

Macroeconomic Developments: 1999-2000

1.1 The financial sector in the Indian economy is undergoing a transformation towards a vibrant, competitive and diversified system, with a multiplicity of financial institutions having different risk profiles intermediating in various segments of the market spectrum. The development of financial markets is a critical element in the agenda of financial sector reforms in India. Macroeconomic policy formulation has imbibed a market orientation to reap the efficiencies associated with the functioning of markets. With the liberalisation of financial markets, policy authorities in India have also had to contend with episodes of financial volatility. Recognising the strong complementarity between financial stability and macroeconomic stability, the operational settings for policies are being geared to dampen excessive volatility and the possible impairment of the ability of financial institutions to handle fluctuations in financial asset prices. Current macroeconomic and financial developments in the Indian economy highlight the evolving role of the financial sector in the functioning of the economy and the growing integration across financial markets.

1.2 During 1999-2000, the Indian economy faced testing challenges on several fronts, which had a bearing on macroeconomic performance. While both global output and trade accelerated in 1999, this growth was lop-sided, driven primarily by the continuing strength of the US economy and the sharp recovery of the Asian economies. The gains from the rebound in global economic activity were considerably eroded by the more than doubling of oil prices during 1999 itself on account of production curbs by the Organisation of the Petroleum Exporting Countries (OPEC). For oil importing developing countries, including India, the oil price surge translated into inflationary pressures, sharp increases in oil import payments and

constriction of import purchasing power. The lack of sufficient demand 'pull' characterising the phase of the business cycle through which the domestic economy is transiting, restrained the impulses for accelerating growth. Slippages in budgets of both the Centre and States kept the public sector borrowing requirement high, necessitating tactical conduct of monetary policy in pursuit of a low and stable interest rate regime in support of growth.

1.3 Notwithstanding these challenges, macroeconomic performance continued to be robust in 1999-2000. Overall economic growth, measured in terms of GDP at factor cost at constant prices, was estimated at 6.4 per cent, a little lower than that of 6.8 per cent in the preceding year, but well above the growth rates recorded for the developing countries as a group and even for the emerging market economies of Asia. Moreover, India's growth performance occurred in a stable environment, accompanied, as it were, by average WPI inflation receding to 3.3 per cent from 5.9 per cent in 1998-99, the current account deficit narrowing to less than 1 per cent of GDP, a decline in the external debt/GDP and debt servicing ratios, a stable exchange rate, orderly financial markets, comfortable food stocks which were well above the minimum buffer stock norms throughout the year and foreign exchange reserves equivalent to over 8 months of imports.

The Real Sector

1.4 The Indian economy has undergone significant shifts in the pace of economic growth during the 1990s. A V-shaped recovery from the balance of payments crisis of 1990-91 was followed by a phase of uninterrupted expansion at the average rate of 7.0 per cent per annum during 1993-97. In the following years, this was not sustained and real GDP growth exhibited a moderate degree of variability during the period 1997-2000. As a consequence, even as real GDP

* This chapter is based on information up to December 2000 wherever available. For the rest of the Report data generally pertain to the period up to March 2000, updated up to September 2000 wherever feasible.

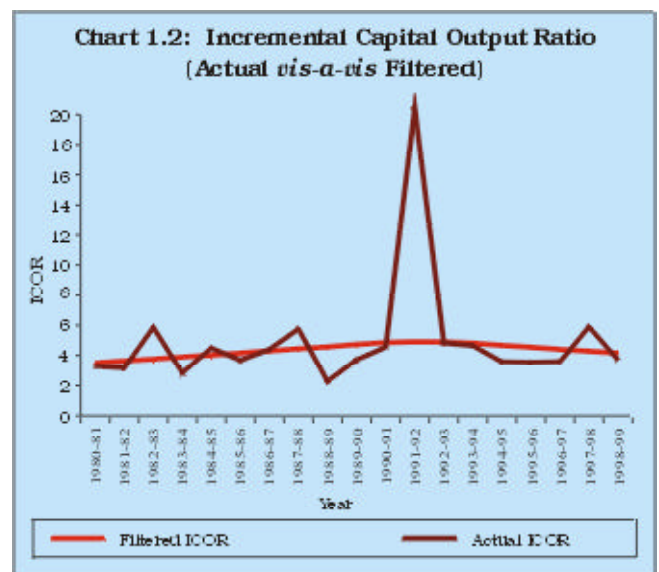
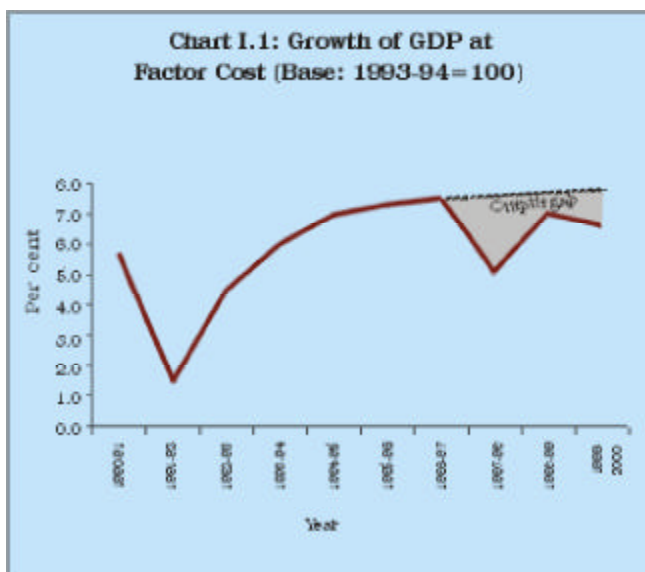
growth at 6.4 per cent in 1999-2000 equalled the average achieved in the 1990s (excluding 1991-92, the year of adjustment), an output gap has emerged in terms of the growth rate achieved on a prolonged basis in the preceding period (Chart I.1). Closing the output gap has been the dominant concern driving the deployment of macro-economic policies.

1.5 The principal factor holding down GDP growth from reaching its potential is the halting recovery of aggregate demand. Underlying, and closely co-moving with the variability of output growth is the variability of the rate of gross domestic investment, particularly after reaching a peak of 27.1 per cent in 1995-96, the centre of the high growth phase. Although information on investment activity for 1999-2000 is not yet available, the behaviour of the investment rate can be gauged from indications relating to the movement of its financing components *i.e.*, the gross domestic saving and the net inflow of resources from abroad. In 1999-2000, the rate of financial saving of households is estimated to have dipped to 10.6 per cent of GDP from 10.8 per cent in 1998-99, reversing a trend which was emerging since 1995-96. Fiscal slippages would have resulted in a further decline in the rate of public saving, while no improvement in corporate saving is envisaged to have occurred, given the slowdown of manufacturing activity. At the same time, the net inflow of resources from abroad was lower than in the preceding year as indicated by the narrowing of the current account deficit in 1999-2000. Visceral evidence, therefore, suggests that the gross investment rate might have declined

below that of 23.4 per cent in 1998-99. With the emerging trends in private consumption behaviour, aggregate demand would have been buoyed by final consumption expenditures in 1999-2000, although this would not have offset the slackening of investment demand.

1.6 The capacity of the economy to sustain a real growth rate of above 6 per cent in the period 1997-2000 in the face of a decline in the rate of domestic investment and aggregate demand suggests that there are other forces at work. Industry-level evidence indicates a rising rate of productivity growth in the Indian economy particularly in the 1990s. At an aggregative level, evidence of rising productivity as an explanation of the continuing robustness of economic activity is corroborated by the movements in the incremental capital output ratio (ICOR) which reflects the efficiency of capital use in terms of output change associated with each additional unit of capital employed. The ICOR series, smoothed to remove the year to year aberrations, shows that the permanent or 'trend (or filtered)' component of the ICOR declined during the 1990s to 4.2 in 1998-99, indicating productivity improvements. These results could be affected due to a sudden increase in ICOR in a particular year. The actual data on ICOR also shows a decline from 4.8 in 1992-93 to 3.7 in 1998-99 (Chart I.2).

1.7 The overall saving-investment gap has averaged 1.4 per cent of GDP in the 1990s. While the consolidation of the macro-balance in relation to the preceding decade has had salutary effects on the sustainability of the growth process, the widening of the public sector's saving-investment



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gap in 1998-99, after a period of retrenchment in 1995-98, and the indications of a further expansion in 1999-2000, is a matter of concern. On the other hand, the saving-investment surplus of the non-government sector has tended to grow after reaching a trough in 1995-96. Reducing the public sector's deficit and rekindling private investment, thus, emerge as policy priorities so that the macro-balances are sustainable.

1.8 On the supply side, the growth rate of GDP from 'agriculture and allied activities' decelerated sharply to 1.3 per cent in 1999-2000 from 7.2 per cent in the preceding year (Table 1.1). Industrial growth exhibited signs of revival, driven by an upturn in the manufacturing sector. The growth in intermediate goods and consumer durables led the acceleration of manufacturing output, followed by basic goods. The weakness in aggregate investment demand was reflected in a major slowdown in the performance of the capital goods sector. The service sector GDP growth at 8.7 per cent in 1999-2000 outstripped the average for the 1990s (7.7 per cent) and raised the share of the service sector in GDP from 51.2 per cent in 1998-99 to 52.3 per cent in 1999-2000. The buoyancy in service sector output was concentrated in the new economy sectors such as, computer software, financial and business services. The service sector has emerged as an engine of growth for the Indian economy with 'towing' effects for the other sectors of the economy. There is accumulating evidence that the rising share of services in GDP is an expression of productivity rather than a mutation of the process of growth.

Agriculture

1.9 Agricultural production suffered a setback in 1999-2000 reflecting spatio-temporal disruptions in monsoon and droughts, floods and cyclones across several States in an otherwise normal South-West monsoon season. Nevertheless, the output of rice at 89.5 million tonnes and wheat at 75.6 million tonnes attained all time highs and raised total foodgrains production to a new peak of 208.9 million tonnes in 1999-2000 (Chart I.3 and Table 1.2). Since 1997, India has emerged as the second largest producer of rice and wheat, after China. Sugarcane output also scaled a new peak in 1999-2000 at 299.2 million tonnes. On the other hand, there was a sharp decline in the production of pulses and coarse cereals. Overall

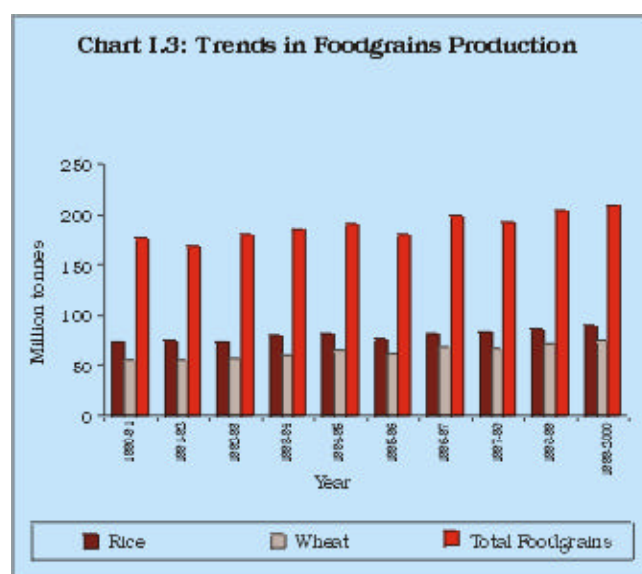


Table 1.1: Sectoral Composition and Growth Rates of Real Gross Domestic Product (at 1993-94 prices)

Sector	Growth Rate								Share in Real GDP	
	1992-93 to 1999-2000**		1998-99*	1999-2000#	1999-2000		2000-01		1998-99*	1999-2000#
					(Q ₁)	(Q ₂)	(Q ₁)	(Q ₂)		
1	2	3	4	5	6	7	8	9	10	
1. Agriculture, forestry and fishing	3.8	7.2	1.3	4.9	3.5	1.3	1.0	26.8	25.5	
2. Industry	7.3	3.7	7.5	5.3	6.5	6.0	5.9	22.0	22.2	
3. Services @	7.7	8.0	8.7	8.6	6.1	7.9	7.9	51.2	52.3	
4. Gross domestic product at factor cost	6.4	6.8	6.4	6.9	5.7	5.8	6.0	100.0	100.0	

@ Inclusive of construction. * Quick Estimates. # Revised Estimates. Q : Quarter.

** The average growth rate for the year 1992-93 was calculated by using 1980-81 as the base and for the period 1993-94 to 1999-2000 was calculated using 1993-94 as base year.

Source : Central Statistical Organisation (CSO).

Table 1.2: Crop-wise Targets/Achievements in the *Kharif* and *Rabi* Season

Crop	(Million tonnes/bales)										
	<i>Kharif</i>				<i>Rabi</i>				<i>Kharif</i>		<i>Rabi</i>
	1998-99		1999-2000		1998-99		1999-2000		2000-01	2000-01	
	T	A	T	A	T	A	T	A	T	AE	T
1	2	3	4	5	6	7	8	9	10	11	12
Rice	73.20	72.66	74.50	76.71	11.00	13.36	11.50	12.77	76.30	74.07	13.70
Wheat	-	-	-	-	70.00	71.29	74.00	75.57	-	-	74.00
Coarse cereals	27.80	25.06	27.00	23.23	6.50	6.29	7.50	7.24	26.62	23.11	6.33
Pulses	6.10	5.13	6.10	4.92	9.40	9.75	9.40	8.44	6.00	5.50	9.00
Total Foodgrains	107.10	102.85	107.60	104.86	96.90	100.70	102.40	104.02	108.92	102.68	103.08
Oilseeds	15.90	15.80	16.50	12.33	11.10	6.93	11.50	8.54	16.50	12.11	11.50
Sugarcane	300.00	288.72	305.00	299.23	-	-	-	-	325.00	300.58	-
Cotton*	14.80	12.29	15.00	11.64	-	-	-	-	14.50	13.16	-
Jute & Mesta\$	9.75	9.81	11.00	10.53	-	-	-	-	10.00	9.95	-

AE Advance Estimates as on September 30, 2000. T Target A Achievement
 * Million bales of 170 kg. each \$ Million bales of 180 kg. each

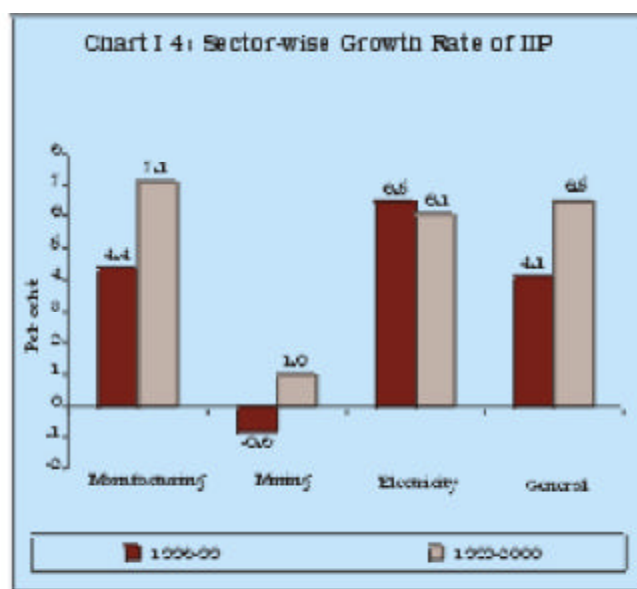
non-foodgrains production fared poorly due to declines in the production of two major crops, *i.e.*, oilseeds (particularly groundnut) and cotton, whereas sugarcane and jute and mesta witnessed a rise in production.

1.10 Total foodgrains procurement rose by 27.0 per cent in 1999-2000 over the previous year's level. The total off-take of foodgrains rose moderately by 6.9 per cent, mainly due to substantial rise in the off-take under Open Market Sales (OMS) and a moderate rise in off-take under Other Welfare Schemes (OWS). The off-take under Targeted Public Distribution System (TPDS), however, declined by 13.4 per cent. With the substantial rise in procurement levels, the stock of foodgrains at the end of March 2000 increased to 28.0 million tonnes (29.3 per cent) from the previous year's level of 21.7 million tonnes.

Industry

1.11 During 1999-2000, there was an improvement in the performance of the industrial sector alongside a revival in business sentiment and renewed activity in the capital markets. The lagged effects of strong growth of agriculture in the previous year, a rebound in external demand reflected in export growth and a conducive policy environment enabled a hesitant recovery in industrial production from a relatively lower growth of 4.1 per cent in 1998-99 to 6.5 per cent in 1999-2000 in terms of the Index of Industrial Production (IIP; base: 1993-94=100). Manufacturing output growth at 7.1 per cent in 1999-2000 played the lead

role, which was 2.7 percentage points higher than that of 4.4 per cent during the previous year. Electricity generation grew by 6.1 per cent in 1999-2000 as against 6.5 per cent during the previous year. In case of mining, however, there was a marginal growth of 1.0 per cent in 1999-2000, reversing the decline of 0.8 per cent during the previous year (Chart I.4).



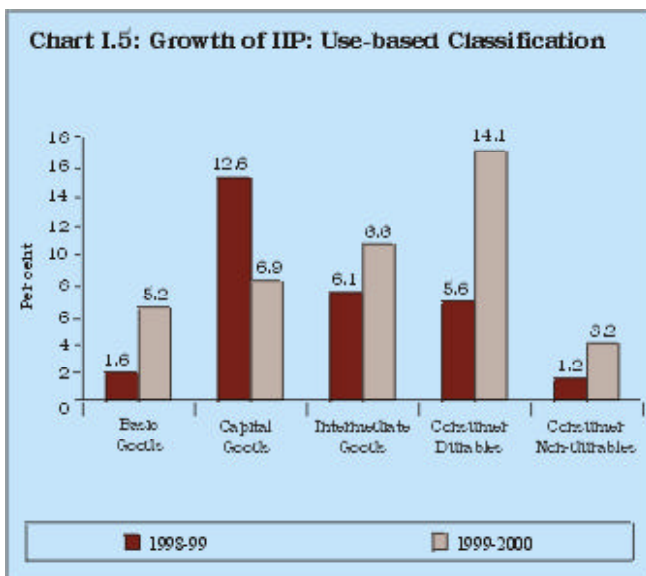
1.12 Disaggregated analysis of manufacturing activity in 1999-2000 indicates that the upturn was spread over nine out of the 17 industry groups comprising the manufacturing category (Table 1.3). The impetus for higher growth emanated mainly from five industry groups, *viz.*, i) non-metallic mineral products, ii) machinery and

Table 1.3: Classification of Groups of Manufacturing Industries by Growth Performance (Base: 1993-94=100)

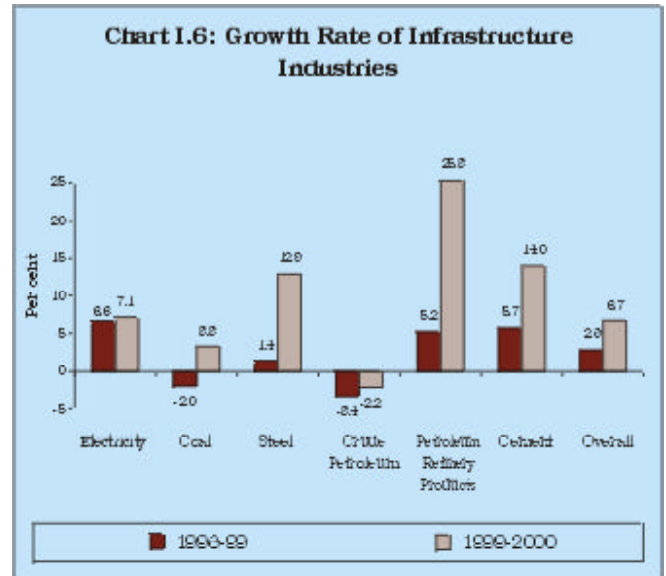
Classification	1998-99		1999-2000	
	No. of Industry Groups	Weight in IIP	No. of Industry Groups	Weight in IIP
1	2	3	4	5
1. Acceleration	7	27.95	9	55.96
2. Deceleration	5	32.61	3	9.01
3. Negative	5	18.80	5	14.39
Manufacturing (Total)	17	79.36	17	79.36

equipment other than transport equipment, iii) leather and leather & fur products, iv) wool, silk and man-made fibre textiles and v) basic chemicals and chemical products (except products of petroleum and coal) which accounted for 85.9 per cent of the growth in manufacturing output.

1.13 Production of intermediate goods rose at the rate of 8.8 per cent in 1999-2000 as against 6.1 per cent in the previous year. In the case of the capital goods sector, there was a slowdown in growth to 6.9 per cent in 1999-2000 from 12.6 per cent in the previous year. For both basic goods and consumer goods, the growth rates in 1999-2000 accelerated from around 2.0 per cent in the preceding year to above 5.0 per cent. Within the consumer goods category, the growth of consumer durables rose at a faster rate of 14.1 per cent than the growth of consumer non-durables at 3.2 per cent (Chart 1.5).

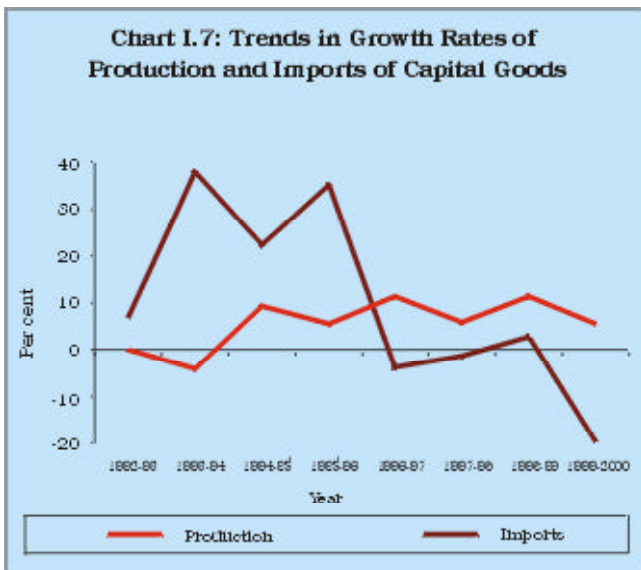


1.14 The performance of infrastructure industries also improved during 1999-2000. The overall growth rate of six infrastructure industries, viz., electricity, coal, steel, crude oil, petroleum refinery products and cement, which account for a total weight of 26.68 per cent in the IIP, recorded a higher growth of 6.7 per cent in 1999-2000 than that of 2.8 per cent recorded in the previous year. Petroleum refinery products, steel and cement were the leading performers in the group (Chart 1.6).



1.15 The slowdown in capital goods production which has been in evidence since September 1999 needs to be seen in conjunction with the general sluggishness in aggregate demand and the level of capacity utilisation. During 1999-2000, the growth of capital goods production remained subdued due to an inadequate pick up in domestic investment demand partly reflecting large capacity creation out of imports during 1993-96. During this period, imports of capital goods grew at an average of 32 per cent (in dollar terms) while domestic production of capital goods rose by only 3.5 per cent per annum (Chart 1.7). In contrast, since 1966-97, capital goods imports recorded absolute declines year after year (except in 1998-99), while domestic production grew at an average annual rate of 9.2 per cent. Thus, with the progressive liberalisation of the economy, domestic investment in capital goods has faced competition from imports and has been held down by excess capacity creation. The alternating patterns of domestic production and imports of capital goods suggest that the current industrial growth is insufficiently supported by capital

Chart I.7: Trends in Growth Rates of Production and Imports of Capital Goods



accumulation. Stepping up the availability of capital goods, both domestic and imported, holds the key to the entrenchment of a broad-based industrial recovery in the near term.

The External Sector

1.16 Significant gains in macro-economic performance during 1999-2000 were registered in the external sector. For the fourth year in succession, the balance of payments recorded an overall surplus, of the order of 1.4 per cent of GDP, enabled by a moderate narrowing of the current account deficit and a rebound in capital flows, particularly in the form of portfolio investment and accretions to non-resident deposits. With the strengthening of the external accounts, India's international reserves were built up to a level of US \$ 38 billion by the end of March 2000, equivalent of over 8 months of imports or nearly three and a half years of debt service.

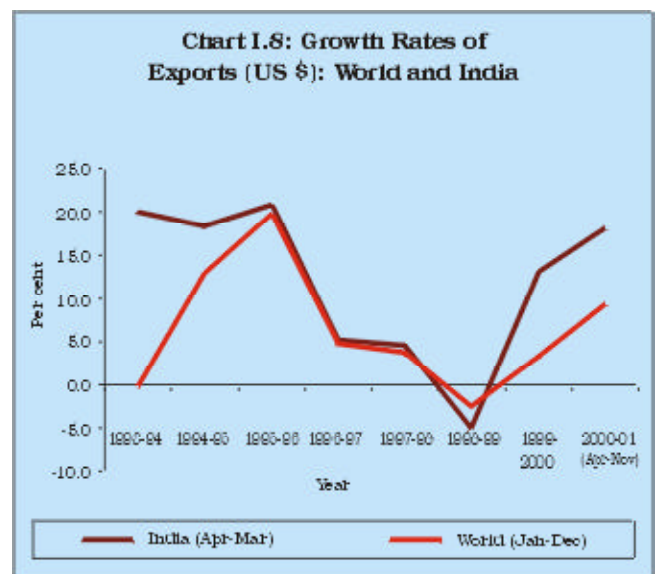
1.17 The movements in the monitoring indicators suggest that the improvement in the balance of payments was driven by the strength of the 'fundamentals', which considerably brightens the near-term external sector outlook. First, the balance of payments outturn occurred in an international environment that turned suddenly adverse by the doubling of international oil prices during the year, blunting the beneficial effects of the resurgence of global output and trade. Secondly, despite the terms of trade shock, a moderate reduction in the current account deficit was accomplished on the back of a surge in the growth of current receipts. Consequently, co-

moving with a contraction of the current account deficit from 1 per cent of GDP (US \$ 4 billion) in 1998-99 to 0.9 per cent of GDP (US \$ 4.2 billion) in 1999-2000, the ratio of current receipts financing current payments exhibited a moderate increase from 93.2 per cent to 93.8 per cent. In the capital account, equity flows regained their share of over 50 per cent of net capital flows after a decline to 28 per cent in the preceding year. Indicators of solvency such as the debt service ratio, the interest service ratio and the debt-GDP ratio moved downwards during 1999-2000 and remained, well below the conventional thresholds of moderate indebtedness. The liquidity indicators such as the reserves cover against short-term debt (by residual maturity) and potentially volatile flows, in general, as also the share of forward commitments in the reserves, improved significantly during the year (Table 1.4).

Current Account

1.18 In the current account, the most significant development in 1999-2000 was the sharp rally in international crude prices which peaked at a nine-year high in March 2000. For India, the sharp rise in international crude prices translated into a spurt in oil import payments by nearly 64 per cent as the oil import bill rose by almost one percentage point of GDP over the year to US \$10.5 billion. The adjustment to the oil price shock was enabled by a combination of positive developments which reflect the underlying strength and resilience of the economy. First, India's exports benefited from the robust growth of world trade (Chart I.8)

Chart I.8: Growth Rates of Exports (US \$): World and India



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Table 1.4: India's Balance of Payments

(US \$ million)

Item	Fiscal year (up to September)			
	1999-2000	1998-99	2000-01	1999-2000
1	2	3	4	5
Trade Balance	-17,098	-13,246	-9,234	-7,550
Current Account Balance	-4,163	-4,038	-3,998	-2,867
Net Capital Flows	10,242	8,565	2,786	4,290
Overall Balance #	6,402	4,222	-1,434	977
Reserves and Monetary Gold (Increase - , Decrease +)	-6,142	-3,829	1,460	-821
Memo Items : Key Indicators of BoP				(Per cent)
CAD / GDP	-0.9	-1.0
Current Receipts @ / Current Payments	93.8	93.2	90.0	91.2
Short term Debt (by original maturity) / Reserves	10.6	13.5	11.6 £	13.9
Short term Debt (by residual maturity) / Reserves	30.6*	34.5	NA	NA
Debt GDP Ratio	22.0	23.5	NA	NA
Debt Service Ratio	16.0	18.0	18.3	17.8
Liability Service Ratio	16.8	19.1	20.2	18.6
Interest / Current Payments	6.8	7.4	6.1	7.3
Import Cover of Reserves (in months)	8.2	8.2	6.9	7.9
Outstanding Forward Commitments/Reserves	1.8	2.5	6.3	3.0
NA : Not Available				
# Includes errors and omissions.				
* As on end-December 1999.				
@ Excluding official transfers.				
£ As at end-June 2000.				

and the bottoming out of the cyclical decline in non-fuel commodity and manufactures prices. The policy environment was supportive of the export effort. Export growth at 11.6 per cent, on balance of payments basis, in 1999-2000 finally reversed a three-year slowdown. As a result, the share of exports in GDP, which had been on a downward drift since 1997-98, revived in 1999-2000. Secondly, in the invisible account, remittances from Indians working overseas (reflected under private transfers) and software exports remained buoyant, propelling increases in foreign exchange earnings under their respective overall categories of the order of US \$ 2-2.7 billion. Thirdly, pressures from aggregate demand and their spillover into import demand were not in evidence during 1999-2000, providing a measure of relief in the face of the bulge in oil imports. The weakness in commodity prices also turned out to be fortuitous.

Capital Account

1.19 Capital flows into India in 1999-2000 broadly reflected the subdued international patterns. In the absence of any major financing requirement imposed by the current account deficit, net capital flows, higher at US \$ 10.2 billion (2.3 per cent of GDP) than US \$ 8.6 billion (2.1 per cent of GDP) in 1998-99, enabled an accumulation of reserves. Portfolio investment flows at US \$ 3 billion regained their dominance over the capital account, benefiting from the renewal of international investor confidence in stock markets in emerging economies. During the year, forward cover for FIIs was enhanced to 15 per cent of their outstanding investment as on March 1999 and all incremental investments thereafter. FIIs were allowed to raise their participation in the equity capital of Indian companies to 40 per cent of the total. They were also allowed to invest in

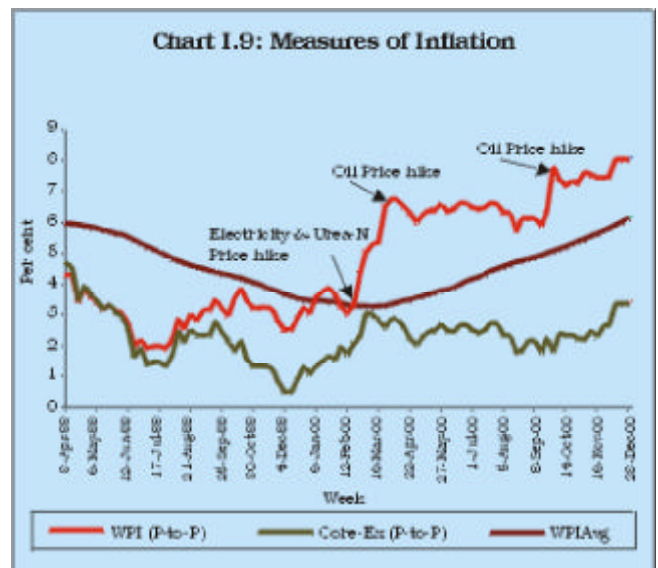
Indian mutual funds and to invest in Indian stock exchanges on behalf of foreign corporates and high net-worth non-residents. Indian companies were allowed to issue ADRs/GDRs without prior approval of the Government. Acquisition of overseas companies by Indian entities through ADR/GDR issues was liberalised. Net inflows in the form of foreign direct investment, however, declined moderately from US \$ 2.5 billion to US \$ 2.2 billion, reflecting the weakness in domestic investment demand as well as the lack of appetite of direct investors for Asian economies other than those recovering from the financial crises. The policy response was in the form of releasing procedural constraints - establishment of the Foreign Investment Implementation Authority, automatic route approval for all investment proposals except for a short negative list, special economic zones with tax breaks and relative freedom from implementation bottlenecks and opening up new areas for FDI – such as foreign equity participation in insurance up to 26 per cent. In the case of external commercial borrowing (ECB), the policy framework was liberalised during the year in the form of transfer of approval formalities for all ECB up to US \$ 100 million to the Reserve Bank, freeing end-use restriction except for real estate and equity market investment, specific incentives for the infrastructure sector in the form of raising equity investment out of ECB in joint ventures in the infrastructure sector and greater flexibility in ECB exposure for infrastructure projects. Prepayment of ECB from funds under EEFC accounts were allowed as a boost to the export sector which is another thrust area in the deployment of ECB policy.

External Debt

1.20 India's external debt remained broadly stable in nominal terms at around US \$ 98 billion; however, there has been a steady consolidation of debt over the 1990s. This is reflected in the downward movement of the debt-GDP ratio and the debt service ratio to 22.0 per cent and 16.0 per cent, respectively in 1999-2000. Short-term debt by original maturity accounted for only 4.1 per cent of total debt as at end-March 2000 and 10.8 per cent by residual maturity as at end-December 1999. The ratio of short-term debt to reserves was 10.6 per cent by original maturity and 30.6 per cent by residual maturity as at end-December 1999.

Inflation

1.21 Reflecting the aggregate demand – aggregate supply situation, the year 1999-2000 experienced a generally low order of inflation, except towards the close. Headline inflation, measured by the wholesale price index (WPI) on a point-to-point basis, decelerated from around 4.3 per cent at the beginning of the year to a trough of 1.9 per cent on July 24, 1999, and crossed 5.0 per cent in March 2000. This reflected revisions in the administered prices effected in February and March 2000 mainly on account of cost considerations. The absence of inflationary pressures during 1999-2000 is corroborated by movements in core inflation (excluding administered items) and by the behaviour of inflation measured in terms of the WPI on an average basis (Chart I.9).



1.22 On the demand side, the sluggishness in investment demand and the presence of excess capacity in various industries dampened inflationary pressures. On the supply side, the downward drift in the annual inflation rate during 1999-2000 was primarily driven by significantly lower order of increases in the prices of primary articles and manufactures. On an average basis, 'primary' inflation fell to 1.1 per cent in 1999-2000 as against an increase of 12.0 per cent in 1998-99, mainly on account of a record level of foodgrains production and comfortable buffer stocks. There was also a significant decline in 'manufacturing' inflation to 2.7 per cent from 4.4 per cent in 1998-99, reflecting an improvement in industrial production, particularly manufacturing

output growth and the cyclical trough in international prices of manufactures. 'Fuel' inflation, on the other hand, rose to 9.0 per cent in 1999-2000 from 3.2 per cent in 1998-99, mainly due to the upward revision in administered prices of petroleum products.

1.23 Consumer price inflation, measured as the point-to-point variation in the Consumer Price Index for Industrial Workers (CPI-IW) fell to 4.8 per cent from 8.9 per cent in 1998-99. However, on an average basis, CPI inflation showed a sharp decline to 3.4 per cent in 1999-2000 from a high of 13.1 per cent in 1998-99, thereby converging with the average WPI inflation (Chart I.10). This reflected the subdued rise in food prices as a result of better food production and management through the public distribution system (PDS) and timely imports of essential items like sugar and edible oils.

special position in the institutional structure of the financial system in India. Movements in the balance sheets of commercial banks provide insights into the extent of financial intermediation and the relationship between bank credit and economic growth. They also reveal the impulses in the market for credit which, in turn, provides a conduit for the transmission of monetary policy impulses.

1.26 During 1999-2000, the growth of aggregate deposits (excluding RIBs) of scheduled commercial banks (SCBs) decelerated to 14.3 per cent from 16.3 per cent in the previous year (Chart I.11).

1.27 Despite the slowdown in deposit growth, credit extended by SCBs rose by 18.2 per cent in 1999-2000 as against 13.8 per cent in 1998-99 especially after November 1999 with the revival in industrial activity (Chart I.12). Food credit increase

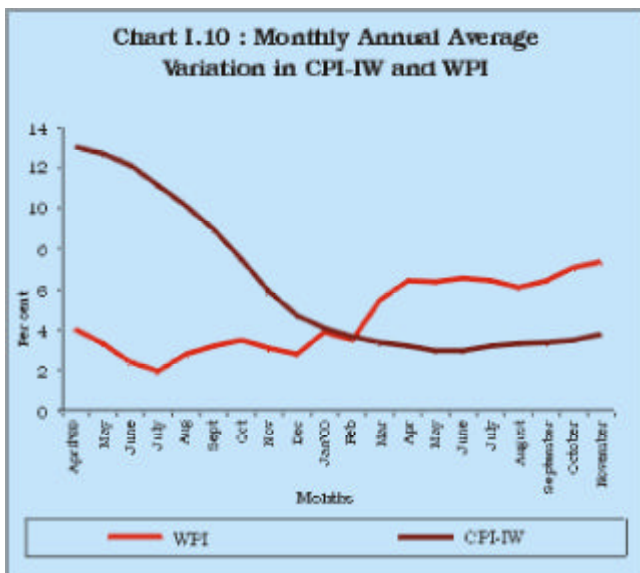
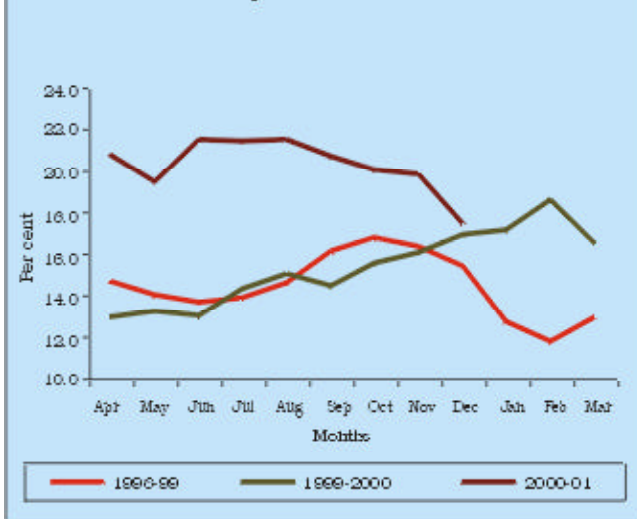


Chart 1.12: Year-on-year Growth in Non-Food Credit



1.28 Credit growth to the priority sector at 15 per cent was in line with the pace of expansion of non-food credit during 1999-2000. Credit to medium and large industry and wholesale trade increased robustly in the range of 13 and 20 per cent, respectively. The pick-up in gross non-food credit spanned several sectors like housing, consumer durables, non-banking financial companies, loans to individuals against shares/debentures/bonds, tourism related credit and non-priority sector personal loans, etc., thereby reflecting a preference for financing the services sector and consumer loans. The petroleum industry accounted for the highest increase in industrial credit, followed by chemical, dyes, paints and engineering. Credit drawn by food processing, cement, automobiles, construction, computer software and gems and jewellery industries increased during 1999-2000, while credit to electricity, iron and steel, vegetable oils, infrastructure industries decelerated and credit to mining, tobacco and tobacco products declined.

Financial Performance

1.29 The impact of the financial sector reforms is reflected in an improvement in the financial performance of the various constituents of the financial sector in India. Operating profits of scheduled commercial banks (SCBs) reversed the decline of 5.7 per cent recorded in 1998-99 and increased by 33.4 per cent in 1999-2000 (i.e., to Rs.18,423 crore). The ratio of net profits to total assets increased by 19 basis points to

0.66 per cent as against a decline of 35 basis points in the preceding year. Relatively higher growth in interest income as well as in other income and a deceleration in operating expenses improved the profitability of SCBs. Besides the factors generally contributing to improve profitability in the banking system, public sector banks (PSBs) reaped capital gains in their treasury operations. The private sector banks recorded the maximum gains in profitability in terms of growth rates. Net profits of financial institutions showed a decline during 1999-2000 due to a pronounced rise in expenditure. The ratio of net profits to total assets fell to 1.24 per cent in 1999-2000 from 1.57 per cent in the preceding year.

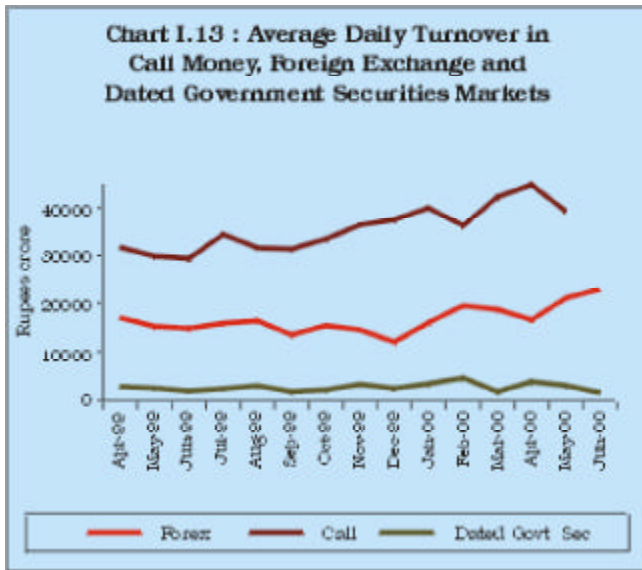
1.30 Aggregate financial assets of financial institutions grew at 11.4 per cent during 1999-2000. Resources from internal sources constituted 50 per cent of total sources of funds while the share of external resources (borrowings by way of bonds, debentures, external commercial borrowing) was about 27 per cent. Fresh deployments comprised 56 per cent of total use of funds while repayments accounted for 18 per cent.

1.31 At end-March 1999, the public deposits of NBFCs stood at Rs.20,429 crore or 2.6 per cent of deposits of SCBs with indications of a decline in 1999-2000. Aggregate assets, as on March 31, 1999, constituted approximately 5 per cent of the total assets of SCBs. Public deposits expressed as a multiple of net owned funds declined from 1.6 at the end of March 1998 to 1.2 at the end of March 1999.

Financial Market Behaviour

1.32 Financial markets in India remained generally stable during 1999-2000, reflecting, to a large extent, an improvement in international financial market conditions. Within the market continuum, however, short-term rates rose in response to heightened activity in the government securities market, a rise in the demand for bank credit and sporadic volatility in the foreign exchange market during the first half of the year. During the year, different segments of financial markets exhibited a growing tendency towards integration viewed in terms of the movements in prices and turnover. Market participants tended to arbitrage funds from the money market to the foreign exchange market and the Government securities market (Chart 1.13).

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Call Money Market

1.33 While generally comfortable liquidity conditions prevailed during a greater part of the year, the inter-bank call money rate hardened from the average of 8.13 per cent during 1998-99 to 9.09 per cent in 1999-2000. The divergence between average daily high and low rates remained narrow, corroborated by indicators like coefficient of variation and standard deviation (Table 1.5). In general, the market conditions remained orderly barring brief periods of volatility during mid-August 1999, mid-October 1999, mid-February 2000 and end-March 2000.

1.34 With the introduction of the ILAF, call rates tended to move above the Bank Rate at which refinance was available. The call rates, however, rose sharply in October 1999 and February 2000 even beyond the informal ceiling set by the tier II

Table 1.5: Average Daily Inter-bank Call Money Lending Rates

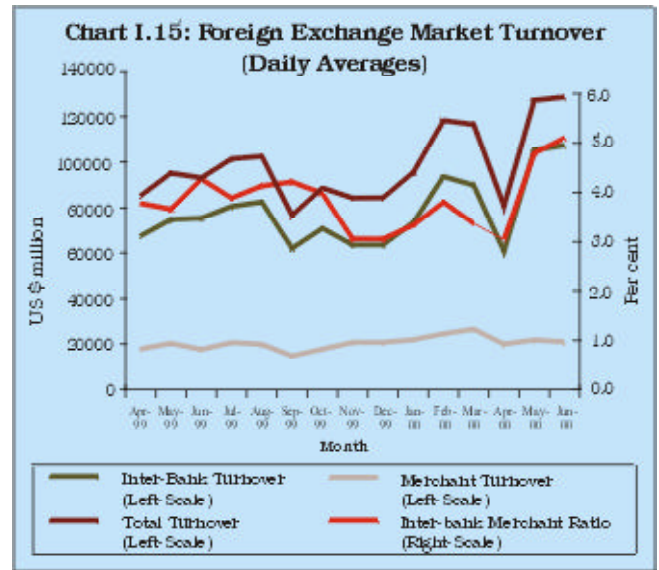
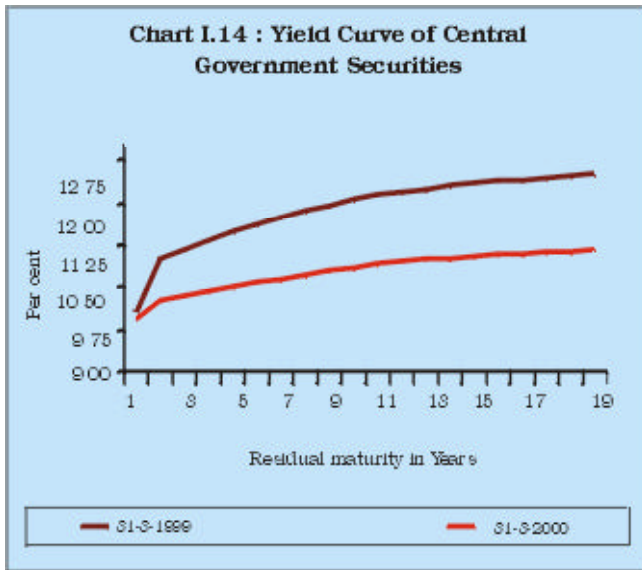
	2000-01 (up to October 2000)	1999-2000	1998-99
1	2	3	4
Intra-day Minimum (%)	7.97	8.39	3.05
Intra-day Maximum (%)	10.65	9.51	21.75
Average (%)	9.47	9.09	8.13
SD(%)	2.86	1.90	2.10
CV	0.30	0.21	0.26

refinance rate for the better part of the year. In general, money market conditions were modulated by discretionary liquidity management through the ILAF.

Government Securities Market

1.35 The Government securities market witnessed generally buoyant conditions particularly at the long end of the spectrum. Market preference strengthened for medium and longer maturity paper, given the easing of inflationary expectations, stable call money market conditions and absence of major domestic and international uncertainties. As a consequence, interest rates at the long end of the yield curve declined. The strong increase in the demand for Government securities facilitated (a) meeting of a higher order of Central Government's gross borrowing requirement at Rs.99,630 crore, including 364-day Treasury Bills, notwithstanding a lower support by the Reserve Bank at Rs.29,267 crore; (b) elongation in the maturity profile of marketable debt of the Central Government from 7.7 years in 1998-99 to 12.6 years in 1999-2000; and (c) a reduction in weighted average cut-off yield on the Central government market borrowing from 11.86 per cent in 1998-99 to 11.77 per cent in 1999-2000.

1.36 Higher demand for Government securities in 1999-2000 led to a sharp increase in turnover in the secondary market for Government securities. The turnover in the secondary market registered a 137 per cent increase over the previous year to Rs.5,35,602 crore, with outright transactions contributing to around 85 per cent of turnover. The turnover ratio in dated securities (ratio of total turnover to total outstanding securities) accordingly increased to 3.2 as on March 31, 2000 from 1.7 as on March 31, 1999. The demand-led rally in the secondary market facilitated lowering of interest rates in all segments of the yield curve. On a point-to-point basis, the yield on 10-year security declined by 120 basis points between end-March 1999 and end-March 2000 setting the tenor for yields on even longer dated securities. At the short to medium end, the decline was of a lower order. As a result, the yield spread between 5-year and 10-year securities diminished from 55 basis points at end-March 1999 to 34-basis points at end-March 2000. The yield curve shifted downward with a flattening shape (Chart I.14).



Foreign Exchange Market

1.37 The foreign exchange market exhibited excess supply conditions during 1999-2000 except for episodes of volatility in June-October 1999. Recovery in export growth and renewal of portfolio investment flows enabled easy supply conditions. The exchange rate of the rupee traded in a narrow range of Rs.42.4-43.6 per US dollar in the spot market. Trading activity, however, remained subdued due to the continuing restrictions on rebooking of cancelled forward contracts and splitting of forward and spot legs. The average monthly turnover declined from US \$ 109 billion in 1998-99 to US \$ 95 billion in 1999-2000 with merchant turnover moving in the range of US \$ 15-27 billion and the inter-bank turnover ranging between US \$ 62-94 billion (Chart I.15). Forward premia ruled easy for the greater part of the year. During 1999-2000, the average three month forward premia moved down from 7.2 per cent to 4.5 per cent. Outstanding forward sale commitments declined from US \$ 732 million at the beginning of the year to US \$ 675 million at the end of March 2000.

Capital Market

1.38 Overall resource mobilisation in the new issues market declined during 1999-2000, although the number of new issues floated increased sharply. Resources raised from the private placement market, however, increased sharply. Total resource mobilisation by way of prospectus and rights issues at Rs.7,704 crore during 1999-2000, was lower by 17.7 per cent as

compared with Rs.9,365 crore mobilised during the previous year, even as the number of new capital issues increased to 83 from 51. This was due entirely to a sharp decline in resources mobilised by banks and financial institutions in the public sector. Resources mobilised by non-Government public limited companies (private sector) at Rs.5,153 crore through 79 issues registered an increase of 2.8 per cent from Rs.5,013 crore through 48 issues in the previous year. Resources mobilised by way of equity accounted for 53.4 per cent (from 69 issues) of total resource mobilisation by the private sector as against 51.1 per cent (from 33 issues) last year. The equity issues were well received by the market, as the share of premium in the total amount mobilised by equity issues increased to 78.8 per cent from 51.7 per cent in 1998-99. In particular, 35 issues accounting for Rs.631 crore were floated by companies in the IT, media and telecom sectors during 1999-2000 as against 4 issues for a total of Rs.39 crore in the previous year. The resource mobilisation from the private placement market during 1999-2000 increased by 23.3 per cent to Rs.61,259 crore. Of this 68.3 per cent was accounted for by the public sector entities. Financial intermediaries accounted for 47.1 per cent of total resources mobilised through private placement.

1.39 After two consecutive years of subdued performance, resource mobilisation by mutual funds witnessed a turnaround during 1999-2000. Net resource mobilisation by all mutual funds increased more than six-fold to reach the highest ever figure of Rs.21,971 crore in any single year as

compared with Rs.3,611 crore mobilised during 1998-99. Growth in resource mobilisation during 1999-2000 was contributed mainly by private sector funds, which witnessed an inflow of the order of Rs.17,171 crore as against Rs.2,519 crore during the previous year, followed by the UTI (Rs.4,548 crore as against Rs.170 crore). The net inflow to the public sector mutual funds, however, declined from Rs.922 crore to Rs.253 crore. Improved resource mobilisation by mutual funds could be attributed mainly to tax benefits announced in the Union Budget for 1999-2000 as also to buoyant stock market conditions during the larger part of the 1999-2000. During 1999-2000, financial assistance sanctioned and disbursed by all-India financial institutions at Rs.1,03,567 crore and Rs.67,335 crore rose by 26.5 per cent and 19.6 per cent, respectively.

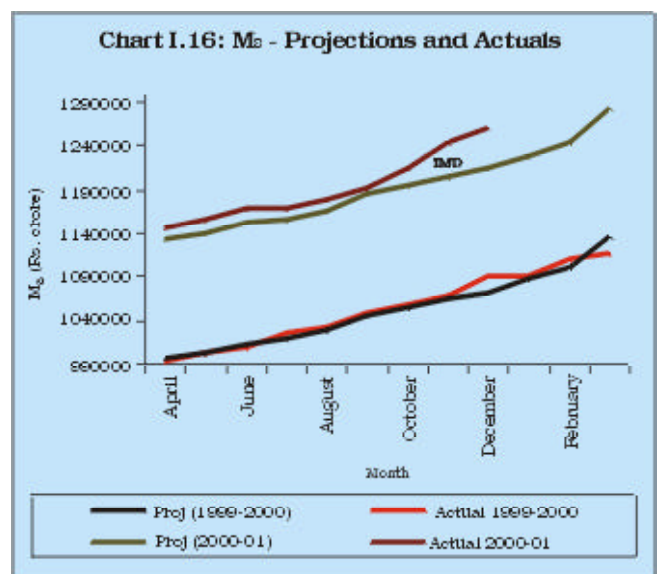
1.40 The BSE Sensex (Base: 1978-79=100), on a point-to-point basis, registered a gain of 1261 points (33.7 per cent) during 1999-2000. On an average basis, it increased by 41.4 per cent in comparison with a decline of 13.6 per cent in the previous year. The S&P CNX Nifty (NSE-50) Index (Base: November 3, 1995=1000) showed a movement similar to the BSE Sensex; the average index for 1999-2000 increased by 43.3 per cent as compared with a decline of 12.2 per cent in the previous year.

The Conduct of Monetary Policy

1.41 In 1999-2000, monetary policy was confronted with the conflict between the need to regenerate growth through the provision of adequate bank credit on the one hand, and the need to restrain the growth of overall liquidity so as to ensure price stability on the other. Careful balancing of these conflicting pulls necessitated a flexible and pro-active monetary stance. The objectives assumed by monetary policy for the year were provision of reasonable liquidity, stable interest rates with a preference for softening, debt management, orderly development of financial markets and carrying forward the process of financial sector reform. Broad money (M_3) growth was projected at 15.5-16.0 per cent, consistent with a GDP growth of 6.0-7.0 per cent and inflation rate of about 5.0 per cent. The tuning of monetary policy operations to financial market conditions was guided by the behaviour of multiple indicators – money supply, money market rates, exchange rates, foreign exchange reserve movements, fiscal developments and credit to various sectors.

1.42 Debt management operations were sought to be conducted through a combination of auctions, private placement and open market operations with a view to maintaining a stable interest rate environment. With regard to the management of the exchange rate, the primary objective of monetary policy was to ensure the maintenance of orderly conditions in the foreign exchange markets, meeting temporary supply demand mismatches and curbing destabilising speculative activities.

1.43 The indicators of monetary conditions suggest that monetary policy was broadly on course in terms of its stated objectives during 1999-2000 (Chart I.16). While the fiscal year M_3 growth rate dipped to 13.9 per cent, this was largely statistical and associated with year-end balance sheet adjustments, with the monthly average year-on-year M_3 (excluding RIBs) growth working out to 16.6 per cent (Table 1.6). While currency demand decelerated reflecting the slowdown in agricultural activity in the latter half of the year aggregate deposit growth of scheduled commercial banks was of the order of 13.9 per cent as against the projected growth rate of 16.5 per cent. Commercial bank time deposits decelerated to 16.8 per cent (net of RIBs), on fortnightly average basis, from 20.0 per cent, mainly on account of migration of private saving to mutual funds. Net bank credit to Government increased by 14.2 per cent mainly reflecting commercial bank investments enabled by the release of resources on account of the reduction in the cash reserve requirements. Bank credit to the commercial



REPORT ON CURRENCY AND FINANCE

sector accelerated to 16.6 per cent during 1999-2000 from 14.5 per cent during 1998-99. Non-food credit of scheduled commercial banks (inclusive of non-SLR investments) increased by 17.7 per cent, in line with the projected growth rate. The resource flow to the commercial sector from bank and non-bank sources, inclusive of capital issues, GDRs/FCCBs, CPs subscribed by non-banks and borrowings from as well as bills rediscounted with financial institutions increased by Rs.1,51,886 crore during 1999-2000 as compared with Rs.1,27,952 crore during the preceding year (Table 1.7).

Reserve Money

1.44 Reserve money decelerated to 8.1 per cent (by Rs.20,969 crore) during 1999-2000 from 14.6 per cent during 1998-99, primarily reflecting the reduction in reserve requirements. Adjusting bank reserves for the first round release of lendable resources, incremental primary liquidity worked out to about 13.0 per cent. This was essentially driven by the accretion of Rs.27,382 crore (adjusted for revaluation) to the Reserve Bank's foreign currency assets. The liquidity generated by CRR cuts and capital flows fostered market demand for government paper, which facilitated a decline in the net RBI credit

Table 1.6: Monetary Indicators

Variable	Fiscal year			(Per cent)	
				Fiscal year so far (up to December 29)	
	1999-2000 (point to point basis)	1999-2000 (average basis)	1998-99 (point to point basis)	2000-01 (point to point basis)	1999-2000 (point to point basis)
1	2	3	4	5	6
I. Reserve Money	8.1	11.9	14.6	1.9	2.1
II. Narrow Money (M ₁)	10.2	14.7	15.4	7.1	7.3
III. Broad Money (M ₃)	13.9	17.1	19.4	12.9	11.3
III.1 M ₃ , net of RIBs		16.6	17.3		
III.2 M ₃ , net of IMDs				10.7	
III.3 NM ₃	14.8	17.3	18.0	9.0 \$	9.6 \$
IV. Components of Broad Money					
a) Currency with the Public	11.7	16.3	16.1	8.4	13.9
b) Aggregate Deposits (i+ii)	14.5	17.4	20.2	14.0	10.9
i) Demand Deposits	9.1	13.0	14.9	6.0	-0.3
ii) Time Deposits	15.6	18.2	21.4	15.5	13.1
V. Sources of Broad Money					
a) Net Bank Credit to the Government (i+ii)	14.2	15.1	17.0	11.3	14.2
i) Net Reserve Bank Credit to the Government	-2.8	5.3	12.9	-0.5	3.1
Of which: to Centre	-3.8	4.3	8.8	2.2	5.2
ii) Other Banks' Credit to the Government	25.3	21.7	19.8	17.2	21.5
b) Bank credit to Commercial Sector	16.6	16.2	14.5	11.5	10.3
Of which:					
Scheduled Commercial Banks' Non-food Credit	16.5	15.5	13.0	11.6	10.7
c) Net Foreign Exchange Assets of the Banking Sector	15.6	21.1	28.8	13.9	5.9

Data are provisional.

\$ Relates to November 17, 2000 and November 19, 1999, as the case may be.

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Table 1.7 : Total Flow of Non-Food Resources to Commercial Sector

(Rupees crore)

Item	1999-2000P	1998-99	Fiscal year so far (Up to December)	
			2000-01	1999-2000
1	2	3	4	5
I. Scheduled Commercial Banks (I.1+I.2)	71,274	56,349	53,321	47,041
I.1. Non-food credit	58,246	40,428	47,530	37,558
I.2. Other Investments (2.1+2.2+2.3)	13,028	15,921	5,790	9,483
2.1. Commercial Paper	1,060	1,563	1,208	1,875
2.2. Bonds/Debentures/Preference Shares issued by	10,469	13,488	4,268	7,242
2.2.1 Public Sector Undertakings	6,413	5,407	3,929	3,567
2.2.2 Private Corporate Sector	5,056	8,081	339	3675
2.3 Equity Shares issued by PSUs and Private Corporate Sector	499	870	314	366
II. Other Banks	12,408	13,735	8,011	7,534
III. From Other Sources (III.1+III.2+III.3+III.4+III.5)	68,204	57,868	47,830	36,630
III.1 Bills rediscounted with Financial Institutions	-96	187	636	368
III.2 Capital Issues # (2.1+2.2)	-472	-2,312	2,257	-949
2.1 Non-Government Public Companies	-472	-3,664	2,257	-949
2.1.1 Debentures and Preference Shares (2.1.1+2.1.2)	-2,655	-5,631	287	-1,802
2.1.2 Equity shares	2,183	1,967	1,970	852
2.2 Public Sector Undertakings and Government Companies	0	1,352	0	0
III.3 Global Depository Receipts (GDRs) and Foreign Currency Convertible Bonds (FCCBs) Deposits	1,675	2,105	3,859	482
III.4 Issue of Commercial Paper (CP) #	-167	1,777	1,472	1,158
III.5 Borrowings from Financial Institutions ##	67,264	56,181	39,606	35,572
Total Flow of Non-food Resources (I+II+III)	1,51,886	1,27,952	1,09,162	91,204
Memo Items				
1. Loans to Corporates against shares	-44	20	-5	-15
2. Private Placements	61,259	49,679	25,215@	26,965@

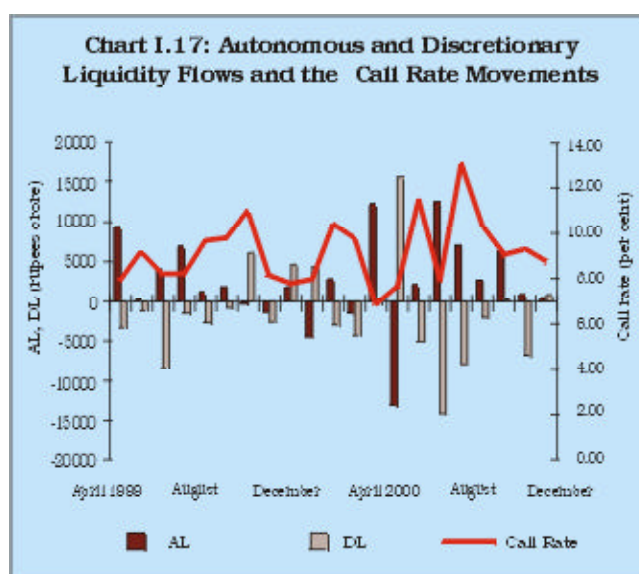
Data are provisional. \$ Adjusted for banks' investments in shares and debentures. # Excluding CPs issued to banks.
Excludes bills rediscounted with FIs. @ Up to September.

to the Central government (by Rs.5,587 crore) - for the first time since 1977-78 - despite a sharp increase in the Centre's gross fiscal deficit.

