
Financial Stability: A Survey of the Indian Experience

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Drawing from recent experiences in India and abroad, the paper assesses the Indian approach to reinforcing financial stability. In the context of macroeconomic, macro- and micro-prudential policies undertaken in India, the paper empirically evaluates the responses of various constituents of the banking system and finds differential responses.

Introduction

A consensus on the definition of the term 'financial stability' remains elusive even today. But visitations of financial distress have occurred periodically, each recurrence more intense, adding to the watchlist of areas of potential financial fragility which have to be monitored by authorities. As a consequence, a wealth of evidence has been turned over in efforts to trace the sources of financial instability, the policy responses and the macroeconomic costs of dealing with instability. The Working Party on Financial Stability in Emerging market Economies (1997) placed the cumulative costs of bank restructuring in the eighties and nineties at around 10-15 per cent of GDP, going up to as much as 30 per cent for Chile in 1981-87. A survey of banking problems over the period 1980-1996 classified three-quarters of the membership of the International Monetary Fund (IMF) as having had significant stress levels in their banking systems in terms of high shares of non-performing assets (NPAs), erosion of capital bases, liquidity and solvency gridlocks, failures and fiscal and quasi-fiscal rescue operations (Llewellyn, 1997). Of these, as many as 36 countries encountered financial crises, 5 of them repetitively. Furthermore, financial instability has often been the counterpart of fluctuations

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in economic activity, reflected in oscillations in financial asset prices and the adaptation responses of financial institutions.

Quite naturally, the first definition of financial stability that comes closest to obtaining practitioner acceptance is the obverse of it *i.e.*, the absence of financial instability, and financial instability is a situation in which economic performance is potentially impaired by fluctuations in the price of financial assets or in the ability of financial intermediaries to meet their contractual obligations (Crockett, 1997). While financial stability involves the smooth functioning of both institutions and markets, the role of policy intervention to smoothen market instability is preferred as minimalist and required only in the event of structural imperfections, market failure and contagion, since the difficulty for policy makers lies in identifying which part of “a given change in prices is justified by changes in fundamentals” (Crockett, 1997).

In India, the pursuit for financial stability intensified in 1992-93, in the aftermath of a severe balance of payments crisis. Financial sector restructuring and fortification was undertaken well in advance of the financial crisis of 1997-98, a factor grossly underemphasised in the explanations available in the literature as to why India remained insulated from the contagious turmoil in the neighbourhood. The first phase of reforms which were inspired by the recommendations of the Committee on the Financial system [Government of India (GOI), 1991], emphasised functional autonomy, competitive efficiency and greater transparency and accountability of the financial system so as to achieve global standards for a robust and stable financial system. The focus of the second phase of financial sector reforms, which essentially carry forward the progress achieved so far on the basis of the recommendations of the Committee on Banking Sector Reforms (GOI, 1998), is on fortifying the organisational efficiency of banks in an environment characterised by specialisation, technological advancement, growing openness and a blurring of the boundaries between banks and non-banks. The Indian experience suggests that financial stability can be defined in a “compound” sense. Five elements of financial stability are systematically evaluated in the rest

of the paper through a comparison of policies against performance in the Indian context. After a brief overview of the historical context within which the responsibility for financial stability has evolved in Section I, Sections II and III deal with the major elements of financial stability. Section II deals with macroeconomic policies for financial stability; which include the fiscal, monetary and external sector policies. Section III evaluates the progress made in the ongoing restructuring and improvements in the efficiency of the financial sector; and analyses of the impact of financial sector restructuring on the performance of Indian Banks. The section addresses the efforts to build the infrastructural framework of institutions, markets, payment and settlement systems and provides a few Indian perspectives on the fifth element of financial stability, the appropriate international financial architecture. Section IV elaborates the impact of financial sector reform on the performance of Indian banks with the help of panel regressions.

Section I

A Historical Overview of the Indian Context

The pursuit of both monetary stability and financial stability has been traditional reasons for the establishment of central banks. Globalisation of financial markets over the past two decades has added an international dimension to these responsibilities. Central banks have recognised that there are common elements in the causes of price inflation and deflation, and financial fragility. There are also significant trade-offs, raising concerns among central banks about the extent to which the pursuit of financial stability affects the conduct of monetary policy. Strong supervision, for instance, could lead inadvertently to a downturn of activity. On the other hand, monetary easing to relieve financial stress could lead to inflation and depreciation of the currency or even asset bubbles in volatile segments of the financial markets. Faced with the “inbuilt conflict between the imposition of generalised prudential regulations and macro-monetary stability” (Goodhart, 1995), the responsibilities for monetary and financial stability have been separated as in the nativity of central banking, the UK, this has necessitated formalisation through legislation. The need to consider the costs of such

separation has been offered as a sobering thought (Morris and Parrish, 1997). Moreover, despite the academics' advocacy for separation of functions on the grounds of 'conflict of interest' and 'moral hazard', there is no evidence of central banks becoming more willing to accept failures. Consequently, even though a formal separation of functions may now become more common among countries than in the past, there remains a question whether that change would make much difference to the practical realities (Goodhart, op.cit).

The Indian financial system was reasonably developed and vibrant well before the establishment of the Reserve Bank of India (RBI) in 1935. In 1861, the government acquired the monopoly of note issue. Until that period, indigenous bankers dominated the scene, financing trade and performing agency functions such as banking for the East India Company, collecting revenue, transferring funds and changing money. They were joined by the Presidency banks (later to amalgamate and form the Imperial Bank of India), private joint-stock banks, cooperative banks and a few foreign banks which specialised in exchange business and agency services. Life insurance activity has existed in India since 1818. In fact, even after Independence up to 1956, there were 245 insurance companies; there were also Provident Societies. A treasury bill market came into being in 1917 to mobilise resources for the War and the Bombay Stock Exchange has been in operation since 1857 (Bhole, 1999). The formal financial system was integrated with informal markets which equilibrated with considerable reach and efficiency (Bery, 1994).

Reflecting the ethos surrounding it, the twin concerns for monetary and financial stability were wrought into the preamble of the RBI Act of 1934, requiring the RBI "to regulate the issue of bank notes and the keeping of reserves with a view to securing monetary stability in India and generally to operate the currency and credit system of the country to its advantage." The underlying mandate placed with the RBI is to maintain financial stability and to ensure the development of the financial infrastructure of markets and institutions so that monetary stability could be attained (Bhole,

op.cit.). The RBI has devoted substantial efforts to derive synergies from the linkages between monetary stability and financial stability. Policies for financial stability have been enunciated from within the dynamics of monetary policy.

There was a clear recognition from the beginning that the banking system would provide the core intermediation requirements of a developing economy. Within two years of Independence, the legal framework empowering the RBI to build and regulate a sound and well diversified banking system was put in place through the Banking Regulation Act in 1949. Over the next four decades *i.e.*, up to the 1980s, the RBI either set up or assisted in the establishment of a well differentiated structure of financial institutions to widen the availability of term finance to agriculture and industry. The insurance business was amalgamated and nationalised as early as 1956 and deposit insurance was in place by 1962. Alongside the building of institutions, the RBI undertook to develop financial markets all along the maturity spectrum in various classes of financial assets. In the 1990s, even as the emphasis has shifted from setting up institutions to efficiently supervising them, the Reserve Bank continues to widen and deepen various segments of the financial market continuum and to provide the wherewithal for orderly market play. The process of financial development in India is essentially the progressive disembodiment of functions primarily undertaken by the Reserve Bank.

