.01
Log(CPI/WPI)	-1.37	0.08

Random & Fixed Effect Models: Results



Dependent variable: Log of Real Bank Credit to Non Banking Financial Corporations

	Random Effect Model	Fixed Effect Model
Policy Rate	-0.017*	-0.018*
Log Moving Average of Stock Prices	0.298*	0.334*
Log (CPI/WPI)	2.360*	2.205*
Log Exports	0.420*	0.330*
Constant	-5.990*	-4.597*
Adjusted R Square	0.60	0.54
No. of observations	714	714

* Statistically significant at 1%

Conclusions



- **First**, following a change in policy rates, the behaviour of lending and deposit rates shows that ***Policy Rate Channel of transmission mechanism***, itself a hybrid of the traditional interest rate channel and credit channel, is working in India and other EMEs.
- **Second**, our panel data analysis shows that when we control for variables like domestic demand pressure or markup, export demand and impact of changes in stock prices, firms' demand for bank credit reflecting the pace of economic activity in the industrial sector, gets a boost when policy rates are reduced. This shows that ***monetary policy is effective in India and other EMEs in realizing its immediate targets.***
- **Third**, a change in policy rate at the ***short*** end of the market, brings about corresponding changes in the ***medium term*** interest rates. The inter linkage between the policy rate and resultant changes in other rates of interest is firmly established.
- **Finally**, the short run pace of economic activity in the industrial sector, reflected by ***firms' demand for bank credit***, is positively influenced by ***stock price behaviour, foreign demand*** and ***domestic demand pressure.***

Food For Thought

How representative are 'Such' Results



- ***Default risk and Collateral***
 - Urban unorganized sector
 - Non banked rural sector
 - Micro finance
- ***Black economy interface***
 - Domestic trade in agrarian products
 - Small scale retail trade
 - Investment in real estate in semi-urban and rural areas



Thank You!