1.45 During 1999-2000, the Reserve Bank strategically offset changes in autonomous liquidity with changes in discretionary liquidity in order to stabilise money market conditions (Chart I.17).

Fiscal Policy

1.46 Finances of both the Centre and the States suffered a deterioration during 1999-2000 on account of slippages in budgeted revenues and expenditures. The gross fiscal deficit of the Centre in the revised estimates for 1999-2000, at Rs.1,08,898 crore or 5.6 per cent of GDP, exceeded the budget estimates by 1.6 per cent of GDP. In



the States, expenditure overruns representing lagged effects of Fifth Pay Commission revisions and the costs associated with natural calamity management took the consolidated fiscal deficit of States to 4.9 per cent of GDP in the revised estimates for 1999-2000, nearly 1 per cent of GDP above the budget estimates. The combined fiscal deficit of the Centre and States rose to 9.9 per cent of GDP, the highest level in the 1990s. All measures of the deficit exceeded projections (Chart I.18). The financing requirements of the budgetary operations of the Centre and States brought upward pressures to bear on financial markets and, therefore, the Reserve Bank had to engage in active debt management and fine tuning operations to ensure appropriate monetary conditions for accelerating growth.

Central Finances

1.47 In 1999-2000, there was a revenue shortfall of 1.8 per cent in the revised estimates over the Central Government's budget target. This was primarily on account of custom and excise duty collections falling below budget projections on account of low non-oil import demand and rate reductions. Corporation tax also fell short, reflecting the fragility of the industrial upturn. Other taxes on income brought in improved collections while non-tax revenue recorded a modest growth. Expenditures of the central Government overshoot the budget estimates due to the impact of cyclones and floods, remaining effects of pay revisions and the Eleventh Finance Commission's award of special short-term fiscal assistance to States. The rise in interest and

pension payments in the revenue account accounted for over 38.3 per cent of the increase in total expenditures. Capital outlays rose by about 3 per cent. Disinvestment proceeds fell short of the target; only a fourth of the projected amount of Rs.10,000 crore could be raised during 1999-2000. Consequently, net market borrowings at Rs.73,077 crore (as per RBI records) exceeded the budget estimates by Rs.15,616 crore. The Reserve Bank's support to the borrowing programme by way of devolvments/private placements amounted to Rs.29,267 crore. The average utilisation of WMA remained well below the agreed limits of Rs.11,000 crore for the first half and Rs.7,000 crore for the second half of 1999-2000. Other liabilities and external assistance filled in the remaining fiscal gap.

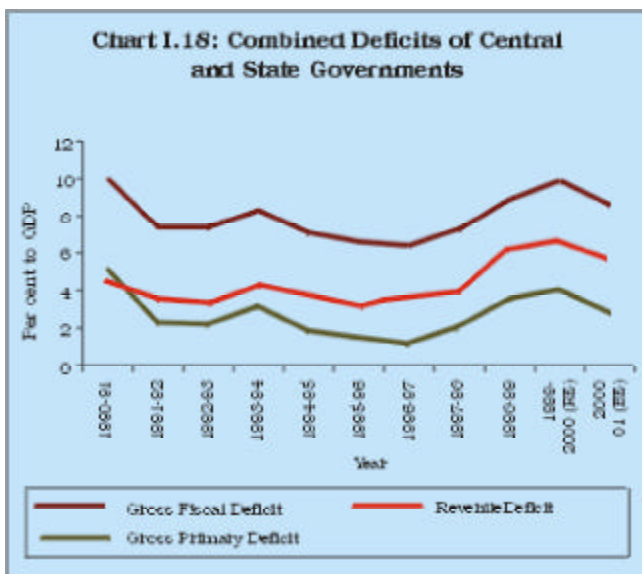
State Finances

1.48 In case of the States, the revenue shortfall was modest at 0.3 per cent of GDP mainly due to lower realisation of taxes on commodities in the transition towards a uniform VAT. The States' own tax revenues fell short of the budget estimates due to lower realisations of taxes on property, commodities and services. Revenue expenditure exceeded the budget estimates by nearly 4 per cent. Non-plan revenue expenditures, mainly consisting of wages and salaries, pensions and interest payments constituted 83.9 per cent of revenue expenditures in 1999-2000 (RE). Additional expenditure on natural calamities, compensations etc. to local bodies also contributed to the expenditure overrun. As a consequence, the revenue deficit of States exceeded projections by 40 per cent, forming 60 per cent of the gross fiscal deficit of States. The primary deficit expanded from the budgeted 1.6 per cent of GDP to 2.5 per cent of GDP in 1999-2000.

Public Debt

1.49 The high levels of fiscal deficit have led to steady accumulation of debt, as reflected in the rise in the domestic debt-GDP ratio of the Central government from 50.6 per cent as at end-March 1999 to 52.9 per cent as at end-March 2000 and of State Governments from 19.4 per cent to 21.5 per cent of GDP during the same period (Charts I.19 and I.20). As a result, the combined domestic debt of the Government sector reached 60.7 per cent of GDP at end-March 2000 as against 55.5 per cent at end-March 1999 and 56.2 per cent at end-March 1991. The nominal stock of domestic

Chart I.18: Combined Deficits of Central and State Governments

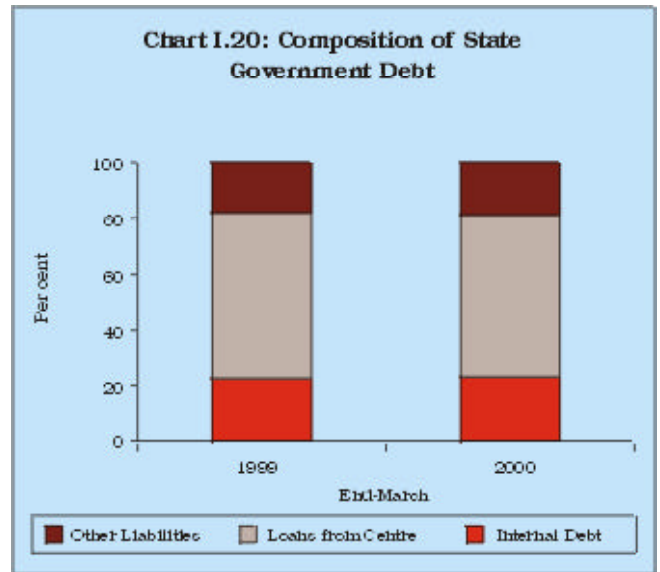


debt of the combined Government sector has been growing at a rate of about 16 per cent during the later part of the 1990s. The rate of debt growth remained below the rate of nominal GDP growth during the first half of the 1990s; however, it generally exceeded the nominal GDP growth since 1997-98, posing challenges for medium-term fiscal stability.

Mid-term Review: 2000-2001

1.50 Macroeconomic developments during the current financial year have necessitated a revision in the outlook for the year. The persistent hardening of international crude oil prices has imparted an upward drift to inflation and may lead to a widening of the current account deficit in the balance of payments. Volatility in the foreign exchange market and the large government borrowing programme warranted a shift in the operation of monetary policy away from its primary objectives of ensuring non-inflationary expansion of credit towards ensuring orderly conditions in the financial markets.

1.51 The real GDP growth in the first quarter of 2000-01 decelerated to 5.8 per cent from 6.9 per cent in the corresponding quarter of 1999-2000 mainly on account of poor performance in 'agriculture and allied activities', decline in growth of 'mining and quarrying' and slowdown in 'manufacturing', 'construction', 'financing, insurance, real estate and business services' and 'community, social and personal services'. In the second quarter, real GDP grew by 6.0 per cent as compared with 5.7 per cent in the corresponding

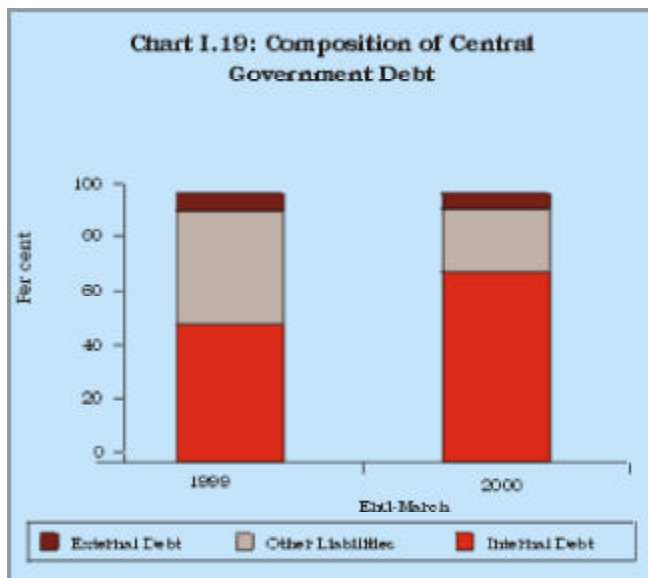


quarter of 1999-2000 mainly due to a strong revival of 'mining and quarrying' and the improved performance of 'trade, hotels, transport and communication' and 'community, social and personal services' (Table 1.1).

Agriculture

1.52 GDP growth in 'agriculture and allied activities' which had decelerated to 1.3 per cent in the first quarter of 2000-01 slowed down further to 1.0 per cent in the second quarter. Although the South-West monsoon season in 2000 was normal with precipitation up to 92 per cent of the Long Period Average, spatially and temporally uneven distribution of rainfall caused some moisture stress in Madhya Pradesh, Rajasthan, Orissa, Gujarat and floods in West Bengal and Andhra Pradesh. *Kharif* foodgrains output is likely to reach 102.68 million tonnes as against 104.86 million tonnes in 1999-2000 (Table 1.2). It is expected that the shortfall in production from *kharif* targets would be bridged by better *rabi* production. Cumulative rainfall in the North-East monsoon season was excess/normal in 4 out of 35 sub-divisions up to December 27, 2000 as compared with 24 sub-divisions in the corresponding period of the previous year.

1.53 During the current financial year, the procurement of rice and wheat up to January 1, 2001 has risen by 14.6 per cent. The total off-take of foodgrains during 2000-01 (up to end-November, 2000) declined by 22.0 per cent on account of a substantial decline in the off-take under TPDS to 7.7 million tonnes from 10.8 million tonnes in the corresponding period of the



previous year, as a consequence of the increase in Central Issue Prices (CIP) under PDS. As a result of the fall in off-take and enhanced procurement, the stocks of foodgrains rose to the level of 45.5 million tonnes (43.4 per cent) up to end-November 2000, as compared with 31.7 million tonnes in the previous year.

Industry

1.54 Industrial production (as measured by the IIP) fractionally decelerated to 6.0 per cent in April-November 2000-01 from 6.2 per cent in the first eight months of 1999-2000. Manufacturing and electricity generation both slowed down (Table 1.8). Among the 17 groups of manufacturing industries, only two industry groups, *i.e.*, metal products and parts (except machinery and equipment) and leather and leather and fur products registered double digit growth. In terms of the use-based classification, the growth of consumer goods continued to be high at 8.8 per cent, mainly driven by consumer durables. Capital goods production decelerated to 3.7 per cent. The overall growth rate of the infrastructure industries decelerated to 8.5 per cent in April-November 2000-01 from 9.0 per cent in the corresponding period of the previous year. Petroleum refinery products registered the highest growth (28.0 per cent), followed by steel (14.6 per cent) and coal (6.8 per cent). Production of crude petroleum remained constant while there was a deceleration in the growth of cement and electricity.

External Sector

1.55 The balance of payments data for the first half of 2000-01 point to a widening of the current account deficit to US \$ 4.0 billion from US \$ 2.9 billion during the corresponding period of last year. The trade deficit expanded by US \$ 1.7 billion to US \$ 9.2 billion on account of a large rise in oil imports which was partly offset by the buoyancy in export growth. The surplus in the invisible account increased from US \$ 4.7 billion in April-September 1999 to US \$ 5.2 billion mainly due to higher private transfers, partly offset by lower net earnings from services and higher investment income payments. The net capital flows declined from US \$ 4.3 billion to US \$ 2.8 billion mainly on account of lower foreign investment flows.

1.56 The stubborn rise in international oil prices has continued to impact adversely on the external sector. Provisional data released by the Ministry of Commerce indicate that PoL imports rose by 84.5 per cent to US \$ 11.4 billion during April-November 2000. Non-oil imports, on the other hand, declined by 2.6 per cent. Despite robust export growth at 18.2 per cent, the trade deficit increased marginally to US \$ 6.1 billion from US \$ 6.0 billion in April-November 1999.

1.57 In the capital account, foreign investment inflows were lower at US \$ 2.0 billion during the first seven months of 2000-01 (up to October) than US \$ 2.6 billion during the corresponding

Table 1.8: Month-wise Growth of Index of Industrial Production - General Classification
(Base : 1993-94 = 100)

Period	(Per cent)							
	General (100.00)		Manufacturing (79.36)		Mining (10.47)		Electricity (10.17)	
	1999-2000P	2000-01P	1999-2000P	2000-01P	1999-2000P	2000-01P	1999-2000P	2000-01P
1	2	3	4	5	6	7	8	9
April	4.7	6.5	5.1	7.1	-1.2	4.0	6.0	3.7
May	7.4	6.0	8.8	6.2	0.7	2.6	3.3	6.4
June	4.8	5.9	5.6	6.1	-1.5	4.4	4.1	5.0
July	6.2	5.0	6.9	5.7	0.0	2.0	6.2	2.6
August	7.3	5.0	7.4	5.5	2.2	4.0	10.9	1.0
September	7.3	6.5	6.4	7.1	5.2	5.1	16.7	2.2
October	8.4	6.6	9.4	6.1	-1.3	5.7	9.9	11.5
November	3.8	6.5	3.7	6.5	0.1	4.8	8.5	7.8
April-November	6.2	6.0	6.6	6.3	0.5	4.1	8.2	4.9

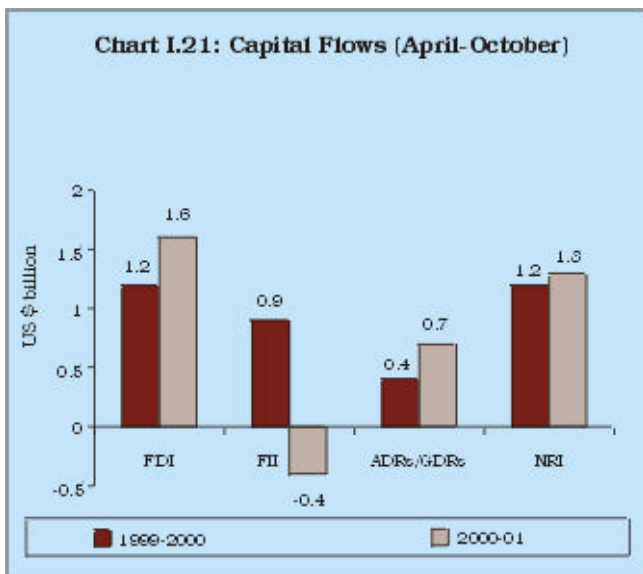
P Provisional

Figures in brackets are weights in IIP.

Source: Central Statistical Organisation

period of the previous year, on account of sluggish portfolio inflows. Net FII flows were uneven, registering an outflow of US \$ 421 million during the first seven months of 2000-01 as against an inflow of US \$ 854 million during the corresponding period of 1999-2000. Direct investment inflows were, however, marginally higher during 2000-01 (April-October) at US \$ 1.6 billion as against those of US \$ 1.2 billion in the corresponding period of the previous year. Net NRI deposit inflows amounted to US \$ 1.3 billion during 2000-01 (up to October 2000) as against US \$ 1.2 billion during 1999-2000 (up to October 1999) (Chart I.21). The

account of direct and indirect effects of the administered price revisions effected during the close of the previous year and again in September 2000. The WPI inflation rate stood at 4.5 per cent during 2000-01 (up to December 30, 2000) as compared with 2.9 per cent during the corresponding period of last year. On an average basis, 'fuel' inflation jumped to 25.7 per cent during the current financial year (up to December 30) from 6.7 per cent a year ago. 'Primary' inflation accelerated to 3.2 per cent from 1.3 per cent during the corresponding period of the previous year. However, manufacturing inflation, at 2.6 per cent, was comparable to the previous year's level of 2.5 per cent. The annual point-to-point inflation as on December 30, 2000, accelerated to 8.2 per cent from 3.0 per cent as on January 1, 2000. The core rate of inflation as on December 30, 2000 (excluding administered items) worked out to 3.5 per cent, on a point-to-point basis, as against the headline rate of 8.2 per cent.



1.60 On an weighted average basis, the fuel group contributed the maximum to inflation during 2000-01 (up to December 30, 2000), with a share of 64.3 per cent, which was substantially higher than that of 35.2 per cent during the corresponding period of the preceding year. This was followed by the manufactured products and primary articles groups' contributions at 24.9 per cent and 12.0 per cent as against 54.2 per cent and 11.6 per cent respectively, a year ago.

normal capital flows were bolstered by proceeds of about US \$ 5.5 billion raised under the IMD scheme launched during October-November 2000.

1.61 The inflation rate at the retail level, as measured by the annual variation in consumer price index for industrial workers (CPI-IW) on a point-to-point basis, increased to 2.7 per cent by end-November 2000 as compared with a negligible increase during the same period of the preceding year, reflecting mainly the upward trend in the prices of non-food articles. On a monthly average basis, however, CPI-IW inflation has remained below 4.0 per cent during 2000-01 (up to November), in contrast to the preceding year, when it ranged between 6-13 per cent.

1.58 The foreign exchange reserves declined by US \$ 3.1 billion from US \$ 38.0 billion at end-March 2000 to US \$ 34.9 billion at end-October 2000, reflecting the Reserve Bank's net foreign currency sales to authorised dealers and thereafter rose by US \$ 5.2 billion in the subsequent two months reflecting IMD inflows. As a result, foreign exchange reserves amounted to US \$ 40.1 billion as at end-December, 2000 or an increase of US \$ 2.1 billion during the current year so far.

Scheduled Commercial Bank Survey

Price Situation

1.62 Aggregate deposits of scheduled commercial banks increased by 14.5 per cent during 2000-01 so far (up to December 29, 2000) as against 10.9 per cent during the corresponding period in 1999-2000. The higher growth of deposits during the current financial year so far is partly a reflection of the shifting of the year-end bunching of 1999-2000 to the beginning of the

1.59 The average WPI inflation has trended upwards in fiscal 2000-01 so far, largely on

current year and partly because of inflow of Rs.25,662 crore in the form of India Millennium Deposits (IMD) mobilised from abroad. The year-on-year growth of aggregate deposits, excluding the IMD inflows, works out lower at 14.5 per cent during 2000-01 (up to December 29, 2000) than the growth of 16.7 per cent registered a year ago.

1.63 There has been a significant pick-up in bank credit which grew by 13.6 per cent during 2000-01 (up to December 29, 2000) from 12.6 per cent, a year ago. While growth of food credit was lower during 2000-01 so far at 45.8 per cent (against 52.2 per cent, a year ago), non-food credit increased to 11.6 per cent from 10.7 per cent. A sectoral deployment analysis of the behaviour of non-food gross bank credit of 50 reporting banks, as on September 22, 2000, shows a pick up in credit for exports, petroleum, infrastructure, chemical group and electricity (Table 1.9). There was a significant pick-up in working capital financing for bills receivables. To some extent this was because credit was directed towards inventory build-up especially in fertiliser, sugar, petroleum and automobiles industries.

1.64 The investments by scheduled commercial banks in non-SLR securities and government and other approved securities recorded lower increases of Rs. 5,790 crore (up to December 29, 2000) and Rs. 46,726 crore (up to December 15, 2000), respectively, than Rs.9,483 crore and

Rs.47,170 crore, respectively, deployed during the corresponding periods of 1999-2000.

Financial Markets

1.65 During 2000-01 (upto December), money market conditions were influenced by short-term developments in the currency market and policy interventions of the Reserve Bank aimed at promoting stability in the entire financial market spectrum including the money market. The developments in the money market during 2000-01 (up to December) can broadly be classified into three distinct phases, viz., April- May 2000, June-August 2000 and September-December 2000.

1.66 Easy liquidity conditions in the first phase limited movements of rates in the range of 6.84-7.64 per cent. During the second phase, the movements of the call rates were strongly influenced by short-term developments in the foreign exchange market and the response of the Reserve Bank to assuage market pressure. In June 2000, liquidity remained tight on account of advance tax payments (around Rs.10,000 crore) and volatility in the foreign exchange market, countered by increased spot sales by the Reserve Bank. In order to maintain orderly conditions in the money market, the Reserve Bank injected liquidity through newly introduced reverse repo auctions under the Liquidity

Table 1.9: Sectoral and Industry-wise Deployment of Gross Bank Credit of Scheduled Commercial Banks (Variations)

Sector/Industry	Variations as on September 24, 1999 over March 26, 1999		Variations as on September 22, 2000 over March 24, 2000	
	Absolute (Rupees crore)	Per cent	Absolute (Rupees crore)	Per cent
1	2	3	4	5
Priority Sector#	3,349	2.9	7,153	5.4
Industry (Medium and Large)	-2,126	-1.6	11,234	7.6
Whole Sale Trade (Other than food procurement)	810	5.8	721	4.3
Other sectors	3,710	5.6	2,771	3.5
Export Credit	-1,052	-2.9	891	2.3
Petroleum	644	11.7	2,916	32.5
Infrastructure	800	13.5	1,561	21.6
Chemical Group	484	2.4	1,870	8.0
Electricity	-185	-2.7	1,560	21.0

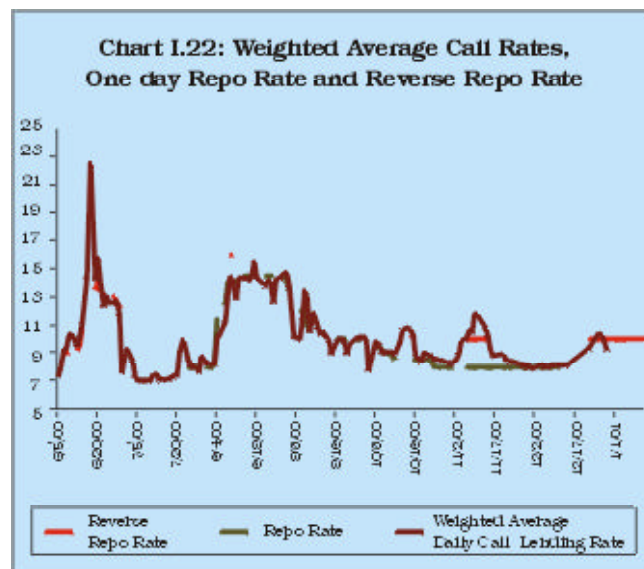
Excluding investments in eligible securities.

Note : Data are provisional and relate to 50 scheduled commercial banks.

Adjustment Facility (LAF), with rates ranging from 9 to 14 per cent. The call rates closely tracked the reverse repo rate throughout the month. On one occasion, *i.e.* June 16, the call rates shot up to 32.0 per cent following non-acceptance of any reverse repo bid by the Reserve Bank. The liquidity position improved considerably in July 2000 following redemptions and coupon payments. The foreign exchange market, after remaining stable during the first half of July 2000, turned uncertain. Responding to these developments, the Reserve Bank tightened monetary conditions and supplemented these measures by multiple day repo auctions since August 3, 2000. The average daily repo outstanding during August 2000 amounted to Rs.7,264 crore. The average call rates hardened from 7.88 per cent in July to 13.09 per cent in August 2000. In the third phase, inter-bank call money lending rates exhibited some softening following gradual restoration of stability in the foreign exchange market and facilitating a reduction in repo cut-off rates. The call rates gradually settled at 8.79 per cent in December 2000 from the average of 13.09 per cent in August 2000. The call rates firmed up during the first half of November 2000 following the auction of dated Government securities and strong interest in sales of Government paper under OMO conducted by the Reserve Bank. Upward pressure on call rates was assuaged through reverse repo operations. The liquidity position improved considerably in the second half of the month as the IMD funds flowed into the banking system and coupon inflows poured in. The liquidity situation remained generally easy for the most part of December with call rates hovering around the Bank Rate. Liquidity operations tempered a month-end spike and the weighted average call money lending rate ruled at 9.18 per cent during end-December 2000.

1.67 The recently introduced LAF has facilitated the maintenance of orderly market conditions (Chart 1.22). For instance, during June 2000, the reverse repo auctions were actively employed to inject liquidity when the liquidity conditions were tight. In contrary circumstances, such as in end-July and August 2000, the repo auctions were put to use to drain out liquidity from the system with a view to squelch any arbitrage opportunities emanating from the currency market. As the foreign exchange market stabilised, the repo rates declined from the peak of 15.0 per cent in August 2000 to 10.0 per cent by September 10, 2000 and

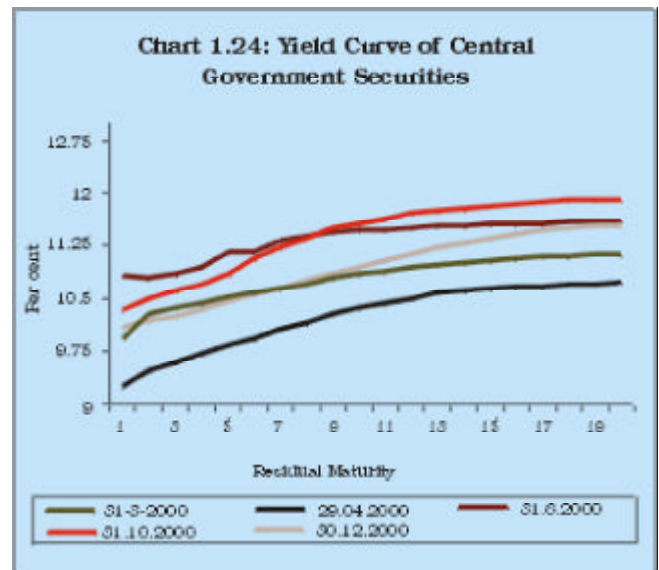
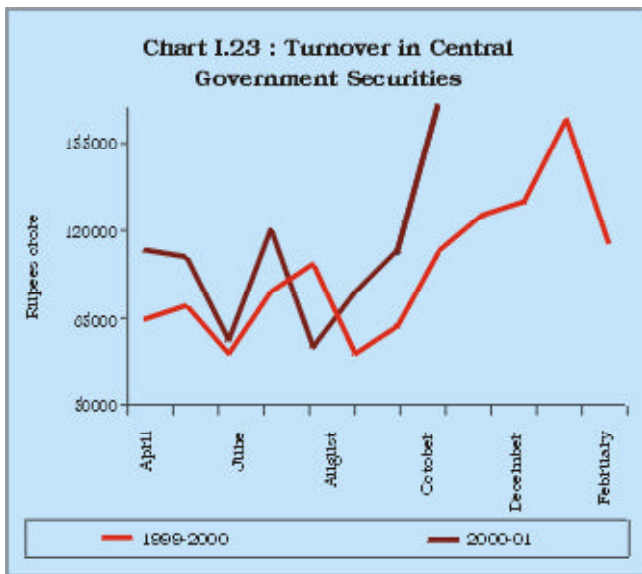
further to 8.0 per cent by end-October 2000. Injections of liquidity through reverse repos in November 2000 helped to soothe the call money market. During December 2000, liquidity



conditions were easy except for few days around December 26. Reverse repo bids were received and accepted at a cut-off rate of 10 per cent.

1.68 The Government securities market during 2000-01 (up to December) has largely been influenced by the behaviour of the currency market and the size of the Government borrowing programme. The yield curve in general shifted upwards and became steeper. The net market borrowings of the Central Government amounted to Rs.65,526 crore constituting around 86 per cent of the budgeted amount as against the corresponding figure of Rs.64,577 crore and 88 per cent of budgeted amount during the previous year. The initial support of the Reserve Bank to the market borrowing programme of Central Government by way of private placement and devolvement has also been a shade higher at Rs.32,978 crore as against Rs.29,267 crore in the corresponding period of the previous year.

1.69 The year 2000-01 started off with a small rally in the secondary Government securities market across the different maturity segments facilitated by the announcement of April 1, 2000 monetary measures. A downward shift in the yield curve was more pronounced in the short and medium end as the issuance of long tenor securities by the Reserve Bank somewhat contained the price increase at the long end. The turnover in Central Government securities during



this period registered a significant increase (Chart 1.23). The yield curve, thereafter, progressively edged up with firming of short-term rates, fluctuations in the currency market and July 21, 2000 monetary measures of the Reserve Bank. The upward shift in the yield curve, in general, was more pronounced at the medium and short ends *vis-a-vis* the long end during April to August 2000. The yield spread between the medium and short ends of the yield curve (10 years over 1 year) registered a progressive increase, barring July 2000. During July 2000, the prices of Government securities including the long tenor securities went up, till the announcement of July 21, 2000 monetary measures of the Reserve Bank. Higher inflows from coupon payments and redemption of Government securities, reduction in volatility in foreign exchange market coupled with improvement in the market sentiments facilitated a small rally in Government securities market which lasted till the mid of July 2000. Resurgence of volatility in the currency market during the second half of July was tackled with monetary measures of July 21, 2000. These measures were supplemented with higher levels of repo auctions, which, *inter alia*, influenced the upward shift of the yield curve. This phase continued till August 2000. In September-December 2000, the yield curve registered a downward shift with a gradual softening in cut-off yield of repo rates and reduction in volatility in currency markets. The downward shift in the yield curve was more pronounced at the short to medium end (Chart 1.24). During September-October 2000, the improved market sentiment and decline in the

repo rates steepened the yield curve, with yields declining in the shorter ends. As proceeds of the IMDs entered the system in mid-November 2000 and currency and oil markets stabilised, the yields at the longer end crashed in the face of the bullish rally in prices of government securities. With aggressive auctioning of government dated securities, the rally in the gilts market was arrested as market participants booked profits and subscribed to the auctions later. In December 2000, the gilt market rally resumed due to improved sentiment on account of a stable rupee, declining oil prices and expectations of cut in international interest rates.

1.70 During April-November 2000, total resource mobilisation by way of public and rights issues, at Rs.4,000 crore declined by 13.6 per cent. On the other hand, resource mobilisation by the private sector increased sharply by 9.6 per cent to Rs.3,289 crore. Of the total 122 issues, 11 issues for an aggregate amount of Rs.1,434 crore were floated using the book building method.

1.71 During April-September 2000, the private placement market witnessed subdued activity with total resources mobilised aggregating Rs.25,215 crore, registering a decline of 6.5 per cent as compared with Rs.26,965 crore raised during April-September 1999. Resources mobilised by the private sector at Rs.10,074 crore witnessed an increase of 14.2 per cent while those by the public sector at Rs.15,141 crore declined by 16.6 per cent.

1.72 The pace of resource mobilisation by mutual funds also moderated during April-

November 2000. In particular, resource mobilisation by UTI during April-November 2000, at Rs.3,175 crore, was 35.0 per cent lower as compared with Rs.4,888 crore during the corresponding period of the previous year.

1.73 Sanctions and disbursements by the term-lending institutions continued to display strong growth during the current financial year. The financial assistance sanctioned and disbursed by AIFIs during April-November 2000 at Rs.70,534 crore and Rs.40,242 crore registered an increase of 12.3 per cent and 12.0 per cent, respectively, as compared with 10.7 per cent and 13.3 per cent, respectively, during April-November 1999.

1.74 The uptrend in equity prices witnessed in 1999-2000 could not be sustained during April-December 2000. The 30-scrip BSE Sensex declined by 1,029.2 points (20.6 per cent) to 3,972.12 as at end-December 2000 over the end-March 2000 level. The monthly average of BSE Sensitive Index which stood at 5,261.77 in March 2000, declined to touch 4,081.41 by December 2000, registering a decline of 1,180.36 points (22.4 per cent). Substantial slowdown in net FII investment to Rs.2,158.36 crore (US \$ 480.95 million) during April-November 2000 as compared with Rs. 3,886.13 crore (US \$ 904.55 million) during the corresponding period of the preceding year, contributed to the decline in share prices. The sharp decline in the BSE Sensex was contributed mainly by the steep fall in IT stocks during the period. Slowdown in the industrial growth, volatility in the foreign exchange market, bearishness in the international stock markets and rising international oil prices were some of the other reasons that affected market sentiment.

1.75 The decline in IT stocks, in turn, was influenced by the trends at the NASDAQ. The NASDAQ Composite Index declined by 46.0 per cent as at end-December 2000 over the end-March 2000 level as compared with a decline of 20.6 per cent in the case of BSE Sensex during the same period. However, the volatility in share prices represented by the BSE Sensex, as measured by the coefficient of variation, declined to 9.0 per cent during April-December 2000 from 10.6 per cent during the corresponding period of the previous year.

1.76 The exchange rate of the rupee *vis-à-vis* the US dollar has traded within a range of

Rs. 43.61-46.89 during the current year so far (up to January 19, 2001). The foreign exchange market was affected by considerable uncertainty during the first half of 2000-01, prompting the Reserve Bank to undertake a number of measures to curb volatility in the markets between June 2000 and October 2000. These measures were supported by sales and purchases of foreign currency by the Reserve Bank. For the period April-October 2000, gross purchases amounted to US \$ 13.1 billion while gross sales amounted to US \$ 16.3 billion. Thus, the net sales during April-October 2000 amounted to US \$ 3.2 billion. The sales by the Reserve Bank during this period were to meet excess demand in currency markets, particularly on account of oil imports.

Monetary Policy

1.77 The April 2000 monetary and credit policy was framed in the context of easy liquidity conditions, although it was recognised that the outlook could "change dramatically within a relatively short period of time". The Reserve Bank continued to emphasise the need to meet legitimate requirements for bank credit while guarding against inflationary pressures due to excess demand. The M_3 growth rate during 2000-01 was projected at about 15.0 per cent, which was deemed consistent with a rate of inflation of about 4.5 per cent and a GDP growth rate of about 6.5-7.0 per cent. The GDP growth projection was revised to 6-6.5 per cent in October 2000 but the M_3 projection remained unchanged.

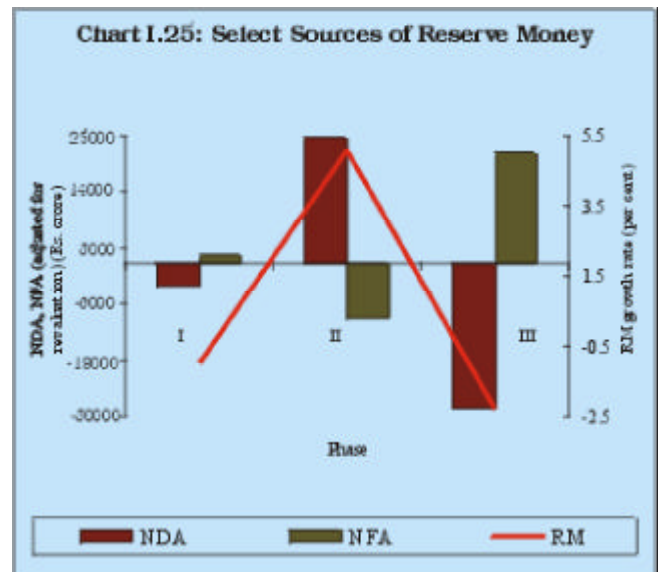
1.78 M_3 recorded a higher growth of 12.9 per cent during 2000-01 (up to December) than 11.3 per cent during the corresponding period of 1999-2000 because of inflows under India Millennium Bonds (Rs.25,662 crore). The Reserve Bank's Working Group on Money Supply (Chairman: Dr. Y.V. Reddy) recommended that money supply be compiled on residency basis by not directly reckoning banks' non-resident repatriable foreign currency fixed deposit liabilities. The monetary effect of such capital flows would, therefore, depend on their net effect on the monetary base. The year-on-year M_3 (net of IMDs) growth rate fell to 13.2 per cent as on December 29, 2000 from 17.7 per cent as on December 31, 1999. The monthly average year-on-year M_3 (net of RIBs/IMDs) growth rate decelerated to 15.3 per cent as on December 29, 2000 from 17.1 per cent as on December 31, 1999 and 18.0 per cent as on January 1, 1999. Currency with the public

decelerated to 8.4 per cent during 2000-01 (up to December 29) partly driven by a slowdown in agricultural activity. Aggregate deposits recorded a strong accretion of 14.0 per cent as compared with 10.9 per cent during the corresponding period of the previous year.

1.79 Domestic credit (adjusted for scheduled commercial banks' investments in non-SLR securities) increased by 11.3 per cent during 2000-01 (up to December 29) as compared with 12.4 per cent during 1999-2000 (up to December 31, 2000). Net bank credit to the Government decelerated to 11.3 per cent from 14.2 per cent last year, partly because of an improvement in the Centre's fiscal deficit. Bank credit to the commercial sector accelerated to 11.5 per cent during 2000-01 (up to December 29, 2000) from 10.3 per cent during the corresponding period of the previous year. The total resource flow from bank and non-bank sources, inclusive of capital issues, GDRs/FCCBs, CPs subscribed by non-banks and borrowings as well as bills rediscounted with financial institutions amounted to Rs. 1,09,162 crore during 2000-01 (up to December) as compared with Rs. 91,204 crore during the corresponding period of the previous year.

1.80 Reserve money increased by 1.9 per cent (Rs.5,317 crore) during 2000-01 (up to December 29, 2000) as compared with 2.1 per cent during the corresponding period of 1999-2000. The net RBI credit to the Centre decelerated to 2.2 per cent (Rs.3,041 crore) during 2000-01 (up to December 29, 2000) from 5.2 per cent (Rs.7,572 crore) during the corresponding period of 1999-2000, mainly on account of the Reserve Bank's net subscription to the Centre's fresh dated securities (Rs.29,504 crore at face value) partly offset by net open market sales (Rs.19,090 crore, of which Rs.11,388 crore were to commercial banks). The Reserve Bank's foreign currency assets increased by Rs.12,900 crore (adjusted for revaluation) during 2000-01 (up to December 29, 2000) as compared with an increase of Rs.11,922 crore (adjusted for revaluation) during the corresponding period of 1999-2000, mainly on account of IMD inflows. The monetary impact of IMDs was, by and large, offset by market offtake of government paper *via* auctions and the Reserve Bank's OMO window and net sales to authorised dealers.

1.81 Monetary management during 2000-01 could be analytically viewed in terms of three



phases, viz., April 2000, May-November 3, 2000 and November 3, 2000 onwards, as the Reserve Bank had to balance the domestic and external sources of monetisation in order to maintain orderly conditions in the money and foreign exchange markets (Chart 1.25).

1.82 In the first phase, easy liquidity conditions prevailed as a result of capital flows. With stability returning to the foreign exchange market as a result of sustained excess supply conditions, the Reserve Bank continued to ease monetary conditions by reducing by one percentage point i) the CRR to 8.0 per cent in two equal stages effective April 8 and April 22, 2000 augmenting the lendable resources with commercial banks by Rs.7,200 crore, ii) the Bank Rate to 7.0 per cent effective the close of business on April 1, 2000 and iii) the fixed rate repo rate to 5.0 per cent effective April 3, 2000. The Reserve Bank also cut the savings deposit rate of scheduled commercial banks by 0.5 percentage point to 4.0 per cent, effective April 3, 2000. The increase in the Centre's monetised deficit (Rs.11,785 crore) was offset by the reduction in the Reserve Bank's credit to commercial banks and primary dealers (Rs.11,172 crore).

1.83 The situation changed dramatically in the second phase beginning May 2000, with the return of excess demand conditions in the foreign exchange market, as a result of a sharp increase in the oil import bill and the drying up of capital flows. The Reserve Bank's foreign currency assets declined by Rs.10,676 crore

(adjusted for revaluation) between April 21-November 3, 2000, essentially on account of net sales to authorised dealers. With monetary policy action in the form of a 0.5 per cent CRR hike (impounding banks' lendable resources by about Rs. 3,800 crore) and a cut in banks' refinance facility, together sucking out about Rs.7,000 crore, the liquidity gap was met by a sharp increase in the net RBI credit to the Centre (Rs.17,783 crore). In fact, the Centre's monetised deficit hit a historic peak at Rs. 29,568 crore on November 3, 2000.

1.84 The Reserve Bank announced measures on May 25, 2000 to contain the ensuing volatility in the exchange rate through measures to reduce the demand supply gap in the foreign exchange market. First, an interest rate surcharge of 50 per cent of the lending rate on import finance was imposed with effect from May 26, 2000 as a temporary measure. Essential categories, such as export related imports, bulk imports in respect of crude oil, petroleum products, fertilisers, edible oil and other essential commodities imported through Government agencies were exempted from interest surcharge. Secondly, the Reserve Bank indicated that it would meet partially or fully the Government debt service payments directly as considered necessary. Thirdly, it was decided to make arrangements to meet fully or partially the foreign exchange requirements for import of crude oil by the Indian Oil Corporation. Fourthly, the Reserve Bank also announced that it would continue to sell US dollars through the State Bank of India in order to augment supply in the market or intervene directly as considered necessary to meet any temporary demand-supply imbalances. Fifthly, exporters were advised not to delay repatriation of export proceeds beyond the due date. In order to discourage any delay in realisation of export proceeds, it was decided that in respect of overdue export bills, banks would charge interest at 25 per cent per annum (minimum) from the date the bill falls due for payment. Sixthly, the Reserve Bank reiterated that authorised dealers acting on behalf of FIIs were free to approach it to procure foreign exchange at the prevailing market rate. Depending on market conditions, the Reserve Bank would either sell the foreign exchange directly or advise the concerned bank to buy it in the market. Finally, banks were advised to enter into transactions in the forex market only on the

basis of genuine requirements and not for the purpose of building up speculative positions. The RBI also indicated that it would monitor the position closely. In response to these measures, the rupee regained stability and traded within a narrow range of Rs.44.57 – Rs.44.79 per US dollar during June 2000.

1.85 The Reserve Bank modulated liquidity conditions with a view to maintaining interest rates at levels sufficiently high to discourage spill overs from the money market to the foreign exchange market and at the same time to avoid excessive pressure on interest rates in the context of the Government borrowing programme. Tight money market conditions in the face of exchange market volatility drove up banks' and PDs' recourse to the Reserve Bank by Rs.7,236 crore between April 21-June 30, thereby nudging up call rates above the Bank Rate especially during the second half of May and June 2000. The Reserve Bank accepted private placements/devolvments of dated securities amounting to Rs.6,961 crore during this period to ease pressure on domestic interest rates. The introduction of the Liquidity Adjustment Facility (LAF) effective June 5, 2000 allowed the Reserve Bank an additional lever for influencing short-term liquidity conditions. With the decline in foreign currency assets by Rs. 5,798 crore (adjusted for revaluation) between May 19 - June 30, 2000, the Reserve Bank conducted reverse repo auctions, averaging about Rs.3,000 crore, at interest rates which were gradually scaled down with the return of stability in the foreign exchange market.

1.86 The exchange rate of the Indian rupee depreciated to Rs.45.02 per US dollar on July 21, 2000 after trading in the range of Rs.44.68-44.74 per US dollar during the first half of July 2000. On a review of developments in the international and domestic financial markets including the foreign exchange market, the Reserve Bank tightened monetary conditions through a package of measures on July 21, 2000. First, the Bank Rate was increased by 1 percentage point from 7 per cent to 8 per cent as at the close of business on July 21, 2000. Secondly, the Cash Reserve Ratio (CRR) was increased by 0.5 percentage point from 8 per cent to 8.5 per cent in two stages by 0.25 percentage point each effective July 29, 2000

and August 12, 2000. Thirdly, the limits available to banks for all refinance facilities including the collateralised lending facility (CLF) were reduced temporarily to the extent of 50 per cent of the eligible limits in two equal stages: effective from July 29, 2000 and August 12, 2000. The balances in Exchange Earners' Foreign Currency (EEFC) accounts were required to be scaled down to 50 per cent of the amount held on August 11, 2000 by August 23, 2000. Future accretions to EEFC accounts were restricted to 50 per cent of existing limits and were required to be maintained in liquid form as current/savings accounts. Credit facilities available against EEFC accounts were held in abeyance till further notice. In the Mid-term Review of Monetary and Credit Policy for the year 2000-01 the EEFC entitlements were restored to their earlier levels. It was also decided that the EEFC accounts would henceforth be held in the form of current accounts and no credit facilities would be provided by banks against the EEFC balances.

1.88 The Reserve Bank continued to modulate liquidity conditions to counterbalance the further reduction in its net foreign assets (Rs.4,239 crore, adjusted for revaluation) between June 30 - November 3, 2000. The Reserve Bank's net primary subscription to Government during this period amounted to Rs.21,543 crore while net open market sales amounted to Rs.4,328 crore (of which Rs.632 crore to commercial banks). The monetary impact of the monetisation of the fiscal deficit was contained by repo operations (which peaked at Rs.19,115 crore as on September 5, 2000) under the Liquidity Adjustment Facility at higher interest rates. Daily repo rates were hiked from 8.0 per cent as on August 1, 2000 to 15.5 per cent as on August 9, 2000 and subsequently brought down to 8.0 per cent by October 25, 2000.

1.89 The third phase witnessed an accretion to the Reserve Bank's foreign currency assets with gradual inflows of India Millennium Deposits. The Reserve Bank was able to contain the monetary impact of the accretion to its foreign currency assets by divesting its net domestic assets with the revival of market interest in government paper. As a result, the Reserve Bank's net credit to the Centre declined by Rs.26,527 crore during 2000-01. During November-December, 2000, while the repo rate was 8.0 per cent, the reverse repo rate was 10.0 per cent.

Public Finances

1.90 The developments in Central government finances during the first eight months of the current fiscal year, *i.e.*, April-November 2000 reveal a relatively better fiscal performance as compared with the previous year. Some of the important positive trends during the current fiscal year so far have been continued buoyancy in revenue collections and containment of the fiscal deficit. The gross fiscal deficit (GFD) at Rs.64,269 crore or 3.0 per cent of GDP (April-November 2000) was lower by 0.3 per cent over the corresponding period of last year. The revenue deficit, at Rs.42,662 crore, in the first eight months showed a decline of 6.2 per cent over last year (Rs.45,492 crore). The primary deficit at Rs.7,188 crore was much lower than that in April-November 1999. Revenue receipts during 2000-01 (April-November) registered a growth of 16.1 per cent (14 per cent in April-November 1999) which has been above the projected revenue growth of 13.5 per cent for the full fiscal year 2000-01. Of the non-debt capital resources, revenue mobilisation from disinvestment budgeted at Rs.10,000 crore for this year is nil so far. The aggregate expenditure during 2000-01 (up to November 2000) was higher by 8.8 per cent over the level of April-November 1999 whereas the expenditure growth remained negative till July this year. The agreed limit of Centre's Ways and Means Advances (WMA) for the first and second half of 2000-01 remained same as in the last year, *i.e.*, Rs.11,000 crore (April-September) and Rs. 7,000 crore (October-March) respectively. During the first nine months (April-December 2000) the average utilisation of WMA was Rs.6,061 crore, higher than the same period of the previous year (Rs.5,710 crore). The average incremental net RBI credit to the Centre was higher than the level of the same period of last year.

1.91 During 2000-01, net market borrowings provisionally allocated for all States amounted to Rs. 10,830 crore and after taking into account the repayments, the gross borrowings are placed at Rs. 11,250 crore. At this level it would show 18 per cent decline over the gross borrowings of Rs. 13,706 crore raised during the previous year. During the current fiscal year so far (up to December 2000) the aggregate market

OVERVIEW

borrowings of States amounted to Rs.10,083 crore constituting 89.6 per cent of their gross market borrowing programme (provisional) for the full fiscal year. The interest rate on State borrowings began to firm up in tandem with the market conditions.

1.92 The debt management strategy of lengthening the maturity structure of government loans continued during the current fiscal year. The maturity of Central Government loans issued ranged between 2 years 11 months to 20 years as against the maturity range of 5 years 3 months to

19 years 8 months for the loans issued during 1999-2000. During the current financial year 2000-01 (as on December 22, 2000) State Governments' outstanding WMA including overdrafts from Reserve Bank amounted to Rs. 4,305 crore which was substantially higher than Rs. 2,997 crore for the similar period of the previous year.

1.93 Against the backdrop of economic and financial conditions of the Indian economy set out in this chapter, the Report now turns to its theme.



THE THEME

2.1 The world of finance has changed markedly over the last 30 years or so. The change has been brought about by a number of events and circumstances. The growing dissatisfaction with the working of the fixed exchange rate system during the 1960s led many countries, especially of the industrialised world to adopt floating exchange rate system by the early 1970s. There was also a growing realisation that for achieving sustained growth with stability, it would be necessary to have freer trade, liberalised external capital movements, and a relatively flexible use of domestic monetary policy. With trade being subject to multilateral negotiations, industrialised countries and some of the emerging market economies took steps to liberalise capital movements across countries since about the middle of the 1970s. Simultaneously, efforts were made to remove distortions in the domestic financial sector through elimination or containment of reserve requirements and interest rate regulations. These initiatives coincided with the rapid technological improvements in electronic payment and communication systems. The interactions among these factors helped the process of internationalisation of financial markets. Under the impact of economic liberalisation, the industrialised countries as a group improved their relative economic position in the world economy, and posted high growth rates in the 1980s and thereafter. This experience has confirmed the analytical expectations about the release of impulses of growth with financial liberalization, best articulated by McKinnon (1973) and Shaw (1973) in the case of developing countries¹. The emergence of financial innovations consequent upon financial development and global integration has cast doubts about the effectiveness of having simple rules of monetary policy, such as, monetary targeting. As a result, domestic monetary policy making has had to be adequately flexible to

attain the specified objective(s). This development implies that the interface between the financial market dynamics and monetary and exchange management has to be continuous and mutually reinforcing. It is by now recognised that the behavioural relations that evolve out of this interface would provide critical insights about the state of the development, diversification, efficiency and integration of financial markets as also the elements that constitute the transmission channels of monetary policy.

2.2 Developing countries on their part have been adopting since the early 1980s market-oriented strategies of financial development partly supported by the international financial institutions and partly to avail of the large pool of resources available in international financial markets. They either dismantled or sharply contained "financial repression" and undertook financial reforms with a view to enhancing allocative efficiency and competitiveness. Financial development, as a major objective of financial reforms, required the deepening and widening of the existing financial markets as well as the introduction of new products and instruments to cater to the needs of savers and investors. With financial development, secondary markets would become prominent and ensure that financial sector integration is rendered possible.

2.3 Financial development would, however, depend on market based regulatory framework and incentives (disincentives) that promote market discipline. Where market discipline is not well understood or not complied with, there would arise possibilities of inefficiencies and/or volatilities in asset prices to emerge. Financial stability, therefore, has to be pursued for financial development to be sustained and strengthened so as to ultimately result in improvement in output growth.

2.4 The process of deregulation and globalisation of financial markets gained momentum in the 1990s, and expanded the choices for investors, and helped to improve the prospects of reducing the costs of financial

1. McKinnon, R.I., (1973), *Money and Capital in Economic Development*, Brookings Institution, Washington D.C.

Shaw, G.S., (1973), *Financial Deepening in Economic Development*, New York, Oxford University Press.

transactions and improving operational and allocative efficiency of the financial system. A number of developing countries especially in Asia, that moved early on to the path of economic liberalisation had experienced large capital inflows through the 1980s and the first half of the 1990s. Large capital inflows, however, carried the risk of financial sector vulnerability, where the use of such flows is not buttressed by application of appropriate mix of macroeconomic and structural policy measures. The recent currency and financial crises in Mexico and Thailand, followed by Korea and Indonesia, provide many insights about the problems that would arise when exchange rates are inflexible, and banking and financial systems are weak.

2.5 The experience of the crisis-affected countries highlights the need for setting in place regulatory and supervisory framework to ensure the safety and stability of financial systems. Their experience also underscored the premise that financial development is only a necessary condition of sustainable growth, and by no means sufficient. In fact, with the incidence of the costs of financial crises falling on the sovereign governments, financial stability has come to occupy a centre-stage in public policy making along with the requirement of ensuring that the efficiency of financial sector is high. In this context, the discussions on financial development have focussed on a wide range of issues - the overall redrawing of boundaries between the State ownership of financial entities and private sector ones, corporate governance in banks and other segments of the financial systems, transparency of policies and practices of the monetary and financial agencies and accountability, prudential requirements of market participants together with comprehensive and efficient oversight of the financial system, maintenance of best practices in accounting and auditing, as also collection, processing and dissemination of symmetric and detailed information to meet the market needs. The commonality among these concerns has given rise to a wide recognition and acceptance of having a set of international standards and best practices that every 'systemically important' country should strive to foster and implement.

2.6 In view of the criticality of the working of this sector for India, this Report would focus on "**Financial Sector and Market Integration**" as its main theme. The Report would analytically view the developments in the financial markets and

discuss the issues that have arisen with particular reference to the period since the early 1990s. The choice of this period is dictated by the fact that liberalisation of financial markets in a true sense began in the late 1980s and was dovetailed into a comprehensive programme of reforms initiated in the early 1990s. As the financial sector reforms are still being pursued along with reforms of the real sector (agriculture and industry in the main) and trade, and to an extent the labour market, it would be difficult at this stage to make definitive assessment of the performance of the sector and of the liberalisation experience. However, the analysis will help provide a detailed account of processes through which the markets have evolved and are getting increasingly integrated. The sequencing of policy measures following the analytical underpinning and live experiences of countries elsewhere would form an important part of the account being related in this Report.

2.7 The Report analyses the issues relating to financial development, financial market structure, financial integration and efficiency as also financial stability with reference to India. Although the issues are of recent origin, the use of the data pertains to different time periods, depending on the needs of analysis.

2.8 Among the various economic reform measures undertaken in recent years, those relating to the financial sector were many and sharply focused. Chapter III (**Financial Development and Economic Growth in India**) provides a broad spectrum of indicators often used to measure financial development. Various indicators show that the Indian financial system has become fairly deep over time. Among the two broad sources of finance, *viz.*, intermediaries-based and market-based, the relative importance of the latter has grown in the 1990s, even though the former continues to be the main source of financing. The empirical exercise presented in Chapter III suggests that financial development and economic growth reinforced each other.

2.9 The organisational structure of the financial markets has important implications from the point of view of integration, efficiency and stability. A competitive market structure and transparent trading practices help in improving allocative efficiency of resources. With the initiation of financial sector reforms, a significant transformation has occurred in the structure of various segments of the financial markets.

Chapter IV (**Financial Market Structure**) analyses the structure of various financial markets (the credit market, the money market, the foreign exchange market, the debt market, the capital market, the insurance market and the derivatives market) as it evolved during the 1990s.

2.10 In a market oriented economy, segmented markets could not only obscure the transmission of public policies but also give rise to sub-optimal allocation of resources. Financial markets in India which remained segmented for long are getting increasingly integrated both domestically and internationally following initiation of financial sector reforms in the 1990s. Chapter V (**Financial Market Integration**) analyses, in detail, various aspects of the integration of financial markets in India. Integration of domestic financial markets is analysed in terms of the linkages across the term structure of interest rates and between interest rates and other asset prices, particularly stock prices. Cross-border integration is studied through various indicators of openness to trade and finance as also the standard international parity conditions.

2.11 As fragilities in the financial system could cause serious damage to the real economy, the importance of policy actions to safeguard financial stability can hardly be over-emphasised. While a modicum of volatility is an integral part of development and integration of the financial markets, excessive volatility could, however, turn

out to be destabilising, thereby making the economy vulnerable to a variety of risks. In order to ensure stability of the Indian financial sector, a wide array of measures have been adopted. Chapter VI (**Reinforcing Financial Stability**) analyses the macro and micro prudential indicators of the financial system, issues of transparency, policy credibility and policy responses to achieve the requisite levels of transparency. The fiscal policy issues having a bearing on financial stability and the criticality of co-ordination among fiscal, monetary and exchange rate policies in ensuring financial and macroeconomic stability have also been examined.

2.12 Finance plays an important role in the process of economic development. For performing this role effectively, it is necessary that both financial institutions and financial markets are efficient. Various reform measures initiated in the 1990s are, *inter alia*, aimed at making the financial institutions and markets efficient. Chapter VII (**Financial Sector Efficiency**) examines, in detail, financial sector efficiency, especially of the banking sector. Efficiency of both the markets and the institutions has improved following competitive pressures resulting from deregulation of financial markets, advances in technology, blurring of distinctions among providers of financial services and increasing integration of markets.



FINANCIAL DEVELOPMENT AND ECONOMIC GROWTH IN INDIA

3.1 The evolution of the Indian financial system from somewhat of a constricted and an undersized one to a more open, deregulated and market oriented one and its interface with the growth process are the major areas of analysis in this Chapter. The process of financial development in independent India hinged effectively on the development of commercial banking, with the impetus given to industrialisation based on the initiatives provided in the five year plans. Financing of emerging trade and industrial activities during the 'fifties, and the 'sixties reflected the dominance of banking as the critical source. The number of banks and branches had gone up, notwithstanding the consolidation of small banks, and the support given to co-operative credit movement¹. Functionally, banks catered to the needs of the organised industrial and trading sectors. The primary sector consisting of 'agriculture, forestry and fishing' which formed more than 50 per cent of GDP during this period had to depend largely on own financing and on sources outside the commercial banks. It is against this backdrop that the process of financial development was given impetus with the adoption of the policy of social control over banks in 1967, reinforced in 1969 by the nationalisation of 14 major scheduled commercial banks. Since then, the banking system has formed the core of the Indian financial system. Driven largely by the public sector initiative and policy activism, commercial banks have a dominant share in total financial assets and are the main source of financing for the private corporate sector. They also channel a sizeable share of household savings

¹ The co-operative credit is catered by a banking system that comprises Primary (Urban) Co-operative Banks (PCBs/UCBs), including the salary earners' societies, for the urban areas and a three-tier structure in the rural areas that includes State Co-operative Banks at the apex level, District Central Co-operative Banks (DCCBs) at the intermediate level and Primary Agricultural Credit Societies (PACS) at the grass-root level. At the long-end, State Co-operative Agriculture and Rural Development Banks (SCARDBs) operate at the apex level, while Primary Co-operative Agriculture and Rural Development Banks (PCARDBs) operate at the base level.

to the public sector. Besides, in recent years, they have been performing most of the payment system functions. With increased diversification in recent years, banks in both public and private sectors have been providing a wide range of financial services.

3.2 In the three decades following the first wave of bank nationalisation (the second wave consisted of six commercial banks in 1980), the number of scheduled commercial banks has quadrupled and the number of bank branches has increased eight-fold. Aggregate deposits of scheduled commercial banks have increased at a compound annual average growth rate of 17.8 per cent during this period (1969 to 1999), while bank credit expanded at a rate of 16.3 per cent per annum. Banks' investments in government and other approved securities recorded a growth of 18.8 per cent per annum. The increased role of bank intermediation is also reflected in its payment system activities. The total cheque clearances have gone up by 2175 times during this period, spurred by a qualitative shift from a manual to an electronic cheque clearing system.