In a fundamental sense, the severity of recent financial crises has brought about a revision in the paradigms of the capital accumulation process of development. In the 1970s and the 1980s, the McKinnon-Shaw-Maxwell Fry hypothesis brought the financial system out of the confines of being first, the classical 'veil' and later, the Keynesian prisoner of the money illusion. Despite the spirited neo-structuralist attack (Taylor, 1983, *et al*), several developing countries adopted the McKinnon-Shaw-Fry approach to implement financial liberalisation as part of structural reform. By 1990, the lessons of experience suggested that this theoretical work failed to pinpoint at least two prerequisites for successful financial liberalisation – macroeconomic stability and adequate prudential

supervision (Fry, 1990). In the aftermath of the global financial crises of 1997-98, developing countries are confronted with the nemesis of the activist premonition that financial markets are vulnerable to market failures more than any other market and that there exist forms of government intervention that will not only make these markets function better but will also improve the performance of the economy (Stiglitz, 1997). There is now a clearer recognition that an efficient and robust financial system is a necessary condition of sustainable development, though not a sufficient condition.

Up to the 1980s in India, the dominant fear of market failure provided the rationale for intervention in various spheres of economic activity including in the financial system. The absence of several segments and the colonial structure of existing ones raised misgivings about the ability of markets to efficiently allocate resources or to exploit economies of scale associated with particular mixes of investment decisions. Consequently, the State assumed the role of the Walrasian auctioneer and the financial system was viewed as an instrument for raising the financial resources for growth targets envisaged in Five Year Plans. The Keynesian revolution provided the rationale for the institutionalisation of financial repression, as in a number of developing countries. The nationalisation of banks intensified the social objectives placed on the financial intermediation function; in retrospect, it rapidly became the vehicle for the preemption of the financial saving of the community.

By the end of the 1980s, the financial system was in a state of considerable stress. Bank nationalisation had undoubtedly resulted in a diversified banking system comprising 65000 bank offices, including 42 foreign banks, with a wide geographical spread; indicators of financial development (Table I) attest to the broadening and deepening of financial intermediation. At the same time, it had also allowed for inefficiencies to creep into the provision of banking services which was reflected in rising intermediation costs. Financial repression took the forms of an administered interest rate structure with a large measure of built-in

cross subsidisation, preemptions by way of primary and secondary reserve requirements which accounted for 63.5 per cent of incremental deposits of banks in 1990-91, directed credit which absorbed 40 per cent of total bank loans and advances, quantitative restrictions (branch licensing, restrictions on areas of operation) and management structures which greatly restricted the functional independence of banks and eroded their profitability. As the quality of asset portfolios of banks progressively deteriorated, it was evident that the capital of the banking system at less than 3 per cent of deposits in 1990-91 was grossly inadequate and drastic corrections were overdue. The threat to risk-sharing on account of financial instability underscored by the Diamond-Dybvig model (1983), however, provided the rationale for public intervention in the form of deposit insurance. A Deposit Insurance and Credit Guarantee Corporation (DICGC) was established as a fully owned subsidiary of the Reserve Bank in 1971 to insure deposits up to Rs 1,00,000 and also provides credit guarantee for small loans to the directed credit sectors.

Table 1 : Indicators of Financial Development in India

Ratios	1951-52	1970-71	1980-81	1990-91	1995-96
Finance Ratio	0.015	0.097	0.194	0.231	0.290
Financial Inter-Relation Ratio	0.11	1.38	1.93	1.75	2.26
New Issues Ratio	0.17	0.83	1.28	1.01	1.33
Intermediation Ratio	-0.38	0.66	0.68	0.74	0.70

Source : Reserve Bank of India (2000) : Flow of Funds Accounts of the Indian Economy : 1951-52 to 1995-96.

The unprecedented balance of payments crisis which followed in the wake of the Gulf war of 1990 rapidly brought forward the imperatives for financial sector strengthening. Although these reforms were also provoked by the diffusion of the Basle (1988) norms, there is a distinct Indian flavour in their pace and sequencing. First, we chose the gradualist approach over more dramatic

liberalisation strategies. While this decision was largely motivated by the sheer dimension of the country-specific situation, there is considerable empirical evidence now that the gradual approach is at least less prone to crashes (World Bank, 1989). In the more recent period, this gradual approach has been credited with crisis-proofing the economy in the face of the Asian contagion. Secondly, we chose to undertake stabilisation and liberalisation simultaneously, mainly to harness the stabilising influence associated with some measures of liberalisation. Thirdly, we made macro-economic stability a concurrent pursuit. Fiscal policy and balance of payments management supported monetary policy in maintaining the overall macro-economic balance (Rangarajan, 1998). Prudential regulations were put in place during the reform process to support monetary control. The regulatory framework is reinforced with strong incentives for prudential behaviour among market participants. Fourthly, wide-ranging reforms were simultaneously implemented in the real sectors of the economy so that financial intermediation kept pace with underlying activity and did not produce either bubbles or disintermediation during the fragile period of transition. And finally, we chose to exploit the close linkages between monetary stability and financial stability: we set up the Board for Financial Supervision within the Reserve Bank to deal exclusively with supervisory issues.

Although India escaped relatively unscathed from the pervasive impact of the recent financial crises, the lessons that emerged from a ring-side view of the epicentre dominate the ensuing debate on the course of the country's development. For the first time, efficiency in financial intermediation came to be explicitly as a crucial concomitant of growth in the Ninth Plan (1997-2002) document; all preceding Plans had, by and large, ignored the role of the financial system in the development process. The ascendancy of financial stability in the hierarchy of policy objectives is pensively reflected in the Reserve Bank's Annual Report for the year ending in June, 1999: "Successful monetary management requires an optimum blend of regulatory and market discipline and a correct dose of supervisory controls necessary to maintain financial stability... There are no theoretical criteria for

determining the optimal mix of regulation and oversight but the markets need to believe that the action of policy makers are credible for economic management to be effective.”

Section II

Macroeconomic Policies for Financial Stability

While the weight of recent evidence traces the sources of financial instability to microeconomic and institutional fragility, it is almost invariably in an unstable macroeconomic environment that these weaknesses give way to ‘demand-driven’ financial crises, especially during a phase of structural transformation. Macroeconomic instability contributes to sudden swings in asset prices and misallocation of resources; the choice and sequencing of policy instruments can exacerbate this volatility. Thus, there is a strong complementarity between financial stability and macroeconomic stability (BIS, 1998).

In India, the institution of financial sector reforms had to be preceded by a more sustainable balance between aggregate demand and supply. The policy response was partly orthodox and directed at the usual suspects; the fiscal deficit, monetary accommodation of fiscal profligacy and the overvaluation in the administered exchange rate. Simultaneously, it was necessary to minimize the macroeconomic losses of adjustment and the real sector was cautiously liberalized to generate new impulses of growth, apace with the structural changes in the financial system.

Fiscal Policy

While substantial fiscal correction was achieved in the early years of reform, with the public sector deficit of the Centre declining to below 5 per cent of GDP in 1996-97, the cyclical downturn in economic activity in the ensuing years and the need to provide a fiscal stimulus to a recessionary economy brought pressures to bear. Budgetary slippages have occurred at national and sub national levels. The resulting size of fresh public debt issues has imposed upward pressures on interest rates and constrained the conduct of monetary policy for ensuring an interest

rate regime conducive to rapid revival of growth. On the other hand, the experience of the Asian financial crises suggests that conventional policy responses based on 'simple indicators – like of the size of the fiscal deficit – will not be a useful tool for assessment of progress' (Stiglitz, 1997). Furthermore, the emphasis of fiscal rectitude deprived the affected countries of a potential instrument for managing surges in capital inflows.