3.3 The financial system outside the banks has also exhibited considerable dynamism. The system today is varied, with a well-diversified structure of financial institutions, financial companies and mutual funds. Financial institutions comprise all-India Financial Institutions (AIFIs), State-level Institutions (SFCs and SIDCs) and other institutions (ECGC and DICGC).² AIFIs include all-India Development Banks (IFCI, ICICI, IDBI, SIDBI and IIBI), specialised institutions (EXIM Bank, IVCF, ICICI Venture, TFCI and IDFC), investment institutions (UTI, LIC and GIC and its subsidiaries) and refinance institutions (NABARD and NHB). The setting up of some specialised financial institutions and refinance institutions during last three decades and the onset of reforms from about the early 'nineties, provided depth to the financial intermediation

² Presently 18 State Financial Corporations (SFCs) and 26 State Industrial Development Corporations (SIDCs) exist.

outside the banking sector. These developments, coupled with increased financial market liberalisation, have enhanced competition. A number of the existing financial institutions have diversified into several new activities, such as, investment banking and infrastructure financing, providing guarantees for domestic and offshore lending for infrastructure projects. Apart from the financial institutions, rapid expansion of Non-Banking Financial Companies (NBFCs) took place in the 'eighties and provided avenues for depositors to hold assets and for borrowers to enhance the scale of funding of their activities. Various types of NBFCs have provided varied services that include equipment leasing, hire purchase, loans, investments, mutual benefit and chit fund activities. More recently, NBFC activity has picked up in the area of housing finance. Financial development is also reflected in the growing importance of mutual funds. In the 'nineties, they have enabled sizable mobilisation of financial surpluses of the households for investment in capital markets. Capital markets themselves have become an important source of financing corporate investments, especially after firms were permitted to charge share premium in a flexible manner.

3.4 Sanctions as well as disbursements of all-financial institutions, including the SFCs and the SIDCs has expanded at a rate of 24.1 per cent per annum and 23.8 per cent per annum, respectively, during 1970-71 to 1999-2000. In addition, there has been a spurt in the activities of NBFCs and mutual funds over the last two decades. Deposits of NBFCs recorded an impressive growth of about 35 per cent per annum from the mid-'eighties to the middle of the 'nineties. In the 'sixties and 'seventies, the Unit Trust of India (UTI) was the only mutual fund. By 1999-2000 as many as 34 mutual funds were operating of which 7 mutual funds were set up by the public sector banks and financial institutions. Their total resource mobilisation in 1999-2000 was nearly Rs. 22,000 crore, with 78 per cent of this having been mobilised by the private sector mutual funds.

3.5 The financial development in the banking and non-bank financial sector has supported saving and investment in the economy and contributed to growth in real activity. By pooling risks, reaping economies of scale and scope, and by providing maturity transformation, financial

intermediation supports economic activity of the non-financial sectors. Its influence on growth, however, needs to be examined from different viewpoints that are of potential relevance in the Indian context. Before analysing the linkage between financial development and growth, it would be necessary to know as to how financial development is measured.

Indicators of Financial Development in India

3.6 There are a number of indicators for measuring financial development of an economy. Most of them relate to the asset/liability aggregates of different financial institutions. For the purpose of easy understanding and comparability, all the asset/liability aggregates are presented as ratios to GDP at current market prices.

Broad Based Indicators of Financial Development

3.7 One of the basic indicators of financial development of an economy is the contribution of finance-related activities in real GDP, *i.e.*, the contribution of banking and insurance in GDP. The share of real GDP originating from finance related activities experienced a steady increase from 2.2 per cent during the first half of the 'seventies to 4.7 per cent during 1993-94 to 1998-99 (Table 3.1). Within the services sector, the share of finance worked out to little over 11 per cent during the 'nineties.

Table 3.1: Share of Real GDP originating in Banking and Insurance

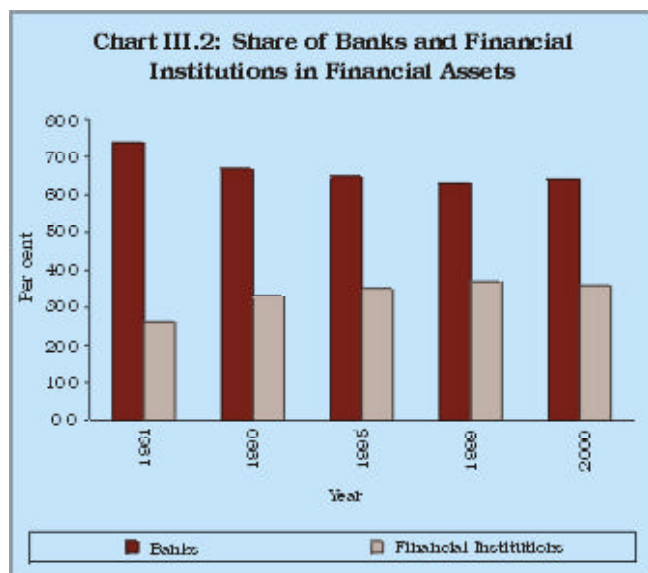
(Per cent)

Period	Share of Banking and Insurance in GDP	Share of Banking and Insurance in Services Sector
1	2	3
1970-71 to 1974-75	2.2	5.7
1975-76 to 1979-80	2.7	6.8
1980-81 to 1984-85	3.1	7.5
1985-86 to 1992-93	4.9	11.2
1993-94 to 1998-99	4.7	11.8

Note : While the shares from 1970-71 through 1993-94 are calculated from respective GDP (or its constituents) with 1980-81 base, the same from 1994-95 through 1998-99 are from the data with 1993-94 base.

Source: *National Accounts Statistics*, Central Statistical Organisation, various issues.

3.8 It may be noted that the growth of GDP originating in finance was generally higher than that of GDP ever since the mid 'seventies (Chart III.1).³ The higher growth rate of GDP from finance in comparison to total GDP, to some extent, arose from the low base of GDP from finance.



3.9 The extent and process of evolution of financial development can be gauged from the flow of funds accounts of the Indian economy, which provides information on instrument-wise and sector-wise financial flows. The data in this regard are available up to 1995-96. The financial system intermediates part of a country's total investment through financial institutions, while firms, households and the government finance a part of the investment directly through their own savings. Financial intermediaries perform the important task of moving financial resources from the units in surpluses to those which are in deficit and need finance from other units for their investments. Financial development is, therefore, to some extent reflected in the inter-sectoral movements of funds. The flow of funds accounts for the Indian economy provide information on the following six sectors of the economy: households, corporates, government, banks, other financial institutions (OFIs) and the rest of the world (ROW). Of the six sectors of the economy, household is the only sector which is in consistent surplus, while

³ While the growth rate from 1970-71 through 1993-94 are calculated from respective GDP (or its constituents) with 1980-81 base, the same from 1994-95 through 1998-99 are compiled from the data with 1993-94 base.

government and corporates are the deficit sectors. The deficit sectors meet their requirements mainly from the households and occasionally, and to a smaller extent from the ROW. Funds can flow from surplus to deficit sectors either directly or through banks and OFIs as intermediaries. Thus, total sources of funds or the total issues can be segregated into two distinct parts, viz., primary issues (*i.e.*, those funds which directly flow from surplus to deficit sectors) and secondary issues (*i.e.*, those funds which flow through the financial intermediaries, viz., banks and OFIs). Total issues which amounted to Rs. 5,877 crore in 1970-71 rose to Rs. 4,34,308 crore in 1995-96 (Table 3.2). A more interesting feature emerges from the sectoral distribution of the total claims. While the share of primary issues had registered a steady decline from 60.3 per cent in 1970-71 to 57.6 per cent in 1990-91, *per contra* there had been an increase in the share of secondary issues. This is indicative of the process of intermediation in the economy. This trend continued during the 'nineties as well, with the exception of 1995-96. Almost the whole of the primary issues was in the form of domestic primary issues in most years under review.

3.10 The financial deepening and widening of India as well as the role of financial development in national income and capital formation may be also seen from the various financial development ratios that can be derived from the flow-of-funds data (Table 3.3). Most of the four commonly tracked ratios exhibited upward trend during the 'seventies and the 'eighties. In the 'nineties, however, there were moderate fluctuations in some of the ratios.

3.11 The finance ratio, as the ratio of total financial claims to national income, is an indicator of the rate of financial development in relation to economic growth. This ratio exhibited generally a steady increase over the period under consideration and reached 0.5 during 1993-94 to 1995-96.⁴ The financial inter-relations ratio (*i.e.*, the ratio between total issues to net domestic capital formation) reflects the relation between the financial structure and real asset structure. Though the ratio exhibited year-to-year fluctuation, it has averaged around 2.4 since 1990-91. The new issue ratio (*i.e.*, the ratio of primary issues to net domestic capital formation), on the other hand, which was at a high of 1.618

⁴ 1995-96 is the latest year for which flow of funds data are available.

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in 1991-92 declined to 1.161 in 1994-95, before increasing to 1.328 in 1995-96 (Table 3.3). This ratio is indicative of the extent of dependence of

the non-financial sector on its own funds in financing the capital formation. A downward movement in the ratio (as seen during 1992-93

Table 3.2: Primary and Secondary Issues

(Rs. crore)

Year	Secondary Issues	Primary Issues	<i>of which:</i> Domestic Primary Issues	<i>of which:</i> Issues of the Rest of the World	Total Issues
1	2	3 = 4+5	4	5	6
1970-71	2,336 (39.7)	3,541 (60.3)	3,479 (59.2)	62 (1.1)	5,877 (100.0)
1975-76	6,733 (42.8)	8,999 (57.2)	8,125 (51.6)	874 (5.6)	15,732 (100.0)
1980-81	14,731 (40.7)	21,452 (59.3)	21,408 (59.2)	44 (0.1)	36,183 (100.0)
1985-86	30,558 (42.1)	42,006 (57.9)	43,698 (60.2)	-1,692 (-2.3)	72,564 (100.0)
1990-91	71,016 (42.4)	96,508 (57.6)	1,03,558 (61.8)	-7,050 (-4.2)	1,67,524 (100.0)
1991-92	1,06,386 (44.6)	1,31,916 (55.4)	1,24,664 (52.3)	7,252 (3.0)	2,38,302 (100.0)
1992-93	95,790 (45.7)	1,13,990 (54.3)	1,17,511 (56.0)	-3,521 (-1.7)	2,09,780 (100.0)
1993-94	1,42,897 (47.3)	1,59,200 (52.7)	1,40,079 (46.4)	19,121 (6.3)	3,02,097 (100.0)
1994-95	1,89,996 (47.7)	2,08,182 (52.3)	2,06,761 (51.9)	1,421 (0.4)	3,98,178 (100.0)
1995-96	1,79,116 (41.2)	2,55,192 (58.8)	2,63,153 (60.6)	-7,961 (-1.8)	4,34,308 (100.0)

Note : Figures in brackets represent percentage shares to total claims.

Source : *Flow of Funds Accounts of the Indian Economy*, Reserve Bank of India, 2000.

Table 3.3: Flow of Funds Based Indicators of Financial Development in India

Period / Year	Finance Ratio	Financial Inter-relations Ratio	New Issue Ratio	Intermediation Ratio
1	2	3	4	5
1970-71 to 1974-75	0.168	1.379	0.788	0.770
1975-76 to 1979-80	0.274	1.818	1.042	0.743
1980-81 to 1984-85	0.344	2.421	1.429	0.690
1985-86 to 1989-90	0.400	2.402	1.401	0.721
1990-91	0.401	1.745	1.005	0.736
1991-92	0.497	2.922	1.618	0.806
1992-93	0.384	2.183	1.186	0.840
1993-94	0.473	2.825	1.489	0.898
1994-95	0.524	2.433	1.161	0.913
1995-96	0.493	2.260	1.328	0.702

Note : 1. Finance Ratio = Ratio of Total Issues to National Income.

2. Financial Inter-relations Ratio = Ratio of Total Issues to Net Domestic Capital Formation.

3. New Issue Ratio = Ratio of Primary Issues to Net Domestic Capital Formation.

4. Intermediation Ratio = Ratio of Secondary Issues (*i.e.*, issues by banks and other financial institutions) to Primary Issues.

5. National Income refers to Net National Product at factor cost at current prices (1980-81 series).

Source : *Flow of Funds Accounts of the Indian Economy*, Reserve Bank of India, 2000.

to 1995-96) would reflect the continued role of financial intermediation in capital formation. The importance of financial intermediation by banks and other financial institutions in financing activities is also reflected in the intermediation ratio (the ratio between the financial instruments issued by the financial institutions and the financial instruments issued by non-financial units). The intermediation ratio touched a high of 0.913 in 1994-95, but declined to 0.702 in the following year.

Liquidity and Credit-based Indicators of Financial Development

3.12 In addition to the broad based indicators of financial development, various monetary aggregates in relation to GDP are regarded as important proxies for measuring the extent of financial development. This is particularly relevant from the well-acclaimed view that examines the role of intermediation played by banks in economic development. This is primarily reflected in the aggregate deposit / GDP ratio and M_3 /GDP ratio. In particular, M_3 /GDP ratio surpassed the 50 per cent mark during the 'nineties (Table 3.4). As far as credit components are concerned (*i.e.*, both to the Government and to the commercial sector), there had been some tapering off during the 'nineties. However, substantial pressures on liquidity (and through it on the exchange markets) emanated from the surges in capital flows in the second half of the 'nineties that got reflected in accretion to net foreign exchange assets (NFAs) of the banking sector. NFA as a

proportion of M_3 had moved up on an average from 9.0 per cent in the first half of the 'nineties to 16.4 per cent in the second half of the 'nineties.

Banking-based Indicators of Financial Development

3.13 The banking system in India consists of commercial banks and co-operative banks, but it is the former which is dominant in terms of deposits, advances and investments. Commercial banks include foreign banks operating in India in addition to Indian banks in the public sector and the private sector, including Regional Rural Banks. Since 1969, the commercial banks, after nationalisation of 14 banks, have made rapid strides in all the spheres of banking operations, be it the mobilisation of deposits, deployment of credit or geographical coverage, and have accounted for most of the growth in the banking system (Table 3.5). Illustratively, while the number of scheduled commercial banks has gone up moderately, the number of bank offices in India expanded nearly eight-fold from 8,262 in June 1969 to 67,339 in March 2000, as a result of which the population per bank office improved from 64,000 to 15,000 over the same period. Both per capita deposit and per capita credit have witnessed manifold growth. While per capita deposit expanded from a mere Rs.88 in 1969 to Rs.8,247 in 1999-2000, per capita credit, over the same period, expanded from Rs.68 to Rs.4,705; the increase in both these indicators was more pronounced since the latter half of the 'eighties.

Table 3.4: Liquidity and Credit-based Indicators of Financial Development

(as per cent of GDP at current market prices)

Period	Aggregate Deposits	M_3	Bank Credit to Government	Bank Credit to Commercial Sector
1	2	3	4	5
1970-71 to 1974-75	16.4	25.9	13.3	15.6
1975-76 to 1979-80	24.1	33.0	14.0	21.8
1980-81 to 1984-85	30.0	39.1	18.7	26.9
1985-86 to 1989-90	36.1	45.4	22.9	30.3
1990-91 to 1994-95	39.6	49.3	23.6	29.0
1995-96 to 1999-2000	43.8	53.8	21.9	28.6

Source: Reserve Bank of India.

Table 3.5: Progress of Commercial Banking in India

Indicators/Year	June 1969	June 1975	June 1980	June 1985	March 1990	March 1995	March 2000
1	2	3	4	5	6	7	8
Number of Scheduled Commercial Banks (including RRBs)	73	74	148	264	270	281	297
Of which: RRBs	-	-	73	183	196	196	196
: Other Scheduled Commercial Banks	-	-	75	81	74	85	100
Number of Bank Offices	8,262	18,730	32,419	51,385	59,752	62,367	67,339
Population per Office (Thousands)	64	32	21	15	14	15	15
Number of Public Sector Bank Offices	6,669	15,064	25,828	35,629	41,874	44,764	45,957
Per Capita Deposits (Rs.)	88	208	494	1,026	2,098	4,242	8,247
Per Capita Credit (Rs.)	68	148	327	678	1,275	2,320	4,705

Source: Reserve Bank of India.

Financial Indicators relating to Non-Banking Financial Sector

Development Financial Institutions

3.14 Development financial institutions (DFIs) were established in India to resolve a typical market inadequacy problem, viz., the shortage of long-term resources and the perceived risk aversion of savers and creditors to part with funds for long gestation projects. In view of the inadequate provision of long-term finance through banks and/or markets, many of these institutions were set up by the Government. The endorsement of planned industrialisation at the national level provided the critical inducement for establishment of DFIs at both the all-India and state levels. Besides DFIs at the national and state levels, there are also investment institutions and specialised financial institutions.⁵ These institutions provided financial assistance in the form of term loans, underwriting/direct subscription to shares/debentures and guarantees. There has been a secular increase in the disbursements of financial institutions (Table 3.6). As a percentage of GDP, disbursements by financial institutions rose from as low as 0.5 per cent in the first-half of the 'seventies to 1.4 per cent in the first-half of the 'eighties. The ratio increased further to 2.9 per

⁵ All-India Development Banks comprise IDBI, ICICI, IFCI, IIBI and SIDBI; Specialised institutions comprise RCTC, TDICI and TFCI, investment institutions comprise UTI, LIC and GIC and its subsidiaries and State-level institutions comprise SFCs and SIDCs.

cent in the first-half of the 'nineties and stood at 3.3 per cent in the second-half of the 'nineties.

Mutual Funds

3.15 Mutual funds provide households an option for portfolio diversification and relative risk-aversion through collection of funds from the households and make investments in the stock and debt markets. Resources mobilised by mutual funds (UTI was the only mutual fund until 1987-88) grew at a steady rate until 1992-93; since then they showed some variations. Resources mobilised by mutual funds which was just 0.04 per cent of GDP (at current market prices) during the period 1970-71 to 1974-75 increased to 1.59 per cent during 1990-91 to 1992-93. Total resources mobilised as proportion of GDP declined to 1.12 per cent by 1994-95 but nevertheless remained positive. During the period from 1995-96 to 1996-97, there was a net outflow of funds from mutual funds, especially UTI, as a result of which the ratio turned negative. From 1997-98 onwards, the ratio again turned positive and stood at 1.13 per cent during 1999-2000 (Table 3.7).⁶

⁶ Following a decline in the net asset values of US-64, a High Level Committee (Chairman: Shri Deepak Parekh) was constituted by the Government in 1998 to review the objectives and the working of the scheme. Most of its recommendations have been implemented, while a few others are being implemented.

Table 3.6: Trends and Composition of Disbursements of Financial Institutions

(Per cent)

Period	Total Disbursements as percentage of GDP	Shares of disbursements as percentage of total disbursements				
		All-India Development Banks	Specialised Institutions	Investment Institutions	State Level Institutions	Total
1	2	3	4	5	6	7
1970-71 to 1974-75	0.5	66.0	0.0	8.5	25.5	100.0
1975-76 to 1979-80	0.8	71.5	0.0	7.8	20.7	100.0
1980-81 to 1984-85	1.4	68.8	0.0	10.2	21.0	100.0
1985-86 to 1989-90	1.9	66.1	0.1	15.0	18.9	100.0
1990-91 to 1994-95	2.9	64.9	0.5	23.6	11.0	100.0
1995-96 to 1999-2000	3.3	75.1	0.4	16.8	7.6	100.0

Source: Reserve Bank of India.

Table 3.7: Trend and Composition of Resources Mobilised by Mutual Funds

(as percentage of GDP at current market prices)

Period / Year	Public		Private	Total
	Total	Of which: UTI		
1	2	3	4	5
1970-71 to 1974-75	0.04	0.04		0.04
1975-76 to 1979-80	0.06	0.06		0.06
1980-81 to 1984-85	0.13	0.13		0.13
1985-86 to 1989-90	0.75	0.67		0.75
1990-91 to 1992-93	1.59	1.20		1.59
1993-94	1.13	1.08	0.18	1.31
1994-95	0.99	0.85	0.13	1.12
1995-96	-0.50	-0.53	0.01	-0.49
1996-97	-0.21	-0.22	0.06	-0.15
1997-98	0.22	0.19	0.05	0.27
1998-99	0.06	0.01	0.14	0.20
1999-2000	0.25	0.23	0.88	1.13

Source: UTI and other Mutual Funds

Non-Banking Financial Companies

3.16 Non-banking financial companies (NBFCs) have emerged as an important part of the Indian financial system. These companies have grown rapidly in the second-half of the 'eighties and the first-half of the 'nineties. The regulated deposits of NBFCs increased from an average of 0.12 per cent of GDP during the period from 1970-71 to 1974-75 to 0.30 per cent during the period from 1985-86 to 1989-90 (Table 3.8).⁷ They witnessed

⁷ Regulated deposits are subject to certain ceilings and other restrictions.

a steady growth thereafter to 0.45 per cent of GDP during 1990-91 to 1992-93. During the period 1993-94 to 1996-97, they experienced a sharp rise from 2.02 per cent of GDP to 3.90 per cent. In recent years, however, deposits with NBFCs have witnessed a decline.⁸

Table 3.8: Deposits with Non-Banking Financial Companies

(Per cent)

Period	As % of Bank Deposits	As % of GDP
1	2	3
1970-71 to 1974-75	0.71	0.12
1975-76 to 1979-80	0.68	0.16
1980-81 to 1984-85	0.46	0.14
1985-86 to 1989-90	0.81	0.30
1990-91 to 1992-93	1.18	0.45
1993-94	5.02	2.02
1994-95	6.01	2.52
1995-96	8.11	3.28
1996-97	9.47	3.90
1997-98	3.70	1.57
1998-99	2.65	1.16
1999-2000	1.88	0.87

Note : 1. Deposits of NBFCs, for the period 1970-71 through 1996-97, refer to regulated deposits only.
2. Data for 1999- 2000 are provisional and relate to NBFCs with public deposits of Rs.50 crore and above.

Source: Reserve Bank of India.

⁸ There are problems of comparability of data on deposits with NBFCs. In 1993-94, there has been a change in the ambit of deposits with NBFCs (due to an expansion in the exempted deposits). Thereafter, in 1997-98 there had been an overhaul in the regulatory framework for NBFCs; consequently the coverage of deposit changed as well.

3.17 The trend in the growth in total deposits with NBFCs as a percentage of aggregate deposits exhibited more or less similar trend, rising from a low of 0.71 per cent of bank deposits during the period from 1970-75 to 1.18 per cent during 1990-93. During the period from 1993-94 to 1996-97, deposits with NBFCs experienced a sharper rise from 5.02 per cent of commercial bank deposits to 9.47 per cent. Recent years have, however, witnessed relatively lower ratios. This could be attributed partly to the setting up of a strong regulatory and supervisory framework and partly to changes in the definition of deposits as indicated at footnote 8.

Channels of Interaction between Finance and Growth

3.18 Financial development and growth has been a crucial subject of public policy for long. As early as in the 19th century, a number of economists stressed the importance of financial development for the growth of an economy.⁹ The banking system was recognised to have important ramifications for the level and growth rate of national income *via* the identification and funding of productive investments. This, in turn, was expected to induce a more efficient allocation of capital and foster growth. A contrary view also prevailed at the same time suggesting that economic growth would create demand for financial services. This meant that financial development would follow growth more or less automatically. In other words, financial development could be considered as a by-product of economic development.

3.19 The issue of sources of finance gains importance in this context. The preferred modes of finance get to a substantial extent determined by the level of financial development, institutional practices, legal structures and other country-specific features. For instance, in the absence of a well-developed stock market, the traditional treatment about the availability of choice between banks and stock markets as providers of liquidity at the short-end and the long-end would be of limited relevance for countries. In certain other cases, the stock-markets might not be efficiently functioning and could create a wedge between the preferred financing hierarchy of the firms and the one that could support accelerated growth of

corporate investment and output. If the markets are competitive, complete and well functioning, financing choices would be rendered irrelevant by the sheer efficiency of the markets. However, in practice, the instances of financial markets having developed and matured to such an efficient state are few and far between. As such, given the market imperfections, financial development becomes a crucial determinant of the growth, with links being provided through the processes of saving and investment as also the choices that economic units exercise between the alternate sources of financing investment.

3.20 It is important to note in this connection the several functions that a financial system is expected to perform. First, in the presence of informational asymmetries, financial markets could still develop in order to facilitate trading and hedging of risks. Risk mitigation and economising on information acquisition and processing reduce uncertainty and enable resources to flow towards most profitable projects. Such a situation would raise the efficiency of investments and the rate of growth. Secondly, by acting as an efficient conduit for allocating resources, the financial system enables an improvement in technical progress. Technological innovations take place when entrepreneurs exploit the best chances of successfully imitating technologies in their production processes and introducing new products. Over time, as skills develop, and as the economy experiments with adaptations of the existing technologies, and creates a base for research and development of new technologies, growth rates are likely to move upward. This is particularly valid in financial systems that are more effective at pooling the savings of individuals and permitting continuous upgradation of technologies for promoting growth on a sustained basis. Finally, to the extent that financial development leads to the creation of financial infrastructure and enables better and more efficient provision of goods and services, costs of transactions would be lower, with positive spillover on economic growth.

3.21 These possibilities may not be in evidence in many developing economies where distortions in the financial systems impact the growth process adversely and result in dead-weight loss. In a number of developing economies, interest rate ceilings, high reserve ratios and directed credit

⁹ Prominent among them were Walter Bagehot and Joseph Schumpeter.

programmes are generally noticed. Such requirements though necessitated by the initial conditions, limit the degrees of freedom for the conduct of monetary and financial policies.

3.22 The recent growth literature, building on 'learning by doing' processes, assigns a special role to finance. Finance is seen as a crucial factor

of production like knowledge and the influence of institutional arrangements in regard to finance on growth rates has often been forcefully emphasised. These models offer important insights on the impact of financial development on economic growth which are of relevance to the Indian context (Box III.1).

Box III.1

Endogenous Growth and Financial Development

The linkage between finance and economic development has been resurrected over the past decade by the endogenous growth theory. The new growth models trace the steady-state growth rate (g) in terms of three crucial parameters, *viz.*, the level of technology, as captured by social marginal productivity of capital (A), the proportion of savings channelled to investment (f) and the saving rate (s). Ignoring depreciation, the new theories seek to establish that $g = A f s$. Financial development could influence economic growth by increasing the productivity of capital, or lowering of intermediation costs (*via* an increase in f), or by enhancing the saving rate.

An efficient financial system allocates funds to projects with the highest marginal product of capital and thereby fosters economic growth. However, this process is costly. First, in order to find the most profitable project, financial systems need to monitor or screen alternative projects. Even if high-return projects are identified, they could carry high risks, discouraging individuals from investing in these projects. In such situations, financial systems play a role in risk-sharing and inducing individual investors to invest in high-return, *albeit* riskier, projects. Specifically, the role of financial institutions is to collect and analyse information so as to channel investible funds to investment activities that yield the highest returns [Greenwood and Jovanovic (1990)]. In the analytical framework of Greenwood and Jovanovic, capital may be invested in a safe, low-yield technology or a risky, high-yield one. In contrast to individual investors, financial intermediaries with their large portfolios can acquire better information on the aggregate productivity shock and choose the technology that is most appropriate for realisation of the shock in the current period. The financial intermediaries would help channelise savings into such areas and help realise higher productivity of capital and higher growth.

This phenomenon could be seen from a different angle. Individuals face uncertainty about their future liquidity needs and therefore need to either invest in a safe, low-productive liquid asset, or in a risky, high-return illiquid asset. In such a set-up, financial intermediaries allow individuals to reduce risks associated with their liquidity needs and channel savings into activities with high productivity [Bencivenga and Smith (1991)].

Alternately, consumers' liquidity risk can be shared *via* security markets [Levine (1991)]. Individual investors can sell shares in the stock market when they face liquidity problems. These markets also enable the individual investors to diversify their rate-of-return risks by devising appropriate portfolios. This two-fold insurance function promotes willingness to invest in less liquid, more productive projects and also helps to avoid unnecessary terminations. Portfolio diversification *via* stock markets expected to have a growth enhancing effect, by way of encouraging specialisation of production by firms.

There could also be the feedback relationships among

banking specialisation, costs of monitoring and growth [Harrison *et al.* (1999)]. Growth increases banks' activity and profits, and promotes entry of more banks. The entry shortens the average distance between banks and borrowers, facilitates regional specialisation and lowers in the process the cost of financial intermediation, which, in turn, boosts investment, and thereby growth.

There are a number of possible routes through which financial development could affect saving rates. These involve idiosyncratic risks, rate-of-return risks, interest rates and liquidity constraints. First, a reduction in endowment and liquidity risks by insurance and finance markets might lower the level of precautionary saving by households, and therefore the growth rate. If country-specific endowment risks are shared *via* the international capital markets, saving rate and economic growth would be lower than would otherwise be the case. Thus, a reduction in these two kinds of risks as a result of financial development can have different effects on growth. Secondly, financial development, for example, by reducing 'financial repression' could lead to increase in the interest rates paid to households, but the effect of such an interest rate hike on saving might not be necessarily favourable due to the presence of well-known income and substitution effects. Empirically, however, financial repression is generally found to be growth retarding [Roubini and Sala-i-Martin (1992)]. Thirdly, easing liquidity constraints on households by liberalising consumer credit and mortgage markets may lower the saving rate, since younger generations in their overlapping generations model would dissave much more in the absence of liquidity constraints [Jappelli and Pagano (1994)]. Thus, in the endogenous growth theory, the overall effect on saving rate is not unequivocally clear and financial development could well reduce saving *via* the effect on the growth rate.

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Financial Development and Savings in India

3.23 One of the basic channels of influence of financial development on growth is the saving rate. The primary mode through which this occurs is financial savings and in particular, intermediated financial savings. In fact, a distinction should be made between the determinants of the capacity to save and the willingness to save.¹⁰ While the capacity to save is dependent on the level and growth of per capita income, the willingness to save is influenced by a number of financial variables, such as, rate of interest and financial deepening. However, the effect of interest rate on saving in developing economies is not clear, partly because of the presence of either administered interest rates or some rigidities in the working of interest rate mechanism. After all, a change in interest rate could cause a variation in the portfolio composition of the household sector's saving without perceptible impact on the total quantum of saving. Financial deepening, on the other hand, is capable of increasing the total quantum of saving. The Indian saving experience during the period 1970-71 to 1998-99 was marked by a simultaneous secular increase in the rate of Gross Domestic Saving (GDS, as a percentage of GDP at current market prices) and the rise in the rate of financial saving of the household sector and private corporate sector (Table 3.9). During the 'nineties, household financial saving has emerged as the single most important contributor to GDS. The performance of the corporate sector improved during the 'nineties, while the public sector experienced a notable downturn in its saving performance. Given the fairly high public sector deficits in relation to GDP during the 'nineties, the public sector had to make a draft on household saving in general and household financial saving in particular. The implications of this development for growth and macroeconomic balance are important, both from the point of view of closing the potential output gap and promoting financial stability.

3.24 The criticality of financial saving is better appreciated from the structural composition of the GDS. Since the early 'nineties, there has been a downward drift in the share of physical saving,

¹⁰ This distinction is due to Hussein, Khalid A. and A. P. Thirlwall (1999), "Explaining Differences in the Domestic Savings Ratio Across Countries: A Panel Data Study", *Journal of Development Studies*, February, Vol. 36, pp. 31-52.

which had been partly compensated by the household sector financial saving. Within household sector financial saving, contrary to experiences of disintermediation in a number of developed economies, bank deposits turned out to be the most popular abode of saving. The share of net bank deposits (*i.e.*, net of liabilities) increased from 9.8 per cent during 1985-86 to 1992-93 to 16.3 per cent during 1993-94 to 1998-99 (Table 3.10). This apart, contractual savings like those in Life Insurance Funds, and Provident and Pension Funds emerged as important financial assets in the household sector's portfolio. Contractual saving can raise the potential saving of the economy. In particular, it has the potential of activating the capital market and performing the role of social security (Box III.2).

3.25 While there is some evidence that financial development has led to improvement in the saving rate of the Indian economy, the question nevertheless remains as to how much of the increase in saving has got translated into higher growth. The answer to the question is rather mixed. There is some evidence of a unidirectional causality from growth to finance.¹¹ However, using more recent data it is found that there is a distinct feedback effect from saving to growth as well.¹² In other words, while higher growth may lead to higher saving, there is also a possibility of saving-induced growth in the Indian economy. Hence, the channel of impact from finance to saving and therefrom to growth could be the link behind the relationship between financial development and economic growth in India.

Stock Markets and Financial Development in India

3.26 The role of stock markets as a source of economic growth has been widely debated. It is well recognised that stock markets influence economic activity through the creation of liquidity. Liquid financial market was an important

¹¹ As for example, Muhleisen (1997) found that while the causality from saving to growth is consistently rejected, the causality from growth to saving is consistently accepted; see Muhleisen, Martin (1997), "Improving India's Saving Performance", *IMF Working Paper*, No. 97/4.

¹² Ray, Partha and D. Bose (1997), "Growth, Saving and Investment in the Indian Economy: Trend, Composition, and Relationship", *RBI Occasional Papers*, No. 2 & 3, pp. 99-144.

Table 3.9: Trends in Gross Domestic Saving

(as Per cent of GDP at current market prices)

Item	1970-71	1975-76	1980-81	1985-86	1993-94
	to 1974-75	to 1979-80	to 1984-85	to 1992-93	to 1998-99
1	2	3	4	5	6
1. Household sector	12.0	15.2	14.1	17.1	18.6
1.1 Financial Saving	4.0	5.7	6.7	8.4	10.6
1.2 Saving in Physical Assets	8.0	9.5	7.4	8.8	8.0
2. Private Corporate Sector	1.7	1.5	1.6	2.4	4.1
3. Public Sector	3.0	4.5	3.7	2.0	1.2
4. Gross Domestic Saving (1+2+3)	16.6	21.2	19.4	21.5	23.9

Note : Data for the period 1970-71 to 1992-93 are based on 1980-81 series and data for the period 1993-94 to 1998-99 are based on 1993-94 series.

Source: Central Statistical Organisation.

Table 3.10: Composition of Gross Domestic Saving

(Per cent)

Item	1970-71	1975-76	1980-81	1985-86	1993-94
	to 1974-75	to 1979-80	to 1984-85	to 1992-93	to 1998-99
1	2	3	4	5	6
1. Household sector	72.1	71.5	72.6	79.4	77.8
1.1 Financial Saving	23.7	26.9	34.9	38.8	44.5
Currency	5.1	4.7	5.7	5.5	5.3
Net deposits	8.1	10.0	11.3	9.8	16.3
Shares and Debentures	0.8	0.9	2.1	5.8	3.9
Net Claims on Government	-0.6	1.7	4.5	4.9	4.6
Life Insurance Funds	2.9	2.7	3.2	3.9	4.9
Provident and Pension Funds	7.4	6.9	8.0	9.0	9.6
1.2 Saving in Physical Assets	48.4	44.6	37.8	40.6	33.3
2. Private Corporate Sector	10.1	7.3	8.4	10.9	17.1
3. Public Sector	17.9	21.2	19.0	9.7	5.1
4. Gross Domestic Saving (1+2+3)	100.0	100.0	100.0	100.0	100.0

Note : Data for the period 1970-71 to 1992-93 are based on 1980-81 series and data for the period 1993-94 to 1998-99 are based on 1993-94 series.

Source: Central Statistical Organisation.

enabling factor behind most of the early innovations that characterised the early phases of the Industrial Revolution. Recent advances in this area reveal that stock markets remain an important conduit for enhancing development. Many profitable investments necessitate a long-term commitment of capital, but investors might be reluctant to relinquish control of their savings for long periods. Liquid equity markets make investments less risky and more attractive. At the same time, companies enjoy permanent access to capital raised through equity issues. By facilitating longer-term and more profitable investments, liquid markets improve the

allocation of capital and enhance the prospects for long-term economic growth. Furthermore, by making investments relatively less risky, stock market liquidity can also lead to more savings and investments.

3.27 Over the years, the stock market in India has become strong. The number of stock exchanges increased from 8 in 1971 to 9 in 1980 to 21 in 1993 and further to 23 as at end-March 2000. The number of listed companies also moved up over the same period from 1,599 to 2,265 and thereafter to 5,968 in 1990 and 9,871 in March 2000. The market capitalisation at

Box III. 2
Contractual Saving

What distinguishes contractual saving from non-contractual or discretionary saving is the existence of a long term saving contract. As the term suggests, contractual saving involve entering into a 'long term', 'definite' and 'continuous' contract or commitment on the part of the saving household (Joshi, 1972). The regular contributions to pension and provident funds and payment of premiums to insurance funds can be regarded as contractual saving. Contractual saving instruments are intended to mobilise resources from the households towards long term investment. The preferred portfolio of households' non-contractual financial saving comprises a spectrum of financial instruments broadly classified into four categories viz., currency, net bank deposits, claims on government such as investment in government bonds and securities and lastly, claims on private corporate sector in the form of investment in stocks and bonds. It is apposite to point out that non-contractual financial assets differ widely in their degree of liquidity and more importantly, in their terms to maturity.

Contractual saving institutions operate on two principles, namely, Defined Contributions and Defined Benefits. In the case of the former, regular contributions are made by or on behalf of savers and the accrual of final benefits depends upon the total contributions made and the accumulated investment earnings. Provident funds and several policies of life insurance funds function on this basis. As against this, the latter *i.e.*, defined benefits principle, promises a certain level of benefits to the savers and contributions are adjusted as per the investment performance and other factors (Vittas and Skully, 1991). Pension funds function on these lines.

The net effect of a variation in interest rates on household sector saving could be negative or positive depending upon the relative impact of income and substitution effects. The substitution effect is the key to understanding the *form* in which the households would decide to save. In other words, the relative rate of return from alternative financial instruments would decide the household's decision to save in a given instrument. In that case, one would expect that the portion of total saving held in the contractual form would be based on the yield that the various instruments of this component fetch vis-à-vis the non-contractual instruments. Empirically, contractual saving have been found to be an imperfect substitute for non-contractual saving. It has been found that households with a certain amount of saving in contractual form have at least as much amount of saving in non-contractual instruments such as net deposits, as households with only saving in non-contractual form. This leads to the conclusion that such contractual saving are made at the cost of household consumption and such saving would lead to a diversion of fresh funds into the capital markets (Cagan, 1965). This hypothesis, however, would need to be tested empirically.

In view of the growing need for infrastructure financing, saving agencies such as insurance companies, pension and provident funds can, however, play a crucial role in accelerating infrastructure investments through the utilisation of long-term contractual saving. While the banking system generally mobilises short term and medium term saving, contractual saving institutions in view of their long-term liabilities can be regarded as natural claimants for financing of infrastructure projects characterised by long gestation periods.

Contractual saving, unlike discretionary or non-contractual saving, are generally considered a stable function of income. Such saving are guided by security motive and rules of employment. Being long-term in nature, the role of contractual saving in generating and strengthening the growth impulse could hardly be underplayed. Contractual saving as percentage to GDP increased from 2.2 per cent in 1980-81 to 2.9 per cent in 1990-91 and further to 4.1 per cent by 1998-99. In the milieu characterised by the continued dominance of consumption-led growth, the growth enhancing effect of contractual saving in view of its long term nature is expected to come out more prominently. This hypothesis is reinforced by a positive correlation between economic growth and the growth in saving, albeit modest, in the 'nineties in the Indian economy.

Cross-country experience suggests that contractual saving for housing (CSH) is expected to play a significant role in augmenting the housing finance especially in the transition economies. It is worth recalling that CSH system was reasonably successful in Europe for construction after World War II. Following the completion of structural adjustment and stabilisation programme, CSH can provide 'additionality', overcome information constraints on financial contracts and impact positively on financial saving rates and thereby the growth in the Indian economy.

Contractual Saving has the potential of boosting the stock market. Recent research had pointed that contractual saving could be treated as exogenous to the development of the stock market (Impavido and Mausalem, 2000). In particular, contractual saving has been found to be promoting stock market development, as measured by the stock market capitalisation and value traded as percentage of GDP.

Table 3.11: Contractual and Non-contractual Saving

Year	As % of GDP		As % of Household Financial Saving	
	Contractual Saving	Non-contractual Saving	Contractual Saving	Non-contractual Saving
1	2	3	4	5
1980-81	2.2	4.1	34.6	65.4
1985-86	2.2	4.8	31.4	68.6
1990-91	2.9	5.8	33.2	66.8
1995-96	3.0	5.9	34.1	65.9
1998-99	4.1	6.8	37.5	62.5

Source: Central Statistical Organisation.

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BSE as a percentage of GDP at current market prices also improved considerably from around 28 per cent in the early 'nineties to over 45 per cent at the end of the 'nineties, after witnessing a fall in certain intervening years (Table 3.12). In 1998, India ranked twenty-first in the world in terms of market capitalisation, nineteenth in terms of total value traded and second in terms of number of listed domestic companies.¹³ Though the Indian stock market was founded more than a century ago, it remained quite dormant from independence in 1947 up to the early 'eighties, with a capitalisation ratio (market capitalisation to GDP) of only 4 per cent. However, the patterns of demand for capital have undergone significant changes during the last two decades and improved stock market activity. It may be recalled that till the 'nineties, institutional term-lending acted as the primary source of industrial finance in India. Financial institutions raised money through Government-guaranteed bonds at low rates of interest, which, in turn, lent funds at concessional rates of interest. This system provided corporates a cushion to absorb the relatively high risk of implementing new projects. This, in turn, discouraged the corporates to raise risk capital from equity markets. On this account, the debt market segment, which is sensitive to 'economic information' also remained underdeveloped and illiquid. With the onset of the reforms process in the 'nineties, institutions had to raise resources at market related rates. At the same time, the market has witnessed the introduction of several new customised bonds at maturities tailored to suit investor needs and with market-driven coupons. Along with this development, a number of measures were initiated to reform the stock markets, which helped to improve the overall activity in the stock market significantly. The turnover ratio increased from a low of 6.7 per cent at the beginning of the 'nineties, to reach 35.1 per cent in 1999-2000, excepting certain years of relative inactivity.

3.28 Over the years, the Indian capital market has experienced a significant structural transformation in that it now compares well with those in developed markets. This was deemed necessary because of the gradual opening of the economy and the need to promote transparency in alternative sources of financing.

¹³ Emerging Stock Markets Factbook, (1999), International Finance Corporation, Washington DC.

**Table 3.12: Market Capitalisation and
Turnover at BSE**

(as Per cent of GDP at current market prices)

As at end of	Capitalisation	Turnover
1	2	3
December 1970	3.8	0.0
December 1975	2.6	0.0
December 1980	3.8	1.5
December 1985	7.4	2.2
March 1990	13.4	6.0
March 1991	16.0	6.3
March 1992	49.5	11.0
March 1993	28.2	6.1
March 1994	42.8	9.8
March 1995	43.1	6.7
March 1996	44.5	4.2
March 1997	34.1	9.1
March 1998	37.0	13.7
March 1999	30.9	17.7
March 2000	46.8	35.1

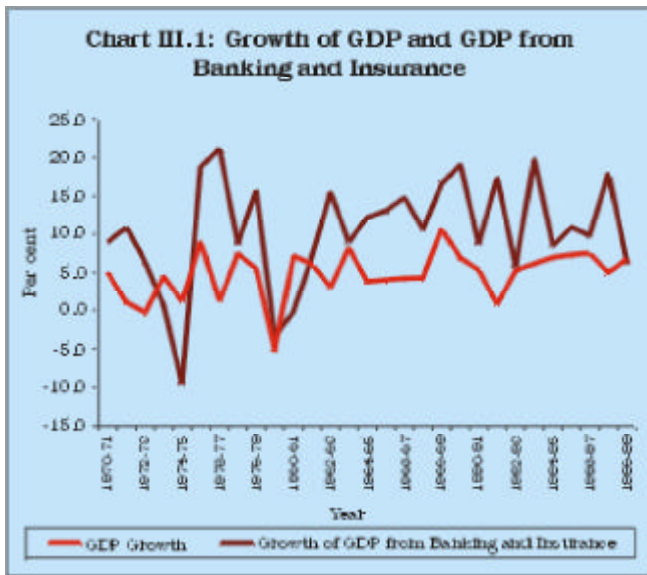
Source : Bombay Stock Exchange.

The regulatory and supervisory structure has been overhauled with most of the powers for regulating the capital market having been vested with the Securities and Exchange Board of India (SEBI).

Bank-based versus Market-based Finance in India

3.29 Banks have traditionally been the dominant entities of financial intermediation in India. This is reflected in the predominance in the share of banks in the aggregate financial assets of banks and financial institutions, taken together. The relative share of banks, which stood at nearly three-fourths in the early 'eighties, came down gradually over a period of time, and has hovered around the two-thirds mark since the 'nineties (Chart III.2). While this meant that financial institutions have gained in terms of shares in financial assets, it also implies that there is considerable potential for market financing to grow.

3.30 Given the predominance of bank-based finance in India, questions arise about the advantages and disadvantages of bank-based financial systems *vis-à-vis* (stock) market-based financial systems. The banking system avoids some of the information-deficiencies associated with the securities markets. Put differently, banks perform screening and monitoring



functions on behalf of investors, which, left to themselves, can be undertaken only at a high cost. As a consequence, resource allocation and credit availability are considered to be superior under a bank-based as opposed to a market-based financial system. On the contrary, lower transaction costs in the absence of

intermediation, may favour market-based sources of finance.

3.31 Experiences of the two most successful industrialised countries - Germany and Japan - reveal that the dominance of bank-based system has been the most successful financial vehicle for late industrialisation. While the institutional arrangements underlying bank-based systems vary, the basic contours are that banks establish long-term relationships with industrial companies, often reinforced by cross-holdings. For example, in Japan, banks had preferential access to transaction deposits of the firms, while the firms had secured access to loans from the banks, especially in situations of cyclical downturns. This ensured a steady supply of long-term finance to the firm, irrespective of the phase of cyclical fluctuation and built up a synergy between investment and growth. On the other hand, in countries, such as, the US and the UK, financial markets have played an important role in the development of these economies. A cross-country comparison reveals that both bank-based and market-based systems are in vogue (Box III.3).

Box III.3

Bank-based and Market-based Financial Systems

Financial systems differ not only with respect to their degree of sophistication, but also with respect to the type of the system. An important aspect of the growth process that has been widely discussed in recent time is the type of the financial system that is most conducive to growth. At one extreme, there is Germany, where a few large banks play a dominant role and stock market is not very important. At the other extreme is the US, where financial markets play an important role and the banking industry is much less concentrated [Allen and Gale (1995)].

Recent work in this area, using company balance sheet data, have demonstrated that internal sources of finance constituted the major portion of corporate (physical) investment in major OECD countries and that the role of the stock market (net of redemption) was limited in the majority of these countries. This can be traced to the fact that in the early stages of development, adequate incentives exist to bring borrowers' and lenders' interests into line. An efficient banking system may act as an important conduit for channelling scarce resources from the surplus to the deficit sectors. The role of disintermediation in such circumstances is likely to be limited. In the longer term, as markets develop and the financial infrastructure is in place, intermediaries may be less central to the development of firms.

Traditional explanations of differences in financing patterns (such as tax treatment) attracted little empirical support. Recent advances have attempted to endogenously determine

the emergence of bank-based or market-based financial system [e.g., Arnold and Walz (2000)]. In the presence of informational problems, if banks are initially competent monitors of firms, then a bank-based financial system emerges, and banks become more productive due to learning-by-doing and the financial sector continues to be dominated by banks. If, on the other hand, the productivity of the banking sector is initially low, then a market-dominated regime emerges: banks become even more unproductive because there are no learning effects in banking, and market-based sources of finance gain in prominence.

This leads to two important and inter-related questions: (i) how do these marked differences in ownership emerge, and (ii) how are they related to the structure of financial systems? It has been argued that, there are two classes of economies: (a) *banking economies*, which have a small proportion of quoted companies, high concentration of ownership and long-term relations between banks and industry, and (b) *market economies* which have a high proportion of quoted companies, low concentration of ownership and short-term relations between banks and industry. In case of the former, firms have long-standing relationship with banks. This is ascribed to closer involvement of banks in corporate activities, for example, bank representation on corporate boards, bank holdings of corporate equity, etc. In case of the latter, the banking industry is much less important. In

(Contd...)

(...Concl.)

these countries, securities market share centre-stage with banks in terms of channelling society's savings to firms, exerting corporate control and easing risk management.

A major shortcoming with existing comparisons of market-based versus bank-based financial systems is that they focus on a very narrow set of countries with similar levels of GDP per capita, so that the countries have very similar long-run growth rates. In order to statistically test this proposition, Demirgic-Kunt and Levine (1999), using a database of 150 countries, have attempted to illustrate the relationships between financial structure and economic development. The following illustrative list (Table 3.13), classifying countries according to the structure and the level of financial development exemplifies the point.

Thus, a comparison of financial systems across different income groups reveals several clear patterns. First, banks, other financial intermediaries and stock markets become larger, more active and more efficient as countries become richer. Thus, financial sector development tends to be greater at higher income levels. Secondly, an analysis of differences in financial structure across different income groups demonstrates that size measures of financial structure do not follow a clear pattern, as countries become richer.

Table 3.13: Classification of Financial Structure and Level of Development of Select Economies

Extent of Development	Bank-based	Market-based
1	2	3
Developed	Japan, Germany, France, Italy	Singapore, Malaysia, Korea, US, UK
Under-developed	Argentina, Pakistan, Sri Lanka, Bangladesh,	Brazil, Mexico, Philippines, Turkey

Source : Demirgic-Kunt and Levine (1999).

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3.32 A tentative measure of the significance of stock markets relative to the banking system is the ratio of market capitalisation to assets of scheduled commercial banks. During the 'seventies and the 'eighties, this ratio remained significantly low, with a high of 21.3 per cent in 1970 (Table 3.14).

3.33 With the establishment of the SEBI as an autonomous body for regulation and promotion of capital markets (with focus on simplification of issue procedures, enhancement in disclosure standards and greater investor protection), the role of stock markets has gained prominence. As a result, the relative importance of stock markets *vis-à-vis* banks has increased significantly in the 'nineties. The ratio of market capitalisation to assets of scheduled commercial banks which was 28.4 per cent in March 1991 increased sharply to 85.2 per cent in March 1996. It came down to 55.3 per cent in March 1999, only to increase to 79.3 per cent in March 2000.¹⁴

Fiscal Policy and Financial Development

3.34 An important aspect of the process of financial development has been the role of the Government. In many developing economies the

Table 3.14: Assets of Scheduled Commercial Banks and Market Capitalisation at BSE

(as Per cent of GDP at current market prices)

As at end of	Assets of Scheduled Commercial Banks	Market Capitalisation at BSE	Market Capitalisation at BSE as % of Scheduled Commercial Banks' Assets
1	2	3	4
December 1970	17.9	3.8	21.3
December 1975	21.0	2.6	11.0
December 1980	40.0	3.8	9.3
December 1985	46.8	7.4	15.2
March 1991	56.3	16.0	28.4
March 1992	52.9	49.5	93.5
March 1993	51.6	28.2	54.7
March 1994	52.0	42.8	82.3
March 1995	51.6	43.1	83.5
March 1996	52.3	44.5	85.2
March 1997	50.9	34.1	66.9
March 1998	54.4	37.0	67.9
March 1999	56.0	30.9	55.3
March 2000	59.1	46.8	79.3

Note : Assets of scheduled commercial banks includes liquid reserves, loans, investments and other assets.

Source : Reserve Bank of India and Bombay Stock Exchange.

¹⁴ The sharp rise in the ratio to 93.5 during 1991-92 was an aberration.

Governments traditionally played a significant role in fostering financial development. While in some cases this led to an administered interest rate regime, leading to market inefficiencies, Governments in many developing countries had to contend with financial markets that are characterised by significant informational asymmetries, moral hazard and adverse selection problems. For these reasons, a free-market equilibrium might not have the efficiency characteristics which are typically associated with market equilibria in the goods market. More importantly, the nascent accounting frameworks and inadequate legal mechanisms for redressal necessitate a role for the Government to remedy these imperfections.

3.35 The overarching concerns of the Government in fostering financial development have been in evidence as reflected in the regulations and administrative mechanisms that have been evolved in respect of credit and capital markets. Direct intervention was particularly highlighted with the nationalisation of 14 commercial banks in 1969. However, over time, the relationship between fiscal and financial institutions and banks have developed in a way that required prudential regulations and capital strengthening to be set in place. Predominant Government ownership of financial system also involved quasi-fiscal activities that added to the contingent liabilities of the government. However, the coexistence of government and private financial institutions and enhancement in private participation in the existing public sector financial institutions has afforded an opportunity to restructure the financial system, enhance competition, cut costs of intermediation, improve quality of customer services and ultimately support growth in an economy.

3.36 The extent to which fiscal factors could influence the financial system depends upon the existing fiscal position and the policy stance of the Government. Unlike in the 'seventies, the fiscal situation in India in the 'eighties was characterised by significant imbalances contributing to rising fiscal deficit and accumulation of debt. However, much of the debt was incurred on relatively low coupon rate basis. The maturity profile of debt also was somewhat long. The revenue account of the centre turned into deficit beginning 1979-80. The State Governments began to experience revenue gaps since 1987-88. The combined GFD/GDP ratio of the Central and State Governments,

which averaged 9.4 per cent during the five-year period ending 1989-90 and stood at 10.0 per cent in 1990-91, after declining to 6.4 per cent by 1996-97, reverted to 9.9 per cent by 1999-2000.

3.37 The combined debt/GDP ratio of Central and State Governments had touched a high of 61.7 per cent of GDP in 1990-91. Since then, there has been some progress in reducing debt ratios, *albeit*, marked by a regress in 1999-2000 on account of exogenous factors. On the expenditure side, the total expenditure of central and state governments which averaged 27.3 per cent of GDP in the first half of the 'eighties and 30.1 per cent of GDP in the second half of the 'eighties, declined to 25.2 per cent of GDP in the 1996-97 with rationalisation of expenditure. Although this ratio increased to 28.5 per cent of GDP in 1999-2000, there was an overall containment of expenditure in recent years, brought about mainly by cuts in capital expenditures and rise in interest payments (Table 3.15). However, the development of the Government securities market and introduction of innovative Government debt instruments was rendered possible as a matter of deliberate policy action on the part of the Government.

3.38 The saving-investment gap for the public sector had risen to 8.7 per cent of GDP in 1990-91 and reflected a large draft on household savings. Some improvement followed as the public sector savings averaged 1.8 per cent during 1996-97 to 1998-99. The gap was reduced to 5.3 per cent in 1996-97 and was sustained at this rate, mainly on account of reductions, *albeit* moderate, in the rate of capital formation. However, in 1998-99, public sector saving dipped significantly due mainly to large deficit of administrative departments. The continuance of domestic saving-investment gap of such a magnitude contributes to macroeconomic imbalances, places pressure on domestic interest rates and creates uncertainty in pursuing the objectives of financial sector strengthening and stability.

3.39 The growth of the gilt market, with the help of Government intervention, has facilitated financial growth by providing (i) possible benchmark interest rates to the markets, (ii) instruments with a wide array of maturity to the market players to enable them to tailor their asset-liability management, and (iii) tools for monetary management in the form of open market operations in Government securities. The development of the gilt market in the 'nineties has led to increasing integration of various market

Table 3.15: Major Fiscal Policy Indicators

(Per cent)

Period / Year	GFD/ GDP	Debt/ GDP	Exp/GDP	GDS of the Public Sector	GCF of the Public Sector	Saving Investment Gap of the Public Sector
1	2	3	4	5	6	7 = 5- 6
1980-81 to 1984-85	7.2	48.3	27.3	3.7	10.2	-6.5
1985-86 to 1989-90	8.8	59.1	30.1	2.4	10.5	-8.1
1990-91	9.4	61.7	28.8	1.0	9.7	-8.7
1991-92	7.0	60.9	28.5	1.9	9.2	-7.3
1992-93	7.0	60.6	27.2	1.5	8.9	-7.4
1993-94	8.3	62.5	27.1	0.6	8.2	-7.6
1994-95	7.1	60.2	27.0	1.7	8.8	-7.1
1995-96	6.6	58.3	25.7	2.0	7.6	-5.6
1996-97	6.4	56.8	25.2	1.7	7.0	-5.3
1997-98	7.3	58.8	25.9	1.4	6.7	-5.3
1998-99	8.9	58.7	26.3	0.0	6.6	-6.6
1999-2000	9.9	63.6	28.5	-	-	-

Note : 1. GFD = Combined Gross Fiscal Deficit of Central and State Governments.
2. Debt = Combined debt of Central and State Governments.
3. Exp = Combined Expenditure of Central and State Governments.
4. GDS = Gross Domestic Saving.
5. GCF = Gross Capital Formation.
6. A negative saving-investment gap indicates that investment exceeds saving.

Source : Reserve Bank of India and Central Statistical Organisation.

segments with benchmark interest rates increasingly emerging in short term securities, such as, the 91-day Treasury bills. What is interesting is that in the recent period, the call money rate has shown modest co-movement with the 91-day Treasury bill yield.

Finance and Growth in India: Some Evidence

3.40 The relationship between finance and growth, as noted earlier, could have manifold forms *a priori*. Finance may influence growth and growth may drive finance. There could be positive feedback between them, or they could even be independent as well. The available cross-country evidence on the relationship provides interesting empirical patterns (Box III.4).

3.41 While cross-country evidence is useful, an assessment of the relationship in the case of any one country would be relatively difficult, especially when the country in question is undergoing structural transformation. Furthermore, mere correlations between various indicators of finance and economic progress may not be of much use because of the strong time trend inherent in both these sets of indicators. Any contemporaneous correlation between indicators of financial

development and growth of an economy should, therefore, be interpreted with caution. While finance is one of the ingredients of growth, it is not the only one. In fact, in the absence of complementary inputs like the formation of human capital, the knowledge-based technological innovations and macroeconomic stability, growth may not be sustained even with a liberal supply of finance.

3.42 Notwithstanding the above qualifications, it is of interest to look into the relationship between finance and growth in isolation and examine the causality pattern between the relevant indicators. If the economic progress is measured by rate of growth of real GDP and rate of expansion of real broad money is taken as an indicator of financial development, then there is evidence of a two-way causality between them. This is done through a bivariate Vector Auto-Regression (VAR) model with real GDP growth and real M_3 growth (deflated by GDP deflator) over the period 1971-72 through 1999-2000. It has been found that while the F-statistic value for deleting lagged values of real M_3 growth in the real GDP growth equation is significant at 10 per cent, the same for deleting lagged values of GDP growth in the real M_3 growth equation is

Box III.4

Cross-Country Experiences on Finance and Growth

Theoretically various financial policy variables have been postulated as determinants of economic growth. The paradigms in use in this regard can be classified into two broad categories, *viz.*, the financial structuralist and financial repressionist schools. The former comprises those who contend that the quantity of financial variables and its composition affect economic development. Thus, factors like financial deepening (e.g., aggregate financial assets to GDP) and the composition of the aggregate financial variables are posited to be relevant financial factors in economic growth. The financial repressionist school, on the other hand, emphasises price variables as the more relevant financial factors on growth. Accordingly, it contends that financial liberalisation in the form of a 'realistic' real interest rate and real exchange rate constitute a meaningful way of promoting economic growth, while financial repression, especially in the form of below-equilibrium real interest rate and domestic currency over-valuation, retard growth (Fry, 1995).

At the empirical level, a number of tests of the financial structuralist school have been carried out. In one of the early studies, Patrick (1966) worked out a useful reference framework for the study of these causal relationships, proposing a distinction between the 'demand-following approach' and the 'supply-leading approach' to financial development. The former appears as a consequence of the development of the real sector, which implies continual expansion of markets and growing product differentiation, thus requiring more efficient risk diversification and better control of transactions costs. Conversely, 'supply leading' financial development precedes the demand for financial services and can have autonomous impact on growth. Goldsmith (1969) used the ratio of assets of the financial intermediary to GNP as a proxy for financial development under the implicit assumption that the size of the financial system is positively correlated with the quality and provision of financial services. Using data on 35 countries from 1860 to 1963, his results indicated a rough 'parallelism' between economic and financial development.

The financial repressionist proposition too has undergone a number of empirical tests. Among the earliest proponents of this view were McKinnon (1973) and Shaw (1973). While McKinnon advocated the complementarity between money and physical capital in the process of economic growth, Shaw, focused on the debt intermediation process.

However, two interpretative problems remained unresolved. First, did the causal relation run from financial development to growth, or the other way or in both ways? Secondly, conceding that financial development enhances growth, does it occur by affecting the efficiency of investment or the rate of investment?

Using several measures for the level of development of financial intermediaries for a cross section of 77 countries for the period 1960-1989, King and Levine (1993) found, after controlling for other variables associated with economic

growth, statistically and economically significant relationships between the measures of financial development and growth variables. Subsequent work in this area, has attempted to incorporate variables that capture some of the drawbacks associated with the study by incorporating the various financial markets (e.g., stock market, household credit market and the banking sector) having a possible impact on the growth process. Several studies examined the relationship between various alternative indices of development (e.g., the ratio of consumer credit to GDP, market capitalisation to GDP, bank credit to GDP) and growth rates. Most studies found a positive and robust correlation between these indices and future rates of economic growth, capital accumulation and productivity growth. An aspect of the growth process which has received intensive scrutiny has been the cross-country differences in the legal rights of creditors, the efficiency of contract enforcement and the accounting standards explaining the level of financial intermediary development. Not surprisingly, legal and accounting reforms that strengthen creditors rights, contract enforcement and accounting practices have been found to boost financial intermediary development and thereby accelerate economic growth (Levine *et al.*, 2000)

The empirical studies, however do not unambiguously resolve the issue of causality. Financial development may predict growth simply because financial systems develop in anticipation of future economic growth. Furthermore, as pointed out earlier, differences in political systems, legal traditions or institutions may be responsible for driving both financial development and growth rates. Nevertheless, the body of evidence would tend to put forward the viewpoint that differences in financial development can alter economic growth over ample time horizons.

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significant at 5 per cent level (Table 3.16). These results would indicate a two-way causality between finance and growth. Similar results are also obtained between GDP growth and growth of real bank claims (*i.e.*, total of commercial and

co-operative banks' credit to commercial sector and their investment in Government securities deflated by GDP deflator). The F-statistic values for deleting lagged values of growth of real bank claims in the real per capita GDP growth equation

Table 3.16: Relationship between Finance and Growth in India: Granger's F Statistics

Cause	Effect	F-Statistic	Remark
1	2	3	4
GDP growth	Real M ₃ growth	5.83 *	Growth ® Finance
Real M ₃ growth	GDP growth	3.50 **	Finance ® Growth
GDP growth	Real Bank Claims growth	7.61 *	Growth ® Finance
Real Bank Claims growth	GDP growth	2.84 **	Finance ® Growth

Note: 1 All variables have been taken in real terms.
 2 The symbols '**' and '***' indicate significance at 5 per cent and 10 per cent, respectively.
 3 The symbol '®' indicates the direction of causality,

are also significant at 5 per cent and the same for deleting lagged values of GDP growth in the growth of real bank claims equation are significant at 10 per cent level, indicating a bi-directional causality between finance and growth.¹⁵

3.43 These causality results are, however, reduced-form evidence. In the absence of any structural model, the finding that finance and growth have bi-directional relationship between them may have to be interpreted only in terms of predictive content of each of the variables. That is to say, in the Indian case, past values of financial development seem to have good predictive content about future economic growth. Similarly, past values of growth are likely to have information about future financial development. But it must be noted that the evidence of a symbiotic relationship between financial development and growth in India is in line with the experience of a number of developing economies, where finance and growth have been found to have a close association.

3.44 In appreciating the nature of relationship between finance and growth in India, it should be noted that financial development in India has been by and large a state-induced activity. Thus, starting with bank nationalisation to various stipulations on bank lending with emphasis on 'social banking', the very thrust of financial development was consciously to encourage growth *via* availability of adequate credit at reasonable (at times concessional) rates of interest to areas where commercial

¹⁵ Interestingly, when the above causality regressions were run only for the 'seventies and the 'eighties, finance and growth were found to be independent of each other, on the basis of both the financial indicators, *viz.*, real M₃ growth as well as growth of banks' real claims. Despite the small sample size of the tests, this could be indicative of lack of feedback relationship between growth and finance prior to the 'nineties.

considerations may not allow for imminent disbursement of credit. Sharp bank branch expansion strategy turned out to be successful in increasing the scale of lending, since banks could raise necessary deposit resources. Availability of finance encouraged growth, and over time, growth, in turn, facilitated financial development. This virtuous circle between growth and finance seemed to have borne fruit in India, essentially to satisfy the need for diversification of financial assets holdings as the size of holdings has gone up. For this reason, it is important to track the indicators of stock market-based financial development in the primary market as well as the secondary market. As growth rate improves and is sustained, the new capital issue market is expected to gain importance. In this case, therefore *a priori* it could be expected that the direction of causation would run from growth to finance. However, the effect would be felt with long lags, with possible bunching effects corresponding to upswings in the phases of activity. The channels of influence between secondary market activity and growth would be largely guided by the extent of liquidity in the system. Towards this end, using higher frequency data, the causality pattern between stock-market capitalisation and GDP growth for the second half of the 'nineties (April 1995 through March 2000) has been examined. Using deseasonalised data for stock market capitalisation and wholesale price index for manufactured products (1993-94 = 100), an index of stock market capitalisation in real terms has been constructed. Taking the deseasonalised index of industrial production - manufacturing (1993-94 = 100) as a measure of activity variable, a bivariate VAR model was constructed between annualised growth rates of market capitalisation (in real terms) and industrial production for April

1995 though March 2000. It has been found that while the lagged values of industrial growth are insignificant in the equation for growth in market capitalisation (in real terms), the lagged values of growth in market capitalisation are significant in the equation for industrial growth. In other words, there is a unidirectional causality from market-based financial development to industrial growth. While market-based sources of finance have high

predictive power for explaining growth, past growth need not be an indicator of future availability of finance in the capital market. This has important policy implications for the economic relationships that the stock market supports. A case can be made for the provision of adequate liquidity in the context of the growth-inducing macroeconomic and structural management of the economy.

IV

FINANCIAL MARKET STRUCTURE

4.1 An understanding of the organisational structure of markets for financial assets is vital for knowing the limitations and prospects in relation to efficiency, integration and stability. Financial markets in India comprise in the main, the credit market, the money market, the foreign exchange market, the debt market and the capital market¹. Recently, the derivatives market - OTC and exchange traded - has also emerged. With banks having already been allowed to undertake insurance business, bancassurance market is also likely to emerge in a big way. Most of the financial markets were characterised till the early 'nineties by controls over the pricing of financial assets, restrictions on flows or transactions, barriers to entry, low liquidity and high transaction costs. These characteristics came in the way of developments of the markets and allocative efficiency of resources channelled through them. The initiation of financial sector reforms in the early 'nineties was essentially to bring about a transformation in the structure, efficiency and stability of financial markets, as also an integration of the markets. Some of the important structural changes enabled by financial sector reforms relate to introduction of free pricing of financial assets in almost all segments, relaxation of quantitative restrictions, removal of barriers to entry, new methods of floatation/issuance of securities, increase in the number of instruments and enlarged participation, improvement in trading, clearing and settlement practices, improvement in the informational flows, transparency and disclosure practices, to name a few. In this Chapter, an attempt is made to provide an account of the market structures and instruments of the financial sector, *viz.*, the credit market, the money market, the foreign exchange market, the debt

market, the capital market, the insurance market, and the recently established derivatives market and banc- assurance.

Credit Market Structure

4.2 In the context of relatively underdeveloped capital market and with little internal resources, firms or economic entities depend largely on financial intermediaries for their fund requirements. In terms of sources of credit, they could be broadly categorised as institutional and non-institutional. The major institutional purveyors of credit in India are banks and non-banking financial institutions, *i.e.*, development financial institutions (DFIs) and other financial institutions (FIs) and non-banking financial companies (NBFCs) including housing finance companies (HFCs). The non-institutional or unorganised sources of credit include money-lenders, indigenous bankers and sellers for trade credit. However, information about unorganised sector is limited and not readily available. The credit market is the predominant source of finance. An important aspect of the credit market is its term structure, *viz.*, (i) short-term credit, (ii) medium-term credit, and (iii) long-term credit. While banks and NBFCs predominantly cater to short-term needs, FIs provide mostly medium and long-term funds. However, the actual time-length of the credit availed would depend, *inter alia*, on the production-sale cycle.

Banks²

4.3 Banks in India can be broadly classified as commercial banks and co-operative banks. In terms of ownership and function, commercial banks can be grouped into three categories—public sector banks, regional rural banks and private sector banks (both domestic and foreign). These banks have over 67,000 branches spread wide

¹ One could, in fact, refer also to household finance market, NBFC market, and insurance market, as holding considerable promise in the years to come. These markets are not yet as developed and regulated as the credit/foreign exchange/money/capital/gilt-edged markets. Besides, there is very little of good time-series data of these markets that could be regarded as subjected to competitive forces. It is for these reasons, the focus on these markets had to be limited in this Report.

² Details of data about the working and progress of banks in India are not included, since these are covered extensively in the Bank's annual reports on Trend and Progress of Banking in India. Here the main focus would be on the structural aspects that have a bearing on financial integration and development.

across the country. After initiation of financial sector reforms, competition in the banking sector has increased. Porter (1985) crystallises competition as a composite of five forces, viz., rivalry amongst existing firms, potential entry of new competitors, potential development of substitute products, bargaining power of suppliers and bargaining power of consumers³. In the context of banking, all these are relevant except perhaps the bargaining power of suppliers. The threat of new entrants and substitute products as well as the rivalry amongst existing banks are becoming increasingly apparent in the Indian banking industry.

4.4 Competition among commercial banks has increased with the entry of new private sector banks and the permission to foreign banks to increase their number of branches in the 'nineties. After the guidelines issued in January 1993, 8 new private sector banks are presently in operation. These banks use state-of-the-art technology. Further, following India's commitment to the WTO agreement in respect of the services sector, foreign banks, including both new and the existing ones, have been permitted to open up to 12 branches a year with effect from 1998-99 as against the earlier stipulation of 8 branches. Also, competition among public sector banks has increased with relaxation of many guidelines, allowing for portfolio shifts for optimising the ultimate objectives. With the amendment to the Banking Companies Acts 1970/1980, public sector banks are now allowed to access the capital market to raise funds. This has diluted the shareholding of the Government, although it is still the major shareholder with a minimum 51 per cent of total equity. Local Area Banks (LABs) are also being set up to induce competition in urban, semi-urban and rural areas.

4.5 The competition in the banking sector has so evolved in the recent years that the market structure of the banking sector has tended to be oligopolistic. While the number of banks is reasonably large, the dominance of public sector banks, and especially of a few large banks continues. Such banks accounting for large share of deposits and advances as market leaders are able to influence decisions about liquidity and rate variables in the system. But, even such banks may face challenges in the future and face tougher

competition, given the gradual upgradation of skills and technologies in competing banks and the restructuring and re-engineering processes being attempted by both foreign and private sector banks.

4.6 Since bank nationalisation in 1969, there has been significant growth in the geographical coverage of banks and the amount of resources mobilised by banks. The spectacular increase in deposits as percentage of national income to 48.7 per cent in 1999 as against 15.5 per cent in 1969 testifies to the favourable impact of branch expansion. There has also been a sharp increase in credit to agriculture, small-scale industries, trade and other activities which had little access to bank finance before 1969.

4.7 Prior to financial sector reforms, commercial banks functioned in a regulated environment, with administered interest rate structure, quantitative restrictions on credit flows, fairly high reserve requirements and pre-emption of significant proportion of lendable resources for the priority and the government sectors. While the quantitative restrictions led to the credit rationing for the private sector, interest rate controls led to sub-optimal use of credit and low levels of investment and growth. At the same time, flexibility of monetary policy in influencing the volume and cost of credit was constrained by considerations relating to domestic debt management and the need to finance the resource needs of the government sector. The resultant 'financial repression' led to decline in productivity and efficiency and erosion of profitability of the banking sector in general.

4.8 It is in the background of these circumstances that the development of sound commercial banking system was worked out mainly with the help of the recommendations of the Committee on the Financial System (Chairman: Shri M. Narasimham), 1991. The consequential financial sector reforms envisaged interest rate flexibility for banks and reduction in reserve requirements, besides a number of structural measures. Interest rates, as a consequence, have emerged as a major signalling device for resource allocation. This apart, credit market reforms included introduction of new instruments of credit, changes in the credit delivery system and integration of functional roles of diverse players, such as, banks, financial institutions and non-banking financial companies (NBFCs). The gradual introduction of a loan

³ Porter, Michel E., (1985), *Competitive Advantage: Creating and Sustaining Superior Performance*, The Free Press, New York.

system in the place of a cash credit system has facilitated banks in planning their cash flows better, and in reducing the costs of uncertainty. At the same time, there has been greater competition with the introduction of new private sector banks and the permission given to foreign banks to open branches, as also with progressive improvement in the role of the non-banking sector. Restrictions on project financing by banks have been removed. With the result, the share of term loans as percentage of total bank loans went up to 34.9 per cent as at the end of March 1999 from 26.1 per cent as at end-March 1995.

4.9 The implementation of prudential norms characterised the initial phase of the financial reforms. Once the framework of improved soundness of financial intermediaries was provided, attention was bestowed on deregulation of the credit market. The gradual scaling down of cash reserve and statutory liquidity requirements has afforded flexibility to banks to manage their asset portfolios. The average CRR has been progressively brought down to 8.5 per cent in August 2000 from its peak at 15 per cent during July 1989 to April 1993. The SLR, which was at a peak of 38.5 per cent during September 1990 to December 1992, had been reduced to the statutory minimum of 25 per cent by October 1997. Besides, the coverage of priority sector has also been appropriately enlarged to include software and agro-processing industries and venture capital, while the existing priority sector categories have been broadened, giving the banks larger access in meeting the priority sector targets. Selective credit controls were eliminated over time. In addition, credit restrictions have been gradually removed/relaxed for purchases of consumer durables, and loans to individuals against shares and debentures/bonds.

Subsidiaries of Banks

4.10 An important development in the financial sector in the recent years has been the diversification and growth of para-banking activities. In India, following the erstwhile UK model, wherein diverse financial activities can be undertaken only through separate affiliates, banks were allowed to undertake non-traditional activity, *i.e.*, leasing through separate subsidiaries in 1983 by amending the Banking Regulation Act, 1949. From 1986-87 and onwards, banks were allowed to set up subsidiaries to undertake other non-traditional activities, such as, mutual funds, hire

purchase, factoring, *etc.* A number of banks have sponsored mutual funds (for example, State Bank of India, Canara Bank and Indian Bank). In 1994, banks were also allowed to undertake departmentally para banking activities, such as, leasing, hire purchase, factoring, *etc.* Presently, banks can undertake para banking activities either through subsidiaries or in-house or both.

4.11 The reasons for banks entering para-banking activities include the need for diversifying earnings, maximising economies of scale and scope, making profits, and also the desire to have leading market positions in financial services.

4.12 Merchant banking is an important area where subsidiaries of banks have made their presence felt. Merchant banking includes services, such as, pre-issue, management of public issue, *etc.*, and as such is dependent on the conditions in the stock market. Prior to 1983, banks used to undertake merchant banking activities in-house. In 1983, they were allowed to set up separate subsidiaries for undertaking merchant banking activities and the first banking subsidiary in the field of merchant banking was the SBI Capital Market, which started functioning in 1987 when the capital market was buoyant. There are now a number of bank subsidiaries involved in the merchant banking activities, such as, PNB Capital Services, BOI Finance, Indbank Merchant Banking Services, *etc.*

4.13 The dealing in government securities is another area where banks have been fairly active. Banks also set up subsidiaries for acting as primary dealers for government securities which include SBI Gilts, PNB Gilts, Gilts Securities Trading Corporation (set up by Canara Bank and Bank of Baroda).

4.14 Banks, through their subsidiaries, also provide services, such as, factoring (SBI Factors, Canbank Factors, *etc.*), securitisation of loans and receivables into debt securities (Citi Bank), stock broking (SBI Securities, PNB Securities, *etc.*), financial guarantee for infrastructure projects, *etc.* Venture capital is a new area where banks have entered. The main players include Canbank Venture Capital Fund. SBI, Andhra Bank, Union Bank of India have contributed towards equity of venture capital funds floated by Technology Development and Investment Corporation of India (TDICI), Gujarat Investment Corporation, *etc.* Many banking subsidiaries, such as, SBI Home Finance, BOB Housing Finance, and PNB Housing

Finance, are also quite active in the field of housing finance. Banking subsidiaries are also operating in the credit card business, e.g., SBI Cards and Payment Services Ltd.

4.15 There is a shared responsibility between the Reserve Bank and SEBI in the regulation of para banking activities of banks. In India, a prudential regulatory framework based on capital adequacy is in place in the case of para-banking subsidiaries as well. It is also important to adopt an arms-length approach between a bank and its subsidiary since involvement of banking subsidiaries in any activity that is subject to 'bubbles' and irregularities could impose financial burden on parent banks. But, as the problems of subsidiaries are hardly quickly noticed, public sector banks have been required to provide a consolidated balance sheet including position of their subsidiaries from the year ended March 31, 2000 to correctly reflect their financial strengths and weaknesses as is the case in the US. Such a transparent practice will help individual investors to make informed choices better.

Financial Institutions

4.16 A large variety of financial institutions has come into existence over the years to perform a variety of financial activities. While some of them operate at all-India level, others are state level institutions. All-India financial institutions (AIFIs) consist of all-India development banks, specialised financial institutions, investment institutions and refinance institutions. The state level institutions, on the other hand, comprise 18 State Financial Corporations (SFCs) and 26 State Industrial Development Corporations (SIDCs).

4.17 All-India development banks (IDBI, IFCI, ICICI, SIDBI and IIBI) occupy an important position in the financial system as the main source of medium and long-term project finance to industry. Among them, the IFCI (1948), IDBI (1964) and IRBI (presently IIBI-1984) were established under various Acts of the Parliament. The ICICI (1955) was set up as a public limited company under the Companies Act. The SIDBI (1990), a wholly owned subsidiary of IDBI, was set up for promotion, financing and development of industry in the small-scale, tiny and cottage sector. It acts as the chief refinancing institution in this sector. Besides, specialised financial

institutions are also operating in the areas of export-import (EXIM Bank-1982), infrastructure (IDFC-1997), tourism (TFCI-1989) and venture capital (IVCF, ICICI Venture). Investment institutions in the business of mutual fund (UTI-1964) and insurance activity (LIC-1956, GIC and its subsidiaries-1972) have also played significant roles in the mobilisation of household sector savings and their deployment in the credit and the capital markets. In the agriculture and rural sector and the housing sector, the NABARD (1982) and NHB (1988) respectively, are acting as the chief refinancing institutions. Both of them are also vested with certain supervisory functions.

4.18 Besides providing direct loans (including rupee loans, foreign currency loans), financial institutions also extend financial assistance by way of underwriting and direct subscription and by issuing guarantees. Recently, some development financial institutions (DFIs) have started extending short term/working capital finance, although term-lending continues to be their primary activity. Amongst them, the five all-India development banks accounted for 83.9 per cent of the total financial assistance sanctioned during 1998-99. The overall importance of these financial institutions could be judged from the fact that their combined assets estimated at Rs.4,88,516 crore formed about 55.1 per cent of the assets of the banking sector as at end-March 2000.

4.19 Historically, the Reserve Bank and the Central Government have played a major role in financing these institutions by subscribing to the share capital, by allowing them to issue Government guaranteed bonds and by extending long-term loans at concessional terms. However, with the financial sector reforms in the 'nineties, concessional lending by the Reserve Bank and the Government was phased out, leaving the financial institutions to rely for financing their needs on the equity capital and the debt markets. Expansion of their equity base through public offers and public issues of long-term bonds has become an important element of their market-based financing. In order to provide flexibility, the Reserve Bank has also allowed FIs to raise resources by way of term deposits, CDs and borrowings from the term money market within the umbrella limit fixed in terms of net owned funds. In order to expand their scope of business, a large number of them have been entering various businesses - venture capital, mutual funds, banking (through subsidiaries) and insurance.

Non-Banking Financial Companies (NBFCs)

4.20 Non-banking financial companies (NBFCs) are financial intermediaries engaged primarily in the business of accepting deposits and making loans and advances, investments, leasing, hire purchase, etc. NBFCs are a heterogeneous lot. NBFC sector is characterised by a large number of privately owned, decentralised and relatively small-sized financial intermediaries. NBFCs are of various types, such as, loan companies (LCs), investment companies (ICs), hire purchase finance companies (HPFCs), equipment leasing companies (ELCs), mutual benefit financial companies (MBFCs) also known as Nidhis, miscellaneous non-banking companies (MNBCs) also known as Chit Funds and residuary non-banking companies (RNBCs). Loan companies, investment companies, hire purchase finance companies and equipment leasing companies are defined on the basis of the principal activity of their business. Although NBFCs in India have existed for a long time, they shot into prominence in the second half of the 'eighties and in the first-half of the 'nineties, as deposits raised by them grew rapidly. Total assets/liabilities of NBFCs grew at an average annual rate of 36.7 per cent during the 'nineties (1991-98) as compared with 20.9 per cent during the 'eighties (1981-91). Customer orientation, concentration in the main financial centres and attractive rates of return offered by them are some of the reasons for their rapid growth. Primarily engaged in the area of retail banking, they face competition from banks and financial institutions.

4.21 An attempt to regulate NBFCs started in the 'sixties when the Reserve Bank issued directions relating to the maximum amount of deposits, the period of deposits and rate of interest they could offer on the deposits accepted by them. To safeguard depositors' interest, norms were laid down from time to time, *inter alia*, regarding maintenance of certain percentage of liquid assets, creation of reserve funds and transfer thereto every year a certain percentage of profit, etc. These directions were amended from time to time, and in 1977 the Reserve Bank issued two separate sets of guidelines, viz., NBFC Acceptance of Deposits Directions, 1977 for NBFCs and MNBC Directions, 1977 for MNBCs.

4.22 Traditionally, the regulation of NBFCs was confined to deposit-taking activities of NBFCs. Although some attempt was made to regulate the

asset side of NBFCs in 1994 in pursuance of the Shah Committee recommendations, the absence of adequate regulatory powers remained a major constraint. In 1997, however, the RBI Act was amended and it was given comprehensive powers to regulate NBFCs. The amended Act made it mandatory for every NBFC to have minimum net owned funds (NOF) of Rs.25 lakhs (subsequently increased to Rs.2 crore for the new companies) and obtain a certificate of registration from the Reserve Bank for commencing or carrying on business. The provisions relating to certificate of registration and minimum NOF were put in place to ensure that only companies with a healthy background and adequate capital were allowed to carry on the business. This was also to reduce the number of NBFCs to a manageable universe for purposes of effective regulation and supervision. As on June 30, 2000, out of the 37,274 companies seeking registration, 679 were approved for registration with permission to accept public deposits, while 8,451 were approved for registration without authorisation to accept deposits. Ceilings were prescribed for acceptance of deposits based on the principal business, capital adequacy, credit rating and NOF. The amended Act also empowered the Reserve Bank to regulate the asset side of NBFCs. Accordingly, in January 1998, the Reserve Bank laid down norms relating to capital adequacy, income recognition, asset classification, credit rating, exposure norms, etc. The Reserve Bank has also developed a comprehensive system to supervise NBFCs accepting/holding public deposits. This involves: (i) on-site inspection; (ii) off-site monitoring through periodic control returns from NBFCs; (iii) use of market intelligence; and (iv) submission of reports by auditors of NBFCs.

4.23 Public deposits held by NBFCs (including RNBCs) as at end-March 1999 at Rs.20,429 crore constituted approximately 2.6 per cent of aggregate deposits mobilised by scheduled commercial banks (excluding regional rural banks). Significantly, RNBCs (numbering only nine) held 52.1 per cent of the total deposits held by all NBFCs. Public deposits of large NBFCs (i.e., holding public deposits of Rs.20 crore and above) accounted for about 45 per cent of the total liabilities of the NBFC sector as a whole. Deposits of large size (Rs.10,000 and above) constituted 74.5 per cent of the total deposits of NBFCs. Increased competition in the financial sector, on the one hand, and strengthening of the regulatory

requirements, on the other, have resulted in a major consolidation in the NBFCs sector in the recent period.

Housing Finance Companies (HFCs)

4.24 In India, investment in housing is mainly financed by own sources or from informal credit market. The formal housing finance institutions contribute only 15-20 per cent of housing investments in the country (NSS, 44th Round, 1988-89). However, within the formal housing finance sector, the conventional sources of housing finance in India have been the public sector institutions. Over the years, they were found to be grossly inadequate to meet the requirements of the new investments and maintenance of housing and habitat systems. Accordingly, since the mid-eighties, efforts have been directed at the development of housing finance institutions to meet the large resource gap that exists for housing finance in the country. A policy shift to encourage private and co-operative sectors in housing could be discerned and the necessary legal and regulatory changes are being effected in this regard.

4.25 The formal segment of housing finance includes funding provided by the Central and State Governments and funds from financial institutions like GIC, LIC, commercial banks and specialised housing finance institutions and co-operative banks. HUDCO was set up in April 1970 as an apex techno-finance organisation in order to provide loans and technical support to state and city level organisations. The State Governments are responsible for implementing social housing schemes. Almost all the States have set up Housing Boards in order to facilitate the implementation of the social housing schemes. Co-operative banks have been financing housing schemes. Co-operative banks cater to economically weaker sections, low and middle income groups as well as co-operative or group housing societies. The first comprehensive guidelines in respect of these banks (other than Urban Co-operative Banks) were issued by the Reserve Bank in December 1984.

4.26 The second formal tier of the housing finance consists of insurance corporations, commercial banks and housing finance companies. In 1976, the Reserve Bank issued its first set of housing finance guidelines to scheduled commercial banks for the benefit of

weaker sections of the society. At present, banks are required to extend for housing finance 3 per cent of incremental deposits in a financial year. This apart, the financial market for housing includes housing finance companies, which provide the bulk of housing finance. Although there are around 400 HFCs in operation, the market is dominated by a few big players. More than 95 per cent of disbursements are accounted for by only 29 leading HFCs having refinance facility from the National Housing Bank (NHB).

4.27 In recognition of the need for developing a network of specialised housing finance institutions in the country, the National Housing Bank was set up in July, 1988 as a wholly owned subsidiary of the Reserve Bank under the National Housing Bank Act, 1987, to function as an apex bank for the housing finance. NHB regulates HFCs, refinances their operations and expands the spread of housing finance to different income groups all over the country, while functioning within the overall framework of the housing policy. It has also helped in diverting increasing proportions of annual provident fund accumulations for housing finance through housing linked savings schemes for provident fund subscribers.

4.28 The second major policy in this direction was introduced in 1994 in the form of the National Housing Policy (NHP) that envisaged a major shift in the Government's role from a provider to a facilitator. The policy framework deals with technological, financial and institutional aspects. The market for housing finance really started growing after the NHP was framed. Among the HFCs, while HUDCO dominated in terms of size (paid up capital), HDFC and to an extent LIC performed better in terms of profits and total disbursements. The NHP also recognised the need to strengthen HUDCO through augmenting its resources for meeting the requirements for shelter provisions for lower income groups in a larger measure in rural and urban areas including the shelters and the slum dwellers and for expanding infrastructure facilities in the urban areas.

4.29 The NHB, as part of its regulatory measures, announced introduction of major provisions in September 1997 to strengthen the regulatory framework for HFCs. The regulations, *inter alia*, included compulsory registration of housing finance companies with minimum net-owned fund of Rs.25 lakhs, mandatory transfer

of 20 per cent of net profits to a reserve fund, maintenance of 5 per cent of SLR in bank deposits and another 5 per cent in approved securities. The Union Budget for 2000-01 envisaged a 20 per cent tax rebate under section 88 of the Income Tax Act for repayment of housing loans up to Rs.20,000 per year as against Rs.10,000 earlier.

4.30 The interest rate structure across HFCs has been similar due to the similarity in their liability structure resulting in similar cost of funds. For the year 1996-97, 55 per cent of the deposits received from the public were collected at rates above 14 per cent.

Money Market Structure

4.31 Money markets perform the crucial role of providing a conduit for equilibrating short-term demand for and supply of funds, thereby facilitating the conduct of monetary policy. The money market instruments mainly comprise: (i) call money, (ii) certificates of deposit, (iii) treasury bills, (iv) other short-term government securities transactions, such as, repos, (v) bankers' acceptances/commercial bills, (vi) commercial paper, and (vii) inter-corporate funds. While inter-bank money markets and central bank lending *via* repo operations or discounting provide liquidity for banks, private non-bank money market instruments, such as, commercial bills and commercial paper provide liquidity to the commercial sector. Unlike in developed economies where money markets are promoted by financial intermediaries out of efficiency considerations, in India, as in many other developing countries, the evolution of the money market and its structure has been integrated into the overall deregulation process of the financial sector.

4.32 In 1985, the Chakravarty Committee first underlined the need to develop money market instruments in India, while in 1987 the Working Group on the Money Market (Chairman: Shri N. Vaghul) laid the blueprint for the institution of money markets. The Reserve Bank has gradually developed money markets through a five-pronged effort. First, interest rate ceilings on inter-bank call/notice money (10.0 per cent), inter-bank term money (10.5-11.5 per cent), rediscounting of commercial bills (12.5 per cent) and inter-bank participation without risk (12.5 per cent) were withdrawn effective May 1, 1989. Secondly, several

financial innovations in terms of money market instruments, such as, auctions of Treasury Bills (beginning with the introduction of 182-day Treasury Bills effective November 1986), certificates of deposit (June 1989), commercial paper (January 1990) and RBI repos (December 1992) were introduced. Thirdly, barriers to entry were gradually eased by (i) increasing the number of players (beginning with the Discount and Finance House of India (DFHI) in April 1988 followed by primary and satellite dealers and money market mutual funds), (ii) relaxing both issuance restrictions and subscription norms in respect of money market instruments and allowing determination of yields based on demand and supply of such paper, and (iii) enabling market evaluation of associated risks, by withdrawing regulatory restrictions, such as, bank guarantees in respect of CPs. Fourthly, the development of markets for short-term funds at market determined interest rates has been fostered by a gradual switch from a cash credit system to a loan-based system, shifting the onus of cash management from banks to borrowers and phasing out the 4.6 per cent 91-day tap Treasury bills, which in the past provided an avenue for investing short-term funds. Finally, institutional development has been carried out to facilitate inter-linkages between the money market and the foreign exchange market, especially after a market-based exchange rate system was put in place in March 1993.

4.33 The changes in the money market structure need to be seen in the context of a gradual shift from a regime of administered interest rates to a market-based pricing of assets and liabilities. The development of money markets in India in the last 3-4 years has been facilitated by three major factors. First, the limiting of almost automatic funding of the government, largely realised with the replacement of *ad hoc* Treasury bills (which bore a fixed coupon rate of 4.6 per cent per annum from July 1974, implying a negative real interest rate for most part of the period) by ways and means advances (WMA) at interest rates linked to the Bank Rate and the development of the government securities market, discussed later in the chapter, permitting a gradual de-emphasis on cash reserve ratio as a monetary policy instrument. Secondly, the development of an array of instruments of indirect monetary control, such as, the Bank Rate

(re-activated in April 1997), the strategy of combining auctions, private placements and open market operations in government paper (put in place in 1998-99) and the liquidity adjustment facility (LAF) (instituted in June 2000). Thirdly, the enabling institutional framework was introduced in the form of primary and satellite dealers and money market mutual funds. The monetary authority uses money markets to adjust primary liquidity in the domestic economy and monetary policy is often, in turn, shaped by developments in the money and the foreign exchange markets.

Call/Notice Money Market

4.34 The overnight inter-bank call money market, in which banks trade positions to maintain cash reserves, is the key segment of the money market in India. It is basically an 'over the counter' (OTC) market without the intermediation of brokers. Participation has been gradually widened to include other financial institutions, primary/satellite dealers, mutual funds and other participants in the bills rediscounting market and corporates (through primary dealers) besides banks, LIC and UTI. While banks and primary dealers are allowed two-way operations, other non-bank entities can only participate as lenders. As per the announced policies, once the repo market develops, the call money market would be made into a pure inter-bank market, including primary dealers.

4.35 The call money market is influenced by liquidity conditions (mainly governed by deposit mobilisation, capital flows and the Reserve Bank's operations affecting banks' reserve requirements on the supply side and tax outflows, government borrowing programme, non-food credit off-take and seasonal fluctuations, such as, large currency draws during the festival season on the demand side). At times of easy liquidity, call rates tend to hover around the Reserve Bank's repo rate, which provides a ready avenue for parking short-term surplus funds. During periods of tight liquidity, call rates tend to move up towards the Bank Rate and more recently the Reserve Bank's reverse repo rate (and sometimes beyond) as the Reserve Bank modulates liquidity in pursuit of monetary stability (Chart IV.1). Besides, there are other influences, such as, (i) the reserve requirement prescriptions (and stipulations

regarding average reserve maintenance), (ii) the investment policy of non-bank participants in the call market which are among the large suppliers of funds in the call market, and (iii) the asymmetries of the call money market, with few lenders and chronic borrowers.

4.36 The annual turnover in the call money market at Mumbai which amounted to Rs.16,44,790 crore in 1991-92 and Rs.15,45,160 crore in 1996-97 moved up in more recent years. For example, the daily turnover increased to Rs.33,882 crore during 1999-2000 from Rs.25,956 crore during 1998-99. The average interest in the call money market during last four years tended to move up from 7.8 per cent in 1996-97 to 9.0 per cent during 1999-2000. However, volatility tended to move downwards (Table 4.1 and Chart IV.1).

Term Money Market

4.37 The term money market in India is still not developed, with the daily turnover amounting to Rs.951 crore - Rs.1,489 crore during March 2000, up from Rs.23 crore - Rs.967 crore during March 1999. Select financial institutions (IDBI, ICICI, IFCI, IIBI, SIDBI, EXIM Bank, NABARD, IDFC and NHB) are permitted to borrow from the term money market for 3-6 months maturity, within stipulated limits for each institution. Banks were exempted from the maintenance of CRR and SLR on inter-bank liabilities to facilitate the development of the term money market in April 1997, subject to the condition that effective CRR and SLR on total demand and time

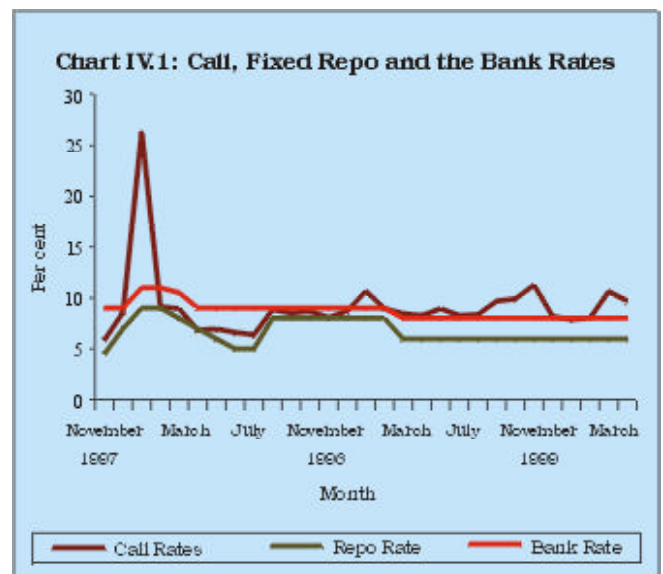


Table 4.1: Inter-bank Call Money Lending Rates

Year (April-March)	Maximum	Minimum	Average	Coefficient of Variation#	Bank Rate (End March)
1	2	3	4	5	6
1996-97	14.6	1.05	7.8	37.3	12.0
1997-98	52.2	0.2	8.7	85.7	10.5
1998-99	20.2	3.6	7.8	14.9	8.0
1999-2000	35.0	0.1	9.0	12.7	8.0

: Of monthly weighted averages.

Source : Handbook of Statistics on Indian Economy, 2000, RBI.

liabilities would not be less than 3 per cent and 25 per cent, respectively.

Repos

4.38 Repo is a money market instrument, which enables collateralised short-term borrowing and lending through sale/purchase operations in debt instruments. Under a repo transaction, a holder of securities sells them to an investor with an agreement to repurchase at a pre-determined date and rate. In the case of a repo, the forward clean price of the bonds is set in advance at a level which is different from the spot clean price by adjusting the difference between repo interest and coupon earned on the security. Repo is also called a ready forward transaction as it is a means of funding by selling a security held on a spot (ready) basis and repurchasing the same on a forward basis. Reverse repo is a mirror image of repo as in the case of former, securities are acquired with a simultaneous commitment to resell.

4.39 Subsequent to the irregularities in securities transactions, repos were initially allowed in the Central Government Treasury bills and dated securities created by converting some of the Treasury bills. In order to activate the repos market essentially to be an equilibrating force between the money market and the Government securities market, the Reserve Bank gradually extended repos facility to all Central Government dated securities and Treasury bills of all maturities. Recently, while the State Government securities were made eligible for repos, the Reserve Bank also allowed all non-banking entities, maintaining SGL and current account with its Mumbai office, to undertake repos (including reverse repos). Furthermore, it has been decided to make PSU bonds and private corporate securities eligible for repos to broaden the repos market.

4.40 The Reserve Bank also undertakes repo/ reverse repo operations with PDs and scheduled

commercial banks, as part of its open market operations. It also provides liquidity support to SDs and 100 per cent gilt mutual funds through reverse repos. There is no limit on the tenor of repos. The Reserve Bank initially conducted repo operations for a period of 14 days. Since November, 1996, the Reserve Bank has been conducting 3-4 day repo auctions, synchronizing with working day and week-end liquidity conditions, in order to modulate short-term liquidity. With the introduction of Liquidity Adjustment Facility (LAF) from June 5, 2000, the Reserve Bank has been injecting liquidity into the system through reverse repos and absorbing liquidity from the system through repos on a daily basis. These operations are conducted on all working days except on Saturdays, through uniform price auctions and are restricted to scheduled commercial banks and PDs. This is apart from the liquidity support extended by the Reserve Bank to PDs through refinance/reverse repo facility at a fixed price.

4.41 Repos help to manage liquidity conditions at the short-end of the market spectrum. Repos have often been used to provide banks an avenue to park funds generated by capital inflows to provide a floor to the call money market. During times of foreign exchange market volatility, repos have been used to prevent speculative activity as the funds tend to flow from the money market to the foreign exchange market. For instance, a fixed rate repo auction system was instituted in November 1997 with a view to ensuring an effective floor for the short-term interest rates in order to ward off the spread of contagion during the South-East Asian crisis. The repo rates were reduced with the return of capital flows, which imparted stability to the foreign exchange market.

Commercial Paper

4.42 Commercial Paper (CP) is issued by non-banking companies and all-India Financial

Institutions (AIFIs) as an unsecured promissory note or in a dematerialised form at a rate of discount not tied to any transaction. It is privately placed with investors through the agency of banks. Banks act as both principals (*i.e.*, as counter parties in purchases and sales) and agents in dealership and placement. Banks are not allowed to either underwrite or co-accept issue of CP.

4.43 Conditions relating to issuing of CPs have been relaxed gradually with a view to broad-basing the market. For instance, the maturity period has been changed from 91 days - 6 months earlier to 15 days - 1 year. The minimum size of CPs has also been reduced from Rs.1 crore to Rs. 5 lakh. The issuer base has been widened by allowing PDs, SDs and AIFIs, apart from corporates, to issue CPs to access short-term funds.

4.44 The limit for issuance of CP, which was initially carved out of the maximum permissible bank finance (MPBF), was later linked to the cash credit component of MPBF. With the cash credit component gradually shrinking and, thereby, restricting the development of CP, the issuance limit was delinked from the cash credit limit in October 1997. Initially, banks were required to restore the cash credit limit on the maturity of the paper, guaranteeing the issuer funds at the point of redemption. This "stand-by" facility was withdrawn in October 1994 to impart a measure of independence to CP as a money market instrument. Banks could be approached for a restoration of the original cash credit limit at a later date, the sanction of which was left to their discretion. The credit rating requirement, initially an enabling condition for issuing CP, gradually turned to signal the issuer's position in the market. The Reserve Bank converted CP into a stand-alone product effective October 2000, with a view to enabling the issuers in the services sector to meet short-term working capital requirements and, at the same time, according banks and FIs the flexibility to fix working capital limits after taking into account the resource pattern of companies' finances including CPs. Trading in the dematerialised form, which was introduced recently, is likely to reduce transactions costs.

4.45 The pricing of CP usually lies between the scheduled commercial banks' lending rate (since corporates do not otherwise have the incentive to issue CP) and some representative money market rate (which represents the opportunity cost of bank funds). The Indian CP market is driven by the demand for CP by scheduled commercial

banks, which, in turn, is governed by bank liquidity. Banks' investments in CP, despite a positive interest rate differential between the bank loan rate and the CP rate, may be explained by two factors, *viz.*, (i) the higher transactions costs of bank loans, and (ii) the relative profitability of CP as an attractive short-term instrument to park funds during times of high liquidity. As inter-bank call rates are typically lower than the CP rates, some banks also fund CP by borrowing from the call money market and, thus, book profit through arbitrage between the two money markets. Most of the CPs seem to have been issued by the manufacturing companies for a maturity period of approximately three months or less, mainly due to the fact that investors do not wish to lock funds for long periods of time. In most international markets, CP is issued on a short-term basis with a roll-over facility; this facility, however, is not allowed in the Indian CP market.

4.46 The secondary activity is subdued in most CP markets on account of the investors' preference to hold the instrument due to higher risk-adjusted return relative to those of other instruments. However, mutual funds find the secondary market relatively remunerative, since stamp duty for the issuer will be higher in case the buyer is a mutual fund rather than a bank. Hence, there is a tendency to route a CP through an institution (usually a bank), which attracts lower stamp duty in the primary market, to a mutual fund in the secondary market.

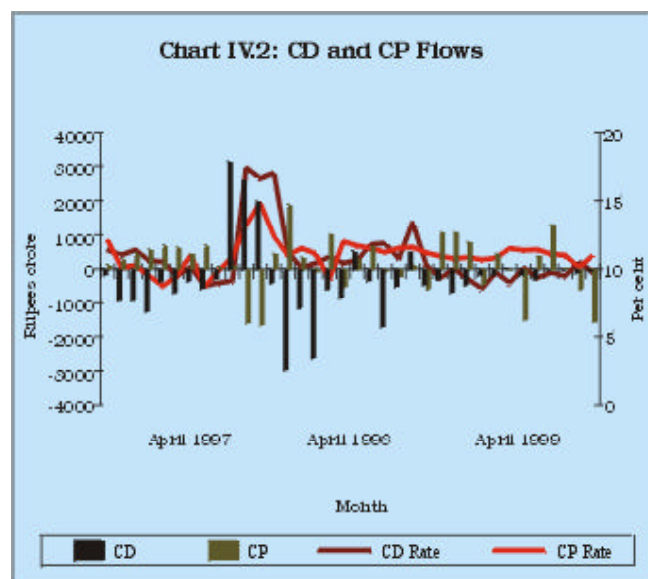
Certificates of Deposit

4.47 Certificates of Deposit (CD), introduced in June 1989, are essentially securitised short-term time deposits issued by banks during periods of tight liquidity, at relatively high interest rates (in comparison with term deposits). But the transaction cost of CDs is often lower as compared with that of retail deposits. When credit picks up, placing pressure on banks' liquidity, banks try to meet their liquidity gap by issuing CDs, often at a premium. The required amounts are mobilised in larger amounts through CD, often for short periods in order to avoid interest liability overhang in the subsequent months when credit demand slackens. As banks offer higher interest rates on CDs, subscribers find it profitable to hold CDs till maturity. As a result, the secondary market for CDs has been slow to develop.

4.48 The Reserve Bank initially limited the issuance of CDs at a certain percentage of the

fortnightly average of the outstanding aggregate deposits of 1989-90. Over-time, bank-wise limits were raised and subsequently abolished, effective October 16, 1993, enabling the CD to emerge as a market determined instrument. The reduction in the minimum maturity of time deposits and the permission to allow banks to pay different interest rates based on deposit size, reduced the relative attractiveness of CDs. With a view to broadening the CD market, the minimum issuance size was gradually scaled down to Rs.5 lakh and the minimum maturity reduced to 15 days in April 2000. Again, in order to provide flexibility and depth to the secondary market, the restriction on transferability period for CDs issued by both banks and financial institutions was withdrawn effective October 10, 2000.

4.49 The issuance of CDs and subscription to CPs by scheduled commercial banks and the interest rate on the two instruments broadly reflected the liquidity conditions of banks (Table 4.2 and Chart IV.2). The outstanding amount of CP increased to Rs.3,264 crore as at end-March 1994 from Rs.577 crore as at end-March 1993, while CDs declined to Rs.5,571 crore from Rs.9,803 crore. As liquidity conditions tightened with the increased demand for bank credit and capital outflows, the outstanding amount of CDs increased steadily to scale a peak of Rs.16,316 crore as at end-March 1996, while CP issues dwindled to Rs.76 crore. As liquidity conditions eased, the outstanding amount of CDs declined to Rs.12,134 crore as at end-March 1997 but increased to Rs.14,296 crore as at end-March 1998 following the Reserve Bank's monetary



tightening measures on January 16, 1998. CDs declined to Rs.3,717 crore at end-March 1999 as a result of slackening of credit demand and capital inflows and remained limited to an average of around Rs.1,500 crore during 1999-2000. The outstanding amount of CP picked up, after the limits were enlarged in October 1997, to Rs.4,770 crore as at end-March 1999 and further to Rs.5,663 crore as at end-March 2000.

Commercial Bills Market

4.50 The commercial bill market in India is very limited, as evidenced by the fact that commercial bills rediscounted by commercial banks with financial institutions stay often well below Rs.1,000 crore. The commercial bills market was constricted by the cash credit system of credit delivery where the onus of cash management rested with banks. The Reserve Bank withdrew the interest rate ceiling of 12.5 per cent on rediscounting of commercial bills, effective May 1, 1989. The success of the bills discounting scheme is contingent upon financial discipline on the part of borrowers. As such discipline did not exist, the Reserve Bank, in July 1992, restricted the banks to finance bills to the extent of working capital needs based on credit norms. However, in order to encourage the 'bills' culture, the Reserve Bank advised banks in October 1997 that at least 25 per cent of inland credit purchases of borrowers should be through bills. The Working Group on Bills Discounting by Banks (Chairman: Shri U.R. Ramamoorthy) has recently submitted its report to the Reserve Bank.

Table 4.2: Certificates of Deposit and Commercial Paper: Summary Statistics

Year/ Instrument (End-March)	CD		CP	
	Interest Rate (per cent)	Outstanding (Rupees crore)	Interest Rate (per cent)	Outstanding (Rupees crore)
1	2	3	4	5
1993	12.5-16.5	9,803	15.8-16	577
1994	7-12.2	5,571	11-12	3,264
1995	10-15	8,017	14-15	604
1996	12-22.3	16,316	20.2	76
1997	7-14.3	12,134	11.3-12.3	646
1998	7.2-26	14,296	14.2-15.5	1,500
1999	8-12.5	3,717	9.1-13.3	4,770
2000	7.5-12	1,227	10-12	5,663

Money Market Mutual Funds (MMMFs)

4.51 In April 1992, scheduled commercial banks and public financial institutions were allowed to set up MMMFs, subject to certain terms and conditions. The prescribed restrictions were relaxed subsequently between November 1995 and July 1996 in order to impart more flexibility, liquidity and depth to the market. MMMFs are allowed to invest in rated corporate bonds and debentures with a residual maturity of one year. The minimum lock-in period for units of MMMFs was relaxed from 30 days to 15 days in May 1998. In 1999-2000, MMMFs were allowed to offer 'cheque writing facility' in a tie-up with banks to provide more liquidity to unit holders. MMMFs, which were regulated under the guidelines issued by the Reserve Bank, have been brought under the purview of the SEBI regulations since March 7, 2000. Banks are now allowed to set up MMMFs only as a separate entity in the form of a trust. Currently, there are only three MMMFs in operation.

Foreign Exchange Market Structure

4.52 The foreign exchange market in India comprises customers, authorised dealers (ADs) and the Reserve Bank. With the transition to a market determined exchange rate system in March 1993 and the subsequent gradual but significant liberalisation of restrictions on various external transactions, the forex market in India has acquired more depth.

4.53 The growing depth of the Indian forex market in the 'nineties reflects essentially the result of the implementation of a number of recommendations of three important committees, viz., the High Level Committee on Balance of Payments (Chairman: Dr. C. Rangarajan), the Report of the Expert Group on Foreign Exchange Markets in India (Chairman: Shri O.P. Sodhani) and the Committee on Capital Account Convertibility (Chairman: Shri S.S. Tarapore).

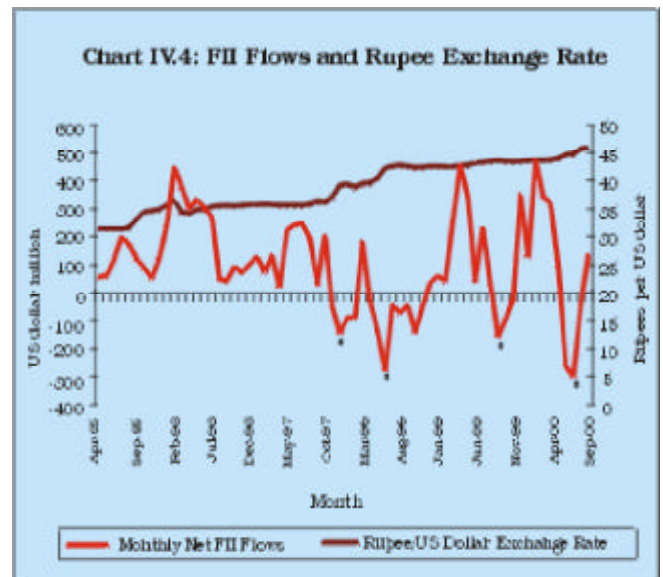
4.54 Since the unification of the exchange rate in March 1993, several measures have been introduced to widen and deepen the forex market. First, banks have been given the freedom to (i) fix net overnight position limits and gap limits (with the Reserve Bank formally approving the limits), (ii) initiate trading position in the overseas markets, (iii) determine the interest rates of NRI deposits (Linked to LIBOR in the case of FCNR(B)

deposits) and maturity period [minimum maturity of one year in the case of FCNR(B) deposits]. Secondly, inter-bank borrowings have been exempted from statutory pre-emptions. Thirdly, banks have been permitted the use of derivative products for asset-liability management. Fourthly, in order to facilitate integration of domestic and overseas money markets, ADs have been allowed to borrow abroad. However, as a prudential measure, their external borrowings have been related to their capital base. At present, ADs are allowed to avail of loans, overdrafts and other types of fund based credit facilities from their overseas branches and correspondents up to 15 per cent of their unimpaired Tier I capital or US \$ 10 million or its equivalent, whichever is higher. The funds are allowed to be used for any purpose - other than lending in foreign currencies. ADs have been provided the flexibility to cross these limits solely for replenishing their rupee resources in India for normal business operations and not for deployment in the call money or other markets. In such instances, a report on each borrowing has to be immediately forwarded to the Reserve Bank and its prior permission is needed for repayment of such loans. Such permission would be given only if the AD has no borrowings outstanding from the Reserve Bank or other bank/financial institution in India and the concerned AD is clear of all money market borrowings for a period of at least four weeks before the repayment. Fifthly, corporates have been provided significant freedom in managing their foreign exchange exposures. They are permitted to hedge anticipated exposures, though this facility has also been temporarily suspended after the Asian crisis. Exchange Earners' Foreign Currency (EEFC) account entitlement has also been rationalised. Risk management strategies like freedom to cancel and rebook forward contracts have been allowed to corporates, although currently due to Asian crisis, freedom to rebook cancelled contracts is suspended. However, corporates are allowed to roll over the contracts. Other risk management tools like cross-currency options on back-to-back basis, lower cost option strategies like range forwards and ratio range forwards and hedging of external commercial borrowing (ECB) exposures have been allowed subject to prudential requirements.

4.55 The customer segment of the spot market in India essentially reflects the transactions reported in the balance of payments. Although as percentage of GDP, gross inflows and outflows have not increased significantly, in absolute value

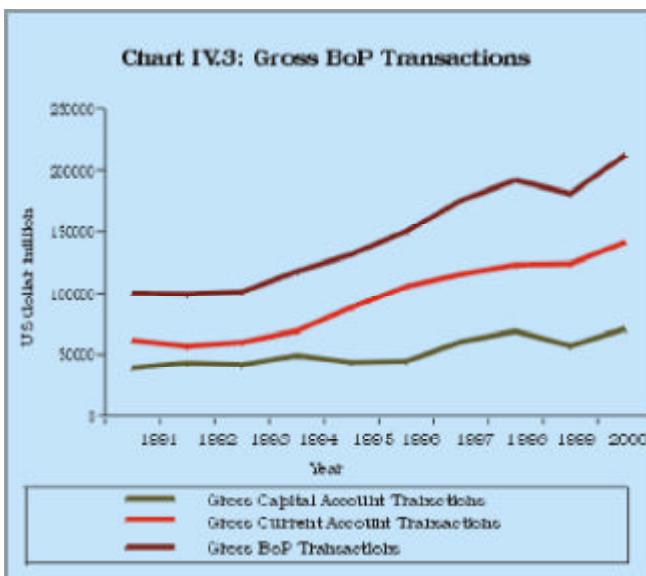
terms, there has been a two-fold increase in the merchant transactions in the 'nineties (Chart IV.3). Current transactions, however, continue to dominate the capital transactions. The merchant segment of the market continues to be dominated by select public sector units, in particular, the Indian Oil Corporation (IOC), and the Government of India. In the post-1993 period, the foreign institutional investors (FIIs) have also emerged as major players in the foreign exchange market with some evidence of links between the FII flows and the behaviour of the exchange rate (Chart IV.4). During the four major phases of net FII outflows (as shown by * in Chart IV.4), the exchange rate of the rupee seemed to depreciate. While earlier the debt service requirements of the Government and IOC were being routed through the Reserve Bank, since 1996 such demands have also been routed through the market. As the forex demand on account of public sector units and the Government tends to be lumpy and uneven, resultant demand-supply mismatches entail occasional pressures in the forex market, warranting market interventions by the Reserve Bank.

4.56 There has been a considerable improvement in the forex market turnover in the recent years, particularly during the post-reform period. The total turnover, *i.e.*, merchant and inter-bank taken together, in the forex market increased by 6-fold between the period 1987-88 to 1999-00. The average monthly turnover increased from about US \$ 17 billion in 1987-88 to US \$ 50 billion in 1993-94 and further to US \$ 109 billion in 1998-99. Reflecting restrictions on



re-booking of cancelled forward contracts for imports and splitting of forward and spot legs of a commitment, the monthly turnover declined to US \$ 95 billion in 1999-00. The inter-bank turnover constitutes the predominant part of total turnover. The proportion of inter-bank turnover in total turnover increased from 82 per cent in 1987-88 to 91 per cent by 1991-92 but declined to less than four-fifths by 1999-00. As regards the classification by way of spot and forward transactions, available data for the recent period indicate that the merchant segment is dominated by spot transactions, while the inter-bank segment is dominated by forward transactions. During 1999-00, spot transactions accounted for about 55 per cent of total merchant turnover, while the forward transactions formed 40 per cent of total inter-bank turnover.

4.57 In the Indian forex market, which is essentially transactions driven, interbank transactions in the spot segment mostly facilitate market making. At times, however, inter-bank transactions also reflect the “day trading” pattern. With restrictions on overnight overbought and oversold positions, day trading allows one to benefit from the intra-day exchange rate movements without violating the close of the day position limits. During normal market conditions, the ratio between inter-bank and merchant transactions should be somewhat stable. In the face of disorderly conditions, tendency for day trading may increase and, as a result, the ratio may increase. This is evidenced from Chart IV.5. Whenever the Indian rupee was under pressure (particularly corresponding to the three points



shown by * in Chart IV.5), the ratio of inter-bank spot transactions to merchant transactions tended to exceed the average, suggesting that day trading activities increase during volatile market conditions.

4.58 In the forward/swap segment of the market, importers and corporates generally tend to rush for cover when the spot market turns disorderly and prefer to keep their positions open during stable market conditions. This creates occasional large mismatches in the forward segment of the market. This is evidenced from Chart IV.6. If merchant sale in the forward segment is used as a proxy for forward demand by importers and merchant purchase in the forward segment is used as a proxy for supplies by exporters in the forward market, then the ratios of monthly forward demand to monthly imports and monthly forward supply to monthly exports could explain the sensitivity of exporters and importers to forward market in India. Chart IV.6 shows that the ratio of demand for forward cover to imports remained below one during stable market conditions, but got close to one or exceeded one whenever the spot exchange rate came under pressure. Two-way movement in the exchange rate is essential to increase the sensitivity of exporters and corporates to the forward market.

4.59 Initiation of longer maturity contracts up to one year represents a healthy development in the forex market. According to the BIS Survey on Global Foreign Exchange markets, the maturity breakdown of outright forward transactions in different markets shows that while for the global market as a whole the share of one year contracts

was about 4 per cent, in India it was close to 3 per cent. Forward contracts up to seven days, however, represented 51 per cent of total outright forward transactions in the world as against 22 per cent in India. This could be on account of the restrictions in the Indian market that without an underlying transaction, an agent cannot enter into a forward contract.

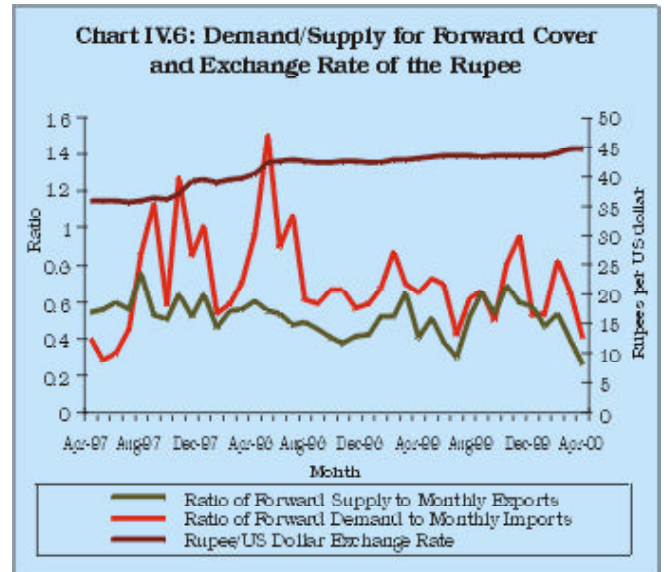
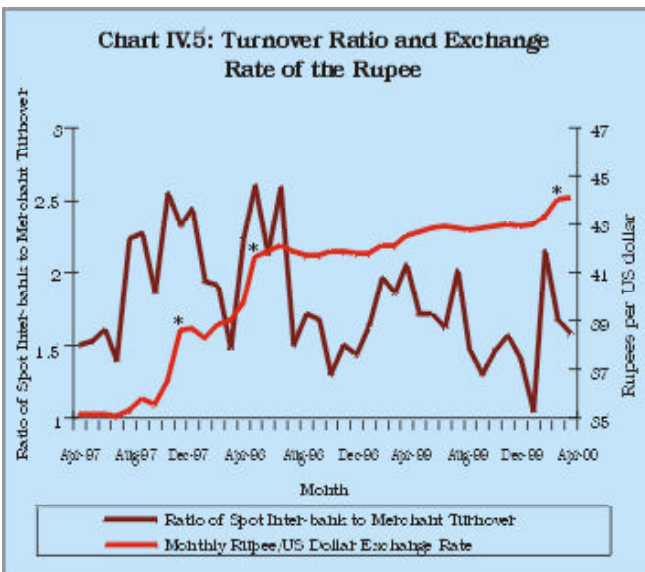
4.60 The Reserve Bank's presence in the market essentially reflects its policy of ensuring orderly market conditions. Reflecting its stance, net intervention sales of the Reserve Bank generally coincided with conditions of excess demand in the market, while net intervention purchases coincided with surplus market conditions and contributed to reserve build-up (Chart IV.7).