In India, the correction of the fiscal imbalance did provide the environment for undertaking policies for financial stability over a wide range. In particular, the freeing of monetary policy from the passive monetisation of budget deficits enabled the building of the institutional framework for financial stability. However, the more recent experience has shown that there are limits to the quantitative approach to fiscal correction which ultimately runs up against a 'quality' constraint. The actual fiscal outturn, however, points to a deterioration in the quality of fiscal adjustment. Expenditure reductions have occurred almost exclusively under capital outlays. The continuous decline in the public sector's capital formation has adverse long term implications for the growth of the economy. Imposing market rates of interest on public sector borrowings did not bring about a tangible reduction in the size of the fisc's preemption of the market's lendable resources; on the other hand, interest payments rose sharply. The tax effort has concentrated on a reduction of rates rather than an expansion of the tax base; as a consequence, the tax/GDP ratio has steadily declined and the structure of the economy has tilted towards the non-taxed segments: agriculture, exports, services. There is now growing evidence that the federal-centric process of fiscal consolidation has resulted in fiscal pressures turning sub-national, reflected in a worrisome rise in the GFD of the state governments taken together. In the provinces State where public finances have a direct bearing on the quality of life, there has been a rise in consumption expenditures and an erosion in capital outlay (Table 2).

Table 2 : Indicators of Fiscal Adjustment

Year	Centre's GFD/ GDP	Internal Liabilities/ GDP, Centre	Centre's Interest Payment/ GDP	Centre's Capital Outlay GDP	Tax/ GDP@	States/ GFD/ GDP	Combined GFD
1990-91	7.7	54.0	3.7	2.1	15.0	3.2	10.0
1996-97	4.7	47.9	4.2	1.0	14.2	2.6	6.4
1997-98	5.7	49.8	4.2	1.1	13.9	2.8	7.3
1998-99	5.9	49.8	4.4	1.1	13.9	4.3	8.9
1999-2000 *	4.0	49.6	4.4	1.2	14.5	4.0	9.9

Note : The years are fiscal years i.e., April-March.

@ : Centre and States combined: Revised Estimates.

* : Revised Estimates.

Source : Annual Report, RBI, various issues.

Monetary Policy

Financial stability considerations have always been important for the conduct of monetary policy in India. In fact, price stability and financial stability are viewed as 'mutually reinforcing goals' (Mishkin, 1998). In the 1990s, several factors impacted upon the stance and structure of monetary policy in India, redefining the pursuit of its traditional objectives in a fundamental sense: phasing out of automatic and passive monetisation of the Central government's budget deficits, exchange market considerations from the second half of 1993 onwards, development of a market for gilts of various maturities and an active debt management policy, to indirect instruments of monetary policy, viz., open market operations, repos, refinance, debt management and foreign exchange operations with corridors for various key financial prices. The wielding of monetary policy enabled the establishment of monetary conditions which allowed for an easier interest rate regime as well as orderly nominal exchange rate corrections for overvaluation (Table 3).

Table 2 : Selected Monetary Indicators

(per cent, wherever specified)

Year	Broad Money Growth (%)	Real Output Growth (%)	Inflation (Year on Year in %)	Money Multiplier	Credit/Deposit Ratio	Interest Rate (91 Day T. Bills) (%)	NEER variations@ (%)
1990-91	15.1	5.4	12.1	2.98	0.60	4.60	-6.9
1991-92	19.3	0.8	13.6	3.16	0.54	4.60	-21.9
1992-93	15.7	5.1	7.0	3.29	0.57	10.04	-17.2
1993-94	18.4	6.3	10.8	3.11	0.52	8.90	2.8
1994-95	22.3	7.8	10.4	3.12	0.55	9.16	-3.0
1995-96	13.7	7.6	4.4	3.08	0.59	12.67	-8.4
1996-97	16.2	7.8	5.4	3.48	0.55	9.67	-1.9
1997-98	18.0	5.0	4.5	3.63	0.46	6.80	2.6
1998-99	19.4	6.8	5.3	3.75	0.39	9.51	-9.2
1999-2000	13.9	6.4	6.5	3.99	0.53	8.34	-2.4

Notes: * : Net of Resurgent India Bonds.

@ : NEER refers to 36-country Trade Weighted indices of nominal exchange rates with (-) indicating depreciation.

Source : RBI Annual Report, various issues.

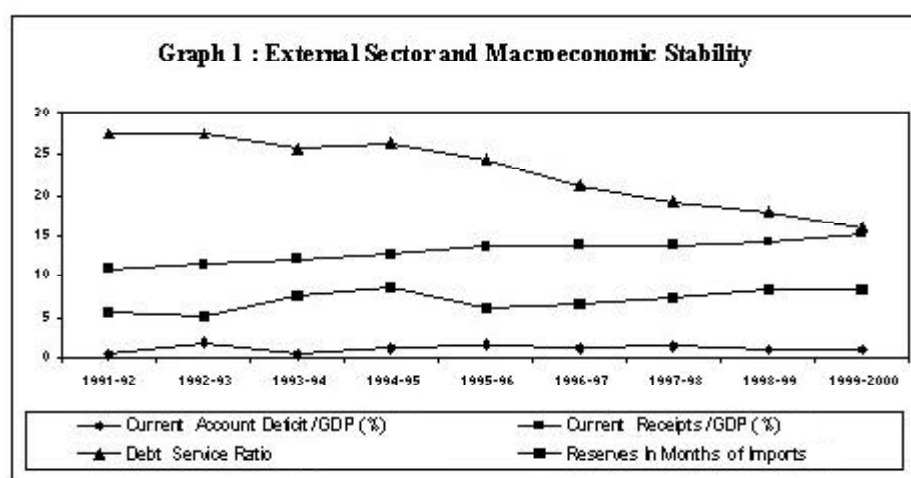
II.3 External Sector Policies

The Mexican crisis of 1995 and the more recent Asian crisis showed that a large current account deficit was a common denominator (Feldstein, 1998). In India the crisis of 1990 showed that a current account deficit exceeding 3 per cent of GDP proved unsustainable in the Indian context. External sector policies to ensure a viable balance of payments over the medium term centered on the axiom of sustainability. As the current receipts to GDP rises, it is possible to raise the current account deficit to GDP ratio; per contra, if the current receipts to GDP ratio falls, it is necessary to reduce the current account deficit to GDP ratio, ensuring in both cases that the debt service ratio never exceeds 20 per cent of current receipts. (RBI, 1997) (Table 4 and Graph 1)

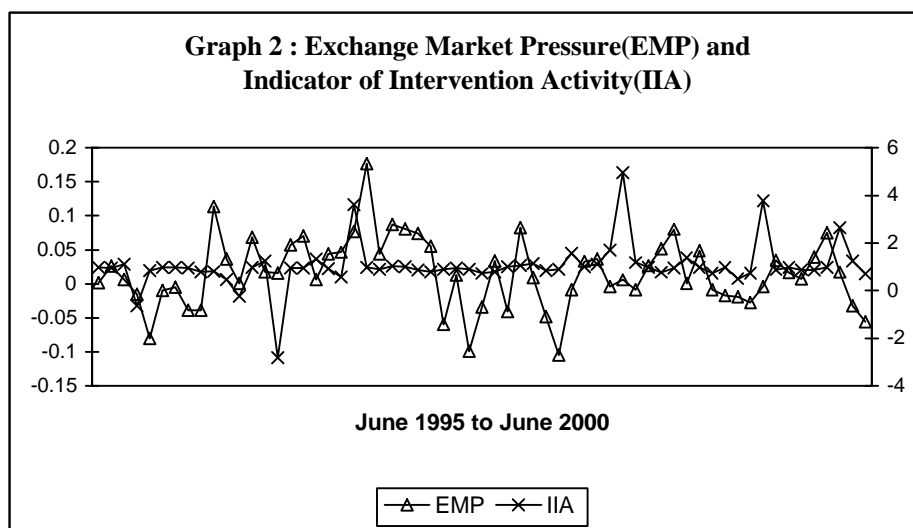
Table 3 : Indicators of External Sector Sustainability