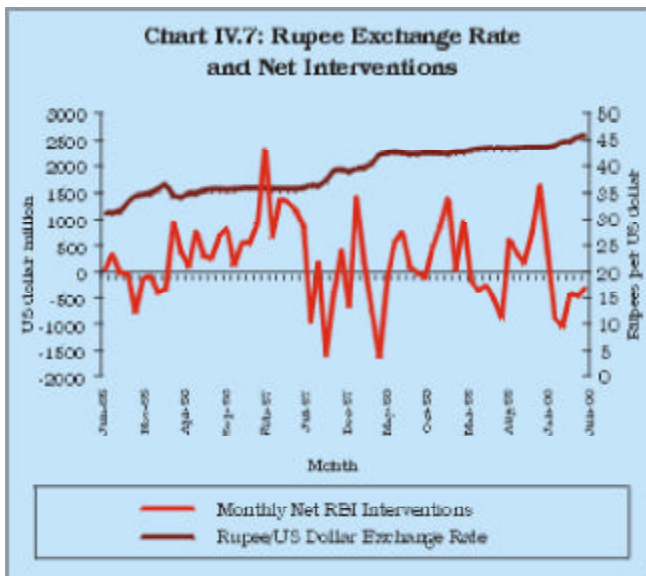
Structure of Debt Market

4.61 The domestic debt market comprises two main segments, viz., the Government securities and other (mainly corporate) securities comprising private corporate debt, PSU bonds and DFIs bonds. The government securities market is pre-dominant, while the other segment is not very deep and liquid.

Government Securities Market

4.62 The size of the Government securities market is large and is growing. This is evident from the fact that secondary market transactions in Government securities increased to Rs. 5,39,255 crore in 1999-2000 as against Rs. 1,27,179 crore in 1995-96.





4.63 The Government securities market witnessed significant transformation in the 'nineties. Its development was constrained mainly by lack of definite limits on the automatic monetisation of the Central Government budget deficits and by relatively low coupon rates offered on the Government securities. The artificially low yield on Government securities had an impact on the entire yield structure of financial assets in the system. Both these factors were corrected during the 'nineties. As regards the secondary market, there was not much activity which was hindered by low bond yields and predominance of captive investors. The secondary market activity increased following the introduction of auction based yields. The activity in the secondary market could further pick up once bond yields are better aligned and investors, other than institutions (banks and insurance companies) start actively transacting in the market.

Type of Instruments

4.64 As a part of developing money market instruments, a variety of Treasury bills, viz., 14-day, 91-day, 182-day, 364-day maturities have been introduced. Innovations have also been introduced with respect to long-term bonds, which include zero coupon bonds, floating rate bonds and capital indexed bonds.

Selling Techniques

4.65 An event of significance to the gilt market was the introduction of auction system for dated

securities in June 1992, marking a move to market related rates on the Government securities. The important objective to be achieved through the auction system was the process of price discovery. At present, the sale of Government securities in India is done both through auction method as well as pre-determined coupon/tap issues. Auctions are of the discriminatory/multiple price, sealed bid type. The multiple price auction is the mostly used selling technique. The sale of Treasury bills is conducted through the auction method. Apart from the allotment through auction, the practice of entertaining non-competitive bids in Treasury bills to State Governments, non-government provident funds and other central banks at the weighted average price determined in auctions also exists. Non-competitive bids are, however, accepted outside the notified amount. This is done to encourage participants who do not have sufficient expertise in such bidding. The Reserve Bank also participates on a non-competitive basis in Treasury bills and dated securities to primarily take up some part of the issues in case of under-subscription. In the recent years, with a view to moderating the market impact of the large borrowing programme on interest rates, the Reserve Bank has accepted private placement of government stocks and released them to the market when the interest rate expectations turned out to be favourable.

4.66 With a view to eliminating the problem of "winner's curse", associated with the multiple price auction, and broadening the market participation, the uniform price auction method was introduced in respect of 91-day Treasury bill. Since 1999-2000 most of the current primary issues of dated securities are through re-issues and price-based auctions, instead of yield-based auctions, to enable consolidation of securities. Such consolidation is necessary for ensuring sufficient volumes and liquidity in any one issue and to facilitate the emergence of bench-marks and development of Separately Traded Registered Interest and Principal of Securities (STRIPS).

4.67 While there exists a fixed calendar for auctions of all types of treasury bills, auctions/issues of dated securities are not based on any fixed calendar (Table 4.3). However, the auction/issue of Treasury bill and dated security is announced in advance through a public notification. While the 14-day and 91-day Treasury bills are auctioned on a weekly basis,

the auctions of 182-day and 364-day Treasury bills are held on a fortnightly basis. The treasury bills/bonds are issued to successful bidders in the form of stock certificates or by credit to their Subsidiary General Ledger Account.

Types of Traders/Market Participants

4.68 The main investors in the Government securities market in India are commercial banks, co-operative banks, insurance companies, provident funds, financial institutions (including term-lending institutions), mutual funds especially the gilt funds, primary dealers, satellite dealers, non-bank finance companies and corporate entities. The Reserve Bank also absorbs primary issuance of Government securities, either through private placement or devolvement. Though banks have traditionally been the dominant investors in the Government securities due mainly to SLR requirements, they have, in recent years, found it advantageous to invest in the Government securities beyond the statutory requirements partly because of the better risk-return characteristic of such securities in the context of adherence to capital adequacy requirements and partly because of relatively sluggish demand for commercial credit. The share of commercial bank holdings continued to rise during the 'eighties and the early 'nineties. It reached a peak of 72.5 per cent as at end-March 1994 before declining to 59.5 per cent as at end-March 1999 (Table 4.4).

4.69 A large participant base reduces the borrowing cost for the Government, reduces market volatility and imparts competition in the market. A market with adequate depth and

liquidity for participants with different perceptions and liquidity requirements should emerge; this is also essential to avoid unidirectional movements in the market. The present structure of the Government securities market is pre-dominantly institutional, while the household participation is negligible or nearly absent. Foreign Institutional Investors (FIIs) are also permitted to invest in the dated Government securities and Treasury bills, both in the primary and secondary markets, within the overall debt ceilings. While FIIs are allowed to invest in the debt up to a maximum of 30 per cent of their total investments, there is no such limit for dedicated debt funds.

4.70 In order to promote the retail market segment and provide greater liquidity to retail investors, the Reserve Bank allowed banks to freely buy and sell Government securities on an outright basis at prevailing market prices, removing restriction on the period between sale and purchase. Furthermore, the interest income on government securities was exempted from the provision of Tax Deduction at Source (TDS) with effect from June 1997, facilitating quotations at 'clean prices' and genuine trading in the secondary market.

Market Supporting Structures/Institutions

4.71 A crucial issue in the development of the Government securities market is the need for a well functioning secondary market, which requires (i) a transparent system of trading; (ii) a secure system of settlement of transactions; (iii) an institutional structure whereby the market players

Table 4.3 : Features of Treasury Bills Auction

Type of Treasury bill	Periodicity	Notified Amount (Rupees crore)	Day of Auction	Day of Payment
1	2	3	4	5
14-day	Weekly	100	Every Friday	Following Monday
91-day	Weekly	100	Every Friday	Following Monday
182-day	Fortnightly	100	Wednesday preceding the non-reporting Fridays	Following Thursday
364-day	Fortnightly	500-750	Wednesday preceding the reporting Fridays	Following Thursday

Table 4.4: Pattern of Investment in Central and State Government Dated Securities - By Investor Category

	(Per cent)				
	End of March	Reserve Bank	Commercial Banks	LIC	Others
	1	2	3	4	5
1981		20.6	45.6	12.0	21.8
1986		25.2	48.1	10.6	16.1
1991		20.3	59.4	12.3	8.0
1996		7.3	64.9	16.8	11.0
1997		2.8	63.0	18.7	15.5
1998		10.7	58.9	18.0	12.4
1999		9.1	59.5	17.9	13.5

have divergent perceptions about liquidity and interest rates; and (iv) a liquid market with a matured system of price determination.

4.72 To develop the secondary market for the Government securities, the following measures were initiated.

Secondary Market Window

4.73 The central banks often play the role of market makers providing two-way quotes through their sales window to infuse liquidity in the secondary market for the Government securities. Generally, two approaches are adopted for operating the secondary market window by the central banks: (i) fixing buying and selling prices and announcing them to the market, and (ii) using a dynamic approach whereby the secondary market window pricing is continuously adjusted in response to the market dynamics. During the initial stages of market development, the Reserve Bank used to announce the sale and purchase prices of securities. In the recent period, however, the Reserve Bank has offered a select list of securities for sale, depending upon supply and demand conditions. A few securities are also included in the purchase list, with a view to improving liquidity through select securities. The sale/purchase prices and the securities offered on sale are frequently revised.

Discount House Arrangements

4.74 The DFHI was originally set up in April 1988 for developing the money market. It was also allowed to participate in Treasury bills and dated securities. Further, for developing an efficient institutional infrastructure for an active secondary market in Government securities and public sector bonds, the Securities Trading Corporation of India (STCI) was set up in May 1994. Both DFHI and STCI later transformed themselves into PDs.

Primary Dealer System

4.75 The primary dealer system was evolved and made functional in 1996 with the objective of strengthening the securities market infrastructure and bringing about improvement in the secondary market trading, liquidity and turnover in Government securities as also encouraging their voluntary holding amongst a wider investor base. PDs have ensured maximum

participation in the auctions of Government securities. In the secondary market, they act as market makers by providing continuous two-way quotes thereby ensuring liquidity and support to the success of primary market operations. The system also creates appropriate conditions for open market operations of the Reserve Bank and facilitates the transfer of market making activities from the Reserve Bank to the market agents.

4.76 As on March 31, 2000, there were 15 approved PDs in the gilts market. The Reserve Bank guidelines specify that the institutions willing to register as PDs should have sufficient and continuous presence in the Government securities market and a certain minimum financial capacity (minimum net owned funds of Rs.50 crore). A PD commits bids in the auction for a minimum amount in the Central Government dated securities and Treasury bills, maintains a minimum level of success ratio, underwrites pre-determined parts by which subscriptions/accepted bids fall short of the notified amounts, offers two-way quotes for Government securities and achieves an annual turnover of not less than five times in Government dated securities and ten times in Treasury bills, within which outright transactions should be three and six times, respectively. In return to such obligations, the Reserve Bank extends to them facilities like current account/SGL account, liquidity support linked to bidding commitments, freedom to deal in money market instruments and favoured access to open market operations. The primary market purchases of PDs in Government securities and Treasury bills rose from Rs.20,835 crore in 1996-97 to Rs.53,797 crore in 1999-2000. The secondary market turnover (outright plus repos) of PDs also recorded significant growth from Rs.90,453 crore to Rs.3,34,471 crore during the same period.

Satellite Dealers

4.77 With a view to broadening the market with a second tier of dealer system in trading and distribution and imparting greater momentum in terms of increased liquidity and turnover, a system of SDs was put in place in December 1996. The Reserve Bank had granted registration to 9 entities as SDs in the Government securities market. The network of satellite dealers provides retail outlets thereby encouraging voluntary holding of Government securities among a wide investor base. The SDs are also given limited

liquidity support from the Reserve Bank. It may be noted that some of the SDs have become PDs. At present 4 SDs are in operation. The scheme for approval of both PDs and SDs has been made an ongoing process. However, the response to the scheme of SDs has been limited so far.

Gilt Funds

4.78 The Reserve Bank also encouraged setting up of mutual funds dealing exclusively in gilts, called gilt funds with a view to encouraging schemes of mutual funds dedicated to Government securities and creating a wider investor base for them. Mutual funds dedicated exclusively to investment in Government securities are also provided liquidity support by the Reserve Bank by way of reverse repos in Central Government securities outstanding at the end of the previous calendar month. The liquidity support provided by the Reserve Bank would be to the extent of 20 per cent of the investment in Government dated securities.

Trading and Settlements/Clearing Systems

4.79 Under market microstructure theory, the market efficiency is significantly influenced by the transaction costs or costs of trading (Box IV.1). The transaction costs are, in turn, determined by the type of trading, clearing and settlement system existing in a market. A well developed market in Government securities requires a system of transparent pricing and allotment, which, in a special sense, refers to information needs. In turn, such a system would imply active market making activity and broad-based participation. The National Stock Exchange (NSE) introduced

a transparent screen-based trading system in the wholesale debt market, including Government securities in June 1994. The trading system known as National Exchange for Automated Trading (NEAT) is a fully automated screen-based trading system. The Over the Counter Exchange of India (OTCEI) also started trading in Government securities in July 1997. However, a major part of government securities transaction in the secondary market is operated through over-the-counter negotiated deals. The brokers, who are members of the NSE and OTCEI can transact business on behalf of commercial banks. The OTCEI and NSE markets complement each other. As announced in the Mid-term Review of Monetary and Credit Policy for 2000-01, the Reserve Bank has taken an in-principle decision to move over in due course to order-driven screen-based trading in Government securities on the stock exchanges. The screen based trading system would be applicable to all stock exchanges on which banks and FIs can operate.

Clearing system

4.80 The presence of a fast, transparent and efficient clearing system constitutes the basic foundation of a well-developed secondary market in Government securities. In India, a major step in this direction was the establishment of the DvP system. The Reserve Bank presently operates a Government securities settlement system for those having Subsidiary General Ledger (SGL) Accounts in its Public Debt Offices through DvP System. The DvP system ensures settlement by synchronising the transfer of securities with the cash payment. This reduces settlement risk in

Box IV.1

Market Microstructure - A Theoretical Perspective

The last two decades have seen a tremendous interest in the market microstructure. Market microstructure theory, which is still in the process of evolution, analyses as to how specific trading mechanisms affect the price formation process. The interest in the role of trading mechanisms has been spurred after the market crash in 1987. In contrast to traditional models of finance that assumed perfect markets and equilibrium conditions, security market microstructure concerns with market imperfections, such as, cost of trading and asymmetries in information, etc.

The concerns about trading mechanism in the pricing process were raised by many, but the most direct analysis was that of Demsetz (1968) who examined the importance of trading mechanism in the determination of prices in securities markets. Although his focus was on the nature of transaction

costs, his analysis of how the time dimension of supply and demand affected market prices set the stage for the formal study of market microstructure. He brought into focus the time dimension of trading, *i.e.*, if the number of traders wishing to sell immediately did not equal the number who wished to buy immediately, imbalance of trade would make it impossible to find a market-clearing price at a given time. The immediate execution of trading involves the implicit costs, which are referred to as the price of immediacy. Thus, Demsetz argued that the lack of equilibrium could be overcome by paying a price for immediacy. His analysis also brought into focus the implication that the specific structure of the market could affect the trading price. Since the size of the price concession needed to trade immediately (*i.e.*, the spread) depended on the numbers of traders, factors, such as, volume
(Contd...)

(...Concl.)

could affect the cost of immediacy and, thus, the market price. Demsetz's work clearly suggested that the behaviour of markets, much like the behaviour of firms, could only be understood by examining their structure and organisation.

If the role of trading mechanism is important as analysed in Demsetz model, the interactions between the market mechanism and trader behavior is not less important. If the trading mechanism matters in setting prices, it also will matter in affecting traders' order decisions. Therefore, the question of how prices are set is a far more complex process than assumed under Walrasian framework.

The initial theoretical microstructure literature concerned with the policies of market makers and explained their bid-ask spread through the use of two approaches. The initial approach emphasised the role of transaction costs in determining the bid-ask spread. The inventory approach beginning with Garman (1976) highlighted the importance of transaction costs in determining the bid-ask spread as the specialist or market maker faces complex balancing problem in that he must moderate random deviations in inflows and outflows. Inventory models provide an added rationale for the reliance on market maker. Just as physical marketplaces bring buyers and sellers together in space, the market maker can bring buyers and sellers together in time through the use of inventory. A buyer need not wait for a seller to arrive but simply buy from the dealer who depletes his inventory.

In 1971, a new theory, beginning with Bagehot (1971), emerged to explain market prices that did not rely on transaction costs, but rather on an important role for information. In the information-based market

microstructure models, new information gets reflected into prices as a result of the trading behavior of informed and uninformed traders. The information-based models used insights from the theory of adverse selection to demonstrate how, even in competitive markets without explicit transaction costs, spreads would exist. Adverse selection arises when the market maker is dealing with an informed trader. That the spread of a market maker reflects balancing of losses with the informed trader with gains from the uninformed trader represented a fundamental insight into market making.

While inventory and transaction costs are important factors, the notion that information costs also affect prices provided a new and important direction for market structure research. Underlying much of the research of information-based models is the focus on the information implicit in market data and on the learning process that translates this information into prices.

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securities transactions and also prevents diversion of funds through SGL transactions.

4.81 Under the current system, banks, financial institutions, insurance companies and now PDs are allowed to hold SGL Accounts for securities and Current Accounts for cash. For these participants, the settlement takes through the DvP system. Other participants like corporates, mutual funds, provident funds, co-operative banks and societies and individuals are not allowed to hold direct SGL Accounts with the Reserve Bank. However, the SGL account holders are provided the facility to maintain a second SGL Account called Constituents' SGL Account with the Reserve Bank to enable them to hold Government securities on behalf of their constituents.

Trading Volumes in Subsidiary General Ledger Account

4.82 The secondary market transactions in Government securities (through SGL Accounts),

as published from September 1994, have witnessed significant growth with an average annual growth rate working out to 91 per cent during the period 1994-95 to 1999-2000. This reflects the increased depth of the Government securities market (Table 4.5). The average annual transactions increased by 10-fold between 1994-95 and 1999-2000. The composition of transactions reveals that the share of outright transactions consistently rose from 42.1 per cent in 1994-95 to 84.7 per cent in 1999-2000. The steady growth in outright transactions is an evidence of the emergence of a more liquid and matured Government securities market.

Competitive Pricing of Securities

4.83 Auctions have contributed to the development of bidding skills among banks and institutions. Banks, in particular, have been paying special attention to treasury operations as they could become centres of profit. An elastic band of interest responsiveness from the investors as part of active investment

Table 4.5: Secondary Market Transactions in Government Securities

(Rupees crore)

Year (April-March)	Outright	Repo	Total
1	2	3	4
1994-95	21,306 (42.1)	29,263 (57.9)	50,569
1995-96	29,531 (23.2)	97,648 (76.8)	127,179
1996-97	93,921 (76.4)	29,021 (23.6)	122,941
1997-98	161,090 (86.7)	24,619 (13.3)	185,708
1998-99	187,531 (82.2)	40,697 (17.8)	228,228
1999-2000	456,515 (84.7)	82,739 (15.3)	539,255

Note: Figures in brackets are percentages to total transactions.

management to a range of maturities is an important step in the process of competitive pricing of securities in the primary and secondary markets. The interest rates on Government securities are now within the range of substitutability where rate movements evoke a response from investors leading to a possible confluence of interest rates in the system.

Improvement in Market Absorption

4.84 Since the switchover to the market mechanism for issuing securities, the primary issues of the Central Government have reflected a more than ten-fold increase. However, with the emergence of an active Government securities market, the Reserve Bank's absorption of primary issues came down drastically from 45.9 per cent in 1992-93 to 1.45 per cent in 1993-94 and to barely 0.74 per cent in 1994-95, partly reflecting the rise in market absorption. However, in recent years, the primary subscription by the Reserve Bank has remained high (29.4 per cent in 1999-2000), reflecting the unfavourable market conditions at the time of issuances. The monetary impact of the Government borrowings was contained by offloading these securities in the market at a favourable time through an open market operation of the Reserve Bank. Thus, an active use of open market operations to ensure the success of the borrowing programme and the lesser reliance on the Reserve Bank is a reflection of the depth acquired by the Government securities market. Market orientation to issues

of Government securities paved the way for the Reserve Bank to activate open market operations as a tool of market intervention.

Other Debt Markets

4.85 The corporate debt market still constitutes a small segment of the debt market despite policy initiatives taken during the 'nineties. The interest rate ceiling on corporate debentures was abolished in 1991 paving the way for market based pricing of corporate debt issues. In order to improve the quality of debt issues, all publicly issued debt instruments, irrespective of their maturity, are presently required to be rated. The role of trustees in case of bond and debenture issues has also been strengthened over the years.

4.86 A large proportion of corporate debentures in India is of hybrid variety combining features of both debt and equity. The corporate sector has been issuing debt instruments of longer maturity, incorporating features of liquidity and often at floating rates of interest. Besides the public issue of debt instruments, the private placement route has also emerged as an important mode of floatation of new corporate debt issues during the 'nineties. During 1999-2000, the private sector debt issues in the private placement market amounted to Rs.18,122 crore, as against Rs.2,401 crore by way of public and rights issues. Some privately placed debt-instruments are subsequently listed on stock exchanges for trading.

4.87 DFI bonds have emerged as an important segment of the debt market. During the last 8 years or so, DFIs made large issues of bonds in varying maturity ranging from 1 year to as long as 20 years. Some of the bond issues of DFIs offered innovative features including call and put options at various points of time during the currency of the bonds. DFIs have issued bonds by way of public issues as well as on a private placement basis.

4.88 Since the middle of the 'eighties, long-term bond issues (maturity 5-10 years) by public sector undertakings (PSUs) imparted a new dimension to the debt market. Resource mobilisation through PSU bonds, which included both tax free and taxable bonds, increased sharply to touch Rs.5,663 crore in 1990-91, of which 44.9 per cent was accounted for by tax-free bonds. The 'nineties, however, witnessed a steady decline in the issue of tax-free PSU bonds, accounting for only 4.6 per

cent of PSU bonds (Rs.8,622 crore) during 1999-2000. While traditionally most of the PSU bonds were floated in the public issues market, in the recent years, most of such bond issues were privately placed. This is one reason why secondary market activity in PSU bonds has been limited.

4.89 The secondary market activity in the debt-segment, in general, however, remains low and subdued both at BSE and the Wholesale Debt Market Segment of the NSE, partly due to of lack of sufficient number of securities and partly due to lack of interest by retail investors. In order to improve the secondary market activity in this segment, the Union Budget for 1999-2000 abolished stamp duty on transfer of dematerialised debt instruments.

Capital Market Structure

4.90 Capital market structure has evolved over time with the market practices and conditions generally reflecting the policies put in place. Till the onset of reforms in the early 'nineties, raising of resources in the primary segment of the market was subject to several controls, disallowing the pricing to be determined by market conditions. Trading in the secondary market was subject to opaque practices. The trading and settlement system was outdated and out of tune with internationally followed practices. The volumes, however, increased and securities continued to exist in the physical form. Physical securities also created uncertainties for investors and increased the transaction cost. Besides, long and uncertain settlement cycles created serious problems for clearing houses. Informational flows to the market participants were also deficient. As the process of price formation has to be efficient for the growth and stability of the market, it was considered necessary to orient the Securities and Exchange Board of India (SEBI) to undertake the tasks of regulation and supervision. The SEBI was, for this purpose, given statutory powers through a separate legislation in 1992.

New Capital Issues - Free Pricing Introduced

4.91 Raising of capital from the securities market before 1992 was regulated. Under the Capital Issues (Control) Act, 1947, firms were required to obtain approval from the Controller of Capital Issues (CCI) for raising resources in the market. New companies were allowed to issue shares only at par. Only the existing companies

with substantial reserves could issue shares at a premium, which was based on some prescribed formula. In 1992, the Capital Issues (Control) Act, 1947 was repealed and with this ended all controls relating to raising of resources from the market. Since then the issuers of securities could raise the capital from the market without requiring any consent from any authority either for making the issue or for pricing it. Restrictions on rights and bonus issues have also been removed. New as well as established companies are now able to price their issues according to their assessment of market conditions. However, issuers of capital are required to meet the guidelines of SEBI on disclosure and investor protection. Companies issuing capital are required to make sufficient disclosures, including justification of the issue price and also material disclosure about the 'risk factors' in their offering prospectus. These guidelines have served as an important measure for protecting investor interest and promoting the development of the primary market along sound lines.

New Capital Issues - Issuing Mechanism

4.92 After the CCI regime was discontinued, the mechanics of determining offer price assumed importance. Initially, only fixed price mechanism of floating new capital issues was followed. This method of floatation, however, suffered from a drawback in that it was not easy to determine the price at which the market would clear the issue and, thus, could lead to either underpricing or overpricing of an issue. The empirical evidence in many countries suggests that new capital issues are normally underpriced. This results in transfer of wealth from the issuer to the investor, entailing, in the process, a cost to the issuer. As the method of offering shares at a fixed price by the issuer has proved to be not efficient, an alternative mechanism of book building has become popular in many countries. Book building mechanism is a method through which an offer price of an Initial Public Offering (IPO) is based on investors' demand. The book building mechanism which was introduced in 1995 gave the issuer the choice to raise resources either through this or the fixed price mechanism. Although the book building guidelines were prescribed in 1995, no issue was floated due to certain restrictive guidelines, which were modified in 1999. In terms of the extant guidelines issued by the SEBI, an issuer has been given the option to book build either 90 per cent

of the net offer to the public or 75 per cent of net offer to the public. The balance issue is offered to the public at the fixed price determined through the book building exercise. In the 75 per cent book building scheme, the allotment in the book built portion is required to be only in the dematerialised form. The book building mechanism of floating new capital issues has been devised in such a way that small investors are also able to subscribe to securities at a price arrived at through a transparent process.

4.93 As the book building process is both time and cost-effective, it is becoming quite popular. This can be gauged from the fact that during 2000-2001 (April-October), 12 issues for an aggregate amount of Rs.1,256 crore (constituting 40.2 per cent of the total resources raised from the public issue market) were floated using book building mechanism as against 4 issues aggregating Rs.516 crore (constituting 6.7 per cent of the total resources raised) during the entire year of 1999-2000.

4.94 Both BSE and NSE offer their infrastructure for conducting on-line IPOs through book building. A related development has been the efforts to market IPOs through the existing secondary market infrastructure (trading terminals of stock exchanges, brokers, etc.). The SEBI has already approved a proposal of marketing of IPOs through stock exchanges and the guidelines to this effect are expected to be issued shortly. Once implemented, the system would help to overcome the inherent disadvantages faced by issuers and investors in the form of reduction of load on the banking and postal system and saving of time and cost associated with the process of new capital issues.

Secondary Market - Trading Mechanism

4.95 The efficiency of automated *vis-à-vis* floor-based trading system in the secondary segment of the market is widely debated, although the evidence around the world suggests that markets are moving away from the floor-based trading system. Over time, floor-based trading is likely to disappear, going by the trends noticed so far. Transparency is the major factor in debates over floor-based system *versus* electronic system and proponents of the automated system contend that floor-based trading is inefficient and less transparent. Many major international stock markets, such as, London, Paris, Toronto, Frankfurt and Sydney, conduct electronic trading.

4.96 Till recently, trading on the Indian stock exchanges took place through open outcry system barring NSE and OTCEI, which adopted screen-based trading system from the beginning (*i.e.*, 1994 and 1992, respectively). At present all other stock exchanges have adopted on-line screen-based electronic trading, replacing the open outcry system. Of the two large stock exchanges, the BSE provides a combination of order and quote driven trading system, while NSE has only an order driven system. In an order driven system, orders from all over India are entered into the electronic system and matched directly on a continuous basis without the involvement of a jobber or market maker. In a quote driven system, the market makers offer two way quotes and are ready to buy and sell any quantity. With the introduction of computerised trading, members could enter their orders/quotes on work stations installed in their offices instead of assembling in the trading ring. All stock exchanges operating in India have over 8000 terminals spread wide across the country. In pursuance of the announcement made in the Union Budget 1999-2000, the SEBI issued guidelines for opening and maintaining the trading terminals abroad. While no trading terminal could be opened abroad due to high cost of connectivity, the permission of internet trading provides an alternative as the investor in any location could route the order through the internet for execution on the Indian stock exchanges. For ensuring greater market transparency, the SEBI has recently banned negotiated and cross deals (where both the seller and the buyer operate through the same broker). In September 1999, all private off-market deals in both shares as well as listed corporate debts were banned. All such deals are now routed only through the trading screens.

4.97 There are three main advantages of electronic trading over floor-based trading as observed in India, *viz.*, transparency, more efficient price discovery, and reduction in transaction costs. Transparency ensures that stock prices fully reflect available information and lowers the trading costs by enabling the investor to assess overall supply and demand. Owing to computer-based trading, the speed with which new information gets reflected in prices has increased tremendously. The quantity and quality of information provided to market participants during the trading process (pre-trading and post-trading) having significant bearing on the price

formation has also improved. Besides, the screen-based trading has the advantage of integrating different trading centres all over the country into a single trading platform. It may be noted that prior to screen-based trading, the very presence of stock markets in different regions implied segmentation of markets affecting the price discovery process. Investors in other locations were, under such conditions, unable to participate in the price formation process at the major stock exchange, namely the BSE. However, with screen-based trading spread across various locations, the process of price discovery has improved in the Indian stock markets. Screen-based trading has also led to significant reduction in the transaction cost since it enabled the elimination of a chain of brokers for execution of orders from various locations at BSE and NSE.

Instruments and Market Participants

4.98 The capital market has widened and deepened considerably in the recent years with enlargement of participants and emergence of new instruments. In the Indian capital market, traditionally mainly two instruments were traded, *i.e.*, debt and equity. However, starting from the mid-'eighties and especially during the first-half of the 'nineties, a wide range of innovative/hybrid instruments combining both the features of debt and equity were introduced to suit varied needs of investors and issuers/borrowers. Besides DFIs, PSUs also issued many debt instruments with innovative features.

4.99 Markets have also widened with the increase in the number of players, such as, mutual funds and foreign institutional investors. There are now 34 mutual funds operating in the country with total asset base of over Rs. one lakh crore. At the end of November 2000, there were about 551 FII's registered with the SEBI. They made investment to the extent of about US \$ 11.5 billion in equity. With large investment base and active trading operations, FII's now significantly impact the Indian stock markets.

Trading, Clearing and Settlement Systems

4.100 The trading, clearing and settlement systems, which had suffered from several bottlenecks, have been considerably improved with measures taken to shorten the settlement cycle through the introduction of rolling settlement system in select scrips and acceleration of the process of electronic book entry transfer through depository.

Trading Regulations

4.101 Trading by member brokers is subject to some restrictions. These relate to margining system, intra-day trading limit and exposure limit. Each broker is subject to margins and to the trading limit. Various types of margins, such as, daily margins, mark to market margin, ad hoc margin and volatility margins to contain price volatility, are in place. There is also an intra-day trading limit, which is the limit to volume. Each broker's trading volume during a day is not allowed to exceed the intra-day trading limit. In case a broker wishes to exceed this limit, he or she has to deposit additional capital with the exchange. Thus, brokers are now required to have adequate capital in relation to their positions. With a view to enhancing market safety, the upper limit for gross exposure of the member-broker of the stock exchange has been fixed at 20 times of his capital. These restrictions have an impact on daily transaction volume and daily volatility.

Gradual Switch Over to the Rolling Settlement

4.102 The Indian stock market has, historically, adopted an account period settlement system whereby positions of brokers are accumulated till the end of a specified period and only the netted out positions with respect to every security are settled. The accumulation of position during the settlement cycle has given scope for speculative activities and, thus, increasing the possibility of default by participants. By combining the features of both cash and futures markets, the account period settlement also impeded the price discovery process. Further, the end of the settlement period, in the absence of significant borrowing and lending facility, has often witnessed erratic price movements. Although the account period settlement system through increased volume of trade, has tended to add to the liquidity in the system, there have been concerns over its ill-effects. As a partial remedy, the period of trading cycle was reduced from a fortnight to one week uniformly across all stock exchanges. The long-term solution to the trading system, however, rests with the alternative system of rolling settlement (RS), which is accepted and is being adopted in a phased manner. Under the RS system, any transaction made on a particular day necessarily results in delivery after a fixed number of days. The rolling settlement on a T+5 basis was introduced in select scrips numbering 10 in all in January 2000. Subsequently as on May 8, 2000,

153 more scrips were brought under the rolling settlement system. The introduction of rolling settlement, however, demands quicker movement of funds and securities. This, in turn, requires adequate developments in dematerialisation and electronic funds transfer (EFT) facility. While the process of dematerialisation is taking place satisfactorily through the existing depositories, efforts are afoot to improve and expand the existing EFT facility.

Increased Dematerialisation

4.103 Safe and quick transfer of securities is an important element for smooth and efficient functioning of the securities market. Apart from the problems involved in the movement of physical security certificates, bad deliveries due to faulty paper work, theft, forgery *etc.* added to the transaction cost and restricted liquidity. To overcome these difficulties, legislative changes were carried out for maintaining ownership records in an electronic book-entry form. Under this mode, securities are transferred in a speedy and safe manner without interposition of issuers in the process, except in few circumstances. In order to catalyse the process of dematerialisation of securities and dematerialised trading, an element of compulsion was introduced by requiring the individual and institutional investors to settle trades compulsorily in dematerialised form in shares of select companies. At end-October 2000, there were 1415 scrips in which all investors - institutional and retail - were required to settle trades in dematerialised form. As at end-May 2000, 93 per cent of securities delivered for settlement by value at BSE and NSE combined together were in the dematerialised form. With progressive expansion of the list of securities in the compulsory dematerialised form, it is expected that more than 98 per cent of scrips traded on all exchanges would be in compulsory dematerialised form by end-March 2001.

Near Elimination of Counter-party Risk

4.104 One of the shortcomings of the clearing and settlement process of the Indian stock markets was the absence of a system to reduce counter-party risk. Managing this risk is essential for promoting a safe and efficient market. To provide the necessary funds and ensure timely completion of settlements in cases of failure of member brokers to fulfil their settlement

obligations, major stock exchanges have set up Settlement Guarantee Funds. The aggregate corpus of the Fund at the stock exchanges is presently over Rs.1,000 crore. The NSE has set up a clearing corporation which guarantees settlement of all trades. The clearing corporation, thus, assumes the counter party risk involved in all the transactions.

4.105 All stock exchanges in the country have established clearing houses. Consequently, all transactions are settled through the clearing houses. In the past, while some transactions were settled through the clearing houses, others were settled directly between the members. Routing of transactions through clearing houses has substantially reduced the credit risk in the settlement system.

Circuit Breakers/ Price Bands

4.106 Circuit breakers were first introduced in 1987 in the U.S. in the wake of sharp fall in the share prices. To contain abnormal price variations, scrip-wise specific daily price bands or circuit breakers in India were introduced in 1995 whereby the trading automatically got suspended if the prices varied either side beyond 8 per cent; further trading was allowed only up to the price band. Price bands, which were originally fixed at 8 per cent, were relaxed in January 2000, whereby a further variation of 4 per cent in the scrip beyond 8 per cent, after a cooling off period of 30 minutes, was allowed. This was made applicable in the case of 100 scrips. In June 2000, for all scrips under compulsory rolling settlement, the price band was relaxed by 8 per cent (from 4 per cent earlier) with half an hour cooling period after the scrip had hit the initial price band of 8 per cent.

4.107 While recent experiences in some countries, such as, Brazil, Taiwan and Thailand, showed that circuit filters were successful in slowing down the market momentum, there has been some controversy over the effectiveness of circuit filters over the medium to long-term. The opponents of circuit filters also cite their adverse effects on the process of price formation. In the recent Asian crisis, there were many instances when the price discovery process was impeded in the cash markets, spilling over subsequently to the futures markets as well. However, circuit filters are favoured mainly on the ground that they

are the best available tool for containing volatility. This is based on the belief that containing of excess volatility helps to maintain investor confidence in the market.

Structure of Informational Flows

4.108 Market microstructure is concerned with information and disclosures. There is a broad agreement that transparency affects the information and price discovery. A company offering securities in the Indian capital market is required to make a public disclosure of all relevant information through its offer documents, as indicated earlier. After a security is issued to the public and subsequently listed on a stock exchange, the stock exchange requires the issuing company to make continuing disclosures under the listing agreement. In India, all listed companies are now required to furnish to the stock exchanges and also publish mandated unaudited financial results on a quarterly basis. India is one of the few countries in the world to have a system of quarterly disclosures and it has served a useful purpose in that price-sensitive information on earnings and revenues is now available at greater frequency. The publication of half-yearly corporate results on the basis of limited review by its auditors has also been made mandatory for listed companies. The disclosures of material information, which would have a bearing on the performance/operations of the company, are now required to be made available to the public immediately. Recently, a decision has been taken that the companies would be required to make decisions regarding dividend, bonus and rights announcements or any material event within 15 minutes of the conclusion of the board meeting where the decisions are taken. Following the international practices, companies in India are also required to provide shareholders with cash flow statements in the prescribed format along with the complete balance-sheet and profit and loss statement. Companies are also required to furnish to the stock exchanges on a quarterly basis, a statement on the actual utilisation of funds and actual profitability, as against projected utilisation of funds and projected profitability. As part of better corporate governance practices, disclosures about segment reporting, related party transactions and consolidated balance sheet are also expected to be introduced.

Emphasis on Fair Trading Practices

4.109 The SEBI has been mandated under its Act to prohibit insider trading in securities. In 1992, the SEBI formulated the Insider Trading Regulations prohibiting insider trading and made it a criminal offence punishable in accordance with the provisions under the SEBI Act, 1992. The Regulations define an insider as a person who has access to price-sensitive non-public information with regard to a company. Such a person is prohibited from trading in the securities of such a company under the regulations. The violation of the regulations can result in prosecution of the person guilty of such violation. During 1999-2000, of the 56 cases investigated by SEBI, 47 related to price rigging and manipulation. There are now separate regulations in place governing substantial acquisition of shares and takeovers of companies. The regulations are aimed at making the takeover process more transparent and to protect the interests of minority shareholders.

Increasing Integration of Various Segments of Securities Markets

4.110 In India, different stock exchanges have so far followed their own practices relating to settlement procedures creating segmentation of the market. While stock exchanges continue to follow different systems, certain developments have resulted in better integration of the various segments of the Indian securities market. The two major stock exchanges, viz., BSE and NSE, have expanded their operations in different locations, thus, providing investors across the country with the facility to trade in the stocks listed/permitted in these stock exchanges. The Inter-connected Stock Exchange of India Ltd. (ICSI) has been set up as an inter-connected market system and provides its trading members a facility to trade on the national market in addition to the trading facility at the regional stock exchanges. This has integrated the various regional stock exchanges, although the trading activity in the ICSI has not been very significant. Many regional stock exchanges have also become members of BSE and NSE, which further strengthened the integration process of various stock exchanges in the country. Equity market is also increasingly integrating with the Government securities and private corporate

sector debt market. The interest rate structure of Government securities and securities issued by the corporate entities is better aligned at present than in the past.

The Impact of the Changing Structure

4.111 The changing structure of capital market has had some positive impact on the volatility, liquidity and transaction cost.

Volatility

4.112 Volatility plays a key role in assessing the risk/return trade-offs and forms an important input in asset allocation decisions. It is widely accepted that large fluctuations in market returns carry important negative effects on risk-averse investors. Besides, they have important economic implications, especially for the overall domestic investment, and for the flow of funds from abroad. Volatility is caused by a number of factors ranging from technical or short-term to fundamentals. These, *inter alia*, include trading practices like the length of the settlement period, the facility for carry-forward of transaction, announcements of corporate results, measures announced in the Government budgets, industrial production, the overall economic condition including the policy stance, and the extent of openness of the economy. Several macroeconomic variables like inflation, money supply, interest rates, *etc.* also affect the movements in share prices directly or indirectly. The market microstructure too wields influence on volatility.

4.113 An analysis of the volatility of the Indian stock markets as measured in terms of co-efficient of variation (CV) in the BSE Sensex suggests that although stock markets continue to be highly volatile, the volatility has tended to decline in the recent years. Co-efficient of variation at 25.93 per cent during the period from April 1991 to March 2000 was lower as compared with 33.43 per cent during the 6-year period from April 1985 to March 1991. The CV declined further to 17.51 per cent during the period from April 1995 to March 2000. Volatility in recent years has been affected by the trends in the NASDAQ market.⁴

Liquidity

4.114 The condition of market liquidity can be considered as one of the factors affecting the price discovery function and market efficiency. A liquid

market is defined as a market where a large volume of trades can be accommodated without any significant effects on price. Liquidity on the Indian stock exchanges has improved significantly due to sharp increase in trading volumes, which grew at an average annual rate of 75.8 per cent during the latter half of the 'nineties (Table 4.6). The growth of liquidity is also evident from the two ratios, *viz.*, traded value ratio and turnover ratio, which are commonly used to measure the liquidity.

4.115 The traded value ratio is measured as the total value traded divided by GDP. The turnover ratio is measured by the value of total shares traded divided by market capitalisation. Whereas the traded value ratio captures trading in relation to the size of the economy, the turnover ratio captures trading in relation to the size of the stock market.

4.116 An analysis of these two ratios in the Indian stock market suggests that liquidity has increased in the recent years. The traded value ratio, which was 23.2 per cent during 1993-94, declined to 15.7 per cent during 1994-95, but increased sharply thereafter to 58.1 per cent by 1998-99. A sharp improvement has also taken place in the turnover ratio. The ratio, which was 50.9 per cent during 1993-94, declined to 34.4 per cent in the following year, but increased gradually thereafter to as high as 215.1 per cent during 1999-2000 (Table 4.7).

Transaction Costs

4.117 Transaction costs have a significant bearing on returns as they can substantially affect the notional gains from investments. Transaction costs also impact volumes and volatility as reduction in trading cost could induce the investor to trade more frequently leading to increased volumes. The empirical evidence suggests that increased trading volumes by increasing liquidity result in reduction in volatility. Transaction costs, apart from including explicit cost, such as, brokerage fees, *etc.* also include some implicit components, such as, market impact cost (cost of degradation in price suffered due to execution of large orders), clearing and settlement cost arising due to counter party risk, paper work cost and bad delivery, *etc.* In addition, in a trading

⁴ Volatility has been covered in detail in Chapter V.

FINANCIAL MARKET STRUCTURE

Table 4.6: Turnover at Stock Markets

(Rupees crore)

Year (April - March)	Turnover			
	BSE	NSE	Others	All India
1	2	3	4	5
1990-91	36012 (22.6)	-	-	-
1991-92	71777 (99.3)	-	-	-
1992-93	45696 (-36.3)	-	-	-
1993-94	84536 (85.0)	-	119167 (-)	203703 (-)
1994-95	67748 (-19.9)	1728 (-)	93429 (-21.6)	162905 (-20.0)
1995-96	50064 (-26.1)	68141 (3843.3)	109163 (16.8)	227368 (39.6)
1996-97	124284 (148.3)	294504 (332.2)	227328 (108.2)	646116 (184.2)
1997-98	207383 (66.9)	369934 (25.6)	331364 (45.8)	908681 (40.6)
1998-99	311999 (50.4)	414383 (12.0)	297000 (-10.4)	1023382 (12.6)
1999-00	685028 (119.6)	839052 (102.5)	542951 (82.8)	2067031 (102.0)
Average Annual Growth Rate				
1990-91 to 1994-95	30.13	-	-	-
1995-96 to 1999-00	71.81	863.13	48.66	75.80

- Not available.

Note : Figures in brackets indicate percentage variation over the previous year.

Source : BSE, NSE and SEBI.

mechanism which involves market makers, trading cost also includes bid and ask spread.

4.118 Despite the growing popularity of stock markets during the 'eighties and the first half of the 'nineties, the transaction costs were high due to physical movement of papers, bad deliveries due to existence of securities in physical form, less transparent method of trading, involvement of a chain of brokers for executing transactions in the largest stock exchange, etc. Changes in the market microstructure, such as, automated trading, dematerialisation, increased liquidity, guarantee of trades and increased competition in the supply of brokerage services and resultant reduction in brokerage fees have brought about a significant reduction in the transaction cost. According to the estimates, there has been a decline in average transaction cost for all investors

Table 4.7: Indicators of Liquidity

(Per cent)

Year (April - March)	Traded Value Ratio	Turnover Ratio
1	2	3
1993-94	23.2	50.9
1994-95	15.7	34.4
1995-96	18.7	39.7
1996-97	45.8	132.3
1997-98	58.1	154.1
1998-99	58.1	178.3
1999-00	-	215.1
- Not available.		

in the past few years. The transaction cost on India's equity market declined to 0.6 per cent of selling/buying price in 1999 from 4.75 per cent in 1994. The transaction cost in India now compares well with that in the best markets of the world (Table 4.8). The reduction in the transaction cost is an excellent signal of improvement in the overall market efficiency and market growth.

Insurance Market Structure

4.119 In an increasingly competitive economy, the need for insuring against risks is well recognised. In India, the insurance industry is broadly classified into life insurance and non-life insurance business. The life insurance business has so far been undertaken by the Life Insurance Corporation of India (LIC) and the non-life insurance by the General Insurance Corporation (GIC) and its four subsidiaries. The share of insurance in the financial savings of the household sector grew up from 7.6 per cent in 1980-81 to 11.4 per cent in 1999-2000. Despite the state monopoly, the insurance business in rural areas remains underdeveloped. In terms of sum assured for life insurance by LIC, 47.0 per cent of the new business originated from the rural areas during 1998-99. By contrast, only 5.2 per cent of insurance premium of GIC and its subsidiaries was from rural areas during the same year.

4.120 Insurance penetration - measured as the ratio of insurance premium to GDP - at 2.6 per cent in 1998 has remained quite low as compared with the world average of 7.4 per cent. The insurance industry in India, so far organised as state monopoly, while contributing substantially

Table 4.8: Transaction Costs on Indian Stock Exchanges

(Per cent)			
Transaction cost/ Year	1994	1999	Global Best
1	2	3	4
Trading			
Fees	2.50	0.25	0.25
Market Impact Cost	0.75	0.25	0.20
Clearing	Present	Nil	Nil
Settlement			
Paper work	0.75	0.10	0
Bad delivery	0.50	0	0
Stamp duty	0.25	0	0
Total	>4.75	0.60	0.45

Source : SEBI and *Indian Securities Market - A Review*, NSE, September 2000.

in terms of mobilisation of long-term financial savings, has not been able to cover more than 18 per cent of the population. This was due mainly to the absence of competitive pressure resulting in inadequate development of insurance products. While the Government securities dominate the investment portfolio of LIC, market instruments, such as, shares and debentures are important investment avenues for GIC and its subsidiaries.

4.121 In the wake of financial liberalisation during the early 'nineties, the Committee on Reform of the Insurance Sector (Chairman: Shri R. N. Malhotra) recommended in 1994 the opening up of the insurance sector to private participation and the institution of a separate regulatory and development authority. Accordingly, the Insurance Regulatory and Development Authority (IRDA) Act was enacted in 1999, and a separate Insurance Regulatory and Development Authority was set up. The insurance sector was also thrown open to the private sector. This has opened up the possibility of developing India's insurance industry on a competitive basis to meet the insurance demand of a socially and economically mobile society and a rapidly changing industrial sector.

4.122 With the dismantling of the state monopoly, the emerging structure of the insurance business remains uncertain. However, the nature of the evolving insurance business would certainly influence the market position of various participants. Initially, insurance is seen as a complex product of a high advice and service component in which face-to-face interaction is

important. As the products become simpler and awareness increases, they become off-the-shelf commodities, which can be sold through retail counters (e.g., banks), telephones or Internet. However, such transition is a slow process and the importance of the existing distribution channels, particularly in India, would not diminish. Nevertheless, banks, financial institutions and NBFCs may be willing to utilise their existing customer-depositor base for the purpose. While there would be a tendency for the new entrants to eat into the market share of the LIC and GIC in the existing segments, the maximum growth in business is expected to be through building up of niches around new products. Examples of potential niches of new entrants may be (i) offering creditors' insurance schemes to financial sector players, (ii) providing general insurance cover for service sector, which remains under-serviced at present, (iii) greater coverage in personal insurance including health, shopkeepers, accident and professional indemnity covers, and (iv) providing index-linked returns on life insurance policies.

4.123 An evolving insurance sector needs high degree of regulation to ensure solvency of insurers and also the protection of interests of policyholders. The IRDA Act 1999, while allowing private participation including foreign equity participation up to 26 per cent of the paid-up capital, has simultaneously stipulated prudential norms for investments and service obligations in the less-lucrative rural sector.

4.124 Both banks and NBFCs satisfying the prescribed criteria have already been permitted to enter the insurance business with prior approval of the Reserve Bank. All banks and their subsidiaries are permitted to undertake fee-based insurance business without risk participation. For risk participation, banks would be required to form a joint-venture company with a normal equity participation of 50 per cent. The Reserve Bank will give permission to banks and registered NBFCs, desirous of entering the insurance business on a case-by-case basis subject to the satisfaction with the laid down criteria. When a foreign partner contributes 26 per cent of the equity with the prior approval of IRDA/ FIPB, more than one bank may be permitted to participate in the equity of the insurance joint venture. NBFCs are also allowed to participate in the insurance business subject to the satisfaction of laid down criteria relating to net owned fund (not less than

Rs.500 crore), CRAR, net NPAs, net profits, etc. Banks and NBFCs entering the insurance business have been directed to ensure that 'arms length' distance is maintained between the bank/FI/NBFC and the insurance entity, so that the risks in the insurance business are not transferred to the parent entity.

Emerging Markets

4.125 Apart from traditional financial markets, two more markets are emerging, namely, the derivatives market, which has come into being recently and the bancassurance market, which is likely to emerge in an important way once banks start undertaking insurance business.

Derivatives Market Structure

4.126 Financial derivatives in the Indian financial markets are of recent origin barring trade related forward contracts in the forex market⁵. Recently, over-the-counter (OTC) as well as exchange traded derivatives have been introduced, marking an important development in the structure of financial markets in India. Forward contracts in the forex market have also been liberalised. Exchange traded derivatives tend to be more standardised and offer greater liquidity than OTC contracts, which are negotiated between counterparties and tailored to meet the needs of the parties to the contract. Exchange traded derivatives also offer centralised limits on individual positions and have formal rules for risk and burden sharing.

4.127 In India, OTC derivatives, viz., Interest Rate Swaps (IRS) and Forward Rate Agreements (FRAs) were introduced in July 1999, while one exchange traded derivative, viz., Stock Index Futures was introduced by the two largest stock exchanges in June 2000. The FRA is an off-balance sheet contract between two parties under which one party agrees on the start date (or trade date) that on a specified future date (the settlement date) that party, viz., the party that agrees, would lodge a notional deposit with the other for a specified sum of money for a specified period of time (the FRA period) at a specified rate of interest (the contract rate). The party that has agreed to make the notional deposit has, thus, sold the FRA to the other party who has bought it. The IRS is a contract between two counter-

parties for exchanging interest payment for a specified period based on a notional principal amount. The notional principal is used to calculate interest payments but is not exchanged. Only interest payments are exchanged. The IRS and FRA were introduced with a view to deepening the money market as also to enable banks, Primary Dealers and financial institutions to hedge interest rate risks. The IRS has emerged as the more popular of the two instruments in the Indian market, accounting for nearly all of the 928 outstanding deals, amounting to Rs.12,620 crore of notional principal as on November 17, 2000. The overnight call money rates and the forex forward rates have emerged as the most popular benchmark rates.

4.128 A resident of India who has borrowed foreign exchange in accordance with the FEMA, may enter into an interest rate swap or currency swap or coupon swap or foreign currency option or interest rate cap/collar or Forward Rate Agreement (FRA) contract with an authorised dealer (AD) in India or with a branch outside India of an authorised dealer for hedging his loan exposure and unwinding from such hedges provided that (i) the contract does not involve rupee, (ii) foreign currency borrowing has been duly approved, (iii) the notional principal amount of the hedge does not exceed the outstanding amount of the loan, and (iv) the maturity of the hedge does not exceed the un-expired maturity of the underlying loan. ADs in India may remit foreign exchange related to such foreign exchange derivative contracts. No resident in India can enter legally into a foreign exchange derivative contract without the prior permission of the Reserve Bank. Among the non-residents, while FIs may enter into a forward contract with rupee as one of the currencies with an AD in India, non-resident Indians and Overseas Corporate Bodies could take forward cover with an AD to hedge (i) dividend due on shares held in India, (ii) balances in FCNR(B) and NR(E)A, and (iii) the amount of investment made under portfolio scheme. The Reserve Bank may also consider allowing residents to hedge their commodity price risk (including gold but excluding oil and petroleum products) subject to certain conditions.

4.129 A beginning with equity derivatives has been made with the introduction of stock index futures by BSE and NSE. Stock Index Futures contract allows for the buying and selling of the particular stock index for a specified price at a

⁵ Futures markets in the commodity segment, however, have existed for a long time.

specified future date. Stock Index Futures, *inter alia*, help in overcoming the problem of asymmetries in information. Information asymmetry is mainly a problem in individual stocks as it is unlikely that a trader has market-wide private information. As such, the asymmetric information component is not likely to be present in a basket of stocks. This provides another rationale for trading in Stock Index Futures. Also, trading in index derivatives involves low transaction cost in comparison with trading in underlying individual stocks comprising the index. While the BSE introduced stock index futures for BSE Sensex comprising 30 scrips, the NSE introduced Stock Index Futures for S&P CNX Nifty comprising 50 scrips. Stock Index Futures in India are available with one month, two month and three month maturities. Till November 8, 2000, both the stock exchanges had recorded a cumulative combined turnover of Rs.1,210 crore. To effectively manage risk in the derivative segment, adequate risk containing measures have been put in place. They include specifying minimum net worth requirement of brokers and its composition, margining system based on 99 per cent Value at Risk (VaR) model, position limit for various participants and guidelines for collection and enforcement of margins. Another equity derivative product in the equity market, *viz.*, stock index options is likely to be introduced shortly. The SEBI has set January 2001 as the target date for introducing options trading in the Indian market.

4.130 Forward contracts market has emerged as an important segment of the forex market in India in the recent years. It comprises customers, such as, corporates, exporters, importers, and individuals, Authorised Dealers (ADs) and the Reserve Bank. Of late, FIIs have emerged as major participants in this segment. The market operates from major centres with Mumbai accounting for bulk of the transactions. Till February 1992, forward contracts were permitted only against trade related exposures and these contracts could not be cancelled except where the underlying transactions failed to materialise. In March 1992, in order to provide operational freedom to corporate entities, unrestricted booking and cancellation of forward contracts for all genuine exposures, whether trade related or not, were permitted. At present, the forward contracts market is active up to six months where two-way quotes are available. The maturity profile has

recently elongated with quotes available up to one year. With the gradual opening up of the capital account, forward premium is now increasingly getting aligned with the interest rate differential. Importers and exporters also influence the forward market in many ways. Besides, banks are allowed to grant foreign currency loans out of FCNR (B) liabilities and this too facilitated integration of the forex and the money markets, affecting the forward premium.

Bancassurance

4.131 In developing countries, one important character of insurance business and of long-term life insurance, in particular, is that insurance policies are generally a combination of risk coverage and savings. The savings component in the insurance policies is seen as a possible source of competition for the banking industry, as the insurance industry develops on a competitive basis. There are, however, other considerations, that point to the possible complementarities and synergies between the insurance and banking business.

4.132 The most important source of complementarity arises due to the critical role that banks could play in distributing and marketing of insurance products. So far, direct branch network of LIC, GIC and its subsidiaries together with their agents have been instrumental in marketing of insurance products in India. With further simplification of insurance products, however, the vast branch network and the depositor base of commercial banks are expected to play an important role in marketing insurance products over the counter. The eagerness on the part of several banks and NBFCs to enter into insurance business following the opening up of the industry to private participation reflects this emerging process.

4.133 The present interest of banks to enter into insurance business also mirrors the global trend. In Europe the synergy between banking and insurance has given rise to the concept of 'bancassurance' - a package of financial services that can fulfill both banking and insurance needs. In France, for example, over half of the insurance products are sold through banks. In the US, banks lease space to insurers and retail products of multiple insurers, in the way the shops sell products. The institutional framework within which this functional overlaps are taking place

has been varied - floatation of separate insurance companies by banks, banks' buying stakes in existing insurance companies, and swap of shares and mergers. Insurance companies have also sought to acquire stakes in some banks.

4.134 In India, the Reserve Bank, in recognition of the symbiotic relationship between banking and the insurance industries, has identified three routes of banks' participation in the insurance business, viz., (i) providing fee-based insurance services without risk participation, (ii) investing in an insurance company for providing infrastructure and services support and (iii) setting up of a separate joint-venture insurance company with risk participation. The third route, due to its risk aspects, involves compliance to stringent entry norms. Further, the bank has to maintain an 'arms length' relationship between

its banking business and its insurance outfit. For banks entering into insurance business with risk participation, the prescribed entity (viz., separate joint-venture company) also enables to avoid possible regulatory overlaps between the Reserve Bank and the Government/IRDA. The joint-venture insurance company would be subjected entirely to the IRDA/Government regulations.

4.135 Besides commercial banks, rural co-operative credit institutions are also envisaged as an important vehicle for distributing insurance products in under-served rural areas. The Task Force to Study the Co-operative Credit System and Suggest Measures for its Strengthening (Chairman: Shri J. Capoor) noted that this could have the attendant benefit of portfolio diversification for these institutions.

5.1 Integration is a process by which markets become open and unified so that participants in one market have an unimpeded access to other markets. Integrated financial markets would imply that, in the absence of administrative and informational barriers, risk-adjusted returns on assets of the same tenor in each segment of the market should be comparable to one another. Return differentials across markets could cause arbitrated shifts in portfolios of investors, ultimately bringing about an overall equality of returns across markets. When this argument is applied to cross-border unrestricted movement of capital, risk-adjusted returns on financial instruments of different countries should be equal when the returns are expressed in any single currency. Administrative restrictions on cross-market and cross-border transactions are often viewed as the key factor contributing to market segmentation. While such restrictions exist in regulated state controlled regimes, growing market orientation of the economy warrants greater integration of markets for enhancing the effectiveness of policies and for facilitating better functioning of markets.

5.2 The Indian financial system, till the early 'nineties, was characterised by an administered structure of interest rates, restrictions on various market participants - including banks, financial institutions and corporates - in terms of the nature and volume of transactions they could undertake in the money, forex and capital markets and administrative limits on the transactions between the residents and the non-residents. As a result, the markets remained segmented. The process of economic reform that started in the early 'nineties has created the enabling conditions for better integration of the markets. Quick implementation of wide-ranging reforms, the 'big bang' approach, could help to eliminate market segmentation, though faulty timing, speed and sequencing of reforms could expose the economy to several vulnerabilities. The gradual approach to reforms in India, therefore, strives to attain a balance between the goals of "financial stability" and "integrated and efficient markets".

Reforms to Strengthen Market Integration

5.3 Since the mid-1991, the Reserve Bank has taken several steps to develop various segments of the financial markets, strengthen their integration and enhance their efficiency. These steps essentially covered the money market, the government securities market and the foreign exchange market. Steps were also undertaken by other regulators to develop other markets, specially the equity and the debt segments of the capital market. Policy initiatives in these areas related to introduction of new instruments, institutions and practices. Efforts have been made to widen the participant base, improve information base for all participants, create greater transparency and encourage good market practices, introduce efficient settlement mechanisms, rationalise tax structures, create better infrastructure to facilitate faster transactions and lower their costs.¹

Money Market

5.4 Reforms in the money market included permission for entry of additional participants in the inter-bank call money market, and steps to develop a term-money market – particularly exemption of inter-bank liabilities from Cash Reserve Ratio (CRR) and Statutory Liquidity Ratio (SLR) stipulations and introduction of new instruments. The Reserve Bank started repos, both on auction and fixed interest rate basis for liquidity management. Since June 5, 2000, the newly introduced Liquidity Adjustment Facility (LAF) has been effectively used to influence short-term rates by modulating day-to-day liquidity conditions. The transition to LAF was facilitated by the experiment with the Interim Liquidity Adjustment Facility (ILAF) from April 1999 that provided a mechanism for liquidity management through a combination of repos, export credit refinance and collateralised lending facilities. In the long-run, the call money market is being seen to

¹ For a comprehensive assessment of the Financial Sector reforms in India, see Reddy, Y.V. (1999), "Financial Sector Reform: Review and Prospects", *Reserve Bank of India Bulletin*, January.

be emerging as purely an inter-bank market. In an environment where banks are undertaking non-bank activities and DFIs are planning to undertake banking functions, a more homogenous set of players is expected to emerge in the call money market. This is expected to facilitate introduction of longer and variable term repos. A well developed repo market is also essential to make the call money market purely inter-bank.