Year	Current Account Deficit/GDP (%)	Current Receipts/GDP (%)	Debt Service Ratio	Reserves In Months of Imports
1990-91	3.2	8.5	35.3	2.7
1991-92	0.4	10.9	27.5	5.6
1992-93	1.8	11.4	27.5	5.1
1993-94	0.4	12.0	25.6	7.5
1994-95	1.1	12.7	26.2	8.5
1995-96	1.6	13.7	24.3	6.1
1996-97	1.2	13.9	21.2	6.6
1997-98	1.3	13.9	19.1	7.3
1998-99	1.0	14.3	18.0	8.2
1999-00	0.9	15.2	16.0	8.2

Source : Annual Report, RBI, various issues.



The conduct of exchange rate policy in India has attracted close scrutiny and evaluation especially in the time of financial crises when one emerging market after another suffered the domino consequences of offering targets to speculators. Since 1975, the exchange rate was linked to a basket of currencies comprising India's major trading partners. A devaluation of 20 per cent in 1991 followed by a learning period of dual exchange rates paved the way for the institution of a market based exchange rate system in March, 1993. The experience with alternating movements in capital flows since then suggests that under the regime of managed float, interventions in the market can be guided by the need to ensure orderly market conditions without any predetermined target or band around the exchange rate. Movements in indices of Exchange Market Pressure (EMP) and Intervention Activity (IIA) [updated up to June 2000 from Patra and Pattanaik, 1998] developed within the framework of the asset market approach to exchange rate determination suggests that actual exchange rate movements would have been mostly in the opposite direction than what prevailed under intervention. (Graph - 2).



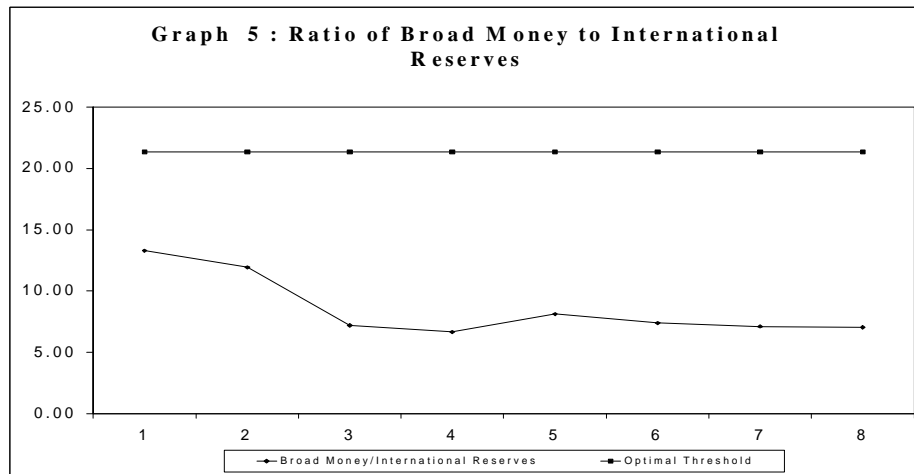
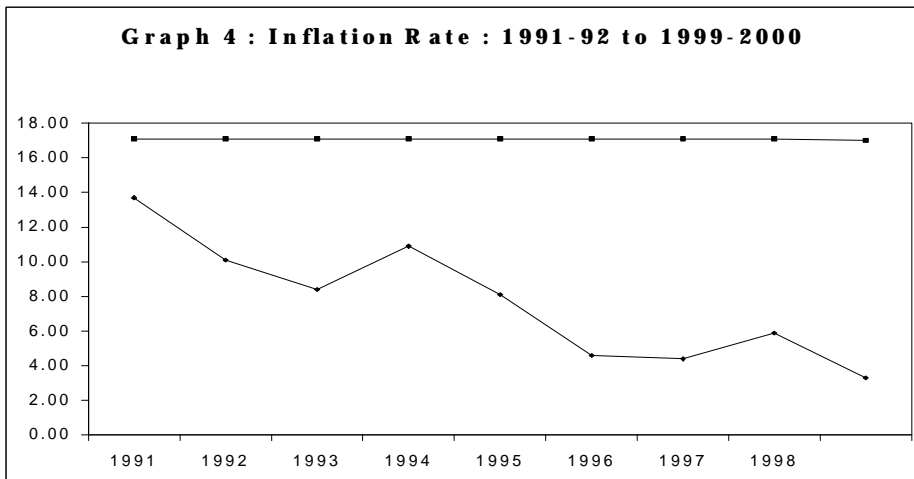
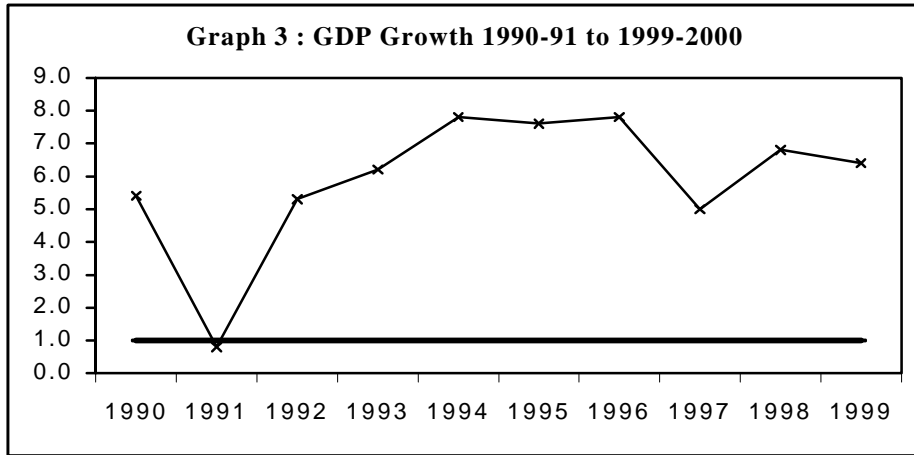
Note : The EMP is defined in terms of nominal exchange rate changes plus the exchange rate equivalents of interventions. Interventions are converted into exchange rate equivalents by multiplying with the inverse of the sum of the exchange rate elasticity with respect to domestic prices and the interest rate elasticity of money demand. The IIA is the ratio of the exchange rate equivalent of interventions and the EMP.

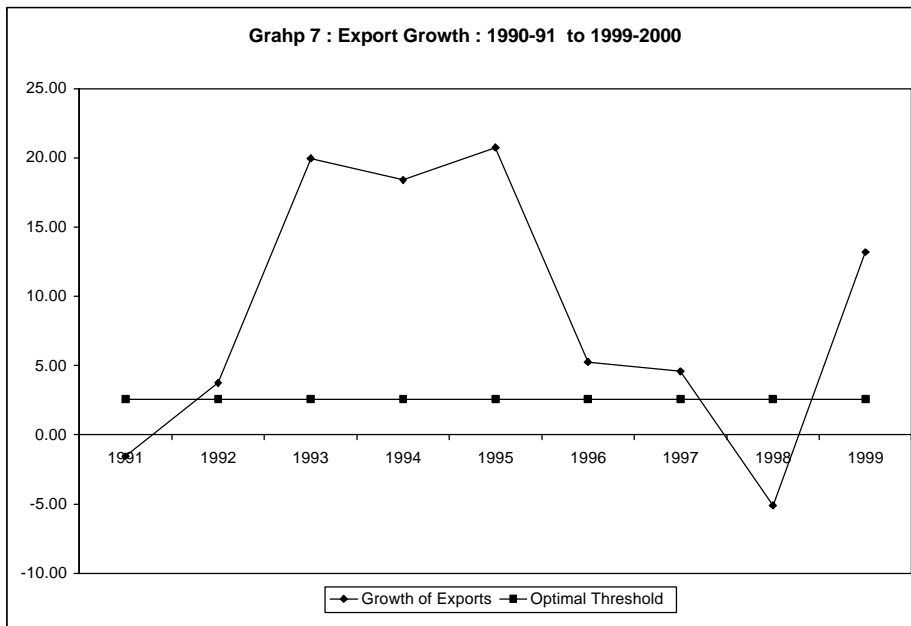
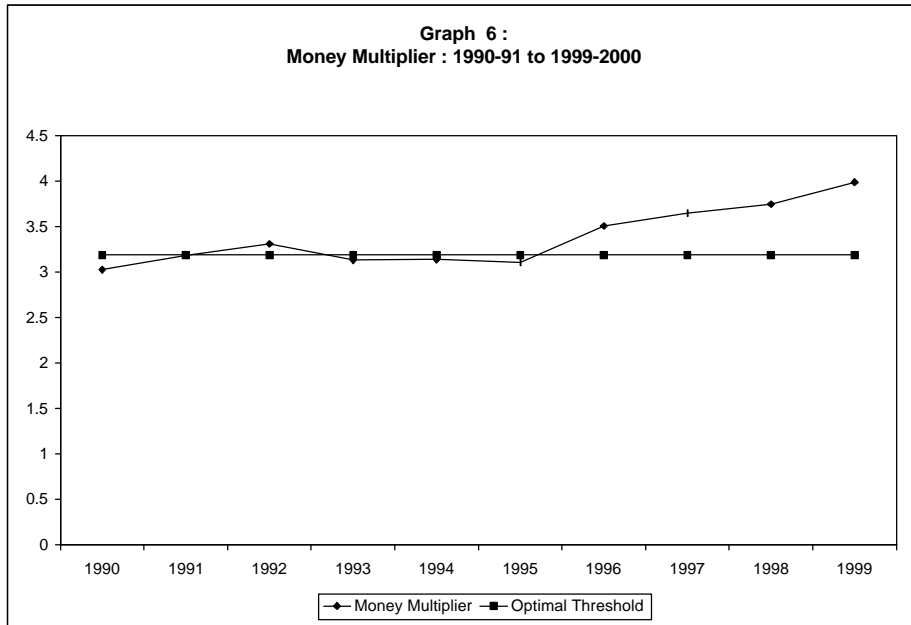
II.4 Leading Macro Economic Indicators of Financial Fragility

In the wake of the recent global financial crises, there has been a proliferation in the literature on early warning indicators of financial crises especially in emerging markets. Interest in developing early warning indicators emerges from the huge costs that crises impose on affected economies and the persistence of their after effects so that authorities can recognise vulnerability to a crises beforehand and take preemptive action. Drawing from the work of Goldstein (1997), with Reinhart (1997) and earlier with Turner (1996), ‘consensus’ indicators are identified for India - real GDP growth, inflation rate, broad money to international reserves ratio, money multiplier and export growth – and tracked over the nineties. Following Goldstein albeit in a country specific setting, optimal thresholds for each indicator are obtained through an iterative procedure. This consists of pooling observations on each indicator over a thirty year time period and selecting a threshold as the upper or bottom tail (as the case may be) of the distribution which contains the worst levels of the indicator in question over the time period considered here. The profile of these indicators during the nineties in relation to their optimal thresholds, presented in Graph 3-7 indicates relatively lower vulnerability to financial instability (Table 5).

Table 5 : Optimal Thresholds of Financial Stability in India

Indicator	Optimal Threshold
Real GDP Growth (%)	1.0
Inflation Rate (%)	17.1
Broad Money/International Reserves (%)	21.4
Money Multiplier (Number)	3.19
Export Growth in Dollar terms (%)	2.58





Section III

Restructuring the Financial Sector

III.1 Shifts in the Policy Environment

The first phase of financial sector reforms were guided by the recommendations of the Committee on the Financial System : “issues of competitive efficiency and profitability are ownership neutral. It is how the institutions function or are allowed to function that is more important” (GOI, 1991). In India, the policy environment adversely affected the operational and allocational efficiency of the financial system (Rangarajan, 1998). This was reflected in high transaction costs and poor quality and speed of financial services which, in turn resulted in low profitability, deteriorating quality of assets and erosion in the capital base. Furthermore, policy instruments had considerably fragmented the financial markets, constricting the operation of financial institutions and impeding the development of a continuum. Consequently, removal of policy constraints on the functioning of the financial system through suitable modifications in the policy framework within which the financial system operates was assigned priority in the sequencing of financial sector reforms (Table 6)

A major element of financial sector reforms in India has been a set of micro prudential measures aimed at imparting strength to the banking system as well as ensuring safety and soundness on a prospective basis through greater transparency, accountability and public credibility. While these prudential norms emerged out of the diffusion of the Basle 1988 accord, the emphasis in the recent period has been on tightening the norms even beyond the Basle 1988 levels, contemporaneous with a search for prudential regulations based on internal control mechanisms (Table 7).

Table 6 : Major Policy Reforms in the Financial Sector

Year	Barriers to Entry	Deposit Rates	Lending Rates	Directed credit	Cash Reserve Requirements	Statutory Liquidity Ratio	Quantitative restrictions	Forex Exposures
Pre - Liberalisation	Entry of foreign banks restrictive; branch licensing for domestic banks.	Administered interest rate structure; regulation on premature deposit withdrawal	Lending rate structure consisted of 6 categories based on size of advances; minimum (floor) lending rate prescribed.	Directed credit for agriculture, SSI, small transport operators, small business etc. Target - Indian banks- 40%, foreign banks- 15% by 1992 including exports.	15% of NDTL in-cremental CRR of 10% of NDTL over the level NDTL a on May 3, 1991.	38.5% on domestic liabilities & 30% on Non residential liabilities Effective SLR 37.4%	System of Credit Authorisation Scheme (CAS) in existence, regulations on calculation of Maximum. Permissible Bank Finance (MPBF), selective credit control on sensitive commodities, Consortium lending mandatory.	Uniform limit of US \$1 mn on overnight position. A limit of US \$100 mn or 6 times of Net Owned Funds on aggregate gap limits.
1991-92	Status quo	Structure simplified by reducing slabs	Structure simplified by reducing slabs	Export credit sub-target of 10% introduced	15%	Phased reduction in SLR		
1992-93	Branch Licensing removed effective April 1992 Permission to set up Private banks with min. capital of Rs. 1000 mn (US \$ 30 mn).	One ceiling rate for deposit rates.		Foreign bank target revised to 32%	14.5-15.0%	Phased reduction in SLR		
1993-94	New banks set up in private sector Foreign Banks/ financial institutions allowed 20 per cent stake in private banks.	Banks permitted to issue Certificate of Deposits (CDs); banks permitted to offer foreign currency deposits to NRIs with exchange risk borne by banks.		Definition of priority sector enlarged.	14.5-15.5%	Phased reduction in SLR	Banks given freedom to decide own levels of holdings of inventory & receivables, threshold limits of obligatory consortium lending raised to Rs. 500mn from Rs. 50mn	

(Contd.)