Government Securities Market

5.5 With the abolition of the system of automatic monetisation of deficits and the switchover to market related interest rates for market borrowings, it became possible to develop a genuine market for government securities. Introduction of new instruments, such as, zero coupon bonds, floating rate bonds and capital index bonds, establishment of Securities Trading Corporation, the system of Primary Dealers and Satellite Dealers, and the Delivery *versus* Payments (DvP) system constituted the other areas of reforms in the government securities market. The Reserve Bank is exploring the possibility of an early establishment of Electronic Dealing System which would facilitate both electronic bidding in auctions and dealing in Government securities and money market instruments. It will facilitate a shift from largely telephone-based trading to a completely screen-based on-line trading. Such electronic trading is expected to reduce information asymmetry in the markets and prevent the possibility of collusive trading that provides excess returns to some investors. To facilitate settlement in Government securities transactions, the dealing system will be linked to securities settlement system in Public Debt Office (PDO). A core group has been set up to prepare the project report indicating a road map and modalities for setting up a Clearing Corporation for debt securities. The setting up of Real Time Gross Settlement System (RTGS) is also expected to lower transaction costs by speedier settlement. In order to deepen and widen the Government securities market, it was essential to diversify the investor base. In this context, retailing of Government securities becomes critical. By establishing a system of Primary Dealers (PDs) and Satellite Dealers (SDs) with provision for liquidity support from the Reserve Bank, it is expected that the dealers will take on a larger role in the primary as well as secondary markets in Government securities. The liquidity support arrangements – based on bidding commitments and performance

in both primary and secondary markets – would help the dealers to make markets and to minimise volatility in security prices. Dedicated gilt funds have also been provided liquidity support from the Reserve Bank. Banks have been allowed to freely buy and sell Government securities on an outright basis and retail Government securities to non-bank clients without any restriction on the period between the sale and purchase. With a view to enabling dematerialisation of securities of retail holders, National Securities Depository Ltd. (NSDL), Stock Holding Corporation of India Ltd. (SHCIL) and National Securities Clearing Corporation Ltd. (NSCCL) have been allowed to open SGL accounts with the Reserve Bank.

Capital Market

5.6 Setting up of depositories, clearing corporations/houses on the stock exchanges, *etc.*, and introduction of on-line trading in all stock exchanges have helped improve the efficiency of the capital market. Delisting norms have been tightened following the recommendations of the Chandratre Committee that were accepted by SEBI. All publicly issued debt instruments, regardless of the period of maturity, are presently required to be rated by credit rating agencies. All listed companies are also required to publish unaudited financial results on a quarterly basis. With a view to enhancing transparency in corporate affairs, SEBI accepted the recommendations of the Committee on Corporate Governance (Chairman: Shri K.M. Birla) and the listing norms have been modified to reflect a code of corporate governance. With a view to detecting market manipulations, SEBI regularly monitors market movements and oversees the activities of the stock exchanges. These measures in the capital market have helped in improving information flows and in reducing the transaction costs in the stock markets.

Forex Market

5.7 Measures to integrate Indian markets with those abroad were largely guided by the recommendations of the Report of the High Level Committee on Balance of Payments (Chairman: Dr. C. Rangarajan) and the Report of the Expert Group on Foreign Exchange Markets in India (Chairman: Shri O.P. Sodhani). The former report recommended, *inter alia*, liberalisation of current account transactions, compositional shifts in capital flows - away from debt in favour of non-

debt, strict regulation of external commercial borrowings (ECBs) - particularly of shorter maturities, and measures to discourage volatile elements in the inflows from NRIs. Against the background of the gradual liberalisation of current transactions, a transition to the market determined exchange rate on March 1, 1993 was achieved through a successful experimentation with a dual exchange rate system under the Liberalised Exchange Rate Management System (LERMS) for one year beginning with March 1992. In October 1993, banks were permitted to rediscount export bills abroad at rates linked to international rates. Introduction of "Post Shipment Export Credit in Foreign Currency (PCFC)" in November 1993 enabled Indian merchants to access funds at internationally competitive rates. In October 1996, ADs were permitted to use FCNR (B) funds to lend to their resident constituents for meeting their foreign exchange as well as rupee needs. Based on the recommendations of the Sodhani Committee, several measures were instituted to deepen and widen the forex market. ADs were permitted in April 1997 to borrow from their overseas offices/correspondents as well as to invest funds in overseas money market instruments up to US \$ 10 million. In October 1997, this limit was raised to 15 per cent of Tier I capital of the banks. The uniform limit of Rs. 15 crore on the overnight positions of the ADs was removed with effect from January 4, 1996 and banks were allowed to operate on the limits fixed by their management and vetted by the Reserve Bank. The Aggregate Gap Limit (AGL), which was previously not to exceed US \$ 100 million or six times the net owned funds of a bank, was left to be fixed by the individual banks since April 1996, depending upon their foreign exchange operations, risk taking capacity, balance sheet size and other relevant parameters subject to approval by the Reserve Bank.

5.8 Liberalisation of capital account should be viewed as a process and not as a single event. In the approach to capital account convertibility (CAC), the initial reform measures were directed at current account convertibility leading to the acceptance of Article VIII of the Articles of Agreement of the IMF in August 1994. For operationalising CAC in India, a clear distinction is made between inflows and outflows with asymmetrical treatment between inflows (less restricted), outflows associated with inflows (free) and other outflows (more restricted). Differential

restrictions are also applied to residents *versus* non-residents and to individuals *versus* corporate entities and financial institutions. A combination of direct and market based instruments of control is used for meeting the requirements of a prudent approach to the management of the capital account. The policy of ensuring a well diversified capital account with rising share of non-debt liabilities and low percentage of short-term debt in total debt liabilities is reflected in India's policies of foreign direct investment, portfolio investment and external commercial borrowings. Quantitative annual ceilings on ECB along with maturity and end-use restrictions broadly shape the ECB policy. FDI is encouraged through a liberal but dual route - a progressively expanding automatic route and a case-by-case route. Portfolio investments are restricted to select players, particularly approved institutional investors and the NRIs. Short-term capital gains are taxed at a higher rate than longer term capital gains. Indian companies are also permitted to access international markets through GDRs/ADRs, subject to the prescribed guidelines. Foreign investment in the form of Indian joint ventures abroad is also permitted through both automatic and case-by-case routes.

5.9 The Committee on Capital Account Convertibility (Chairman: Shri. S.S. Tarapore) which submitted its Report in 1997 highlighted the benefits of a more open capital account but at the same time cautioned that CAC could pose tremendous pressures on the financial system. To ensure a more stable transition to CAC, the Report recommended certain signposts and pre-conditions of which the three crucial ones relate to fiscal consolidation, mandated inflation rate and strengthened financial system. Keeping in view the recommendations of the Report, India has over the years liberalised certain transactions in its capital account. Vastly altered and liberal policy environment for the external sector is reflected in the Foreign Exchange Management Act, 1999 (FEMA), which replaced the earlier Foreign Exchange Regulation Act, 1973 (FERA). The new Act sets out its objective as "facilitating external trade and payment" and "promoting the orderly development and maintenance of foreign exchange market in India".

5.10 The above referred important measures in each of the critical segments of the Indian financial market have enhanced the information sensitivity of the markets and fostered competitive efficiency.

Notwithstanding the restrictions that still exist on specific cross-market transactions and the general policy of discouraging destabilising speculation, markets have shown signs of increasing integration with market participants often recognising the expected return differentials in different markets and triggering cross-market transactions to reduce the return differentials across the markets. Absence of complete integration, stemming to some extent from the lack of complete freedom of individual agents in choosing their preferred portfolios as well as the restrictions on destabilising speculation, are in the interest of developing orderly, and resilient financial markets in India.

Integration of Domestic Markets

5.11 The money market, the government securities market, the capital market and the forex market constitute the important segments of the financial system, besides the market for credit involving banks, non-banks and all India financial institutions. Integration of these markets is reflected in the movements in the term structure of interest rates, the term structure of forward premia, the behaviour of asset prices and their returns in relation to the range of interest rates, despite the limited degree of openness in the capital account and imperfect asset substitutability in India. The extent of integration between the domestic and foreign markets can be evaluated more directly through the interest parity conditions.

5.12 The gradual integration of domestic financial markets, both within themselves and with the foreign exchange market, could be studied by analysing the trends in the turnover and prices of domestic financial markets and the foreign exchange market. Analyses of volatility spillovers – *i.e.*, whether disturbances in one market get transmitted to other markets – could also be useful in assessing the integration of markets.

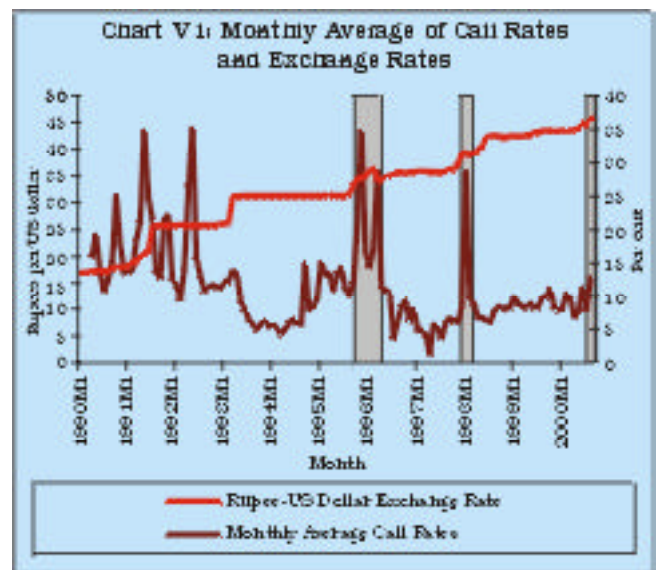
5.13 The Indian money and foreign exchange markets have become intrinsically linked to each other, especially in view of the commercial banks having a dominant presence in both the markets. The linkage between the call money market and the foreign exchange market, which existed in the past as banks were permitted to maintain nostro account surpluses or overdrafts to some extent, has strengthened in the recent years, particularly after the permission to borrow or lend up to 15 per cent of Tier-I capital overseas. The linkage

between the call market and the forex market is found to be more pronounced during episodes of volatile exchange market conditions (Table 5.1). This fact is clearly discernible in the second half of the 'nineties (Chart V.1). A detailed account of yearly developments of integration of markets – especially money and foreign exchange markets – is provided subsequently in this Chapter. It would be, however, necessary to note at this juncture that while the hike in call rates during volatile forex market conditions partly resulted from the introduction of monetary measures to tighten the liquidity conditions in the face of disorderly developments in the market, to some extent it also reflected the short positions taken by market agents in domestic currency against long positions

Table 5.1: Co-efficient of Variation in the Money and Foreign Exchange Markets
(Per cent)

Year	Call Rates	Exchange Rates
1	2	3
1994-95	42.1	0.3
1995-96	44.6	5.8
1996-97	37.3	1.4
1997-98	85.7	4.3
1998-99	15.0	2.3
1999-2000	12.3	0.7

in the US dollars in anticipation of higher profits through depreciation of the rupee. Furthermore, volatility in the call money market, as may be seen from Table 5.1, reflects the significant adjustment that occurs in the money market in response to

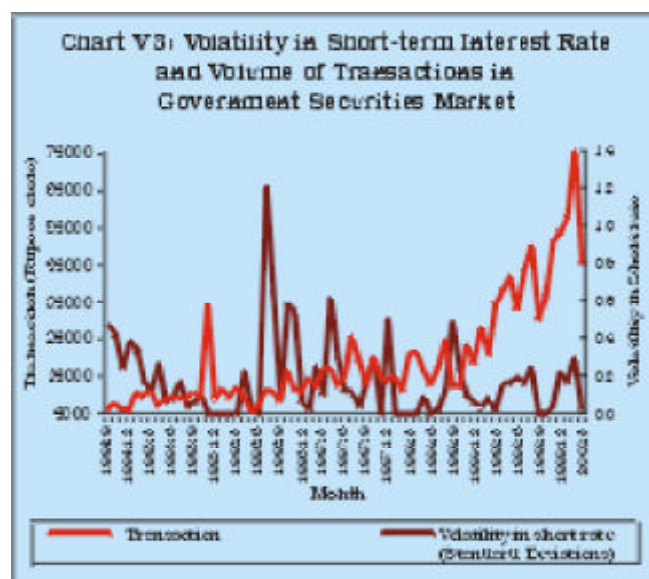
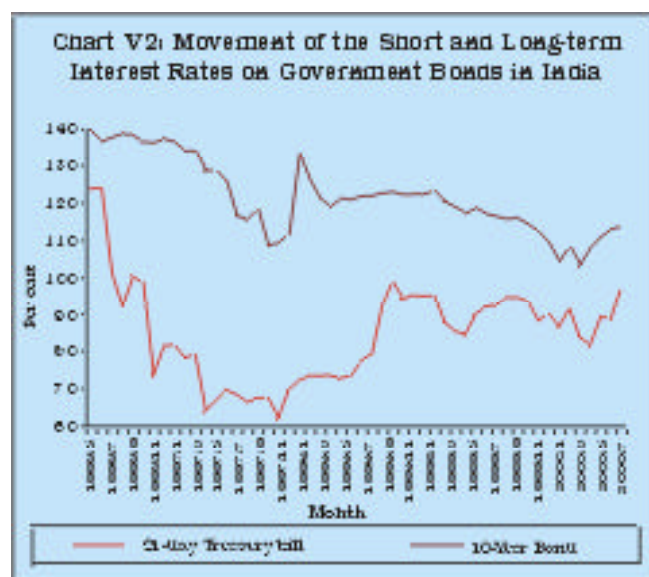


liquidity changes and gaps in the foreign exchange market. Excess demand conditions in the foreign exchange market and the attendant depreciation of the domestic currency affect bank liquidity. Unsure of the extent of depreciation, exporters often delay repatriation of proceeds, while importers rush for cover. So long as money market rates are lower than the rates implied by the forward premia, arbitrage opportunities exist between the money and foreign exchange markets. Banks could fund foreign currency positions by withdrawing from the inter-bank call money market and liquidating excess investments in government securities over and above the statutory liquidity ratio, thereby hiking interest rates in the call and the government securities markets. Banks without a retail base, which fund their assets largely through the inter-bank call money market, are especially squeezed as they face higher borrowing costs along with a sharp increase in the demand for foreign currency. During prolonged volatile conditions, banks begin to liquidate investments in commercial paper (CP), typically issued at sub-PLR levels. As the credit is often a first charge for retail banks, the need for mobilisation of funds, initially through high cost certificates of deposit (CDs) and thereafter through high cost retail deposits, contributes to upward pressures on interest rates, initially at the short end and thereafter across the spectrum.

5.14 The yield and volume in the Government securities market have also witnessed increased volatility as measured by the standard deviation (SD), which has generally tended to fluctuate over time at both long and short-ends of the market (Table 5.2). In the Indian context, it is observed that policy induced effects are readily transmitted across different markets in the short run; for instance, relaxation of the monetary policy stance have been quick to find its way into the yields on Treasury bills. However, a similar correspondence between the yield on dated securities and money market conditions became visible only after the first half of 1996, the period which coincides with institutional development in the money and the government securities markets. At the shorter end of the market, the movement of monthly average short-term interest rate² for the period from May 1996 to September 2000 reveals that they are

generally more volatile as compared to the long-term interest rates³ (Chart V.2). The relative rigidity of the long term interest rates and the falling trend in the spread between the 10-year yield and the 91-day Treasury bill rate indicate that the long-term inflation expectations and real interest rate in the economy may be stable. Besides, the higher volatility at the short end of the Government securities market has also been generally associated with relatively lower trading volumes (Chart V.3).

5.15 The Reserve Bank's monetary strategy of maintaining orderly conditions in the foreign



² The short-term interest rate considered here is yield on 91-day Government of India Treasury bills. This is widely considered as representative of the risk-free short-term interest rate in the Indian financial system.

³ The observed long-term interest rate series is for the 10-year maturity Government of India bonds.

Table 5.2: Volatility in Government Securities Market Measured by Standard Deviation

Year	91-day Treasury bills		364-day Treasury bills		10-year Bond	
	Mean	SD	Mean	SD	Mean	SD
1	2	3	4	5	6	7
1993-94	8.8979	0.3885	11.0237	0.9151	-	
1994-95	9.1136	0.8260	10.1474	1.4076	-	
1995-96	12.6521	0.2964	12.8705	0.3872	-	
1996-97	9.6654	1.2953	11.6710	1.9126	13.6821	0.1905
1997-98	6.8325	0.4520	8.4551	0.4176	12.0432	0.8207
1998-99	8.6194	1.1027	9.5144	1.0145	12.1821	0.1173
1999-2000	9.0242	0.2870	10.0881	0.3746	11.4108	0.4489
2000-01*	9.0616	0.7815	9.7950	0.8546	10.9914	0.4100

* Up to October 2000 SD Standard Deviation

exchange market involves pre-emptive as well as remedial responses. Pre-emptive measures attempt to augment supply in the foreign exchange market by depleting reserves, encouraging non-resident deposit mobilisation by reducing reserve requirements on such deposits and discouraging exporters from withholding proceeds by raising costs of export credit. Demand is attended to be contained by raising domestic interest rates, especially short-term, above the interest rates implied by the forward premia by substituting low cost discretionary liquidity with high cost discretionary liquidity, usually by raising reserve requirements on domestic deposits and/or cutting refinance facilities available to banks and funding the resultant liquidity gap through refinance at a higher Bank Rate or through high cost reverse repos, backed by increases in the repo rate to discourage speculative positions in the foreign exchange market. This could be buttressed by raising the cost of import finance. The remedial measures attempt to limit the impact of foreign exchange market volatility on the economic activity. Accepting private placements/devolvement of government debt at times of tight liquidity in order to offload them at times of easy liquidity and reversing monetary tightening measures to reduce the cost of discretionary liquidity and thereby reducing interest rates are an integral part of this strategy.

5.16 The Indian stock market has undergone a significant transformation in the 'nineties as described in Chapter IV. Apart from changes in the fundamental factors, information asymmetries and the associated constraints to efficient price discovery remain at the heart of the volatile

movements in stock prices. The extent of stock price volatility is also influenced by the extent of integration between the domestic and international capital markets as well as the regulatory framework governing the stock market. In India, two most important factors which had a significant bearing on the behaviour of stock prices during the 'nineties were net investments by FIIs and trends in the international stock exchanges, especially NASDAQ. Stock market volatility has tended to decline in recent years, with the coefficient of variation (CV) in the BSE Sensex working out to 17.51 per cent during 1995-96 to 1999-2000 (Table 5.3). Asset price bubbles entail significant risks in the form of higher inflation when the bubble grows in size and in the form of financial instability and lost output when the bubble bursts. Monetary and fiscal authorities, therefore, closely watch the asset market developments. The positive wealth effect resulting from bull runs could impart a first round of risk to inflation. If the bull run is prolonged, a second round of pressure on prices may result from subsequent upward wage revisions. Since financial assets are used as collaterals, asset booms may also give rise to large credit expansion. When domestic supply fails to respond to the rising demand, it could give rise to higher external current account deficit. The asset price cycles may follow. When the asset prices collapse, firms may face severe financing constraints as a result of declining value of their collaterals, making lenders reluctant to lend at a scale they do when asset prices are rising. Recognising these alternative complexities emanating from asset market bubbles, information on asset prices is being increasingly used as a critical input for the conduct of public policies.

Table 5.3 : Co-efficient of Variation (CV) and Dispersion of BSE Sensex

Year	CV (Per cent)	Range
1	2	3
1991-92	32.19	3091.39
1992-93	15.39	2242.24
1993-94	23.58	2201.78
1994-95	9.06	1414.40
1995-96	5.51	791.30
1996-97	8.59	1418.08
1997-98	7.88	1440.75
1998-99	11.78	1580.78
1999-2000	13.13	2967.22
1985-86 to 1990-91	33.43	
1990-91 to 1999-00	25.93	
1995-96 to 1999-00	17.51	

The Indian Experience

Early Transition

5.17 The exchange rate remained stable in the period that followed the institution of a market-based exchange rate mechanism in March 1993, even though liberalisation of transactions during this period helped in a quick transition to current account convertibility. During 1992-93 to 1994-95, stability in the currency market was supported by the Reserve Bank's policy of absorbing the excess supply resulting from strong capital inflows. As a result, all segments of financial market witnessed easy liquidity conditions as a result. The Reserve Bank divested net domestic assets (essentially through open market, including repo operations) to maintain monetary stability, while modulating interest rates in the money market. The domestic currency came under minor pressure during November 1994 and in mid-March 1995, but stability was quickly restored. The latter half of the 'nineties, however, witnessed some episodes of volatility in the money and the foreign exchange market which underscored the gradual integration of the domestic money market and the foreign exchange market. Asset prices responded to deregulation of interest rates, two-way capital movements, changes in macroeconomic conditions and general sentiments that were impacted by economic and non-economic factors.

5.18 Fiscal 1995-96 saw return of tight liquidity conditions on account of strong demand for credit and the decline in capital flows. The first serious

pressure on the rupee-dollar exchange rate began in the last week of August 1995, with increased import demand, slowdown in capital inflows and strengthening of the US dollar against other major world currencies, which was aggravated by large-scale cancellation of forward contracts by exporters and short-covering by importers. The Reserve Bank intervened by selling US dollars, especially in the forward market, in an attempt to bring forward premia in alignment with the interest differentials. This was supplemented by a withdrawal of money market support, which pushed up call rates towards end-October and early November (touching the peak of 85.0 per cent on November 3, 1995). With the return of stability in the spot foreign exchange market, the Reserve Bank injected liquidity through reverse repos with DFHI and STCI (which peaked at Rs.5,555 crore as on November 8, 1995), enhancement of banks' refinance facilities against Government securities and CRR cuts to stabilise the inter-bank market. Volatility returned to the forex market in February 1996, pushing up call rates but stability returned with the revival of capital flows coupled with measures to accelerate repatriation of export proceeds and prevent acceleration of import payments. The stringent money market conditions during the second half of the year induced banks to mobilise resources through CDs which jumped from Rs.8,017 crore (at an interest rate range of 10.0-15.0 per cent) as at end-March 1995 to Rs.16,316 crore (at an interest rate range of 12.0-22.3 per cent) as on March 29, 1996, while CP issues dwindled to Rs.76 crore (at an interest rate of 20.2 per cent). The equity market was generally subdued during 1995-96, mainly on account of general factors that included lack of buying support from institutions, both foreign and domestic, uncertainties regarding the introduction of the carry-forward system and market disturbances, such as, the switching of shares in respect of a major company. The secondary market showed signs of revival mainly on account of the return of FII interest at the year-end.

5.19 There was an accretion of US \$ 5,323 million to the Reserve Bank's foreign currency assets in 1996-97 on account of a contraction in the current account deficit on the one hand and an increase in capital in flows on the other. The exchange rate, as a result, traded in the narrow band of Rs.35-36 per US dollar while the three-

month forward premia eased from 15.6 per cent in April 1996 to 6.7 per cent in March 1997. With the return of exchange rate stability, the Reserve Bank was able to ease liquidity conditions further by cutting the CRR by as much as 4.0 percentage points (thereby releasing Rs.17,850 crore of lendable resources to banks during April 1996-January 1997) with a view to moderating interest rates and facilitating credit off-take. Reflective of this, there was a significant softening of interest rates across the spectrum. As call money rate eased to single digit by the second quarter of the year, the Reserve Bank resumed repo operations in November 1996 in order to divest net domestic assets in the face of accretion to reserves and provide a reasonable floor to the inter-bank market. In tandem with easy money market conditions, CDs declined to Rs.12,134 crore (at an interest rate range of 7.0-14.25 per cent), while the CP market recorded a mild revival.

5.20 The movements in share prices during 1996-97 exhibited three phases. During the first quarter, the market was relatively strong, buoyed by FII support and in anticipation of a favourable budget. The second phase, July to mid-December 1996, saw a reversal of sentiment, on account of the introduction of minimum alternate tax (MAT) and lower net FII investments. The stock market recovered thereafter.

Containing Contagion in 1997-98

5.21 The first half of 1997-98 witnessed easy liquidity conditions, driven by sustained capital inflows that resulted in an accretion of a whopping Rs.11,546 crore (adjusted for revaluation) to the Reserve Bank's NFA. Net purchases of foreign currency exceeded US \$ 1.0 billion in May, June and July 1997 (Table 5.4). The concomitant liquidity generation facilitated the completion of the bulk of the Government's borrowing programme at relatively low interest rates as banks sought to park their surplus funds in government paper. The net RBI credit to the Central Government declined by Rs.7,731 crore as scheduled commercial banks' incremental investments in dated securities increased by Rs.22,765 crore. The stability in the foreign exchange market enabled the Reserve Bank to announce reductions in reserve requirements by 2.0 percentage points in equal eight phases beginning with the reporting fortnight of October 25, 1997. Measures were also undertaken to further liberalise the capital account.

5.22 The easy liquidity conditions fostered by large-scale capital inflows were mirrored in an all-round softening of interest rates, particularly at the lower end of the maturity spectrum. The Reserve Bank attempted to modulate liquidity through repo operations at rates of 2.9-4.5 per

Table 5.4: Developments in the Money and Foreign Exchange Markets, 1997-98

(Rupees Crore)

Month	FEDAI Indicative Rate (Rupees per US \$)	Net foreign currency Sale (-)/ Purchase (+) (US \$ million)	Net OMO Sale (-)/ Purchase (+)	Average Repos outstanding	Average Reverse Repos outstanding	Average Daily Call / Notice Turnover	Average Call Rates (per cent)	Forward premia 1-month (Per cent)
1	2	3	4	5	6	7	8	9
1997								
April	35.8139	641	-1,822	3,528	0	19,951	1.04	3.17
May	35.8145	-1,393	-65	916	0	23,193	6.95	3.11
June	35.8095	1,335	-68	3,145	0	19,536	4.95	2.57
July	35.7372	1,185	-103	4,830	0	23,894	4.09	2.70
August	35.9200	872	-3	2,156	14	25,476	5.73	5.07
September	36.4318	-978	-2	567	178	23,232	6.84	6.90
October	36.2260	189	-980	1,493	12	24,162	5.84	4.23
November	37.2358	-1,590	-507	1,869	18	23,399	5.88	6.51
December	39.2168	-407	423	1,081	468	23,343	8.57	9.42
1998								
January	39.3843	422	-25	155	1,399	21,929	26.34	21.05
February	38.8871	-642	-3	2,662	582	20,776	9.12	12.70
March	39.5007	1,449	-4,460	2,122	88	23,613	8.96	8.81

cent and auction of 14-day Treasury bills, introduced effective June 6, 1997, with a cut-off yield of 4.95 per cent. Call money rates, which dwindled to 1.04 per cent in April 1997, firmed up to 4.95 per cent in June 1997 and 6.84 per cent in September 1997. The implicit cut-off yield on 91-day Treasury bills, after decline from 7.96 per cent in end-March 1997 to a low of 5.72 per cent in mid-April 1997, also increased to 6.22 per cent in October 1997. The long-term nominal interest rates also fell in harmony with short-term interest rates. The PLRs of major scheduled commercial banks also declined by 200 basis points from 14.5-15.0 per cent in end-March 1997 to 12.5-13.0 per cent in end-November 1997.

5.23 The initial impulses of contagion from financial crises in parts of South-East Asia were felt from mid-August to mid-September, 1997 as in a forward-looking reaction, markets anticipated the need for competitive downward adjustment of the rupee to counter the implications of falling South-East Asian currencies. However, normalcy returned to markets after the Reserve Bank intervened effectively, first by selling dollars and then buying them in October. Continuing FII inflows also encouraged the sentiment. Pressures from contagion re-emerged in mid-November, following the weakening of the sentiment in response to financial crisis spreading to hit South Korea and far-off Latin American markets. This exerted fresh pressure on currencies in the region. Cancellation of planned issues of Global Depository Receipts (GDRs) by some Indian companies, reversal in portfolio investment flows and political uncertainty added to the pressures. The volatility in the exchange market led to a significant rise in inter-bank as well as merchant turnover. Demand (as reflected in forward sales) exceeded supply (as reflected in forward purchases) by a large margin and the average 1-month premia more than doubled to 9.4 per cent by December 1997. The rupee exchange rate crossed Rs.40 per US dollar on January 14, 1998, ending up at Rs.40.27 per US dollar on January 15, 1998.

5.24 The South-East Asian crises necessitated twin-pronged policy action. The Reserve Bank attempted to mitigate excess demand conditions in the foreign exchange market. It also moved to siphon off excess liquidity from the system in order to reduce the scope for arbitrage between the easy money market and the volatile foreign exchange market. This helped contain the impact of contagion. Foreign currency sales in the third

quarter of 1997-98 (which resulted in a decline of Rs.7,150 crore in the RBI's NFA - adjusted for revaluation) were undertaken to curb the volatility in the exchange rate. This supported domestic currency, but resulted in reduced money market support to the Government borrowing, leading to an increase in the Centre's monetised deficit. The Reserve Bank tightened its monetary policy stance by raising CRR and the Bank Rate, thus substituting cheap discretionary liquidity with expensive discretionary liquidity. Monetary measures that tightened liquidity were taken on November 28, 1997, December 2, 1997 and January 16, 1998. These included: (i) initial deferment of pre-announced CRR cuts as well as subsequent hiking of reserve requirements in two phases of 0.5 percentage point each to 10.5 per cent, (ii) reduction of refinance limits available to scheduled commercial banks, (iii) introduction of fixed rate repo auctions and all-round increase in interest rates with the repo rates progressively raised from 4.5 per cent to 9.0 per cent, and (iv) the increase in the Bank Rate from 9.0 per cent to 11.0 per cent. Measures, such as removal of incremental CRR of 10.0 per cent on NREER and NR(NR) deposits, effective December 6, 1997, were also undertaken to augment supply of foreign currency. With a view to containing demand, the interest rate on post-shipment export credit in rupees beyond 90 days and up to six months was raised from 13.0 per cent to 15.0 per cent and an interest rate surcharge was introduced on import finance as leads and lags in import payments and export realisations widened.

5.25 Interest rates, in fact, hardened from September 1997 onwards, especially at the short end of the market. The Reserve Bank's monetary tightening measures on January 16, 1998 pushed the DFHI's fortnightly average call money lending rates to the historic high of 50.0 per cent during the fortnight ended January 30, 1998 (surpassing the previous high of 42.9 per cent during the fortnight ended May 17, 1991). The market stabilised thereafter as the Reserve Bank's foreign exchange and money market operations and banks' refinance drawals eased liquidity pressures. The 91-day Treasury bill rate increased to 7.33 per cent by January 1998 and the five-year bond yield to 12.85 per cent. The tightening of liquidity conditions gradually transmitted to other markets. Banks' issuance of CDs climbed up from Rs.8,491 crore (at an interest rate range of 7.0-14.0 per cent) as at end-August 1997 to Rs.14,296 crore (at 7.2-26.0 per cent), while interest rates on term deposits

of up to one year maturity firmed up from a range of 5.0-8.0 per cent as on October 21, 1997 to 5.0-12.5 per cent as on March 18, 1998. Interest rates on CPs increased from an effective discount rate of 8.3-9.3 per cent as at end-August 1997 to 10.9-15.5 per cent as at end-February, while banks' prime lending rates also hardened to 14.0-14.5 per cent as on March 18, 1998. An analysis of the yield curve movement in the Government securities market during 1998-99 showed that while the short-term rates respond quickly and pronouncedly to the changes in monetary policy rates, long-term rates exhibit somewhat sticky behaviour.

5.26 The BSE Sensex (Base: 1978-79 = 100) climbed to 4,548 by August 5, 1997 from 3,361 as on March 31, 1997, driven by higher investments by FIIs and favourable proposals in the Union Budget, 1997-98. The equity market, however, turned depressed in the wake of the slowdown in industrial production and the net outflow of funds by FIIs during certain months in the wake of the South-East Asian crises. The BSE Sensex consequently fell to 3,210 by January 28, 1998. The market recovered with FII investments turning positive from February 1998. This coupled with favourable budgetary expectations pushed the BSE Sensex to 3,893 by March 31, 1998.

5.27 The restoration of stability in the Indian currency market was primarily the result of a credible stance to arrest volatility caused by speculation and keep rupee stable and the gradual moderation of pressures in the East Asian currency markets in end-January 1998. As the rupee adjusted downwards smoothly in the months that followed aided by a turnaround in capital inflows, the Reserve Bank eased some of the monetary measures clamped earlier in the face of volatility. The Bank Rate was reduced by 50 basis points each time effective March 19 and April 3, 1998, respectively, and further by 100 basis points to 9.0 per cent effective April 29, 1998. The fixed rate for repo auctions was reduced to 8.0 per cent effective March 18, 1998 and thereafter gradually to 5.0 per cent effective June 15, 1998. The CRR was scaled down by 25 basis points each in two phases effective March 28 and April 11, 1998, respectively. Export credit refinance limits were restored in April 1998. Reflecting the return of easy liquidity conditions, the interest rate structure also softened, with average call rates easing to 6.85 per cent and five-year bond yields softening to 11.06 per cent in April 1998. A majority of banks reduced their lending and

deposit rates in response to the Bank Rate cut as also in line with seasonal trends.

The Markets in 1998-99

5.28 The foreign exchange market saw the return of excess demand conditions in mid-May 1998, in reaction to the impending sanctions, resulting in the exchange rate weakening from Rs.39.73 per US dollar at the beginning of May to Rs.42.38 by June 11, 1998. The Reserve Bank sold foreign currency in response to excess demand in the foreign exchange market, depleting its NFA by Rs.6,597 crore (adjusted for revaluation). Net merchant forward sales jumped to US \$ 5,498 million, resulting in a sharp increase in the one-month forward premia to 9.59 per cent in June 1998 from 3.67 per cent in April 1998 (Table 5.5). The Reserve Bank announced a package of policy measures on June 11, 1998 to contain volatility in the foreign exchange market. These included: (i) announcement of the Reserve Bank's readiness to sell foreign exchange to meet demand-supply mismatches, (ii) advising importers as well as banks to monitor their credit utilisation so as to meet only genuine foreign exchange demand and discourage any undue build-up of inventory, (iii) allowing banks/ADs acting on behalf of FIIs to approach the Reserve Bank for direct purchase of foreign exchange, and (iv) advising banks to charge a spread of not more than 1.5 percentage points above the LIBOR on export credit in foreign currency as against the earlier norm of 2.0-2.5 percentage points. Stability returned briefly but pressures renewed by the end of the month. The rupee touched Rs.42.92 per US dollar on June 23, 1998 but firmed up at end-June 1998 to Rs.42.47 per US dollar as stability was restored with the sentiment improving in response to the Reserve Bank's policy response and favourable political developments.

5.29 The foreign exchange market again came under pressure in August 1998, reflecting the adverse sentiment on account of the deepening of financial crisis in Russia and the fears of the Chinese renminbi devaluation, resulting in a depreciation of the rupee to Rs.43.42 on August 19, 1998. This was reflected in net spot and forward merchant sales in the foreign exchange market of US \$ 1,255 million and US \$ 2,225 million. The one-month forward premia, which had softened to 5.84 per cent in July firmed back to 9.58 per cent in August 1998. The Reserve Bank announced a second package of measures in order to prevent

Table 5.5: Developments in the Money and Foreign Exchange Markets, 1998-99

(Rupees Crore)

Month	Com- mercial Bank Borro- wings from the Reserve Bank	Average Daily Turnover in the Inter- bank and Forex Market (US \$ Million)	Fixed Repo Rate (Per cent)	FEDAI Indi- cative Rate (Rupees per US \$)	Net foreign currency Sale (-)/ Purchase (+) (US \$ million)	Net OMO Sale (-)/ Pur- chase (+)	Average Repos out- standing	Average Reverse Repos out- standing	Average Daily Turnover in the Call/ Notice Money Markets	Average Call Rates (per cent)	Forward premia 1-month (Per cent per annum)
1	2	3	4	5	6	7	8	9	10	11	12
1998											
April	166	3,377	6-8	39.6572	201	-215	9,133	80	21,471	6.85	3.67
May	519	4,774	6	40.4708	-754	-34	4,412	82	24,945	6.97	6.49
June	755	5,459	5-6	42.2423	-1,627	-13	6,872	0	25,393	6.63	9.59
July	643	4,597	5	42.5102	-121	-1,442	4,545	67	27,639	6.38	5.84
August	1,075	5,072	5-8	42.7563	542	-6,902	3,689	834	26,022	8.86	9.58
September	3,306	4,978	8	42.5217	760	-689	6,322	1,263	23,967	8.52	7.42
October	3,675	4,899	8	42.3338	95	-880	2,769	941	26,011	8.71	5.55
November	4,084	3,697	8	42.3810	75	-6,707	3,504	250	26,112	8.07	4.33
December	3,150	2,926	8	42.5530	-84	-1,493	1,567	353	26,454	8.74	4.96
1999											
January	5,330	3,681	8	42.5061	477	-5,902	694	407	28,884	10.66	5.08
February	6,109	3,756	8	42.4656	858	-2,780	845	0	29,726	8.95	5.57
March	2,894	4,279	6	42.4487	1,420	-3,422	206	0	31,371	8.46	6.98

speculative pressures on the foreign exchange market, which, *inter alia*, included : (i) a hike in the CRR from 10.0 per cent to 11.0 per cent, (ii) increase in repo rate from 5.0 per cent to 8.0 per cent, and (iii) withdrawal of the facility of rebooking of the cancelled contracts for imports and splitting forward and spot legs for a commitment. A significant contribution towards maintaining orderly exchange market conditions in this phase was made by the mobilisation of US \$ 4.2 billion through Resurgent India Bonds (RIBs) that helped in an accretion of US \$ 3.7 billion to the foreign exchange reserves. The rupee strengthened to Rs.42.55 per US dollar by end-August and further to Rs.42.49 per US dollar by end-September. The one-month forward premia declined to 7.42 per cent in September and to 4.96 per cent by December 1998.

5.30 Liquidity conditions tightened with the return of excess demand conditions in the foreign exchange market during May-June 1998, but eased after the Reserve Bank announced its intention to limit the impact of the large Government borrowing programme by accepting private placements of Government securities when bids were

unreasonably high and releasing them to the foreign exchange market as and when liquidity conditions improved. RIBs also helped in reviving the market interest in the Government paper. Reflecting the changes in liquidity conditions, the Centre's monetised deficit followed an inverted U-curve, climbing from a surplus of Rs.4,740 crore as on April 24, 1998 to a peak of Rs.21,789 crore on July 10, 1998 and slipping thereafter to Rs.1,857 crore by end-September 1998. Five-year bond yield, which jumped by 60 basis points in May 1998, thereafter ruled steady in the band of 11.65 per cent to 11.86 per cent till September and 11.88 per cent to 11.94 per cent during October 1998 to February 1999 as the Reserve Bank continued to strategically subscribe to fresh Government securities (Rs.20,000 crore at face value) and later offloaded them through open market sales (Rs.11,437 crore, of which Rs.6,726 crore to commercial banks) in the last quarter of the year to modulate liquidity conditions. The measures announced on August 21, 1998, however, pushed up the call rates to above 8.0 per cent (the repo rate) from an average of 6.7 per cent during the first four months of the fiscal year.

5.31 March 1999 saw the revival in capital inflows with the Reserve Bank's NFA recording an accretion of Rs.8,008 crore (adjusted for revaluation). With the return of orderly conditions in the foreign exchange market, the Reserve Bank announced the reduction in the Bank Rate (by one percentage point to 8.0 per cent) and the repo rate (by 2 percentage points to 6.0 per cent) effective March 2, 1999 and lowered the reserve requirements (by 50 basis points each effective March 13, 1999 and May 8, 1999). The strategy of combining private placements/ devolvments of the Central Government securities and open market sales limited the interest rate impact of the large sized Government borrowing programme. The average inter-bank call rates ruled steady around the Bank Rate in April 1999 and May 1999.

5.32 The stock market, which began in 1998-99 on a promising note, turned bearish as a result of reversal of market optimism regarding the Budget, the imposition of economic sanctions, downgrading by international rating agencies, the difficulties faced by the UTI's US-64 Scheme and the crises surrounding the South-East Asian markets, Russia and Brazil. Cumulative investments by FIIs, which hit the peak of Rs.30,664 crore as at end-April 1998, declined by Rs.2,234 crore during May-October 1998. The BSE Sensex declined from the intra-year peak of 4,280 on April 21, 1998 to 2,764 as on October 16, 1998. The BSE Sensex recovered in the latter half of the 1998-99 to close the year at 3,739, driven by the US decision to ease sanctions, issuance of SEBI guidelines relating to buyback of shares, revival of FII buying interest and the positive reaction to the market-friendly Union Budget. FII investments recovered to Rs.29,689 crore as at end-March 1999.

Return to Stability in 1999-2000

5.33 The foreign exchange market witnessed a degree of volatility during end-May-June 1999 and August 1999. Effects of policy pronouncements backed by sale of foreign exchange of Rs.2,242 crore (adjusted for revaluation) were able to restore stability in the foreign exchange market. The Reserve Bank reiterated its policy of meeting temporary mismatches in the foreign exchange market, after the rupee depreciated to Rs.43.39 per US dollar by June 25, 1999, in order to restore

orderly conditions in the foreign exchange market. As the demand supply gap widened in end-August 1999, the Reserve Bank indicated its readiness to meet fully/partly foreign exchange requirements on account of crude oil imports and the Government debt service payments. The Reserve Bank provided credit to commercial banks and PDs in order to pre-empt tightening of liquidity conditions, in the face of exchange rate volatility, with a view to boosting commercial credit off-take. The policy of combining incremental subscriptions to fresh Government securities (Rs.11,000 crore) with open market sales (Rs.11,683 crore) modulated monetary conditions. The average inter-bank call rates, however, firmed up to 10.3 per cent during August-October 1999. The turnover in the inter-bank and foreign exchange markets also declined substantially in September (Table 5.6). Capital flows revived after November 1999, resulting in excess supply conditions in the foreign exchange market, limiting the rupee to a narrow band around Rs.43.50 per US dollar while the one-month forward premia declined from 5.76 per cent in October 1999 to 3.31 per cent in February 2000. The Reserve Bank was, thus, able to build up reserves through net purchases from authorised dealers (Rs.8,365 crore) and simultaneously divest its net domestic assets through net open market sales amounting to Rs.8,088 crore between November-February 1999. The return of stability in the foreign exchange market allowed the Reserve Bank to further ease monetary conditions by releasing lendable resources of about Rs.10,000 crore through a one percentage point cut in the cash reserve ratio (as well as phasing of incremental CRR on FCNRB deposits etc.) during the fortnights ended November 19 and December 3, 1999. Monetary conditions improved further with the Reserve Bank announcing that scheduled commercial banks' cash in hand (Rs. 4,500 crore) would be eligible for CRR compliance in order to mitigate any possible difficulties that could have arisen on account of the Year 2000 transition. Further, with the return of orderly conditions in the foreign exchange market, the Reserve Bank withdrew the stipulation of a minimum interest rate of 20.0 per cent per annum on overdue export bills and the interest rate surcharge of 30.0 per cent on import finance imposed in January 1998. Money market conditions firmed up in February with the seasonal pickup in the demand for non-food credit.

Table 5.6 : Developments in the Money and Foreign Exchange Markets, 1999-2000

(Rupees Crore)

Month	Com- mercial Bank Borro- wings from the Reserve Bank	Average Daily Inter- bank Foreign Exchange Turnover (US \$ Million)	Turn- over in Central Govt. Dated Secu- rities mar- kets	FEDAI Indi- cative Rate (Rupees per US \$)	Net foreign currency Sale (-)/ Purchase (+) (US \$ million)	OMO Sale (-)/ Pur- chase (+)	Average Repos	Liquidity Support to PDs	Average Daily Call/ Notice Turn- over	Average Call Rates (per cent)	Forward 1-month premia (Per cent per annum)
1	2	3	4	5	6	7	8	9	10	11	12
1999											
April	5,221	3,974	57,949	42.7250	38	-7,021	1,629	1,882	31,699	8.27	5.67
May	4,960	3,561	64,699	42.7712	975	-7,832	13	4,688	29,915	8.94	4.70
June	3,863	3,429	50,079	43.1355	-157	-3,785	0	4,633	29,445	8.27	4.54
July	2,761	3,666	63,928	43.2850	-363	-8	0	3,650	34,394	8.37	3.99
August	2,771	3,753	78,500	43.4594	-242	-4,841	5	5,394	31,586	9.67	4.68
September	4,204	3,103	41,635	43.5349	-526	-1,187	0	5,498	31,386	9.90	5.33
October	7,342	3,546	51,313	43.4493	-10	-56	25	3,793	33,399	11.26	5.76
November	3,795	3,345	79,810	43.3968	621	-3,500	0	2,009	36,377	8.20	3.89
December	2,553	2,765	72,552	43.4850	351	0	672	1,050	37,482	7.89	3.39
2000											
January	4,448	3,673	85,615	43.5500	170	-70	502	1,824	35,939	8.03	3.11
February	7,451	4,460	1,18,636	43.6136	744	-7,136	0	5,352	36,232	10.63	3.31
March	6,491	4,280	45,857	43.5862	1,648	-9	0	1,877	42,244	9.68	4.56

5.34 In March 2000, large-scale capital inflows continued, resulting in an accretion of Rs.10,926 crore (adjusted for revaluation) to the Reserve Bank's foreign currency assets. This, in turn, helped to mitigate the pressure on money market created by seasonal credit demand. The Reserve Bank's incremental credit to commercial banks and PDs (Rs.4,034 crore) offset the decline in the Centre's monetised deficit arising essentially on account of advance tax payments. This enabled the Reserve Bank to further ease monetary conditions in April 2000.

5.35 The yield curve witnessed a higher volatility. It shifted downwards with relative steepness at the lower end of the maturity spectrum, reversed and moved northward in subsequent months up to the mid-financial year on account of the monetary policy measures initiated to overcome excess volatility in the foreign exchange market.

5.36 The stock market began 1999-2000 on a subdued note on account of domestic uncertainties but firmed up after September 1999, driven mainly by FII inflows and signs of industrial recovery, the formation of a new government at the Centre, upgrading of India's

international ratings from stable to positive by international credit rating agencies and favourable expectations from information technology stocks. The BSE Sensex crossed the 5,000 mark on October 8, 1999 and the 6,000 mark in the intra-day trading on February 11, 2000. FII investments increased by Rs.2,835 crore in February 2000.

5.37 A disconcerting feature of trading on the Indian stock exchanges in the recent times has been the emergence of intra-day volatility measured as the difference between high and low during the day. During 1999-2000, on 23 occasions, intra-day variation ranged between 200-300 points and exceeded 300 points on 8 occasions (Table 5.7). This level of intra-day volatility is quite high when compared with the previous years. In 1999-2000, stock market volatility could also be attributed to international capital market trends, especially the NASDAQ. This is evident from the fact that the co-efficient of correlation between the BSE Sensex and the NASDAQ Composite Index worked out to as high as 0.79 during 1999-2000, while for earlier years, the correlation co-efficient ranged between 0.21 and - 0.26.

Table 5.7: Intra-day Volatility in BSE Sensex

Year	Less than 100 points	100-200 points	200-300 points	Over 300 Points	Trading Days
1	2	3	4	5	6
1994-95	304	1	-	-	305
1995-96	291	5	-	-	296
1996-97	256	37	3	1	297
1997-98	269	25	2-5	-	294
1998-99	201	39	2	-	242
1999-2000	139	84	23	8	254

5.38 Domestic market integration is an important aspect of overall financial integration. The macroeconomic impact of international financial integration depends on the extent to which domestic financial markets are integrated. Integration of domestic financial markets has many aspects. On the one hand, there is an issue of integration within the markets. There is also a question as to how well the deposit and lending rates are integrated with the money market. Besides, there is also an issue as to how the transmission takes place from capital markets to money markets and *vice versa*. An empirical exercise made in this regard for the period March 1993 through March 2000 (monthly series) shows that while call rates, CD rates and forward premia were found to be highly correlated, the co-movements in respect of other interest rates and returns were weak (Table 5.8).

5.39 To a large extent, domestic financial integration can be gauged by the integration of the term structure of interest rates (Box V.1). The application of term structure in the conduct of monetary policy in India is, however, constrained by the absence of a well defined yield curve. An assessment of the transmission link from the policy interest rates to other interest rates in the financial system is critical for the effective conduct of monetary policy in a market economy. While studying the dynamics of monetary policy shocks and their impact on the financial markets in India, Joshi and Bhattacharya (2000)⁴ found evidence supporting integration of the financial markets.

⁴ Joshi, Himanshu and Kaushik Bhattacharya (2000), "Liquidity, Monetary Policy Shocks and Financial Markets in India: A VAR Model"; Paper presented on December 31, 2000 at the Joint Statistical Meeting of International Indian Statistical Association and other Statistical Associations at New Delhi.

Table 5.8: Correlation Coefficients Among Major Financial Market Rates (March 1993 to March 2000)

	SENSEX	CALL	CD	TB91	3MFP	6MFP
1	2	3	4	5	6	7
SENSEX	1.000					
CALL	-0.113	1.000				
CD	-0.418	0.367	1.000			
TB91	0.011	0.239	0.007	1.000		
3MFP	-0.320	0.675	0.682	0.038	1.000	
6MFP	-0.348	0.606	0.733	0.017	0.984	1.000

Their results showed that the Bank Rate has emerged as a more effective instrument of policy in terms of its impact on the financial markets in relation to other instruments, such as, the CRR or the balance sheet operations of the Reserve Bank involving changes in reserve money.

International Trade and International Financial Integration

Parity Conditions

5.40 Merchandise trade liberalisation in India which began in the 'eighties, gathered further momentum in the 'nineties. It has been reflected in the lowering of tariff and non-tariff barriers and in removal of restrictions on current account transactions. Cross-border trade in financial instruments has also increased over the last decade, due largely to phased liberalisation of capital account transactions. The growing cross-border trade and financial integration is commonly studied through the parity conditions (Box V.2).

5.41 Based on the behaviour of Real Effective Exchange Rate (REER) alone, it may be difficult to assess whether a country's exchange rate is misaligned. REER, nonetheless, is an important parameter, especially when considered along with a set of fundamental determinants. In the absence of any widely acceptable leading indicator of misalignment, REER has generally been used by policy makers and the market participants, despite its known limitations. Given the difficult choice of an equilibrium base, if one considers the average of REER (36-country, trade based) for the 'nineties for evaluating its temporal behaviour, it appears that the REER series is mean reverting (Chart V. 4). Both Augmented Dickey-Fuller (ADF) and Philips-Perron (PP) test statistics suggest the series to be stationary [ADF

Box V.1

The Term Structure of Interest Rates

The term structure of interest rates is the relationship between interest rates and term to maturity. However, financial instruments differ not only in terms of their maturity characteristic, but also other characteristics, most notably the risk. Therefore, the term structure is best estimated through yields on the default risk free government securities. A yield curve that charts yield-to-maturity (YTM) for Treasury securities (on the vertical axis) of various maturities (on the horizontal axis) as of a particular date captures the term structure. The yield curve changes from day to day as the YTM changes. While yields on other money market instruments, such as those on commercial papers of varying maturity could also be considered for the term structure, the risk element in these instruments would need to be considered. Yield curves, today, are popularly estimated in parametric forms using the methodology of Nelson and Siegel (1987) or its extension by Svensson (1994).

Three alternative paradigms are usually used to explain the term structure of interest rates. The unbiased expectations theory (or the pure expectations theory) suggests that the expected future spot rate equals the forward rate. If, say, current economic conditions (say rise in current inflation or a speculative pressure on domestic currency) make short-term spot rates high, then the term structure represented by the yield curve should turn downward sloping in accordance with the expectations theory.

The liquidity preference theory is based on the premise that investors prefer short-term securities because of the interest rate risk or because the investors fear that if needed, they may not be able to realise their funds earlier than anticipated because of liquidity problems. Investors, therefore, prefer short-term securities and try to roll over these securities. Rollovers, however, involve transaction costs. The investors, therefore, evaluate the expected returns from holding long-term bonds and compare them with those on the short-term bonds. They generally tend to charge a liquidity premium for holding long-term bonds, which is the difference between the forward rate and the expected future spot rate. In this case downward sloping yield curves would occur only when the market expectations are that interest rates would decline substantially. A flat term structure in itself indicates that interest rates are expected to decline somewhat. The upward sloping yield curve would indicate an expected rise or fall in interest rates depending upon the steepness of the slope. Steeper the slope, more likely is that market expects interest rates to rise in future.

Another alternative explanation for observed term structure is provided by the market segmentation theory. It points to institutional and legal constraints that often exist in markets so that some investors and borrowers are restricted to certain maturities alone. Psychological factors, customs and habits may also restrict them from investing only in certain classes of maturities. For example, pension and insurance funds generally prefer longer maturity debt instruments in relation to banks and other financial institutions. Besides, trading restrictions, lack of instruments and institutional structures may also result in the term structure getting disjointed. It is possible that the short-end, the long-end and the intermediate-term of the markets may be segmented. With spot rates in each of these segments getting determined by respective demand and supply conditions, the yields in each

segment may remain misaligned. The yield curve could be upward or downward sloping depending upon whether the intersection of short-end demand and supply curves are lower or higher than that for the long-end.

The term structure or the yield curves have considerable information content. They could be used to value a wide range of fixed income instruments, including coupon paying bonds, interest rate forwards and swaps and other derivative instruments. The coupon paying bonds, for example, can be stripped into zero coupon instruments corresponding to various cash flows, with the redemption amount getting added to the terminal coupon. The underlying price of this fixed income security can then be calculated as the net present value of the stream of all these cash flows using this zero coupon yield curve. In practice, however, yields of various securities of various maturities are affected by several factors, other than coupon rates and maturity period. The risk factor, marketability and tax rates are important considerations in pricing that a yield curve may not easily capture.

The term structure also has information content on future inflation and future real economic activity. The value of this information content to a large extent depends upon the stability and predictability of the yield curve with respect to non-financial activity. The information content in the yield curve depends largely on the Fisher equation and the expectations theory of the yield curve. Fisher equation decomposes one period nominal interest rate roughly into one period *ex ante* real interest rate and the one period ahead expected inflation. Combining this with expectations theory, the YTM could be explained by the expected real interest rate and the expected inflation. Following liquidity preference theory, a risk premium could be added to the two expected variables determining YTM if investors are believed to charge the same for holding the bond of a certain maturity. Under the expectations theory, however, the risk premium is constant for all maturities. The yield spread or the slope of the yield curve provides information on expected real interest rate spread and on market's inflation expectations. The yield curve provides the best measure of market's expected inflation path if expectations are formed rationally, risk premium is constant over time and the real term structure is flat denoting constant expected real interest rate for all maturities. If prices are fixed, nominal yield spreads capture the expectations regarding the future real economic activity. However, in practice, the information content of the yield spread for the future real economic activity depends on the nature of macroeconomic shocks. If the shocks are largely of a monetary nature, a positive yield spread could indicate expectations of an economic slowdown. If shocks are real and price rigidities exist, a positive yield spread could indicate a future economic upswing.

In India, the predictive power of the yield curve is yet to be established. The term structure was largely segmented and though a great deal of integration has taken place over the last few years, yields of various maturities are still not perfectly correlated with one another or with the movements in expected inflation. As a result, the predictive power of the yield spread is curtailed by the noise in the forecasts. Nag and Ghose (2000) find that the term structure is segmented, (Contd...)

(...Concl.)

with liquidity considerations affecting the short-end and expectations dominating the long-end of the market and interpret that the yield curve movements during 1996-99 were subject to the segmentation. The growing integration of the term structure is, however, reflected in the co movement of interest rates. The correlation coefficients among the set of interest rates is positive (Report on Currency and Finance, 1998-99). For the banking sector, the short-term deposit rates, long-term deposit rates and the prime lending rates have shown strong co-movement with the Bank Rate in the recent years (Chart.III.4, RBI Annual Report, 1998-99). More importantly, the inter-linkages across the term structure for gilts in India is reflected in cointegration between call money rates and cut off yield on short term 91 day T-bills, medium term 364 days T-bills and redemption yield on long-term Government of India securities (Joshi, 1998). However, as unique common stochastic trend is not observed in this set, the complete integration of the term structure or the efficiency of trading across maturities is still to evolve. As such, it is difficult to identify a reference rate that could be used as a policy instrument to guide the course of the entire term structure. Bhoi and Dhal (1998), on the other hand, observe that the cut off yield on 91 day T-bills could qualify as a reference rate for India among the set of other available rate variables. They find that excluding call money rates and return

on equity, all other interest rates exhibited co-movement with the 91 days Treasury bills. It is possible that with further widening and deepening of the gilt market, a smooth yield curve may emerge in the years ahead. The term structure ranging from the overnight call rate to the long-end may get aligned, so that the central bank can more effectively operate at the short-end for its monetary policy objectives. The yield curve could then have a considerable predictive power.

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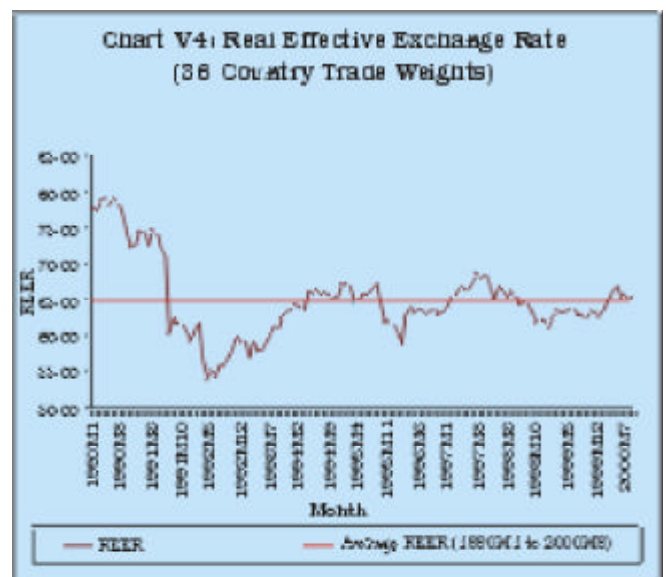
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(with 4 lags) = -3.15 and PP of REER (with 4 lags) = - 3.09]. The mean reverting pattern of the REER in India – symbolic of the validation of PPP – suggests that institutional and behavioural factors may be helping in the correction of the exchange rate. However, deviations from the mean could be a poor representation of the equilibrium exchange rate and the authorities consider a wide set of parameters that include the underlying demand-supply conditions and the shifting leads and lags in the forex markets.

5.42 In Chart V.5, the behaviour of REER is plotted against NEER and Effective Relative Prices (ERP) - with ERP representing REER/NEER (scaled to January 1990=100). It shows that the continuous positive inflation differentials as reflected in the behaviour of ERP have been corrected through periodic depreciation of the NEER and, as a result, significant misalignment of the exchange rate in terms of deviation of REER from PPP has been avoided.

5.43 In the context of empirical tests of interest parity conditions, it is important to note the constraint posed by the underlying assumptions of rational expectations and risk neutrality. When investors are risk averse, expected returns on different instruments would depend not only on the parity conditions but also on the risk

premiums. In the presence of time varying risk premia, the complexities relating to identification of the sources of risk and the measurement of risk greatly complicate the empirical testing of parity conditions. In the Indian context, Chart V.6 shows that the 3-month forward premia do not exhibit any strong co-movement with the interest rate differentials (i.e., cut off yield on 3-month Treasury bills in rupees minus the yield on 3-month US Treasury bills). The difference between the two series could be an indication of the time varying



Box V.2

Parity Conditions in International Finance

At the cornerstone of the international finance relations lie the Purchasing Power Parity (PPP) doctrine and the three international interest parity conditions, *viz.*, the Covered Interest Parity (CIP), the Uncovered Interest Parity (UIP) and the Real Interest Parity (RIP). These parity conditions indicate the degree of market integration of the domestic economy with the rest of the world.

Purchasing Power Parity (PPP)

According to the PPP, in the absence of restrictions on cross border movements of goods and services and assuming no transactions costs, commodity prices expressed in any single currency should be the same all over the world. In other words, the path of the nominal exchange rate should be guided by the developments in the domestic prices of goods and services *vis-à-vis* prices of the major trading partners. The behaviour of the Real Effective Exchange Rate (REER) could, therefore, indicate whether the nominal exchange rate moves as per the principle of PPP.

The simplest approach to test PPP is just a test of stationarity of the REER; *i.e.*, to see whether deviations from the PPP are temporary and whether over time the REER reverts to some mean or equilibrium.

The standard alternative framework is to study the existence of a co-integrating relationship between the nominal exchange rate and relative prices.

Covered Interest Parity (CIP)

If markets are efficient, one would expect that rates of return on homogenous financial instruments that are denominated in same currency, but traded domestically or offshore must be equal, provided exchange controls do not exist and country risk premia are the same in the two markets. The CIP implies that yield on foreign investment that is covered in forward markets equal the yield on domestic investment. The interest differential is offset by premium or discount on the forward rate. If closed interest parity holds, CIP will also hold when the difference between the rates of return on instruments which are identical except for their currency of denomination, equal the forward discount on home currency. Therefore, for CIP to hold, the covered interest differential must be zero. If assets denominated in home and foreign currencies are fully comparable in all respects, the absence of covered interest differential indicates that there are some impediments to trade them. This lack of financial integration may be on account of exchange rate and interest rate regulations or several other reasons such as transaction costs, market liquidity conditions, margin requirements, taxation and market entry-exit conditions. A positive covered interest differential typically indicates domestic controls on capital outflows. A negative covered interest differential on the other hand typically indicates domestic controls on capital inflows.

Uncovered Interest Rate Parity (UIP)

The UIP implies that *ex-ante*, expected home currency returns on foreign bonds or deposits in excess of domestic deposits of equal maturity and default risk should be zero. The currency composition of the asset holdings is, therefore, irrelevant in determining relative returns. The prevalence of UIP also implies that the cost of financing for domestic firms in domestic and foreign markets would be the same. Operating through rational expectations, UIP suggests that expected changes in the nominal exchange rates should approximate the interest rate differentials. If CIP holds, UIP will also hold if investors are risk-neutral and form their expectations rationally, so that expected depreciation of home

currency equals the forward discount.

The expected spot rate depreciation is not directly observable unless expectations survey data is available, but may be proxied by some expectation scheme. Biases are introduced whether forward discount is measured by survey data or by some expectation scheme. While measuring UIP, the risk premia need to be modelled more explicitly taking into account the time varying nature of the risk premia.

Real Interest Rate Parity (RIP)

The RIP is a condition for complete financial market integration. It implies real interest rates are equalised at home and abroad. In other words, the firms in home country and the firms abroad, both face same real costs of financing. By assuming cross border equality of real interest rates as the result of perfect asset substitutability and open capital accounts, RIP suggests that nominal interest rate changes reflect essentially revisions in inflation expectations (*i.e.*, prices of goods and services). According to this condition, lower interest rate regime created through easy monetary policy stance can not be sustained because higher inflation expectations, given the constant real interest rate, would eventually give rise to higher nominal interest rates. When commodity prices are highly flexible, easy monetary conditions would be translated into higher prices quickly and as a result, nominal interest rates may actually increase following monetary easing.

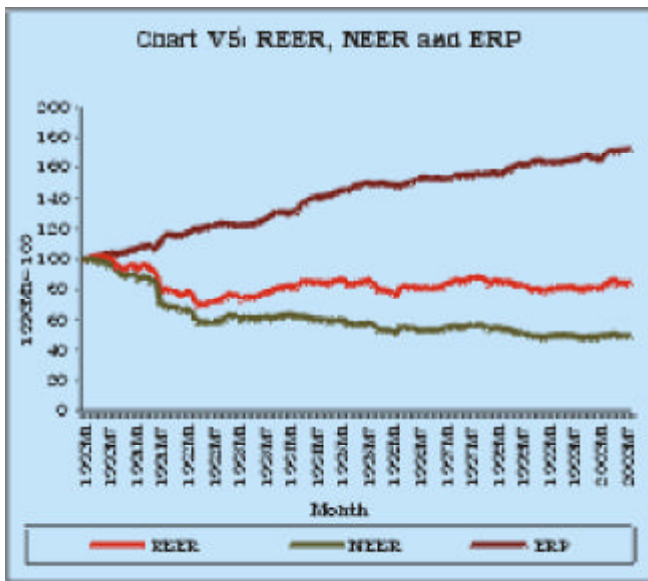
Assuming market efficiency and constant real interest rates, Fisher's RIP suggests that nominal exchange rate changes essentially reflect revisions in inflation expectations. In other words, nominal interest rates and expected inflation must exhibit a strong positive co-movement. The existence of two parity conditions, *viz.*, PPP and UIP automatically imply that RIP would hold.

Indian Evidence

Empirical estimates of parity conditions are plagued with theoretical and econometric difficulties that make conclusions difficult even in the case of well developed markets. Differences in estimates arise primarily from the model specifications, choice of techniques and of sample periods over which the models are estimated. Theoretical difficulties arise from existence of trade restrictions, transport and transaction costs, as also from consumption and interest rate smoothing behaviour. In practice, persistent swings in real exchange rate are observed. However, large orders of deviations get corrected over time, whether through market forces or through policy induced adjustments and therefore, PPP is generally believed to hold in the long-run. The speed of convergence, however, is empirically seen to be slow and generally takes several years. For India, Pattanaik (1999) finds that PPP holds in the long run in terms of the presence of a co-integrated relationship between exchange rate and relative prices and the misalignment at any point of time is corrected by 7.7 percent per quarter through nominal exchange rate adjustments. Bhoi and Dhal (1998) tested for the relevance of UIP and CIP and concluded that neither holds.

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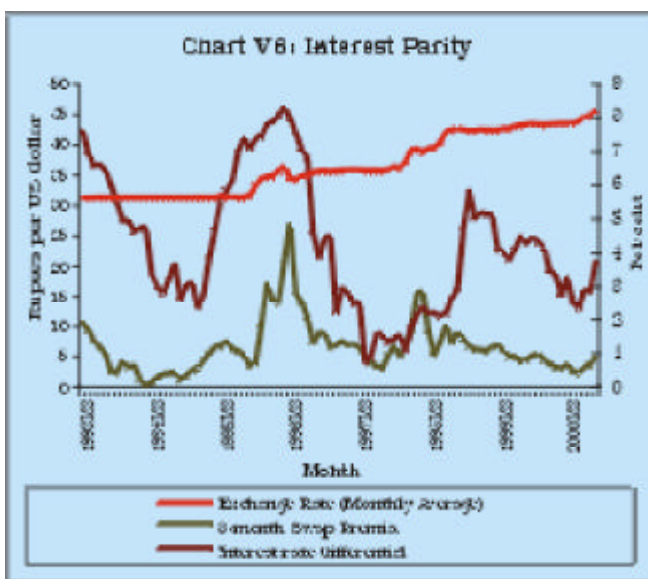
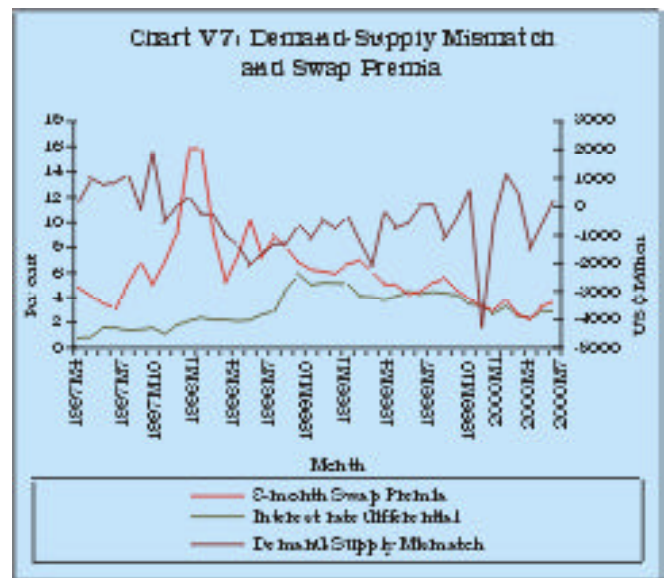


nature of the risk premia. Furthermore, the deviation of the forward premia from the interest parity condition appears to increase during volatile conditions in the spot segment of the foreign exchange market.

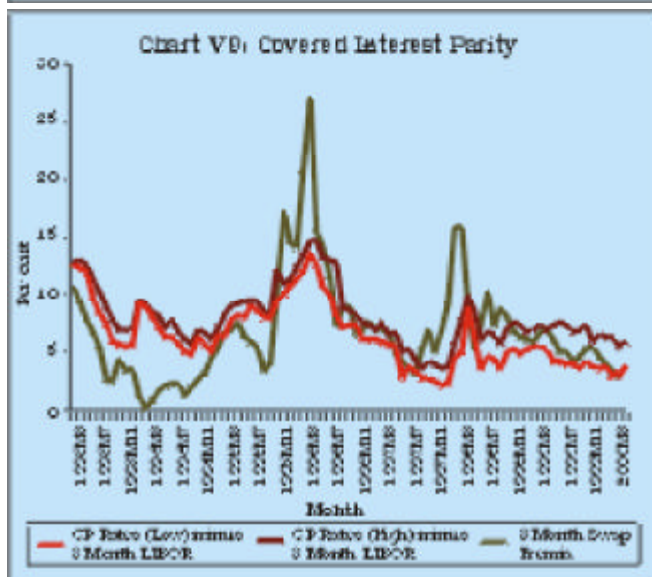
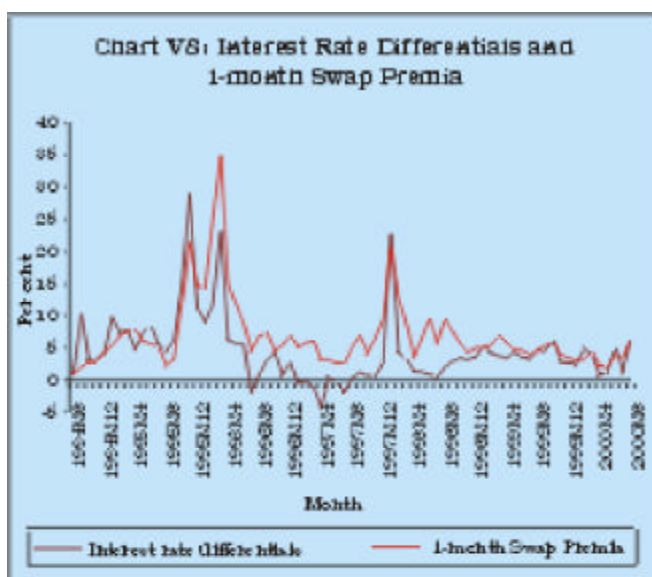
5.44 In India, forward premia often get influenced by the demand and supply conditions for forward cover. As could be observed from Chart V.7, the forward segment of the forex market exhibited an excess demand condition in most part of the period between April 1997 to July 2000. Excess demand represents the gap between purchase and sale turnover in the forward segment of the forex market and includes both merchant and inter-bank transactions. In the

recent period, however, it appears that swap premia follow the interest parity condition more closely than before.

5.45 When the interest rate differentials based on the monthly average call money rates in both Indian and the US markets are considered, 1-month swap premia seem to exhibit a relatively stronger linkage with the interest rate differentials (Chart V.8). The relationship improves further, when the more realistic interest rate scenario in terms of the difference between CP rates in India (both high and low during a month) and the corresponding three months US dollar LIBOR rates is considered for interest parity assessments (Chart V.9).



5.46 Deviations from the interest parity in India could be the result of a combination of factors. Changes in interest rates could influence the exchange rate by altering the monetary conditions, capital flows and market expectations. According to the condition of Uncovered Interest Parity (UIP), any increase in interest rate differential in favour of one country should create expectations for the currency of that country to depreciate so that return on assets denominated in different currencies are equalised. In terms of the monetary approach to exchange rate also, an increase in the interest rate in one country in relation to another would give rise to a money stock disequilibrium (with demand for money declining in relation to supply) and as a result of the associated increase in the external overall balance deficit, the currency would depreciate. In flow terms, however, higher



interest rates could attract higher capital inflows, causing thereby the exchange rate to appreciate. An appreciated exchange rate and the resultant deterioration in the current account deficit would eventually result in a downward adjustment of the domestic currency. But if the surges in private capital inflows persist and meet the widening financing gap in the current account, then the eventual depreciation may come with a much longer time lag. It is possible that the depreciation may come with a much higher time lag than what the condition of UIP would suggest. Hence, even though the most conventional reason cited for explaining the deviations from UIP is the presence of time-varying risk premia (*i.e.*, investors are not risk neutral and rational), the pattern of capital flows and the monetary transmission process in

a country could also give rise to deviations from the condition of UIP. There is also a possibility of one-time readjustment of portfolios in response to any change in the interest rate in any country. But this new equilibrium may not eliminate interest rate differentials because the objective of the investors may be to hold a diversified portfolio so as to minimise the unsystematic risks. When risk minimisation through diversification is the objective, deviations from interest parity could persist.

5.47 Market imperfections, particularly the absence of comparable homogenous assets, also have a bearing on the parity conditions. Furthermore, as a conscious policy to avoid excessive short-term debt, India has been cautious in respect of short-term capital flows and has allowed inflows of longer maturity with more readiness. Since shorter-term flows could be more responsive to parity conditions, deviations from parity conditions could be seen as an outcome of the short-horizon for the parity conditions to be realised. For longer term interest rates, detailed analysis of parity conditions is difficult on account of the non-availability of forward rates for longer maturities and reliable estimates of expected inflation beyond the short period.

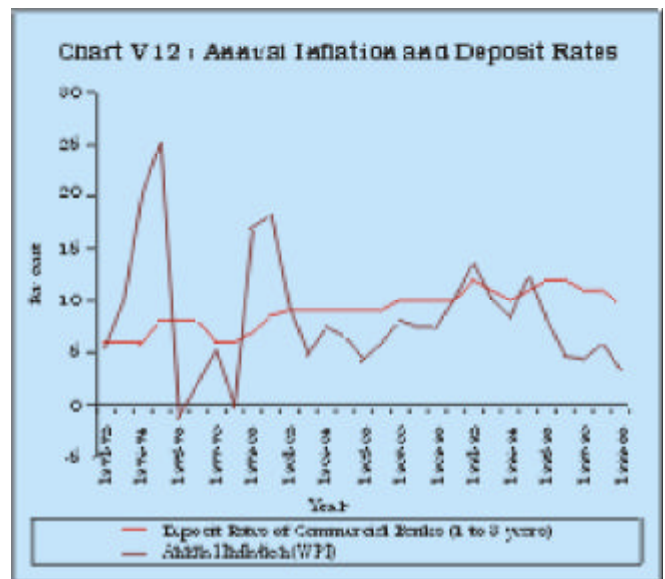
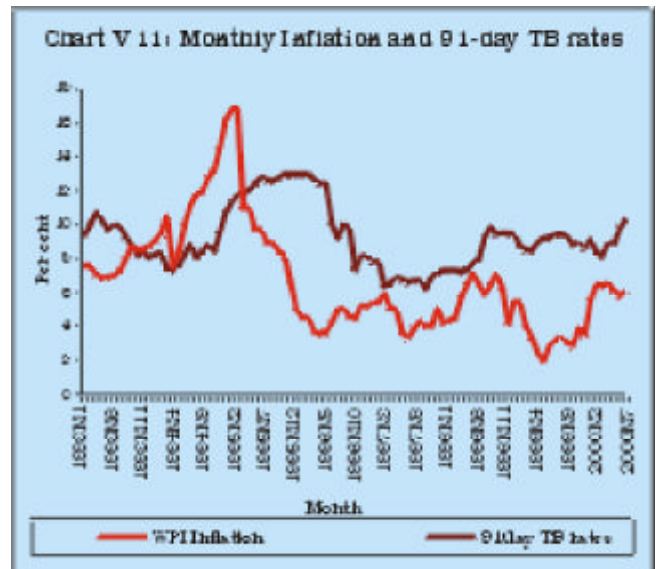
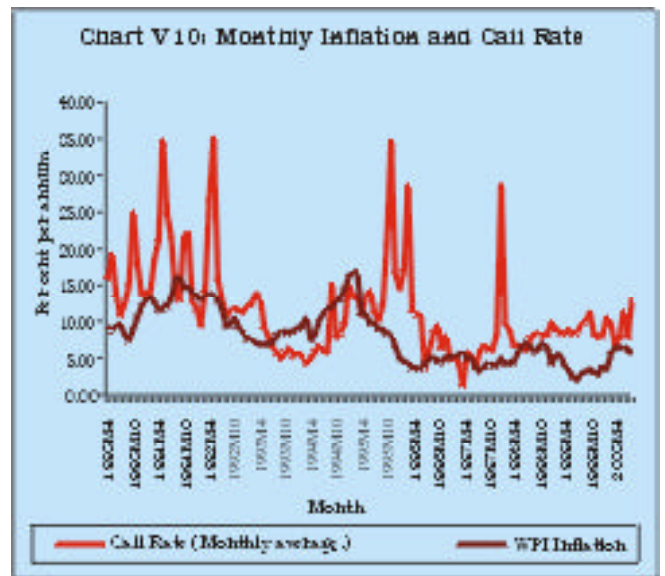
5.48 In the presence of unlimited supply of arbitrage capital with no restrictions on cross-border movement of capital, however, the parity conditions must hold. Capital controls check the flow of arbitrated capital and as a result deviations from parity stem from (a) the inability of residents to purchase foreign currencies for overseas investments to take advantage of favourable interest rate differentials, whether covered or uncovered, (b) limits on the non-residents to borrow domestic currencies, and (c) inability of the residents to switch between domestic and foreign currency deposits, even with their own domestic banking system. In India, forward market participation is permitted essentially to agents with underlying transactions. For the permitted transactions, therefore, considerable freedom exists for arbitraging. However, the Reserve Bank has been placing considerable emphasis on market regulation to prevent undue speculation as the forex market lacks adequate depth and efficiency. In these circumstances, permission for speculative positions could drive the markets purely by expectations and frequently give rise to rates that do not reflect the underlying fundamentals. Hence,

a cautious approach to exchange market reforms is essential for an emerging market economy like India.

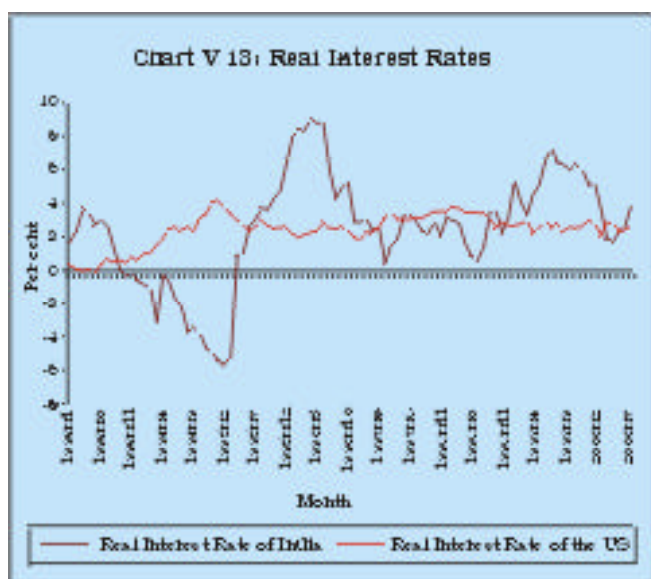
5.49 Unlike the parity conditions which use nominal interest rates, real interest parity requires a deeper integration because over and above the condition of UIP, the expected changes in exchange rates should also equal anticipated inflation differentials. Even in the matured market economies, the conditions of UIP and PPP do not hold and, as a result, one could see persistent and significant differentials in real interest rates the world over. Empirically, the *ex-post* real interest rate represents simply the difference between nominal interest rate and the rate of inflation and *ex ante* real rate is estimated by deducting expected inflation from the nominal interest rate.⁵ In India, as could be seen from Chart V.10, the monthly average nominal call rates have been much more volatile than the domestic inflation and the difference between the two series does not point towards any possibility of a constant real rate for India. Instead of average call rates, if one considers the more stable 91-day Treasury bill rates (Chart V.11) or the bank deposit rates of 1 to 3 years maturity (Chart V.12), then the proxy for real interest rate appears to be less volatile. The *ex-post* monthly real interest rates for India and the US (estimated as the difference between inflation and 3-month Treasury bill rate) show that while the real rates in the US were fairly stable for most part of the 'nineties, the variability of the real rates for India was relatively large. During periods of high inflation, real rates were even negative in India (Chart V.13). Absence of real interest parity in India is not an aberration because even in many matured markets this condition may not hold.

Trade Openness

5.50 Openness of an economy relates to its cross-border movements of goods, services and factors of production, particularly capital and labour. While parity conditions reflect the degree of integration between domestic and offshore



⁵ For example, Begum (1988) estimated expected inflation by using ARIMA (4,1) model. The difference between *ex-post* and *ex-ante* inflation is generally the forecast error and under rational expectations, the forecast error should be white noise. See Begum, J. (1998), "Correlations Between Real Interest Rate and Output in a Dynamic International Model: Evidence from G-7 Countries", *IMF Working Paper*, No. 179, December



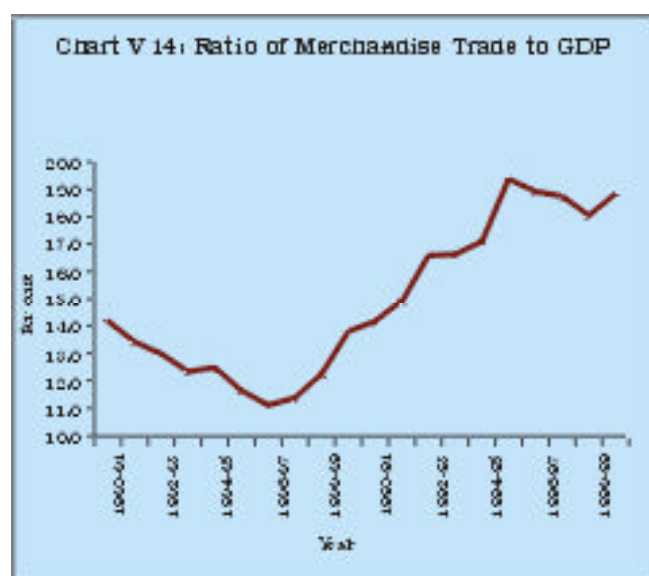
financial markets, they have some limitations. Alternative measures for openness have also been proposed that focuss more on trade integration (Box V.3). Historically, the approaches of different countries as well as separate regimes within the same country towards openness have varied widely. Trade openness of an economy has two distinct but often interrelated dimensions, *i.e.*, *ex ante* openness and *ex post* openness. *Ex ante* openness of trade of an economy relates to the orientation of its policy frameworks towards exports and imports. The levels of tariff and non-tariff measures applied by the country on cross-border trade flows are the most important indicators of *ex ante* trade openness of the economy. *Ex post* trade openness of an economy, on the other hand, refers to the actual levels of imports and exports in relation to domestic economic activities. At any point of time, high (low) levels of *ex ante* openness may co-exist with low (high) levels of *ex post* trade openness. A major problem in the analysis of trade openness is that openness is neither directly observable nor is strictly defined. The simplest measures of trade orientation, therefore, use the actual trade flows, such as, the share of trade (imports plus exports) in GDP or the growth rates of imports and exports.

5.51 Notwithstanding the limitation that these simple versions could be imperfect proxies, they could still be useful to interpret a country's openness based on such *ex-post* indicators. In doing so, however, it would be useful to consider different variants of such indicators. Although foreign trade relates to both goods and services,

customarily trade in goods alone is used in the calculation of trade-GDP ratio. In the case of India, the trade-GDP ratio showed a decline in India's trade openness in most part of the 'eighties. After showing a rising trend from 1987-88 to 1995-96, the ratio exhibited a somewhat declining pattern thereafter (Chart V.14). This could, however, provide somewhat distorted picture of India's trade openness, with the problems emanating from both the denominator and the numerator of the ratio. The 'services' sector, which accounts for bulk of India's GDP, recorded a high rate of growth during the period of trade liberalisation. The share of the 'services' sector in GDP, which was around 40 per cent in 1980-81 rose to nearly 52 per cent in 1998-99. On the numerator side, petroleum crude and products account for a sizable portion of India's foreign trade. International prices and the behaviour of domestic consumption and production shape their trends (especially of the oil imports), and they have little to do with the policies of trade openness.

5.52 Two alternative measures that could take care of the problem of high growth of services sector component of GDP would be: (i) the ratio of total (merchandise plus services) trade to GDP, and (ii) the ratio of merchandise trade to GDP net of services (hereafter referred to as commodity sector GDP). The first measure is provided, based on the Reserve Bank's Balance of Payments data, while the second measure is based on trade data from the DGCI&S.

5.53 The ratio of total trade to GDP shows almost a continuously increasing trend since



Box V.3

Alternative Indicators of Openness

The condition of Purchasing Power Parity (PPP) is often viewed as an indicator of integration of cross border market for goods and services. Deviations from PPP could result not only due to the presence of tariff and non-tariff barriers but also on account of transportation costs, choice of exchange rate regimes, pricing to market behaviour and productivity differentials. Alternative indicators of a country's integration with the rest of the world would, therefore, be useful. Conventionally, exports or total trade as percentage of GDP is used as a convenient indicator of openness. But this indicator does not reveal the degree and nature of restrictions prevailing in a country that could constrain complete cross-border integration. In the 1990s, alternative indicators of openness have been proposed by Dollar (1992) and Sachs and Warner (1995) and have been used in several empirical analyses, particularly to study whether more open economies converge faster. Dollar constructed two indices of outward orientation, *viz.*, "index of real exchange rate distortion" and "index of real exchange rate variability". Each of these two indicators, however, showed negative correlation with economic growth. Sachs and Warner's approach tries to avoid the measurement problem associated with constructing an index of openness by introducing a dummy variable that captures several possible aspects of trade policy. The dummy is assigned a value of zero (*i.e.*, less open or closed) for any one of the following eventualities : (a) average tariff rates exceeding 40 per cent, (b) non-tariff barriers covered more than 40 per cent of total imports, (c) a socialistic economic system, (d) state monopoly on majority of exports, and (e) black market premium exceeds by 20 per cent in relation to the official exchange rate. In their empirical analysis of the relationship between openness and growth convergence, the openness dummy coefficient was estimated to be 2.44, indicating that countries which were open as per the above five norms experienced on average growth at 2.5 percentage points higher than the rest. The growing international perception that greater trade openness leads to growth convergence has motivated experimentations with alternative plausible indicators of openness. Edwards (1998) considered nine different indicators of openness, five of which showed statistically significant positive association with growth. Given the rising empirical interest in the indirect approach to study the impact of openness, Barro and Sala-i-Martin (1992) propounded the concepts of b and s convergence. According to b convergence, a country could grow faster when it opens up, if its initial income level was low. According to s convergence, the income disparity across open economies would decline over time.

As regards indicators of openness to cross-border capital flows, besides the law of one price which suggests that identical assets should yield same return everywhere, saving-investment correlation, cross-country consumption linkages,

and deviations of actual from optimally diversified portfolios represent the standard measures of integration. Retention of capital controls, particularly on outflows from India and constant monitoring of the current account deficit complicate the assessment of integration using the standard frameworks for India. Even in countries where capital is freely mobile and the authorities do not operate with any current account level as an intermediate policy target, conventional indicators of integration may fail to establish integration. Home bias of investors in many developed countries prevents diversification of portfolios on a global scale and, therefore, comparing actually held portfolio against an optimally diversified portfolio occasionally shows considerable deviations. Similarly, for testing the law of one price one requires identical or homogenous assets denominated in different currencies. In reality, this may be extremely difficult. Return differences, therefore, could actually reflect specific risk features of the assets (like default or liquidity risk) rather than the presence of unexploited arbitrage opportunities due to restrictions on capital transactions. The cross-country consumption linkage assumes that with greater capital integration idiosyncratic risks can be better diversified and managed, inducing smoother consumption behaviour among investors. In other words, in an integrated capital market, the volatility of consumption can be expected to decline whereas the volatility of investment could increase. The impact of any shock is assumed to affect investment demand more than consumption demand. Smoother consumption with more volatile investment may actually be one of the many possible implications of capital mobility and not a test of capital market integration. Despite the empirical limitations, co-movement of international stock prices and increasing convergence of the real interest rates across developed countries indicate that greater capital integration has been an integral element of the ongoing process of globalisation.

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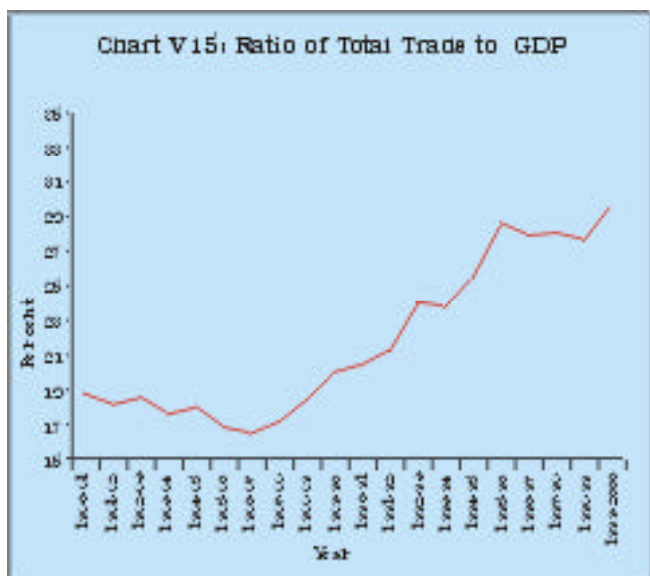
1987-88 (Chart V.15). It is important to note that the ratio increased sharply from 16.5 per cent in 1986-87 to nearly 30.3 per cent in 1996-97 (according to the old series of GDP with base 1980-81). The ratio also showed a similar pattern when computed using the revised GDP series with 1993-94 as the base. It rose from 23.9 per cent in 1993-94 to 29.8 per cent in 1999-2000, while the

conventional (merchandise) trade-GDP ratio increased only marginally from 16.6 per cent to 18.8 per cent during the same period.

5.54 The ratio of merchandise trade to commodity sector GDP rose from 23.1 per cent in 1986-87 to nearly 44 per cent in 1996-97 (1980-81 series of GDP). This ratio (with revised GDP

series) rose from 36.6 per cent in 1993-94 to 44 per cent in 1995-96, before declining to 40.7 per cent in 1996-97 (Chart V.16). Excluding exports and imports of petroleum crude and products, the ratios of total trade to GDP and merchandise trade to commodity sector GDP showed that the trade openness of the Indian economy started increasing from 1984-85 (Charts V.17 and V.18).

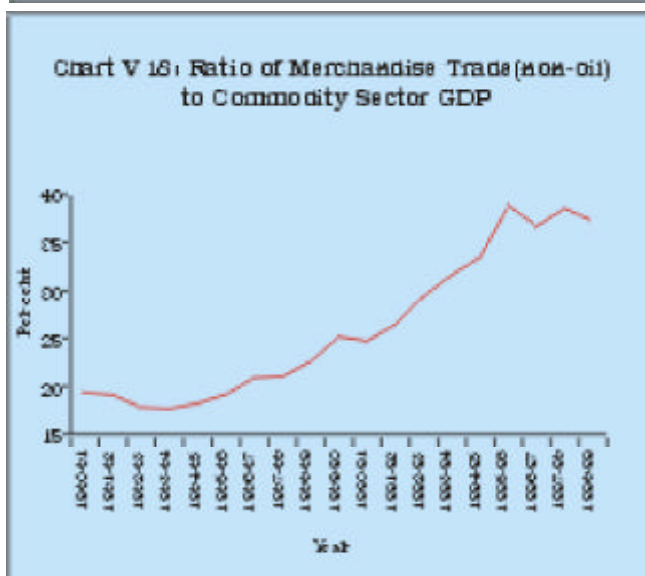
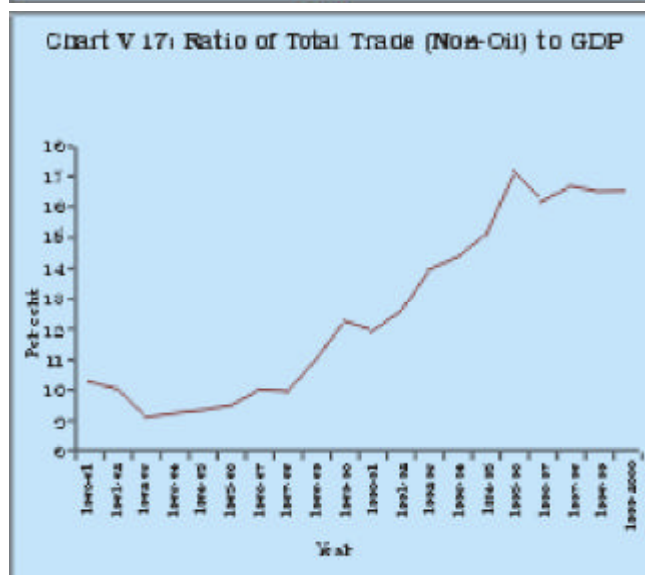
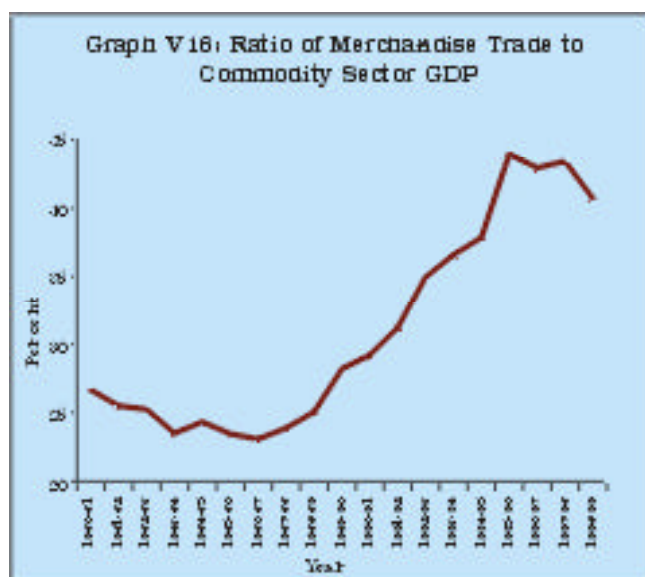
5.55 India's economic growth has exhibited some positive co-movement with both openness and growth in world GDP (Chart V.19). The values of the correlation coefficients between openness and India's GDP at 0.51, between India's openness

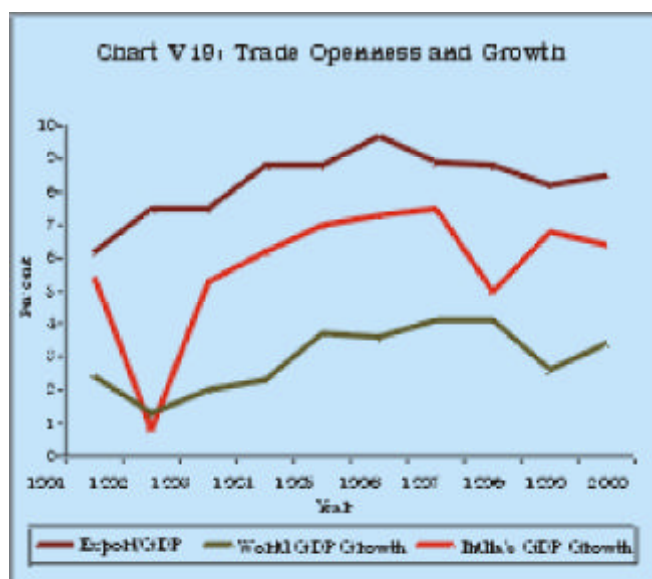


and World GDP at 0.65, and between India's GDP and World GDP at 0.68 also point towards the co-movement seen in the Chart. However, on the basis of correlation coefficients or co-movements in growth alone one cannot conclusively view openness as essential for growth, because openness measure itself could depend on external demand and domestic supply conditions. Furthermore, while India's exports as percentage of its own GDP rose from 6.2 per cent in the early 'nineties to 8.5 per cent in the late 'nineties, India's exports as percentage of World exports registered only a marginal increase from 0.5 per cent to 0.7 per cent during the same period.

Financial Openness

5.56 Sharp increase in the inflows of foreign private capital into India in the 'nineties, has increased the cross-border financial integration. Till 1992-93, foreign investment flows to India were insignificant. Following the opening up of the





Indian capital markets to portfolio investments, India attracted large foreign investment flows during 1993-94 to 1997-98 averaging US\$ 5.1 billion per annum (Table 5.9). Most of these flows were in the form of portfolio investments during 1993-94 and 1994-95. From 1995-96 direct investment flows also picked up and exceeded \$2.0 billion in each year. Foreign investment flows dipped in 1998-99, mainly on account of weakening sentiment for emerging markets in the aftermath of the financial crises in East Asia. In 1999-2000, foreign investment flows revived, with direct investment exceeding \$2.0 billion and portfolio investment \$3.0 billion mark.

5.57 Net foreign direct investment (FDI) flows to India as a percentage of net FDI flows to all developing countries (as published in the *Global Development Finance*, World Bank, 2000) exhibited a sharp increase from about 0.2 per cent in 1991 to more than 2.0 per cent by 1997. Since then India's share has declined. However, in terms of net inflows in all different forms (*i.e.*, private and official) India seems to have attracted a fairly stable percentage of flows, except during 1994-96 when certain fluctuations occurred (Chart V.20).

5.58 Another way to measure degree of financial openness is to see the co-movement in the domestic stock markets and international stock markets. As a result of large capital flows, especially portfolio investments since 1993-94, the sensitivity of the Indian stocks to developments in international stocks has increased. The impact was particularly strong in 1999-2000 as movements in the technology stocks in the NASDAQ had a significant bearing on the Indian stock markets (Chart V.21). An analysis of the prices of the Indian GDRs/ADRs in the international stock markets and the stocks in the domestic markets also reveals that the two prices are highly correlated. The correlation coefficient between the BSE Sensex and the Skindia GDR Index for the period from April 1996 to August 2000 worked out to 0.64. It, however, may be noted that many Indian GDRs/ADRs listed on the International stock markets during the period from 1993-94 to 2000-2001 (up to August) traded either at discount or at premium (Table 5.10).

5.59 It also needs to be noted that at present all

Table 5.9: Foreign Investment Flows

Year	A. Direct Investment		B. Portfolio Investment		Total (A+B)	
	(Rs. crore)	(US \$ million)	(Rs. crore)	(US \$ million)	(Rs. crore)	(US \$ million)
1	2	3	4	5	6	7
1990-91	174	97	11	6	185	103
1991-92	316	129	10	4	326	133
1992-93	965	315	748	244	1,713	559
1993-94	1,838	586	11,188	3,567	13,026	4,153
1994-95	4,126	1,314	12,007	3,824	16,133	5,138
1995-96*	7,172	2,144	9,192	2,748	16,364	4,892
1996-97*	10,015	2,821	11,758	3,312	21,773	6,133
1997-98*	13,220	3,557	6,696	1,828	19,916	5,385
1998-99*	10,358	2,462	-257	-61	10,101	2,401
1999-00*	9,338	2,155	13,112	3,026	22,450	5,181

* Includes acquisition of shares of Indian companies by non-residents under Section 29 of FERA.

market participants are not able to exploit arbitrage opportunities due to certain restrictions. FIIs have better arbitrage opportunities between these two markets as resident investors are not allowed to invest overseas.⁶ However, the arbitrage operations are only one way since domestic shares cannot be converted into GDRs/ADRs. As a result, only when the GDRs/ADRs are at discount, FIIs can reap arbitrage profits. For most part of the 1990s, however, GDRs/ADRs floated at a premium.

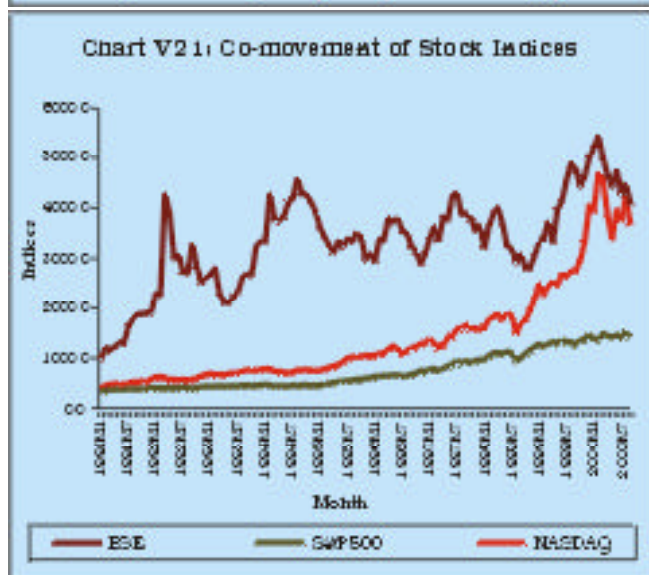
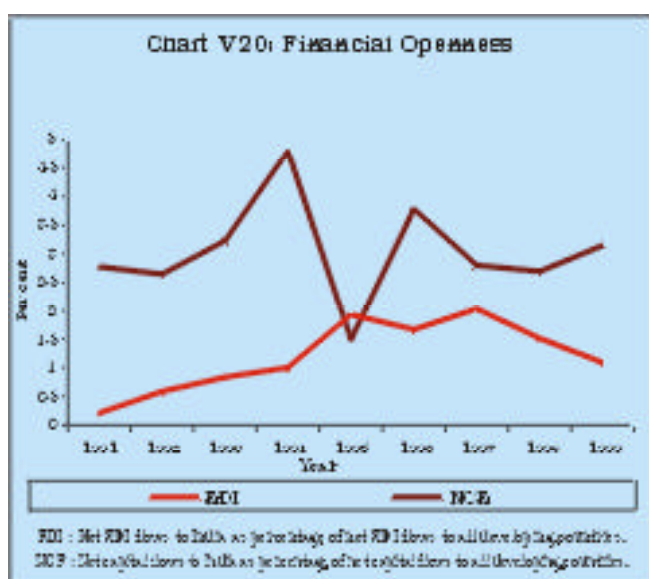
5.60 In India, a comparison of the prices of GDRs/ADRs against their underlying shares listed in India shows that the international prices of GDRs/

ADRs generally fetched a premium or discount, with the premium at some point touching 170 per cent (for Infosys in 1999-00) and discount rising to more than 35 per cent (for HINDALCO in 1998-99) (Table 5.10).

5.61 In response to the ongoing process of reforms in trade, industry and finance, India's openness to cross-border trade and private capital has increased considerably in the 'nineties, notwithstanding some slow down in the process towards the end of the decade. The trade openness as measured by the trade to GDP ratio improved. However, it needs to be recognised that a high ratio of trade to GDP need not be the ideal indicator of trade openness for several reasons. First, if the share of non-tradeables in GDP continues to be high even after significant trade liberalisation, it reflects the competitive strength of India's non-tradeables. Secondly, benefits of trade openness should essentially emanate from equalisation of cross-border prices of goods and services so that residents no longer pay higher prices for goods produced under protection. Though it is difficult to validate whether liberalisation has actually contributed to the expected price convergence, the behaviour of the exchange rate in India, which does not reflect large and persistent misalignment from PPP, indicates the possibility of such a price convergence. Thirdly, India continues to operate with an intermediate target for the external sector, in the form of a sustainable level of current account deficit as an integral element of its sound strategy for the management of the external sector. As a result, trade openness is essentially linked to export performance. More than 20 per cent growth recorded in India's exports during the first 8 months of 2000-01 would have helped in furthering India's openness to international trade.

5.62 As regards openness to international capital flows, India's share in the total FDI flows to the developing countries increased significantly in the first half of the 'nineties following the far reaching liberalisation of policies on FDI. In the last few years, however, India's share declined somewhat. This is essentially due to several structural constraints. FDI policies of emerging markets have also become fiercely competitive.

5.63 In the domestic financial markets, liberalization has given rise to market orientation and there is evidence of increasing co-movement of risk adjusted returns in different segments of the market. Forward premia in India, though



⁶ Only recently Indian mutual funds have been allowed to invest in Indian GDRs/ADRs, subject to certain restrictions.

Table 5.10: Range of Premium/ Discounts on GDR/ADR Prices Over Domestic Prices for Select Scrips

(Per cent)

Year	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-01@
1	2	3	4	5	6	7	8	9
Reliance	-11.3 to 47.7	-13.3 to 9.1	1.8 to 26.8	-4.9 to 25.7	-6.8 to 15.9	-9.8 to 2.9	10.4 to 55.4	11.5 to 63.8
HINDALCO	-	-11.6 to 1.1	-6.4 to 36.7	-1.4 to 58.0	-10.1 to 29.1	-35.9 to 12.2	6.5 to 34.2	3.6 to 14.4
VSNL	-	-	-	-	11.5 to 44.6	0.1 to 41.2	5.0 to 71.3	9.2 to 24.7
ITC	-	-20.8 to -7.6	-20.8 to 27.1	4.9 to 31.7	9.8 to 65.8	6.6 to 26.1	6.6 to 34.6	4.8 to 30.6
Grasim	-	1.0 to 10.7	6.9 to 34.1	4.6 to 35.0	-7.0 to 35.6	-32.6 to 25.0	11.6 to 77.0	12.1 to 48.5
MTNL	-	-	-	-	17.8 to 32	3.7 to 41.4	1.7 to 48.3	4.0 to 27.2
SBI	-	-	-	17.2 to 48.3	16.7 to 52.7	-4.1 to 31.3	-7.4 to 48.2	-3.9 to 16.6
M&M	-	-5.2 to 13.4	6.4 to 36.1	7.9 to 27.4	-6.7 to 34.6	-14.8 to 5.3	-8.4 to 22.9	-3.3 to 14.4
Infosys	-	-	-	-	-	25.1	30.9 to 170.8	70.6 to 118.8
ICICI	-	-	-	-	-	-	18.9 to 105.0	16.4 to 59.6

@ : Up to August 2000.

Source : Instanex Capital Consultants Pvt. Ltd. and Bridge On-Line Information System

increasingly becoming sensitive to interest rate developments, continue to be influenced by the demand-supply mismatches in the forward segment of the forex market. Alternating phases of spot market stability and market corrections for perceived misalignments have influenced both the risk premia and the demand-supply positions in the forward market. Furthermore, the requirement of genuine underlying transactions in the forward market and the restrictions on cross-

market shifts in positions also hinder the parity conditions to hold in India. Such restrictions, however, form an integral element of the cautious and gradual approach to the reforms in India and are viewed as essential to avoid disorderly market developments. The Indian approach strives to attain a balance between efficiency gains associated with faster reforms and the need to preserve financial stability by pursuing a cautious and gradual approach to reforms.

VI

REINFORCING FINANCIAL STABILITY

6.1 Financial stability has to be an important goal of public policy, particularly after the experiences of currency and financial crises in the 1990s in Mexico and some of the East Asian countries. Fragilities in the financial system could arise on account of several factors. Financial instability, broadly speaking, could arise due to weak fundamentals, institutional failures resulting in banking panics or information asymmetries (Box VI.1). In some cases, all the factors could be at work, making it difficult to determine in crisis situations, at least in the very short run, as to which factor is the dominant one. As a result, corrective actions often have to be broad-based. Most countries, therefore, take proactive measures before hand to safeguard financial stability. Cross-country initiatives in this context are instructive. These experiences show the importance that central banks in industrialised countries attach to dissemination of their analyses of developments in the financial sector and assessments of vulnerabilities to market participants (Box VI.2). In order to ensure stability of the financial sector, in India too, a wide array of measures has been undertaken by the Reserve Bank and the Government in close co-ordination with one another. These include prudential norms for banks and other intermediaries, restructuring of banks, enforcement of increased competition in the banking sector and promotion of transparency and good governance in the banking sector that could enhance credibility of the banking policies.

6.2 A certain amount of volatility is an integral part of the development and gradual integration of the financial markets, depending upon the nature of trades and extant regulatory and supervisory framework, as reviewed in Chapter IV. Excessive volatility, however, could turn out to be destabilising and engender serious risks. At the macro-level, such volatility impacts investment and real activity, through a variety of channels – wealth, bank lending and balance sheet channels. Of these, the wealth effect is fairly straightforward. Asset holders gain or lose in terms of wealth due to volatility of asset prices

and would, depending on the outcome, revise their consumption-saving plans. The other two channels emerge mainly due to information problems in credit markets. In the bank lending channel, expansionary monetary policy increases the quantity of bank loans available. Given banks' special role as lenders to various classes of borrowers, this leads to rise in investment and possibly consumption spending. In case of the balance sheet channel, expansionary monetary policy causes a rise in equity prices and raises the net worth of firms, which reduces the adverse selection problem (since, in effect, lenders have greater collateral for their loans). This leads to higher investment spending and therefore, raises aggregate demand. If the transmission channel does not function efficiently, there would arise a need for not only maintaining orderly conditions in the asset markets but also ensuring financial stability in the form of smooth functioning of institutions, markets and infrastructure that comprise the building blocks of the financial system. While the external issues in financial stability, *inter alia*, relate to the appropriateness of the exchange rate regime and the optimum levels of foreign exchange reserves and external debt, the domestic issues pertain to the strengthening of the financial system, through institution of prudential norms and transparent observance of internationally accepted standards and codes.

6.3 The macroeconomic consequences of excessive volatility and financial stability are inter-linked in many ways and fragilities in either of the two feed into the other. On these considerations, India has been pursuing the twin-pronged strategy of ensuring price stability as well as financial stability. Safeguarding financial stability, in the Indian context, is based on three inter-related strategies of improving the robustness of the linkages across institutions and markets (macro-prudential level), promoting soundness of institutions through prudential regulation and supervision (micro-prudential level) and also ensuring the overall macroeconomic balance.

Prudential Indicators

6.4 As part of regulation and supervision, the Reserve Bank has been monitoring several macro and micro-prudential indicators. As part of macroeconomic monitoring, the Reserve Bank has, in particular, paid special attention to bringing out analyses of the latest fiscal, monetary and financial and external sector positions in considerable detail in its Annual Reports. Besides, the Reserve Bank has been focussing on details of developments in the commercial and the co-operative banking sectors and in the areas concerning the development financial institutions (DFIs) and non-banking financial companies (NBFCs) in the Report on Trend and Progress of Banking in India. This

publication provides commercial bank-wise details of prudential indicators as also aggregated prudential indicators for the commercial banking system as a whole (Box VI.3). The Reserve Bank has set up an Off-site Surveillance and Monitoring System (OSMOS) to monitor micro-prudential indicators, both at an aggregate and individual levels.

Bank Soundness

6.5 The cornerstone of the strategy to tackle the weaknesses in the Indian banking system was the institution of prudential norms relating to income recognition, asset classification and provisioning requirements and incentive-based regulation through the prescription of capital-to-

Box VI.1 Theories of Financial Stability

The occurrence of periodic episodes of financial turmoil has often been attributed to external shocks or various forms of aberrant behaviour. However, recent interest in financial stability has been driven by two major considerations. Recent advances in finance have provided a coherent macroeconomic foundation about the observed phenomena of financial instability. From the policy perspective, the growth and integration of world financial markets and the systemic repercussions that failures might engender, have increased the importance of policy actions to safeguard financial stability.

Theories emphasising debt and financial fragility consider financial crises to be a key feature of the turning-point of many business cycles, as response to previous 'excesses' of borrowings that can occur in financial markets. This explanation is based largely on observations of periods of financial instability up to and including the Great Depression. These theories pinpoint the concept of 'displacement' – an exogenous event leading to improved opportunities for profitable investments, which triggers the cyclical upturn. Second, they highlight financial innovations (e.g., new forms of bank liability).

The monetarist approach emphasises contagious banking panics, which may cause monetary contraction. Banking panics arise from a public loss of confidence in banks' ability to convert deposits into currency. This may be caused by failure of an important institution, which may, in turn, arise from failure of the authorities to pursue a predictable monetary policy.

Bank runs may be seen in terms of the 'liquidity insurance' that banks provide to depositors by pooling risks; banks' assets are mainly long-term and illiquid, and so banks engage in maturity transformation. This feature gives an incentive for panic runs on banks even if they are solvent, because of imperfect information regarding the banks' assets and the inability of banks to sell or cash illiquid assets (i.e., loans) at par. The risk that other depositors may withdraw can cause a panic regardless of the underlying financial position of the

bank, and may affect both other banks (*via* contagion) and borrowers without access to other sources of funds.

There are, on the other hand, theories of crisis which focus on uncertainty. Responses to uncertainty may be to apply subjective probabilities to uncertain events (such as the occurrence of a policy regime shift). But agents often tend to judge such probabilities by the action of others ('herd behaviour') that can collectively lead to systemic financial instability. In presence of such uncertainties, adverse surprises can trigger shifts in confidence, affecting markets more than what seems to be warranted by their intrinsic significance; and therefore, lead to crisis situations.

Asymmetric information and agency cost theory suggest that the well-known problems of debt contract, *viz.*, moral hazard and adverse selection arising from the informational asymmetry between the borrower and the lender, can also account for sharp contractions of credit, engendering financial instability. For example, if interest rates rise, there may be a sharp increase in adverse selection (only the low-quality borrowers would be willing to borrow), thereby leading to a decline in the supply of credit. Higher uncertainty (by making screening of borrowers by lenders more difficult) increases adverse selection, and may reduce supply of credit. And borrowers with low net worth (due to the asset price collapse) present greater moral hazard to lenders, as they have less to lose by default.

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Box VI.2 Financial Stability: Cross-Country Experiences

United Kingdom: Under the 1997 Memorandum of Understanding between the United Kingdom treasury, the Bank of England (BoE) and the Financial Services Authority (FSA), the Bank of England is responsible for the stability of the financial system as a whole. A Standing Committee of the Treasury, the BoE and the FSA meets monthly to discuss developments relevant to financial stability. One of the tasks that the BoE undertakes to discharge its responsibility is the surveillance of financial stability conditions, including the assessment of actual or potential shocks and of the system's capacity to absorb shocks. The Financial Stability Area of the Bank of England undertakes a monthly assessment of financial stability and produces a variety of focused notes. A detailed review of the financial stability conjecture and outlook is undertaken every six months and an abridged version is published in the Bank of England's Financial Stability Review. As stated, the aim of the Review is (i) to encourage informed debate on financial stability issues, domestically and internationally, (ii) to survey potential risks to financial stability and (iii) to analyse ways of promoting and maintaining a stable financial system.

United States: The three institutions that have responsibility for different aspects of banking supervision - Federal Deposit Insurance Corporation (FDIC), the Federal Reserve (Fed) and the Office of the Comptroller of Currency (OCC) - have, over time, developed similar models and indicators aimed at assessing the overall health of individual banks based on summary data submitted by banks as part of their off-site supervision exercises. In general, the variables used in the assessments of the future health of individual banks by the supervisory institutions in the US are proxies for the various factors taken into account when assigning a full *ex-post* CAMELS rating. As an extension of the assessment of the current health of individual banks, the supervisory authorities have also developed models for assessing the current riskiness of banks, based on which they can generate probabilities of future failure and undertake corrective action in respect of those banks judged to be at the highest risk. The computerised statistical system that supports the work of these three agencies permits joint collection of information on income, operating activity and balance sheet for individual banks so as to discern changes in the health of individual institutions for safeguarding financial stability.

Norway: The Norges Bank produces a report on the situation and outlook for the financial sector since 1995. The work

includes analyses of developments in financial institutions, primarily the banking sector and the relationship between financial sector developments and the macro-economy. The approach adopted is to generate an initial assessment of the trends in macroeconomic indicators (MEI) that are of relevance to the financial sector, in general, and to the earnings of financial institutions, in particular. These variables include economic growth, interest rates, credit growth and sectoral debt levels. Following this analysis, a range of aggregated micro-prudential indicators (AMPI) of the banking system are incorporated in the assessment (*i.e.*, capital adequacy ratios, credit growth rate, trends in overdue loans and operating cost). Specific attention is paid to the banks' exposure to the real estate sector and the enterprise sector and the ability of firms in that sector to cope with unexpected deterioration in their financial condition and thereby to stay current with their debt servicing.

Sweden: The surveillance by the Sveriges Riksbank's is directed towards systems and therefore, complements the supervision of the banking system by the Swedish Financial Supervision Authority, which is primarily aimed at individual institutions. The views of the Riksbank on the banking system are published on a semi-annual basis. The major objective of the reports is to raise the financial sector's awareness of vulnerability issues. The method is to assess risks to aggregate banking sector profits based on information from the markets, on a sector-by-sector basis. The assessments are carried out by looking at three categories of risks that impact bank's abilities to generate profits: (i) strategic risks, or factors affecting profits in the medium-term, (ii) credit risks, or risks to profits over the medium-term, and, (iii) counter-party and settlement risk, or risks that impinge upon profits in the short-run. In addition, a range of MEI, including growth rate of aggregate lending, inflation rate, inflationary expectations, and the real interest rate as well as several banking sector variables (profits, loan performance by sector, bankruptcies, *etc.*) are also used for the assessment purpose.

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risk-weighted assets ratio (CRAR) (Table 6.1). A strategy to introduce the attainment of risk weighted capital adequacy of 8 per cent in a phased manner was put in place. Initially (*i.e.*, in 1992-93), banks were required to raise their CRAR from 4 per cent in the initial year to 8 per cent over a period of

three years, *i.e.*, by end-March 1996. Banks with an international presence were required to attain the prescribed CRAR of 8 per cent in 1993-94, while new private sector banks and foreign banks were required to attain the prescribed CRAR in the first year itself.

Box VI.3 Macro-prudential Indicators and Financial System Surveillance

Macro-prudential indicators (MPIs) comprise macroeconomic indicators (MEIs) and aggregated micro-prudential indicators (AMPIs). MEIs include sets of indicators, on the real economy, fiscal and monetary sectors, the external sector and some asset prices. AMPIs include indicators on capital adequacy, asset quality of lending and borrowing entities, management soundness, liquidity, sensitivity to market risk and some market-based indicators.

Available literature on leading indicators of crises as well as country experiences suggest that information on a core set of MEIs could provide early warning signals and thereby help in identifying vulnerabilities in pursuing forward looking policies to attain the objective of financial stability. Since MEIs alone cannot fully capture the strengths and weaknesses of the financial system, MEIs need to be monitored along with AMPIs. Unlike MEIs, academic research on AMPIs are limited (largely due to non-availability of long time-series information) and the recent initiatives focus only on developing a core set of AMPIs which appear to be relevant when seen in the context of the recent episodes of financial crises. One commonly used framework for analyzing the financial health of an individual institution is the CAMELS. AMPIs represent aggregation across all banks/financial institutions comprising the financial system and include such indicators as capital ratios, sectoral credit concentration, non-performing loans and provisions, connected lending, leverage ratios, return on assets, expense ratios, the maturity structure of assets and liabilities, liquid asset ratios, sensitivity to market risk, foreign-currency denominated lending, *etc.* Besides AMPIs and MEIs, MPIs also include market-based indicators like credit ratings, sovereign yield spreads and market prices of financial instruments.

The key challenge for developing an MPI based surveillance of the financial system is to compile a reasonably long time series database on AMPIs, which alone can help in evaluating how developments in AMPIs over time can be related to the developments in the MEIs. Furthermore, in the case of macroeconomic indicators, the linkages based on economic theory help in sound application of judgment, while operating with a multiple indicator based surveillance system. The lack of any established theoretical/empirical framework to explain the interactions between AMPIs and MEIs, as also the range of webs through which financial system instability impinge upon the macro-economy suggest that the internal surveillance process based on MPIs would take time to stabilise. To begin with, establishing the right link between AMPIs and MEIs may be difficult. For example, deterioration in the capital adequacy position of the banking system could be a sign of vulnerability; but to know as to how exactly that could affect the macro-economic variables is important from the standpoint of country surveillance. Similarly, increase in the leverage (debt/equity ratio) of the corporate sector as a whole is an early indication of vulnerability; but again how exactly that could affect the macroeconomic variables is not clearly known. A MPI based surveillance system, therefore, could evolve only over time, more from experience than any theoretical underpinnings.

Like the causal linkages running from AMPIs to MEIs, it is also important to identify the linkages running from MEIs

to AMPIs. Changes in the exchange rate or interest rates could affect the balance sheets of banks, which in turn, may get reflected in AMPIs. (Stress tests could help in identifying such impact resulting from any policy/market shock). Similarly, during economic booms, bank profitability may increase and NPAs may decline. The reverse may happen during recessions. Moreover, solvency and the liquidity position of a bank could be comfortable during a particular macro-economic condition but may prove inadequate in another macro-economic scenario.