Table 6 : Major Policy Reforms in the Financial Sector (Contd.)

Year	Barriers to Entry	Deposit Rates	Lending Rates	Directed credit	Cash Reserve Requirements	Statutory Liquidity Ratio	Quantitative restrictions	Forex Exposures
1994-95	Nine new banks set up in private sector; one co-operative bank allowed to convert to private bank.	Cooperative Banks' deposit rates freed	Minimum lending rate for loans over Rs. 2 lakhs (US \$ 4500) freed. Cooperative Banks' lending rates freed. Banks allowed to fix PLR for advances over Rs.2 lakh	Definition of priority sector enlarged.	14.0-14.5%	Incremental SLR reduced to 25 per cent; base level SLR reduced to 33.75 per cent.	Limit on open position enhanced to Rs. 15 crores.	
1995-96	WTO commitments made.			Definition of priority sector enlarged.	10.0-14.0		Loan System for Delivery of bank credit for working capital introduced, cash credit component reduced to 22.5%, banks in consortium permitted to frame ground rules	Limits on Open positions and gap limits removed and both linked to capital. Method of calculation changed to international short hand method. Cross currency transactions brought into open positions.
1996-97	Guidelines issued for setting up Local Areas Banks with minimum paid up capital of Rs.50	Banks given freedom to fix deposit rates for term deposits above one year maturity		Definition of priority sector enlarged. Export Credit sub target increased to 12 %	10.0	Inter Bank Liabilities Exempted;	MPBF withdrawn, banks to have own methods of working capital assessment, credit monitoring arrangement withdrawn; Selective credit controls abolished except for sugar.	

(Contd.)

Table 6 : Major Policy Reforms in the Financial Sector (Contd.)

Year	Barriers to Entry	Deposit Rates	Lending Rates	Directed credit	Cash Reserve Requirements	Statutory Liquidity Ratio	Quantitative restrictions	Forex Exposures
1997-98		Interest rates on short term deposits linked to bank rate and then freed. Interest Rate on foreign currency deposits linked to	Ceilings on loans below Rs.25000 fixed at PLR of banks.	Definition of priority sector enlarged.	11.0	SLR reduced to 25 per cent on entire NDTL.	Consortium and term loan limits withdrawn.	Banks allowed to borrow and invest overseas upto 15 per cent of Tier I capital.
1998-99		Minimum period of maturity of term deposits reduced to 15 days from 30 days; Banks given freedom to offer differential rate of interest based on deposit size of Rs.15lakhs & above.	Banks provided freedom to operate tenor linked PLR ie PLR for different maturities	Definition of priority sector enlarged.	10.5-11.0			Banks allowed to offer forward cover to foreign institutional investors.
1999-2000	With the enactment of the Securities (Amendment) Act, 1999, legal restrictions towards derivatives trading were removed. Scheduled Commercial Banks (Excluding RRBs) allowed to undertake Forward Rate Agreements (FRAs) and Interest Rate Swaps (IRS)	Savings deposit rates reduced from 4.5 to 4 per cent. Banks allowed to offer all loans on fixed or floating rate basis provided PLR stipulation are adhered to.	Floor rate on Export Bills withdrawn		9.0-10.0			

(Contd.)

Table 6 : Major Policy Reforms in the Financial Sector (Concl.)

Year	Barriers to Entry	Deposit Rates	Lending Rates	Directed credit	Cash Reserve Requirements	Statutory Liquidity Ratio	Quantitative restrictions	Forex Exposures
2000-2001 (upto October, 2000)	—	Banks permitted to offer differential interest rate on NRE and FCNR(B) deposits.	Freedom for Banks to charge interest rate without refinancing to PLR for certain loans. Banks allowed to offer fixed rate term loans, subject to ALM guidelines.	States Quo	8.0-8.5 requirement of minimum balance in CRR holdings on daily basis reduced from 85 to 65 per cent	States Quo	—	Foreign Exchange Regulation Act (FERA) was replaced by Foreign Exchange Management Act (FEMA)

Table 7 : Changes in the Regulatory Framework

Norms	1992- 93	1993- 94	1994- 95	1995- 96	1996- 97	1997- 98	1998- 99	1999- 2000	2000- 01
I. Capital Adequacy (per cent of risk weighted assets)									
Domestic Banks with international Business	4	8	8	8	8	8	8	9	9
Other Domestic Banks	4	4	4	8	8	8	8	9	9
II. Non Performing Assets									
Past Due Period (No. of Quarters)	4	3	2	2	2	2	2	2	2
III. Provisioning Requirements (per cent)									
Small Loans	2.5	5.0	7.5	10.0	15.0	—	—	—	—
Sub Standard Assets	10	10	10	10	10	10	10	10	10
Doubtful Assets Secured Portion	20-50	20-50	20-50	20-50	20-50	20-50	20-50	20-50	20-50
Doubtful Assets Unsecured Portion	100	100	100	100	100	100	100	100	100
Loss Assets	100	100	100	100	100	100	100	100	100
IV. Mark-toMarket requirements for Gilts and Other Approved Securities (per cent)	30	30	30	30	30	30	30	30	30

Source : Reserve Bank of India, Report on Trend and Progress of Banking in India, various years.

Along with the strengthening of the regulatory framework, steps have been taken to improve the functioning of financial market segments. The main focus of architectural policy efforts has been on the principal components of the organised financial markets spectrum : the money market, credit market, capital market, government securities market and the foreign exchange market. The ongoing efforts for market development have a prospective focus with a clearly articulated agenda for the future (Reddy, 1997).

In recognition of the crucial role of the payment and settlement system in improving the efficiency of financial markets, measures are being taken to move towards an integrated payment and settlement system in the form of an increased utilisation of electronic clearing and funds transfer, the development of a satellite based Wide Area Network, upgradation of cheque clearing and processing facilities, putting in place of a VSAT based network with messaging standards and common applications for both funds-based and non-funds based business and efforts are on to set up a system of real time gross settlement.

III.2 Impact

The impact of these fundamental policy changes began to be reflected in the accounts of the banks from the first year itself. Significant weaknesses were reported and out of 28 public sector banks 13 were forced to report losses amounting to approximately US\$ 1 billion. By 1997-98, i.e., the sixth year of financial sector reforms, there was a significant improvement in the performance of the banking system. There was a distinct improvement in the profitability of banks measured in terms of operating profits (from Rs 3893 crores in 1992-93 to Rs 18423 crores in 1999-2000) as well as in terms of net profits to total assets (from losses in 1992-93 to 0.66 per cent in 1999-2000). There has also been a decline in the spreads between borrowing and lending rates as measured by the ratio in the net interest income to assets. The most critical area of improvement is the reduction in non-performing assets (NPAs). Gross NPAs of public sector banks as a proportion of total loan assets declined from about 23 per cent at the end of March 1993 to 13 per cent by March 2000. After adjusting for provisioning, net NPAs as a proportion of net advances declined from nearly 11 per cent in March 1995 to 8 per cent in March 2000. Capital adequacy ratios for the public sector banks as a whole rose from around 2-3 per cent in the pre-reform years to about 11.5 per cent in 1997-98. The profile of assets with public sector banks is rapidly changing with 84 per cent of total assets in the 'standard' category and less than 2 per cent remaining in the 'loss assets'. In the categories of 'sub-

standard' and 'doubtful' asset categories there is a perceptible reduction. Significant improvements are also visible for private and foreign banks in recent years. The present health profile of the Banking System demonstrates significant improvements.

III.3 The International Financial Architecture

Existing international institutional arrangements have proved inadequate in terms of mitigating the macro economic costs of crises and in equitably distributing the burden of their resolution. Developing countries have been articulating these concerns. There are substantive reasons for this trepidation, quite apart from the pervasive impact of financial perturbations emanating in the developing world. First and foremost, effective participation in the international financial system involves a responsibility for financial stability. The inevitable incidence of the costs of market failures on the sovereign prognosticates that the state will have a greater role in regulating markets in the near future. Second, there is a fundamental asymmetry in the international financial system whereby irresponsible borrowing is punished whereas irresponsible lending goes scot-free. Both are, in fact, two sides of the same coin. Third, there are serious concerns about the diagnostic capabilities of the international financial institutions and the lags in their reaction functions. There is also a rising crescendo for public accountability of international credit rating agencies.

India has been an involved participant in the ongoing debate on the international financial architecture, especially in articulating the concerns of developing countries. Indian perspectives on the approach to the international financial architecture are succinctly set out in Jalan (1999) :

- Proactive strengthening of financial institutions by appropriate processes which ensure discipline while reinforcing capital, unencumbering balance sheets and eschewing moral hazard. This involves the State, the institutions and markets as well as market players. The three pre-requisites for the efficient functioning of the financial sector are : a well designed

infrastructure, effective market discipline and supervisory framework.

- The stance and structure of macro-economic policies must reinforce the responsibility for financial stability. Macro economic stability creates the environment for financial stability.
- An extremely cautious approach towards both short term flows and capital account liberalisation to enable the management of the irreconcilable trinity of an independent monetary policy, a flexible exchange rate and an open capital account (Krugman, 1998).
- A greater role for developing countries in the emerging international financial architecture.

Section IV

Impact of Policies for Financial Stability on Bank Performance

In this section, an attempt is made to empirically examine the response exhibited by banks to the structural changes in the financial system induced by shifts in the policy regime. Since 1995-96, the RBI has been releasing bank wise information on various indicators of health, efficiency and financial performance (Table 8). These data provide invaluable insights into the differential reactions of banks to changes in the policy environment, reflecting *inter alia*, different risk profiles and varying reaction lags. Such disaggregated information enables comparative evaluation of different constituents of the Indian banking system through panel regressions estimated on these primary bank-wise data for all scheduled commercial banks for the period 1995-96 to 1998-99.

Panel regression is a useful technique to analyse the impact of major shifts in policies which cause wholesale movements of

response functions rather than shifts along the response curve. In this type of analysis, data employed are typically longitudinal – observations of a cross section of variables over a short span of time. Conventional time series analysis is not applicable in this context, due to the small number of time points and aggregative nature of the data. Panel data analysis, moreover, sheds the aggregation bias and allows analyses of firm level behavioural variations. Panel regressions also provides a tool to differentiate between the impact of economies of scale from that of technological change. While cross section data provides information on scale economies, time series data capture underlying temporal factors. Panel data analysis combines to the two and allows a resolution of the apparent impasse.

In this paper, commercial banks in India are divided into three categories - public sector banks, private sector banks and foreign banks. Two indicators of bank performance are chosen *i.e.*, the return on assets (ROA) – net profits as a ratio of total assets - and the spread (SPD) – net interest income as a ratio of total assets - which reflect the profitability of banks and their efficiency in financial intermediation. Among the regressors, credit as a proportion to total assets (CRE) represents the activity variable, capturing the banks' responses to the underlying demand for credit. The proportion of investments to total assets (INV) reflects portfolio shifts induced by changes in the policy environment and banks' asset management strategies in a period of transition. Together with CRE, INV represents the allocative efficiency of banks. The ratio of non-performing assets to total assets is a 'soundness' variable representing the quality of banks' assets especially under pressures for greater transparency. The capital adequacy ratio (CAR) captures the prudential strengthening of the capital structure of banks under financial sector reforms. Intermediation costs (COST) measured as the operating expenses of banks excluding interest expenses, provisioning and contingency reserves, represents operating efficiency.

Given that the data set exhausts the population of scheduled banks, there is a priori support for the hypothesis that bank-wise

**Table 8 : Bank Group wise Financial Performance :
1995-96 to 1999-2000**

(per cent)

	Return on Assets	Spread	Intermedia- tion Cost/ Total Assets	Net NPA/ Net Advances	Capital Adequacy Ratio@
Public Sector Banks					
1995-96	-0.07	3.08	2.99	8.90	8.81
1996-97	0.57	3.16	2.88	9.18	10.53
1997-98	0.77	2.91	2.66	8.15	10.86
1998-99	0.42	2.81	2.65	8.13	10.94
1999-2000	0.57	2.70	2.52	7.42	11.49
Private Sector Banks					
1995-96	1.21	3.08	2.46	—	10.93
1996-97	1.13	2.92	2.36	5.37	12.19
1997-98	1.04	2.46	2.14	5.26	11.39
1998-99	0.68	2.09	2.07	7.41	11.58
1999-2000	0.90	2.13	1.85	5.56	12.16
Foreign Banks					
1995-96	0.16	3.13	2.94	—	10.10
1996-97	0.67	3.22	2.85	1.92	12.19
1997-98	0.82	2.95	2.63	2.25	12.81
1998-99	0.49	2.78	2.65	2.94	13.38
1999-2000	0.66	2.72	2.49	2.37	18.51

Source : Reserve Bank of India, Report on Trend and Progress of Banking in India, various years.

@ : Median values.

variance in performance emanates from divergences in initial conditions (scale of operations, etc) i.e., there are bank-specific constants. This tilts the choice of model in favour of ‘within’ or ‘fixed effects’ estimators. The random effects estimates are more robust in terms of more degrees of freedom, but they can only be used if there is no correlation between the regressors and errors. To hedge against any possible bias arising from the use of random effect estimates, we test for presence of correlation between regressors and errors by conducting the Hausman test under the null hypothesis of no correlation between regressors and errors. The significance of the chi square statistic of the Hausman test justifies the choice of fixed or variable effects model. The results of the panel regressions are reported below (Tables 9-14).

**Table 9 : Determinants of Banking Profitability:
Panel Estimates for Public Sector Banks; 1995-96 to 1998-99**

Dependent Variable : Return on Assets (ROA),
Method : GLS (Cross section Weights), Fixed Effect Estimates
Total Panel (Balanced Observations) : 108

Variable	Coefficient	Std. Error	t-statistics	Probability
NPA	-0.11	0.032	-3.57	.000**
CAR	0.09	0.030	3.06	.002**
COST	-0.21	0.249	-0.85	.393
INV	0.04	0.022	1.71	.087*
CRE	0.03	0.021	1.38	.167

Panel data : Diagnostics

R-squared	.54
Adjusted R-squared	.36
S.E. of regression	1.03
Hausman Test (Choice of Model : Fixed versus Random Effects)	Chi-Square = 23.23, P-Value = 0.66

** : Significant at 5 per cent.

* : Significant at 10 per cent.

**Table 10 : Determinants of Banking Profitability:
Panel Estimates for Public Sector Banks; 1995-96 to 1998-99**

Dependent Variable : Spread (SPD)
Method : GLS (Cross section Weights), Fixed Effect Estimates
Total Panel (Balanced Observations) : 108

Variable	Coefficient	Std. Error	t-statistics	Probability
NPA	-0.84	.025	-3.33	.001**
CAR	.006	.014	.048	.962
COST	0.347	.141	2.46	.016**
INV	.025	.010	2.53	.013**
CRE	.034	.011	-0.32	.746

Panel data : Diagnostics

R-squared	.87
Adjusted R-squared	.82
S.E. of regression	.32
Hausman Test (Choice of Model : Fixed versus Random Effects)	Chi-Sq =23.64, P-Value = 0.003

**Table 11 : Determinants of Banking Profitability:
Panel Estimates for Private Sector Banks; 1995-96 to 1998-99**

Dependent Variable : Return on Assets (ROA),
Method : GLS (Cross section Weights), Random Effect Estimates
Total Panel (Balanced Observations) : 112

Variable	Coefficient	Std. Error	t-statistics	Probability
NPA	-.052	.019	-2.72	.008**
CAR	0.0341	.015	2.21	.030**
COST	-0.0359	.034	-1.05	.297
INV	-.0182	.01	-1.75	.084*
CRE	-0.014	.009	-1.58	.118

Panel data : Diagnostics

R-squared	.76
Adjusted R-squared	.67
S.E. of regression	.48
Hausman Test (Choice of Model : Fixed versus Random Effects)	Chi Sq=10.792, P-Val = .055

** : Significant at 5 per cent.

* : Significant at 10 per cent.

**Table 12 : Determinants of Banking Profitability:
Panel Estimates for Private Sector Banks; 1995-96 to 1998-99**

Dependent Variable : Spread (SPD)

Method : GLS (Cross section Weights), Fixed Effect Estimates

Total Panel (Balanced Observations) : 132

Variable	Coefficient	Std. Error	t-statistics	Probability
NPA	-.096	.02	-3.93	.000**
CAR	.059	.02	3.38	.001**
COST	.12	.04	2.82	.006**
INV	-.002	.015	-1.01	.919
CRE	.016	.012	1.33	.185

Panel data : Diagnostics	
R-squared	.65
Adjusted R-squared	.61
S.E. of regression	.64
Hausman Test (Choice of Model : Fixed versus Random Effects)	Chi Sq=16.57, P=.0054

**Table 13 : Determinants of Banking Profitability:
Panel Estimates for Foreign Banks; 1995-96 to 1998-99**

Dependent Variable : Spread (SPD)

Method : GLS (Cross section Weights), Fixed Effect Estimates

Total Panel (Balanced Observations) : 120

Variable	Coefficient	Std. Error	t-statistics	Probability
NPA	-.105	.026	-4.00	.000**
CAR	.055	.023	2.35	.021**
COST	-0.16	.041	-3.87	.000**
INV	-0.16	.019	-.858	.393
CRE	negligible	.0115	-.008	.994

Panel data : Diagnostics	
R-squared	0.65
Adjusted R-squared	0.53
S.E. of regression	1.25
Hausman Test (Choice of Model : Fixed versus Random Effects)	Chi Sq = 18.04, P-Val = .003

** : Significant at 5 per cent.

* : Significant at 10 per cent.

**Table 14 : Determinants of Banking Profitability:
Panel Estimates for Foreign Banks; 1995-96 to 1998-99**

Dependent Variable : Spread (SPD)

Method : GLS (Cross section Weights), Random Effect Estimates

Total Panel (Balanced Observations) : 100

Variable	Coefficient	Std. Error	t-statistics	Probability
NPA	-.042	.026	-1.61	0.10*
CAR	.050	.016	3.10	.002**
COST	-.029	.044	-0.65	.51
INV	-.027	.021	-1.29	.20
CRE	.011	.012	0.96	.34

Panel data : Diagnostics

R-squared	0.41
Adjusted R-squared	0.17
S.E. of regression	1.7
Hausman Test (Choice of Model : Fixed versus Random Effects)	Chi SQ= 3.98, P-Val = 0.5521

** : Significant at 5 per cent.

* : Significant at 10 per cent.

The results are reasonably robust in terms of the standard statistical diagnostics and their explanatory variables have the expected signs. In particular, NPA has a strong negative influence on the performance of public sector banks, which vindicates the authorities' two-pronged approach of tightening prudential norms beyond the international standards on the one hand and the emphasis on restructuring and recovery of assets, on the other. For public sector banks, ROA is also negatively related to COST, as expected. However, the variable COST seems to have little influence on the interest income of the banks. The capital requirements for meeting the capital adequacy norms are found to have a strong positive influence on the net profits, but they have constricted banks' abilities to expand credit in favour of relatively high return assets. Thus they do not impact on bank spreads in a significant manner. The activity variable CRE could not, however, produce a strong impact on bank profitability. Seen in conjunction

with the strong positive effect of INV, it reflects the voluntary portfolio shifts of public sector banks towards Government securities, drawn by relatively high yields, zero risk weights as well as risk aversion behaviour of banks fearing decline in the quality of assets due to the downturn in economic activity since 1996. Thus, the first response of banks to greater portfolio freedom has been a flight to quality along with cautious lending (Bery, op. cit). For private sector banks, the impact of NPAs and capital adequacy is significant with the expected signs exerting conflicting pulls. The cost of intermediation (costs) impacts upon private banks' profits in terms of return on assets, the impact on spreads is insignificant as would be expected. The effect of other factors is not significant. Foreign banks exhibit responses similar to those of private sector banks, although the results deteriorate in the regressions on spreads. The choice of investment decisions emerges as a drag on profitability indicators. The volume of credit produces insignificant impact on profitability.

Thus, the results suggests that policies for financial sector reforms have had a relatively stronger impact on the performance of banks in India as compared with the impact of underlying cost and macroeconomic considerations. Public sector banks reveal a fuller response in terms of rising sensitivities to fundamental factors and a distinct risk aversion.

Section V

Concluding Observations

Policies for establishing financial stability have dominated the agenda of reforms in the 1990s. There is a distinct country specific flavour to the approach to the responsibility for financial stability. Although considerable ground remains to be covered in the quest for a vibrant, and well-diversified and competitive financial sector with multiple intermediaries operating in various segments of the financial markets, the initial adaptation responses of financial intermediaries, particularly banks, has been encouraging. The complementarity between macroeconomic and financial policies has provided a sound infrastructure for a

overhaul of the financial system in the pursuit of international standards. It has minimised adverse selection and multiple equilibria in the banking system.

The stylised facts and the empirical results indicate that those banks which have secured the greatest reduction in non-performing assets have reaped the maximum gains in terms of profitability, or at least in terms of unshackling financial performance from policy intervention. Capital adequacy has almost uniformly produced an improvement in performance. For the public sector banks, evidence of a flight to quality indicates that application of capital ratios may not have provoked 'risky' portfolio selection, as found in some other countries. For the Indian banking system in general the adjustment to macro and micro prudential regulation has been relatively rapid although the speed of adjustment has varied across the industry.

Given the experience with financial crises and disorderly workouts in the face of market seizures, efforts are intensifying all over the world to put in place an appropriate international architecture which will operate as a circuit breaker for systems of multiple equilibria, prevent the occurrence of crises or at least mitigate the costs of their incidence. India's involvement in the quest for the appropriate international architecture has emphasised three endogenous elements – strengthening the financial system, instituting an appropriate exchange rate regime, establishing safety nets and enforcing international standards of transparency and disclosure. The exogenous elements in the quest are a greater participation of all countries in the international processes and fora, burden sharing between public and private sectors and enhancement of resources of multilateral institutions to enable a more swift and adequate response to financial instability.

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