Despite the importance of a framework to study the interactions between AMPIs and MEIs, switching over to a model-based surveillance mechanism is fraught with the danger of sending wrong signals because, firstly, the interactions between AMPIs and MEIs are yet to be properly studied by the international community and hence not very clear, and secondly, model-based analyses of MEIs that occasionally guide conventional macro-monitoring are not very reliable, even after the proliferation in both theoretical and empirical research helping in continuous refinements. The key findings of such research, as documented in Berg *et al.* (1999), show that: (a) models perform much better in-sample than out-of-sample, (b) most of the models signal vulnerabilities but they often provide false alarms, (c) timing of a crisis is much harder to predict, (d) the determinants of crisis episodes vary significantly over time and across countries, (e) models could be useful in identifying countries which are more vulnerable in a period of international financial turmoil than others, (f) signals from the early warning models should be calibrated with sound judgment to minimize the costs associated with any policy action guided by false signals, (g) sound fundamentals may not be enough to avoid a self-fulfilling or contagion driven crisis, but they are essential to ensure success in defending an attack and in achieving a faster restoration of normalcy after the attack and (h) since the indicators with varying degrees of predictive abilities could be many, at least the important indicators must be monitored constantly.

Due to the nascent stage of current initiatives on MPIs, most of the central banks have preferred constituting separate working groups to study the relevance of MPIs and to suggest measures to establish a system for collecting timely information on such indicators. The European Central Bank has instituted a working group on Macro-prudential analysis and has recently completed a "gap-exercise" helping it in identifying the existing data gaps constraining compilation of information on MPIs. The Bank of Finland has put in place a framework for forecasting banking sector developments and with improved availability of desirable information on MPIs which would be linked to their macro-forecasting model. The Bank of England now regularly publishes a Financial Stability Review, based on indicators (and not a model) and aims at placing greater emphasis on AMPIs in such reviews. The variables used by the Federal Reserve's Financial Institutions Monitoring System to assess the health of banks resemble AMPIs. Norway's present assessments of its MPIs are mostly for internal use. Aggregation across a number of banks/financial institutions may fail to capture the structural weakness of individual banks/institutions. But

(Contd...)

(...Concl.)

at the macro-level, formulation of policies may require aggregated information on the financial sector, leaving the institution-wise details to the supervisors. Preventing failure of each bank/ institution in the system should be the objective, and hence monitoring of individual institutions is essential. But for identifying vulnerability of the financial systems as a whole and also to enable inter-country comparability, developing a system to collect information on AMPIs may be warranted.

References

1. Berg, Andrew, Eduardo Borensztein, Gian Maria Milesi-Ferretti and Catherine Pattilo, (1999), "Anticipating Balance of Payments Crises: The Role of Early Warning Systems", *IMF Occasional Papers*, No. 186.
2. Evans, Owen, Alfredo M. Leone, Mahinder Gill and Paul Hilbers, (2000), "Macroprudential Indicators of Financial System Soundness", *IMF Occasional Papers*, No. 192.

6.6 Based on the recommendations of the Committee on Banking Sector Reforms (Chairman: Shri M. Narasimham), the minimum CRAR was raised to 9 per cent, effective March 31, 2000. Other measures introduced based on the recommendations of the committee included: (i) an additional risk weight of 20 per cent for investment in Government guaranteed securities issued by PSUs; (ii) 20 per cent risk weight on state government guaranteed advances which remain in default as on March 31, 2000 and 100 per cent weight in the case of continued default after March 31, 2001; (iii) risk weight of 2.5 per cent to account for market risk for Government and approved securities; and (iv) 100 per cent risk weight on the foreign exchange open position limit.

6.7 As regards asset classification, the earlier system of eight 'health codes' was replaced by the classification of assets into four categories, viz., standard, sub-standard, doubtful and loss assets in accordance with international norms. Provisioning requirements were prescribed for sub-standard, doubtful and loss asset categories. Provisioning requirements of a minimum of 0.25 per cent were also introduced for the standard assets from the year ended March 31, 2000. Banks have also been required to progressively 'mark-to-market' their holdings of Government securities, with the marked-to-market proportion rising from 30 per cent in 1993 to 75 per cent by 1999-2000. In the recent Mid-term Review of the Monetary and Credit Policy for 2000-01, banks

Table 6.1: Changes in the Regulatory Framework

(Per cent)

Variable	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000
1	2	3	4	5	6	7	8	9
1. CRAR								
Domestic Banks with International Business	4	8	8	8	8	8	8	9
Other Domestic Banks	4	4	4	8	8	8	8	9
Foreign Banks	8	8	8	8	8	8	8	9
2. Non-performing Assets (period overdue in quarters)								
Sub-standard Assets	4	3	2	2	2	2	2	2
Doubtful Assets	8	8	8	8	8	8	8	8#
3. Provisioning Requirements								
Sub-standard Assets	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
Doubtful Assets (Unsecured portion)	100	100	100	100	100	100	100	100
Loss Assets	100	100	100	100	100	100	100	100
4. Mark to Market	30	30	30	40	50	60	70	75

Note: The concept of past due (grace period of 30 days) would be dispensed with effective April 1, 2001.

Reduced to 6 quarters effective March 31, 2001.

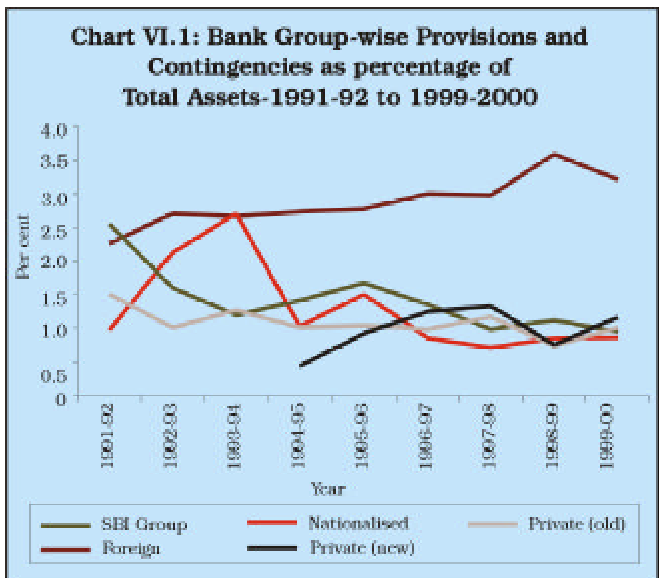
have been advised to classify their investment portfolio (comprising SLR and non-SLR securities) under three categories, viz., Available for Sale, Held for Trading, and Held to Maturity categories and provided the flexibility to decide the extent of holdings under 'Available for Sale' and 'Held for Trading' categories¹.

6.8 In order to strengthen banking supervision, an independent Board for Financial Supervision (BFS) under the aegis of the Reserve Bank was constituted in November 1994. The Board is empowered to exercise integrated supervision over all credit institutions in the financial system including select DFIs and NBFCs relating to credit management, prudential norms and treasury operations. A comprehensive rating system based on Capital Adequacy, Asset Quality, Management, Earnings, Liquidity and Systems (CAMELS) methodology has been instituted for domestic banks. As regards foreign banks, the rating system is based on Capital Adequacy, Asset Quality, Compliance and Systems (CACs). This has been supplemented by a technology-enabled quarterly off-site surveillance system.

6.9 The status of banks with regard to their attainment of CRAR and the levels of their Non-Performing Assets (NPAs) over the last several years are presented in Table 6.2 and 6.3, respectively. Over the last four years from 1996-97 to 1999-2000, the capital base as a ratio of risk-weighted assets has improved for all major categories of banks. All the banks belonging to the SBI Group now have a CRAR exceeding 10.0 per cent. Amongst other public sector banks, all banks have met the enhanced CRAR norm of 9.0 per cent with the exception of Indian Bank. Four of the 34 Indian private sector banks had a CRAR below the prescribed norm of 8 per cent in 1996-97. In 1999-2000, three of 32 such banks had a CRAR below the enhanced norm of 9.0 per cent. All the 42 foreign banks operating in India in 1999-2000 had a CRAR exceeding the 9.0 per cent norm. As such, the capital position of banks operating in India is comfortable at present.

6.10 The position on the asset quality front has also improved over the last four years. Three of the eight SBI Group banks had NPA to net assets ratios exceeding 10.0 per cent in 1996-97. Their number increased to four in the following two years but declined to only one in 1999-2000. The

number of nationalised banks having NPAs exceeding the 10.0 per cent also declined from six in 1996-97 to four in 1999-2000. In the case of old private sector banks, this number increased from three to five over the same period, indicating some deterioration in their asset quality. In the case of foreign banks operating in India, the number of banks with NPAs exceeding the 10.0 per cent benchmark increased from three in 1996-97 to 14 in 1998-99 but declined to 11 in 1999-2000. None of the new Indian private sector banks have NPAs exceeding the 10.0 per cent. Along with reduction in NPAs, the provisioning and contingencies made against NPAs of all major bank groups, except foreign banks, have declined (Chart VI.1).



6.11 In India, banks' exposure to capital markets, direct and indirect, remain and limited and, therefore, to a large extent, stock market volatility does not impinge on monetary and banking stability. Scheduled commercial banks were allowed to subscribe to shares and debentures of corporate entities (including PSUs) up to 5.0 per cent of their incremental deposits of the previous year with a sub-ceiling of 1.5 per cent for corporate shares in October 1993. Investments in PSU bonds were excluded from the 5.0 per cent ceiling in January 1994. Further, they were allowed to purchase shares and debentures in the secondary market within the existing 5.0 per cent ceiling in October 1996. Preference shares/debentures/ bonds of private sector bodies were excluded from the 5.0 per cent

¹ The holdings under the third category, 'Held to Maturity', are not to exceed 25 per cent of the total investments.

Table 6.2: Frequency Distribution of CRAR - Scheduled Commercial Banks

Year/Range	Public Sector Banks		Private Sector Banks		Foreign Banks
	SBI Group	Nationalised	Old	New	
1	2	3	4	5	6
1996-97					
Below 4%	-	2	3	-	-
4 % and up to 8 %	-	-	1	-	-
Above 8 % and up to 10 %	3	6	8	-	13
Above 10 %	5	11	13	9	26
1997-98					
Below 4%	-	1	2	-	-
4 % and up to 8 %	-	-	2	-	-
Above 8 % and up to 10 %	1	6	6	2	12
Above 10 %	7	12	15	7	30
1998-99					
Below 4%	-	1	2	-	-
4 % and up to 8 %	-	-	2	-	-
Above 8 % and up to 10 %	-	4	3	2	14
Above 10 %	8	14	18	7	28
1999-2000					
Below 4%	-	1	1	-	-
4 % and up to 9 %	-	-	2	-	-
Above 9 % and up to 10 %	-	4	2	1	5
Above 10 %	8	14	19	7	37

- Nil

- Note:**
1. The Bareilly Corporation Bank Ltd. was amalgamated with Bank of Baroda with effect from June 3, 1999.
 2. The Sikkim Bank Ltd. was amalgamated with Union Bank of India with effect from December 22, 1999.
 3. The Times Bank Ltd. merged with HDFC Bank Ltd. with effect from February 26, 2000.
 4. The branches of the British Bank of the Middle East in India were amalgamated with HSBC with effect from September 25, 1999.

limit in the monetary and credit policy for the first half of 1997-98. As at end-March 2000, banks' investments in equity shares issued by public sector undertakings and private corporate sector amounted to Rs.2,841 crore and their advances to the capital market were limited to a mere Rs.4,890 crore. Banks have been required to publish their advances to the capital market in their balance sheets from 1999-2000.

6.12 The monetary and credit policy statement of October 2000 has revised guidelines on the bank financing of equities and investments in shares. First, bank boards are required to lay down a prudential ceiling on banks' aggregate exposure to the capital market keeping in view their overall risk profile. Second, bank's exposure to capital market by way of shares, convertible debentures and units of mutual funds (other than debt funds) should not exceed 5 per cent of the bank's total domestic credit as on March 31 of the previous

year. Third, banks may grant advances for subscribing to initial public offerings only to individuals subject to a maximum of Rs.10 lakh and finance extended by banks for IPOs should be reckoned as an exposure to the capital market. Fourthly, a minimum margin of 25.0 per cent inclusive of cash margin should be obtained by banks for issue of guarantees on behalf of share brokers. Finally, banks should also mark to market their investment portfolio in equities like other investments on a quarterly basis and should disclose the total investments made in shares, convertible debentures and units of equity oriented mutual funds as also aggregate advances against shares, etc., in the 'Notes on Accounts' to their balance sheets from the year ending March 2001.

Non-bank Financial Intermediaries

6.13 The statutory responsibility for prudential supervision of select financial institutions was

Table 6.3: Frequency Distribution of Net NPAs to Net Advances - Scheduled Commercial Banks

Year/Range	Public Sector Banks		Private Sector Banks		Foreign Banks
	SBI Group	Nationalised	Old	New	
1	2	3	4	5	6
1996-97					
Up to 10 %	5	12	22	9	36
Above 10 % and up to 20 %	3	6	3	–	1
Above 20 %	–	1	–	–	2
1997-98					
Up to 10 %	4	13	21	9	34
Above 10 % and up to 20 %	4	5	4	–	6
Above 20 %	–	1	–	–	2
1998-99					
Up to 10 %	4	14	17	9	27
Above 10 % and up to 20 %	4	4	5	–	11
Above 20 %	–	1	3	–	3
1999-2000					
Up to 10 %	7	15	18	8	31
Above 10 % and up to 20 %	1	4	5	–	7
Above 20 %	–	–	1	–	4

- Nil

Note: 1. The Bareilly Corporation Bank Ltd. was amalgamated with Bank of Baroda with effect from June 3, 1999.
 2. The Sikkim Bank Ltd. was amalgamated with Union Bank of India with effect from December 22, 1999.
 3. The Times Bank Ltd. was amalgamated voluntarily with HDFC Bank Ltd. with effect from February 26, 2000.
 4. The branches of the British Bank of the Middle East in India were amalgamated with HSBC with effect from September 25, 1999.

assigned to the Reserve Bank from April 1995. The scope and coverage of inspection of select financial institutions has since been broadened to take into account their developmental, co-ordination and supervisory roles. The task of designing an enhanced off-site monitoring system for select financial institutions has been introduced effective March 1999. The position with regard to CRAR and net NPAs of select DFIs over the last five years is presented in Table 6.4.

6.14 With the exception of IFCI and IIBI, all the other financial institutions have CRAR exceeding 10.0 per cent (Chart VI.2). The IFCI, IIBI and IDBI had net NPAs exceeding 10.0 per cent of net loans in 1999-2000. A significant deterioration in loan quality was observed in the case of IFCI in 1998-99.

6.15 The Reserve Bank was vested with comprehensive legislative powers only from January 1997. Some of the significant measures initiated by the Reserve Bank in recent years for regulation and supervision of NBFCs are as follows: (i) compulsory registration; (ii) higher entry norms of Net Owned Funds (NOF) of Rs.25 lakh (enhanced to Rs.2 crore for new NBFCs

which seek registration with the Reserve Bank and commence business on or after April 21, 1999); (iii) stricter prudential norms; (iv) enhanced capital adequacy standards; (v) requirement of credit rating; and (vi) commissioned audits through professional accountants at the behest of the Reserve Bank.

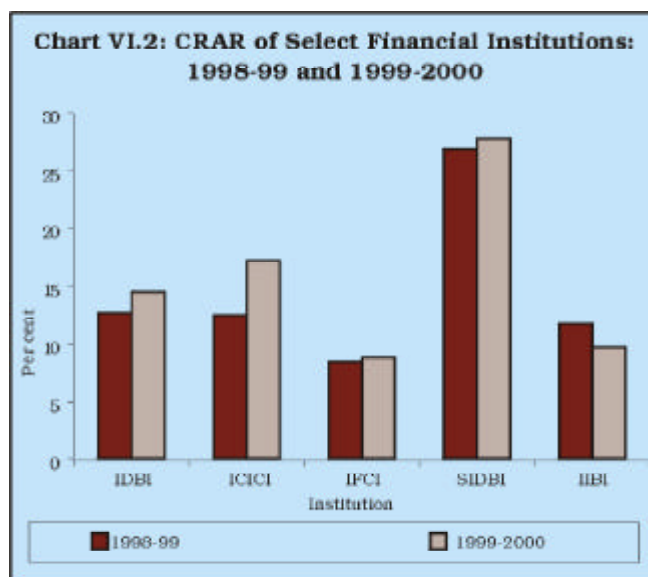


Table 6.4: CRAR and Net NPA of Select Financial Institutions

(Per cent)

Institution	1996-97	1997-98	1998-99	1999-2000P
1	2	3	4	5
CRAR				
IDBI	14.7	13.7	12.7	14.5
ICICI	13.3	13.0	12.5	17.2
IFCI	10.0	11.6	8.4	8.8
SIDBI	25.7	30.3	26.9	27.8
IRBI (IIBI)	10.6	12.8	11.7	9.7
NABARD	40.4	52.5	53.3	44.4
Net NPA/ Net Loans				
IDBI	10.3	10.1	12.0	13.4
ICICI	7.8	7.7	7.8	7.6
IFCI	13.9	13.6	20.8	20.7
SIDBI	2.5	2.0	1.4	1.3
IRBI (IIBI)	19.3	13.1	14.0	16.9
NABARD	0.9	1.5	4.2	3.5

P: Provisional

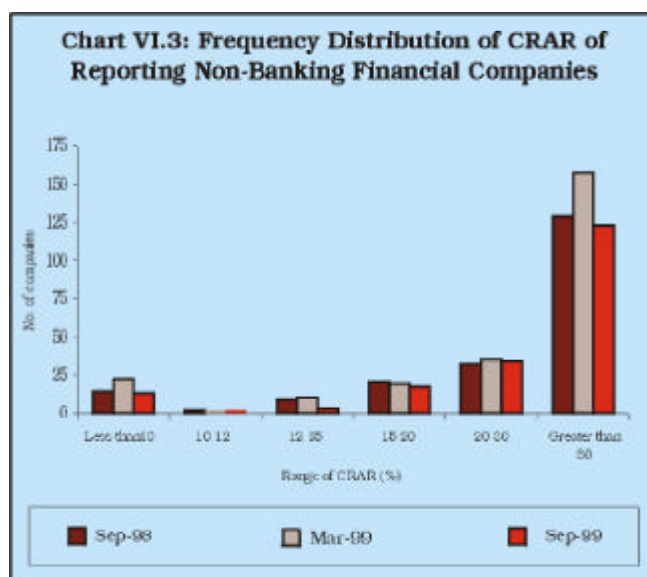
Note : 1. CRAR is as per cent of risk weighted assets.
2. Figures for IIBI for 1996-97 are as on March 26, 1997. The IRBI was renamed as Industrial Investment Bank of India Ltd. (IIBI) with effect from March 27, 1997.

Source : Report on Trend and Progress of Banking in India.

6.16 Under Non-Banking Financial Companies Prudential Norms (Reserve Bank) Directions, issued in January 1998, NBFCs are required to achieve a minimum 12 per cent CRAR on or before March 31, 1999. The frequency distribution of CRAR of companies with an asset size of Rs. 10 crore and above for the half-years ended September 1998, March 1999 and September 1999, respectively, is presented in Chart VI.3. Most of the companies had CRAR above the stipulated minimum. As regards NPAs, Chart VI.4 shows that the majority of the companies had NPAs within a reasonable limit.

6.17 During the first half of 1999-2000, there was a reduction in gross NPAs of NBFCs by Rs.259 crore, due mainly to reduction in sub-standard and loss assets. The ratio of gross NPAs to total credit, therefore, declined from 12.9 per cent to 12.2 per cent (Table 6.5).

6.18 A detailed self-assessment of the Core Principles for Effective Banking Supervision has been issued by the Reserve Bank in October 1999.



The assessment has shown that most of the Core Principles were already enshrined in the existing legislation or current regulations. Gaps had been identified between existing practices and principles mainly in the areas of risk management in banks, inter-agency co-operation with other domestic/international regulators and consolidated supervision. Internal working groups were set up to suggest measures to bridge these gaps and their recommendations are in the process of being implemented. Guidelines on Asset Liability Management (ALM) of banks were issued in February 1999. Banks were advised to put in place an ALM system, effective April 1, 1999. These guidelines were subsequently

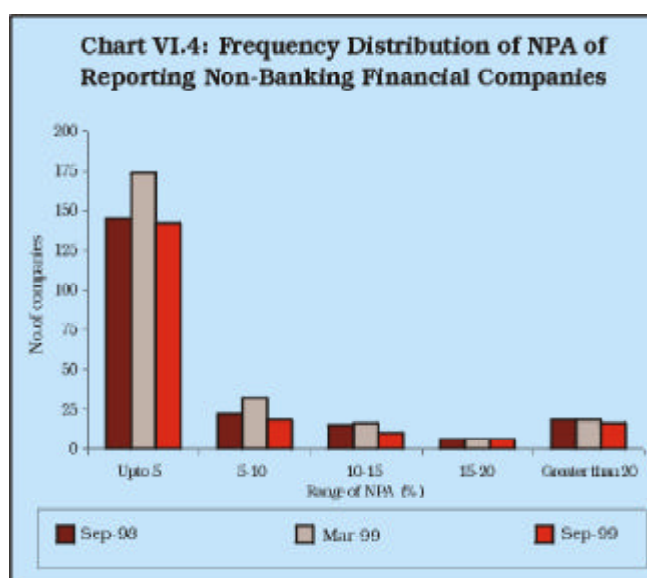


Table 6.5: Non-Performing Assets of NBFCs

(Rupees crore)

As at end of	Total Credit	Assets				Gross NPAs (Per cent)
		Standard	Sub-standard	Doubtful	Loss	
1	2	3	4	5	6	7 [(4+5+6)/2]
September 1998	21,752	30,399	1,499	693	319	11.5
March 1999	22,184	31,658	1,623	775	465	12.9
September 1999	21,309	29,159	1,362	854	388	12.2

extended to cover select financial institutions in December 1999. Detailed guidelines on risk management systems have also been issued to banks in October 1999. A beginning has been made towards consolidated supervision by advising banks to not only voluntarily build in risk-weighted components of their subsidiaries into their own balance sheets on a notional basis and earmark additional capital in their books beginning with 2000-01, but also to annex the balance sheet of the subsidiaries (for public sector banks) to their balance sheets beginning from the year ending March 31, 2001. In addition, to guard against regulatory forbearance and to ensure that regulatory intervention is consistent across institutions, the Reserve Bank has prepared a Discussion Paper delineating a framework for Prompt Corrective Action (PCA) with various trigger points for prompt responses by the supervisors.

Restructuring the Banking Sector

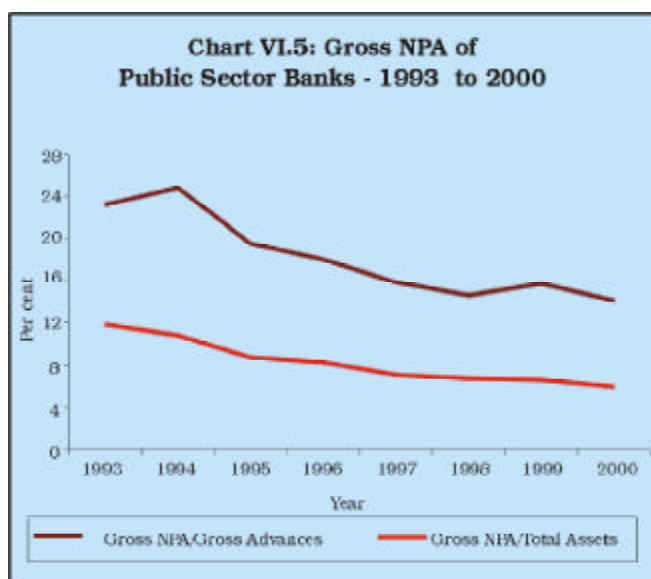
6.19 The Union Budget 2000-01 announced the institution of a Financial Restructuring Authority (FRA) in a modified form in respect of any bank which is considered potentially weak, on the lines of the model suggested by the Working Group (Chairman: Shri M.S. Verma) for the revival of weak public sector banks. Over the period 1993-94 to 1998-99, the Government has extended recapitalisation facility to the extent of Rs.5,694.3 crore for the three weak banks as identified by the Verma Working Group. The restructuring plans of the three weak banks are under active consideration. The FRA, comprising experts and professionals, would be given powers to supercede the Board of Directors on the basis of the recommendations of the Reserve Bank.

6.20 With the objective of dealing pro-actively with the non-performing assets (NPAs) of the

banking sector, a menu of options has been offered to banks to restructure bad assets through Debt Recovery Tribunals (DRTs) and Settlement Advisory Committees (SACs), as well as through explicit recapitalisation from the budgetary provisions. Till 1999-2000, an amount of Rs.20,446 crore had been expended towards recapitalisation of 19 nationalised banks. Guidelines on SACs were subsequently revised in July 2000, in order to provide a simplified, non-discriminatory and non-discretionary mechanism for the recovery of stock of NPAs of all sectors. Recognising that the high levels of NPAs in public sector banks can engender financial system instability, the Union Budget 2000-01 announced the setting up of seven more DRTs, in addition to those already established, for speedy recovery of bad loans. An amendment in the Recovery of Debts Due to Banks and Financial Institutions Act, 1993, was effected to expedite the recovery process. Consequent upon the various measures undertaken, the gross NPA levels of public sector banks came down from 23.2 per cent of gross advances as at end-March 1993 to 14.0 per cent as at end-March 2000 (Chart VI.5).

Transparency and Policy Credibility

6.21 In recognition of the increased cross-border financial integration and in respect of its obligations as a member of the IMF, the World Bank and the BIS, India has been actively participating in the deliberations on reforming the international financial architecture (IFA). While academic proposals on new international financial architecture have generated substantial theoretical debate, efforts are underway to improve the existing system through increased transparency, better governance and credible practices. India has been closely associated with



the development of codes of good practices, international financial standards and codes and initiatives for improved data dissemination. Generally, standards and codes in India compare with the international best practices, especially in the financial sector.

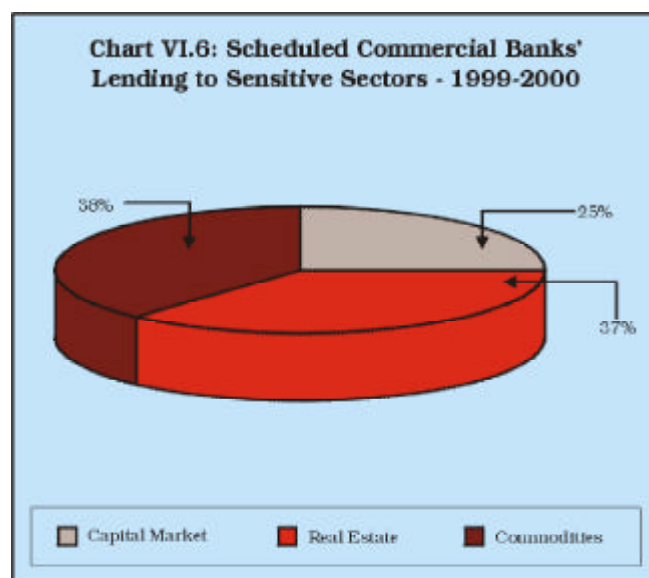
Disclosure Norms

6.22 India is a member of the Group of 20 (G-20) countries that advises the Financial Stability Forum (FSF) and the Core Principles Liaison Group set up by the Basle Committee on Banking Supervision (BCBS) to promote and monitor principles of banking supervision and the Working Group on Capital, which discusses proposals for revising the capital adequacy framework. India is also an early subscriber to the Special Data Dissemination Standards (SDDS) and one of the first countries to accept the Financial Sector Assessment Programme (FSAP) of the IMF and the World Bank.

6.23 The transparency and disclosure standards recommended in the International Accounting Standards have been implemented in a phased manner for the banking system. The formats of commercial banks' Balance Sheet and Profit and Loss Account Statements were revised in 1992 in order to bring about greater transparency. Disclosure requirements have been gradually broad-based and banks have been advised to disclose the key business ratios in the 'Notes to Accounts' from the year ended March 31, 1998. These ratios include (i) capital adequacy ratio with tier-I and tier-II capital separately; (ii)

percentage of shareholding of Government of India in nationalised banks; (iii) percentage of net NPA to net advances; (iv) amount of provision made towards NPA, depreciation in the value of investments and income tax during the year; (v) amount of subordinated debt raised as tier-II capital; (vi) the gross value of investments in India and outside India, the aggregate provisions for depreciation separately on investment in India and outside India and the net value of investments in India and outside India; (vii) interest income as a percentage of average working funds; (viii) non-interest income as a percentage of average working funds; (ix) operating profits as percentage of working funds; (x) return on assets; (xi) business (deposits plus credit) per employee; and (xii) profit per employee. In order to further enhance the transparency of banks' balance sheets, banks have been advised to disclose maturity pattern of deposits, borrowings, investments and advances and foreign currency assets and liabilities, movements in NPAs and lending to sensitive sectors (e.g., capital market, real estate and commodity sector) with effect from March 31, 2000. The total exposure to sensitive sectors as on March 31, 2000 by scheduled commercial banks stood at Rs.19,669 crore, comprising 4.4 per cent of total advances as a whole. Exposure to these sensitive sectors is well diversified among commodities, real estate and capital market (Chart VI.6).

6.24 The Reserve Bank has also released its views on the New Capital Adequacy Framework in April 2000 with a view to generating a national debate. The views of the Reserve Bank can be



broadly summed up as follows. First, where banks are of simple structure and have subsidiaries, the Accord could be adopted on a stand-alone basis with the full deduction of equity contribution made to subsidiaries from the total capital. Secondly, for assigning preferential risk weights for book assets (excluding claims on sovereign), preference should be given to assessments made by the domestic rating agencies as opposed to external rating agencies. The skepticism about the role of external rating agencies is based on the premise that different external rating agencies not only employ different sets of parameters, but also have varied and non-standardised mixes and weightage of objective and subjective factors. Thirdly, the risk weighting of banks should be de-linked from that of the sovereign in which they are incorporated and instead, preferential risk weights in the range of 20-50 per cent, on a graded scale could be assigned on the basis of risk assessments by the domestic agencies.

Data Dissemination

6.25 Over the last few years, sustained efforts have been made, both by the Government and the Reserve Bank, to improve data dissemination. Besides prescribing improved disclosure norms for financial institutions, the Reserve Bank, on its own part, has taken several steps to improve data quality and data dissemination. It began revaluing gold at close to international prices at the month-end and its foreign currency assets every week. The Reserve Bank also initiated disclosure of month-end

data on forward liabilities. Besides, it has been publishing high frequency financial data through its many publications and at its website. With regard to scheduled commercial banks, the annual Report on Trend and Progress of Banking in India provides bank-wise details of several key ratios, including capital adequacy ratios, NPA ratios (both absolute as well as percentages to total assets as well as gross advances) and their consolidated income and expenditure statements and data on off-balance sheet activities (Table 6.6). The Statistical Tables Relating to Banks in India publishes the detailed balance sheets of scheduled commercial banks, including those of regional rural banks (RRBs). This publication has introduced data on movements in NPAs (excluding RRBs), maturity profile of selected items of liabilities and assets (excluding RRBs) as well as bank-wise details of contingent liabilities of scheduled commercial banks for the year 1999-2000.

6.26 The integrity of the data has been periodically reviewed in order to align the compilation of monetary and balance of payments (BoP) statistics in line with international standards. The BoP data are compiled in accordance with the IMF's Balance of Payments Manual (5th edition). With a view to compiling quarterly balance of payments statistics in line with the commitments made to the SDDS, the Sub-Group on Reporting of Foreign Exchange Transactions by Authorised Dealers (Chairman: Shri S.P. Paniyadi)

Table 6.6: Off-Balance Sheet Exposure of Different Bank Groups - 1998-99 and 1999-2000

(Rupees crore)

Bank Group	Forward Exchange Contract		Guarantees given		Acceptances, Endorsements	
	1998-99	1999-00	1998-99	1999-00	1998-99	1999-00
1	2	3	4	5	6	7
SBI Group	42,572.2	56,680.7	17,670.1	17,616.8	16,564.5	22,798.7
Nationalised Banks	64,608.3	85,157.8	24,321.5	25,220.8	23,710.7	26,769.5
Private Sector Banks (Old)	11,270.4	15,313.2	2,540.4	2,906.9	2,062.8	2,685.6
Private Sector Banks (New)	23,663.4	35,357.4	4,116.0	5,741.2	4,223.4	4,836.2
Foreign Banks	1,92,645.0	2,47,472.9	14,166.6	15,878.4	13,956.7	20,004.7
Total	3,34,759.3	4,39,982.0	62,814.6	67,364.1	60,518.1	77,094.7

recommended the collection of data on purpose-wise details of foreign exchange transactions by electronic media from critical size authorised dealers. The BoP statistics are now published with a lag of just one quarter. The Technical Group on External Debt (Chairman: Shri M.R. Nair) has proposed compilation of external debt on both original and residual maturity basis in line with international norms. The Status Report on External Debt of the Ministry of Finance has published estimates of India's short-term external debt by residual maturity for December 1999. The Working Group on International Banking Statistics (Chairman: Shri N.K.Puri) has recommended the introduction of a comprehensive return that would facilitate effective monitoring of the international claims and the liabilities of the banking system as well as India's participation in the international banking statistics. The Reserve Bank's Working Group on Money Supply: Analytics and Methodology of Compilation (Chairman: Dr.Y.V. Reddy) has re-defined monetary aggregates on residency basis, introduced credit and liquidity

aggregates and proposed a financial sector survey in view of financial reforms and in line with the IMF's draft Manual on Monetary and Financial Statistics. New monetary aggregates have been introduced in the October 1999 issue of the RBI Bulletin. Liquidity aggregates were introduced in the November 2000 issue of the RBI Bulletin.

6.27 International standards and codes have come to be regarded as benchmarks for national efforts to improve transparency and governance. The main recommendations as approved by FSF and subsequently endorsed by the G-20 as well as the IMF's International Monetary and Financial Committee pertain to 12 areas (Box VI.4). In general, the Reserve Bank and the Government of India have welcomed the international approach to the issue of implementing standards and codes. The Reserve Bank has appointed a Standing Committee on International Financial Standards and Codes to examine the applicability of international standards and codes to Indian conditions (Box VI.5).

Box VI.4 International Financial Standards and Codes

In the backdrop of a series of financial crises in various parts of the world in the 'nineties, several initiatives were taken to strengthen the international financial architecture. These initiatives were first given prominence at the 1995 Halifax Summit of the G-7 countries. In response to the financial crisis in parts of East Asia in 1997-98, these efforts were renewed with added thrust. In April 1998, Finance Ministers and Central Bank Governors of systemically significant economies met in Washington, D.C. to examine issues related to the stability of the international financial system. In accordance with the action agenda set at the meeting, working groups were set up in three areas: enhancing transparency and accountability, strengthening domestic financial systems and managing international financial crises. The Working Group on Enhancing Transparency and Accountability recommended that priority be given to compliance with and enforcement of high-quality accounting standards. It also recommended national standards for private disclosures that reflect timeliness, completeness, consistency, risk management and audit and control processes. The Working Group on Strengthening Financial Systems endorsed a broad international consultative process for the development and refinement of sets of standards and sound practices. The Working Group on International Financial Crises suggested several steps that could help reduce the frequency and limit the severity of international financial crises and also to promote the orderly, co-operative and equitable resolution of international financial crises.

As a sequel to these recommendations and those made by

the Tietmeyer Report on International Co-operation and Co-ordination in the Area of Financial Market Supervision and Surveillance, the Financial Stability Forum (FSF) was set up by the Finance Ministers and the Central Bank Governors of the G-7 countries. The FSF brings together in a forum, the standards setting bodies, supervision agencies and national authorities, with a mandate to promote international financial stability, improve functioning of the markets and to reduce systemic risks through enhanced information exchange and international co-operation in financial market supervision and surveillance.

The FSF set up a Task Force (Chairman : Andrew Sheng) on Implementation of Standards relevant for a sound financial system presented its report in March 2000 and identified 12 key standards for a sound financial system viz., monetary and financial policy transparency, fiscal policy transparency, data dissemination, insolvency, corporate governance, accounting, auditing, payment and settlement, market integrity, banking supervision, securities regulation and insurance supervision. The key standards in these areas were prescribed by 10 standard setting bodies, viz., the IMF, World Bank, OECD, IASC, IFAC, CPSS, FATF, BCBS, IOSCO and IAIS. The Sheng Report also recognised that there has been good progress to-date in promulgating and assessing observance of international standards. The Fund-Bank experimental Reports on Observance of Standards and Codes (ROSC) provide framework for conducting these assessments, including by drawing on assessments conducted through the Fund-Bank Financial Sector Assessment Programme (FSAP).

Box VI.5

Standing Committee on International Financial Standards and Codes: Select Advisory Groups

India has supported the international initiatives on financial stability in various ways. It has also taken its own initiatives for improving transparency and accountability and for setting up international financial standards and codes. On December 8, 1999, the Reserve Bank appointed a Standing Committee on International Financial Standards and Codes (Chairman: Dr.Y.V. Reddy), in consultation with the Government, in order to (i) identify and monitor developments in global standards and codes being evolved especially in the context of international developments, and discussions as part of the efforts to create a sound international financial architecture; (ii) consider all applicability of these standards and codes to the Indian financial system, and as necessary and desirable, chalk out a road map for aligning India's standards and practices in light of the evolving international standards; (iii) periodically review the status and progress in regard to the codes and practices; and (iv) make available its reports on the above to all concerned organisations in public or private sector. The Standing Committee constituted ten Advisory Groups in the areas of accounting and auditing, banking supervision, corporate governance, data dissemination, fiscal transparency, insurance regulation, transparency in monetary and financial policies, payment and settlement systems and securities market regulation to examine the feasibility and time frame of compliance with international best practices. The Advisory Group on Monetary and Financial Transparency, Banking Supervision, Insurance Regulation, Payment and Settlement System and International Accounting and Auditing have submitted reports to the Standing Committee. The main recommendations of these groups are briefly given below.

The Advisory Group on Monetary and Financial Transparency (Chairman: Shri M. Narasimham) has recommended that the Government should set out objectives to the central bank, with parliamentary endorsement and accord it the necessary autonomy to fulfill its responsibilities, if necessary by amending the RBI Act. The Group recommended that the Government of India should consider setting out a medium term objective for monetary policy, viz., the inflation rate to the Reserve Bank. In the view of the Group, a reasonable degree of fiscal responsibility is also necessary to provide the central bank reasonable headroom to operate monetary policy. The Group also recommended setting up of a monetary policy committee (MPC) comprising of Governor, Deputy Governors and three other members drawn from the Central Board who are knowledgeable in the areas of macroeconomics, monetary analysis, central banking policy and operations in banking and finance.

The Advisory Group on Banking Supervision (Chairman: Shri M.S. Verma) assessed the position of Indian banking in respect of four major areas of supervisory concern, viz., corporate governance, transparency, cross-border supervision and banks' internal rating systems. The Group expressed the view that there was an urgent need to follow best practices in the constitution and functioning of bank boards by streamlining the process of induction and fixing accountability. The Group felt that the levels of transparency in the balance sheets of Indian banks would need to be further enhanced by stipulating disclosure in terms of maturity and repricing structure of all assets and liabilities, including calculation of capital requirements for credit and market risks, cumulative provisions against loan losses,

impact of non-accrual and impaired assets on financial performance, effect of hedging activities on income and expenses and income effect of securitisation. As regards banks' internal rating systems, the Group proposed that banks should move to multi-dimensional rating systems from the hitherto uni-dimensional one, since the activities of the clients and the facilities enjoyed by them are themselves are manifold in nature. Finally, the Group was of the view that there is a need to strengthen management information systems in banks to ensure integrity and reliability in data collection and allow the use of statistical methods to arrive at informed policy making.

The Advisory Group on Insurance Regulation (Chairman: Shri R. Ramakrishnan) was of the view that the Indian position of allowing foreign companies to operate through joint venture arrangements with an Indian company with a shareholding not exceeding 26 per cent in the paid-up capital of the company, was not materially different from the international practices. Possibilities of expanding insurance coverage in rural areas through co-operatives could be explored. While the Indian requirements in respect of minimum capital requirements, deposit requirements, business plan and reinsurance were adequate, the Group recommended that minimum capital levels could be fixed for each class of business rather than on aggregate basis. The Group favoured the "file and proceed" requirements in respect of new insurance products, adopted in India, but recommended that the actuarial certification, premium rate tables and benefit design should be treated as public information, in the interest of transparency.

The Advisory Group on Payment and Settlement System (Chairman: Shri M.G. Bhide), in Part I of its report, critically examined two issues viz., status of clearing house operations as well as responsibilities of the Reserve Bank in the light of the consultative report on "Core Principles for Systematically Important Payment Systems" released by the Bank for International Settlements (BIS) first in December 1999 followed by in July 2000. It recommended, *inter alia*, extensive legal reforms especially empowering the Reserve Bank to supervise the payment and settlement system, institution of a framework ensuring at least the Lamfalussy standards for the deferred net settlement (DNS) system and such suitable framework for the real time gross settlement (RTGS) systems and spread of electronic-based transactions through appropriate price incentives. The Group was of the view that the Reserve Bank should eventually come out of the role of a payment systems provider except for funds settlement. In Part II of the Report, the Group examined the status of existing payment and settlement systems in Indian equity and debt markets including Government securities market and suggested ways for improvements in compliance with the G-30 recommendations on securities settlement system. It recommended, *inter alia*, introduction of rolling settlement in the liquid segment of the equity market, allowing current account facility with the Reserve Bank to clearing corporations for ensuring settlement facility on the books of the Reserve Bank as an *interim* measure pending eventual grant of limited purpose banking license to them with appropriate prudential guidelines thereon, building up of an institutional mechanism for centralised collection of

(Contd...)

(...Concl.)

information, their dissemination to market participants and prudential guidelines for implementing cross-merging across markets in order to deal with problems arising from participants undertaking multiple exposures in various markets at any point of time and permitting securities borrowing and lending system for institutions in both equity and debt segment in India.

The Advisory Group on International Accounting and Auditing (Chairman: Shri Y.H. Malegam) reviewed the availability of various accounting and auditing standards in India and compared them with the corresponding international standards. In case of accounting standards, the US Generally

Accepted Accounting Principles (US GAAP) and the International Accounting Standards (IAS) served as the benchmark. With regard to auditing standards, standards issued by the International Auditing Practices Committee (IAPC) of the International Federation of Accountants (IFAC) served as the reference point. The Group noted that the Accounting Standards Board (ASB) of the Institute of Chartered Accountants of India (ICAI) has so far issued 19 standards, which are on par with those of international standards. The Auditing Practices Committee (APC) of the ICAI has issued 20 statements on Standard Auditing Practices (SAPs) and four additional statements on auditing which are anchored on the international standards.

Legal Infrastructure

6.28 Since 1993, efforts have been made to improve debt recovery by setting up special debt recovery tribunals. However, tribunals remain insufficient in number, in staffing and in other infrastructure. Progress in implementing debt recovery has also been constrained by several institutional impediments, especially the inadequate legal system in place. The efforts to reduce NPAs would, to a large extent, depend on improving the legal infrastructure. The Expert Committee for Recommending Changes in the Legal Framework Concerning Banking System (Chairman: Shri T.R. Andhyarujina) had submitted its report to the Government in February 2000. The Committee had recommended, *inter alia*, the institution of a new law granting statutory power of possession and sale of security directly to banks and financial institutions and adoption of the draft Securitisation Bill. Efforts to improve debt recovery would need to be supplemented by efforts for improving credit assessment so that incremental NPAs are kept low. The proposed plan to set up Credit Information Bureau is, therefore, an important step in the efforts to reduce the sticky portfolios of financial institutions.

Deposit Insurance Reforms

6.29 India is among the few countries, which has a long standing tradition of bank deposit insurance as a safety net. About 97 per cent of the deposits of scheduled commercial banks are fully protected, with the coverage amounting to over 70 per cent of the deposit amount. The extent of coverage under deposit insurance is seen to have remained more or less stable in terms of number of accounts. The insurance coverage, nevertheless, has registered some rise during the

second half of the 1990s, *albeit* with some year-to-year fluctuations (Table 6.7). Deposit insurance has a well-founded rationale in economic theory and is viewed as a means to prevent banking panics in a financial market characterised by multiple equilibria.² However, mere provision of deposit insurance is neither a necessary, nor a sufficient condition for ensuring financial stability. Deposit insurance poses moral hazard risks that could invite imprudent behaviour by bank managements or poor choices by depositors. Therefore, what is of greater importance is to ensure that deposit insurance is provided on efficient lines and does not guarantee complete insurance. Despite the low probability of banking failure in the Indian financial system with predominant presence of state-owned banks, the issue of reforming the deposit insurance system has been accorded importance. There is a certain amount of consensus that the principal objective of a deposit insurance system is to protect small depositors and to contribute to the stability of the financial system. The Reserve Bank constituted a Working Group (Chairman: Shri Jagdish Capoor) to examine the issue of deposit insurance which submitted its report in October 1999. Some of the major recommendations of the Group are: (i) fixing the capital of DICGC at Rs.500 crore, contributed fully by the Reserve Bank; (ii) withdrawing the function of credit guarantee on loans from DICGC; and (iii) risk-based pricing of the deposit insurance premium in lieu of the present flat rate system. A new law in supersession of the existing enactment is required to be passed in order to implement the new recommendations. The task of preparing the

² The seminal contribution in this respect was made by Diamond, Douglas W. and Philip H. Dybvig, (1983), "Bank Runs, Deposit Insurance, and Liquidity," *Journal of Political Economy*, 91: 401-19.

Table 6.7: Extent of Deposit Insurance Coverage in India

(Amount in Rupees crore)

Year	Number of Fully Protected Accounts (in million)	Total Number of Accounts (in million)	Coverage of Accounts [Percentage of (2) to (3)]	Total Amount of Insurable Deposits	Total Amount of Accessable Deposits	Coverage of Deposits [Percentage of (4) to (5)]
1	2	3	4	5	6	7
1970-71	30	31	96.8	4,224	6,801	62.1
1975-76	72	73	98.6	11,827	16,588	71.3
1980-81	137	138	99.3	25,859	35,004	73.9
1985-86	232	236	98.3	62,878	86,214	72.9
1990-91	298	309	96.4	1,09,316	1,56,892	69.7
1991-92	317	329	96.4	1,27,925	1,86,307	68.7
1992-93	340	354	96.0	1,64,527	2,44,375	67.3
1993-94	350	353	99.2	1,68,405	2,49,034	67.6
1994-95	496	499	99.4	2,66,747	3,64,058	73.3
1995-96	482	487	99.0	2,95,575	3,92,072	75.4
1996-97	427	435	98.2	3,37,671	4,50,674	74.9
1997-98	371	411	90.3	3,70,531	4,92,380	75.3
1998-99	454	464	97.8	4,39,609	6,09,962	72.1
1999-00	430	442	97.3	4,98,558	7,04,068	70.8

Note: 1. Number of fully protected accounts refer to those accounts with balance not exceeding Rs.30,000 till April 30, 1993 and Rs. 1,00,000 with effect from May 1, 1993.
 2. Total amount of insured deposits represent deposits up to Rs. 30,000 till April 30, 1993 and Rs. 1,00,000 with effect from May 1, 1993.
 3. Accessable deposits mean the entire amount of deposits including portion which is not provided insurance cover.

new draft law has been taken up. The relevant proposals would be forwarded to the Government for consideration.

Macroeconomic Co-ordination and Financial Markets

6.30 Macroeconomic stability and financial stability reinforce each other. Therefore, macroeconomic co-ordination that ensures macroeconomic and financial stability is an important consideration in framing monetary and fiscal policies. This has become even more important with the fiscal reforms and emergence of a more liberalised financial system. There are several possible dimensions for co-ordinated response. At core of this is the persistence of fiscal imbalances that have placed burden on fiscal sustainability, with implications for financial stability.

Debt Sustainability and Rollover Risk

6.31 The Government budget and the way it is

financed impacts interest rates as well as inflation in the economy. Fiscal discipline is, therefore, important for financial market stability. The general trend observed in the budgetary performance of the Central Government is that, final account data, by and large, do not adhere to their original targets. Consequently, the fiscal deficit, more often than not, turns out to be far higher than the anticipated level. For instance, during 1992-99, on an average, the gross fiscal deficit in the final account, turned out to be higher by 22.4 per cent than the original budget estimates. On the receipt side, both tax revenue and total revenue receipts experienced shortfalls in the final accounts as compared to the budget estimates. This shortfall ranged between 2.1-12.6 per cent in respect of total revenue and 2.5-10.7 per cent in the case of tax revenue. As regards expenditure, the trend observed was that both revenue expenditure and aggregate expenditure exceeded the budget targets; the rise was to the extent of 2.6 to 6.2 per cent for revenue expenditure and 3.0 per cent to 8.0 per cent in

respect of aggregate expenditure. While the magnitude of the impact of fiscal deficit on interest rates and inflation depends upon the size of the fiscal deficit, overruns in government deficits have adverse macroeconomic impacts. A high and growing stock of public debt, which has implications for the sustainability of the fiscal situation, puts pressure on the absorptive capacity of the market and, thus, fuels interest rate expectations. In the Indian case, it is empirically found that despite the stability in the market debt, the overall fiscal situation is precarious because of potential instability in the non-market debt and due to large unfunded liabilities of the Central and State governments³.

6.32 A readjustment in the maturity structure of Government debt has taken place after reforms. The share of short-term maturity bonds (i.e., under five years) in total outstanding dated securities has recorded a sharp increase from 8.6 per cent to 41.0 per cent between 1991 and 1998. On the contrary, share of long-term bonds (i.e., over ten years) declined rapidly to 18.2 per cent in 1998 from 85.8 per cent in 1991 (Chart VI.7). Shortening of maturities, however, led to some bunching of redemption of securities and the need for frequent rollovers from the market. The repayment profile witnessed steep humps in the medium-term on account of shortening of the average maturity of fresh issues of dated securities to 5.5 years in 1996-97 from 18.6 years in 1991-

92. In order to impart stability to the maturity profile of internal debt, debt management operations were re-oriented towards transforming the maturity structure to longer-term. As a result, the average maturity of dated securities steadily rose to 12.6 years in 1999-2000.

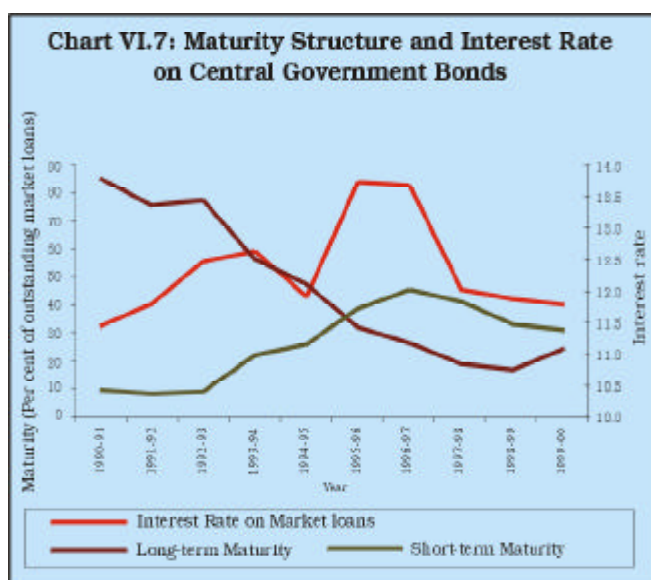
6.33 The fluctuations in maturity profiles and the yield curve have attracted attention for improving treasury management skills to cope with interest rate risks. Until recently, investors in the securities market were willing to take interest rate risks by locking themselves into long maturities, on the ground that their incomes would be higher if they invested at the longer end of the spectrum without giving due cognisance to risks of depreciation⁴. With the market orientation of interest rates, investors are required to make provisions for depreciation in their portfolio. Increased focus on asset-liability management, therefore, assumes importance. The Reserve Bank has taken several steps and provided guidelines to help market participants to initiate prudent trading activities that add to the strength and stability of the financial system.

Government Guarantees

6.34 Apart from debt accumulation, the growing size of guarantees extended by the Government affects public sector balance sheets and impacts the fiscal position. In the case of State governments, under a market-oriented borrowing system, the higher amount of guarantees without proper risk assessment has the potential of raising the risk premium on their bonds. As part of the effort for improved fiscal discipline, the outstanding guarantees for the Central Government has been brought down from 7.8 per cent of GDP as at end-March 1993 to 4.2 per cent as at end-March 1999 (Table 6.8). Such guarantees for the Centre and States (combined) also declined from 13.9 per cent as at end-March 1992 to 8.9 per cent of GDP as at end-March 1999. The reduction of such contingent liabilities has been lower in case of State governments.

Institutionalising Fiscal Discipline

6.35 In view of the budgetary imbalances, the imbalances on account of quasi-fiscal activities and the need to contain explicit and implicit



³ Moorthy, Vivek, Bhupal Singh and Sarat Chandra Dhal, (2000), "Bond Financing and Debt Stability: Theoretical Issues and Empirical Analysis for India", *Development Research Group Study*, No. 19, Reserve Bank of India.

⁴ Tarapore, S.S., (1995), "Interest Rate Policy and the Managing of Risks in a Deregulated Environment", *Reserve Bank of India Bulletin*, December.

Table 6.8: Outstanding Government Guarantees

(Per cent of GDP)

End-March	Centre	States*	Total
1	2	3	4
1992	7.7	6.1	13.9
1993	7.8	5.7	13.5
1994	7.3	5.7	13.0
1995	6.2	4.8	11.0
1996	5.5	4.5	10.0
1997	5.1	4.7	9.8
1998	4.9	4.9	9.7
1999	4.2	4.7	8.9
2000	..	5.1	..

* Pertains to 17 major States.

.. Not Available

Note : Figures are ratio to GDP at current market prices.**Source** : Finance Accounts, Government of India, CAG Reports and Budget Documents of State Governments.

Government guarantees, an institutional mechanism to support fiscal restraint would be useful. The Central Government and the Reserve Bank have been closely co-ordinating in this respect. In the Union Budget for 2000-01, the Government announced its intent to bring about Fiscal Responsibility Legislation (Box VI.6).

6.36 The Fiscal Responsibility and Budget Management Bill, 2000 was introduced in Parliament in December 2000. The Bill provides for the responsibility of the Central Government to ensure inter-generational equity in fiscal management and long-term macro-economic stability by achieving sufficient revenue surplus, eliminating fiscal deficit and removing fiscal impediments in the effective conduct of monetary policy. It also provides for prudential debt management consistent with fiscal sustainability through limits on the Central Government borrowings, debt and deficits, greater transparency in fiscal operations of the Central Government and conducting fiscal policy in a medium-term framework and for matters connected therewith or incidental thereto. The salient features of the Bill, *inter alia*, include laying the Medium-term Fiscal Policy Statement, Fiscal Policy Strategy Statement and Macro-economic Framework Statement by the Central Government before the Parliament, along with the

annual budget; elimination of the revenue deficit by March 31, 2006 and bringing down the fiscal deficit to 2 per cent of GDP in the same period; and prohibition of direct borrowings by the Central Government from the Reserve Bank after three years except by way of advances to meet temporary cash needs in certain circumstances.

External Debt Sustainability

6.37 Developing countries typically run current account deficits (CAD) to supplement their domestic savings to achieve higher levels of investment and growth without cutting their current consumption. In the borrowing countries, the accumulated current account deficits result in external debt and other liabilities that need to be serviced out of the country's current earnings. This raises the question of a sustainable level of external debt. India is classified as a less indebted country by the present value-GNP criterion and a moderately indebted country by the present value-exports criterion by the Global Development Finance (Table 6.10).

6.38 Measured in terms of conventional indicators of external debt sustainability, India's external debt position has undergone significant consolidation during the 'nineties as a part of the overall approach to external sector management (Chart VI.8). First, the current account deficit has been kept within sustainable limits, with the CAD/GDP ratio averaging at around 1 per cent since 1991-92 in contrast to an average of 2 per cent during the 'eighties. Secondly, as a result of a distinct shift in the policy framework in favour of equity as against debt in capital inflows, non-debt creating inflows have increased from a mere 1 per cent of total capital flows in 1990-91 to more than 50 per cent of the capital inflows. Thirdly, a transparent policy on external commercial borrowings with the stated objectives of prudent debt management has helped to consolidate India's external debt. The policy aims at lengthening of maturity while keeping a ceiling on approvals. Restrictions on end-use in the form of investments in stock markets/real estate have helped to avoid the pitfalls associated with unbridled external flows. Fourthly, in the case of non-resident deposits, withdrawal of exchange guarantees, alignment of interest rates with international rates, a minimum maturity prescription of 12 months in the case of foreign currency denominated deposits and promotion of non-repatriable deposits helped in consolidating non-resident deposits and making

Box VI.6 Rule-based Fiscal Responsibility

Any legislation on fiscal policy essentially focuses on the issue of rules *versus* discretion in policy formulation, implementation and enforcement. Fiscal rules should satisfy, in a specific context, certain objectives of fiscal policy, such as macro-stability, intergenerational equity, fiscal transparency and accountability, and autonomy of monetary policy (Kopits and Symansky, 1998). There are broadly three types of universally recognised fiscal policy rules, *viz.*, balanced-budget or deficit rules; borrowing rules and debt or reserve rules incorporating one or several specific targets or ceilings or conditionality or even prohibitions. For the success of any specific rule, it must have statutory basis with an authority for monitoring/surveillance and enforcement of the rule/legislation and some in-built penalty clauses in case of non-compliance.

There is a well-documented literature on country-wise experiences relating to fiscal policy legislation (Table 6.9). The most common fiscal policy rule being followed is the budget-balance rule, that is, one relating to balance between Government revenue and expenditure. The borrowing rules are the oldest operating fiscal rules, which consist of prohibition of or limits on Government borrowing. Several advanced economies and some developing economies prohibit direct central bank financing to the Government sector and also to the rest of the non-financial public sector. The rule is not usually practiced in developing countries and transition economies on account of lack of market microstructure and infant debt markets. The debt rule consists of a limit on, or a target for, the stock of public debt as a proportion or ratio to the country's GDP. In some ways parallel to the debt rule is a rule, which may prescribe a target accretion of reserves (most probably in terms of liquid assets) for a future unforeseen event. Country experiences reveal that many countries have prescribed limits on Government access to central bank credit.

The compliance with fiscal rules may have some disadvantages, despite the generally favourable macro-economic effects, because these may distort the composition of Government expenditure or accentuate tax increases. Secondly, fiscal rules may induce profusion of creative accounting practices and increased recourse to one-time measures. Thirdly, governments cannot eliminate fiscal stress by adhering to a set of rules, for reduction in stress levels requires that governments commit themselves to some sort of a funding constraint. Further, rules could be suspended or repealed through subsequent legislative action, hence the sanctity of rules itself depends upon the level of discipline the government is willing to impose upon itself.

them a stable source of external funding. Fifthly, short-term debt flows have been tightly monitored and are permitted only for trade related purposes given their volatility and the possibility of their non-renewal in times of crisis. Sixthly, the exchange rate policy, which has been market determined, helped in avoiding the excessive risk-taking that occurred in some of the South-East Asian countries

The legislation in India needs to focus on rectifying the medium-term fiscal balance and complete elimination of the revenue deficit, reduction/stabilisation of public debt as well as the consistency of fiscal balance with debt target. However, in order to achieve convergence, some intra-year assessment of the financial position of the Government is necessary as budgeting is an annual exercise, and based on the assessment, the stance of fiscal policy should be modified. Depending on the chosen policy instrument, if there is significant deviation of the fiscal variables from the targets set, corrective actions should be taken to ensure adherence to targets. Instrument focus could be on the levels of borrowing and net RBI credit to Governments as these are high frequency data which are readily available.

The statutory provisions of the Act and the system of penalty in case of violation of the act also assume critical significance. In this context, the degree of flexibility granted to the fiscal authorities in the Act assumes greater importance. Putting an autonomous surveillance mechanism to monitor the fulfillment of the fiscal rule laid down in the Act would be an important pre-requisite for the success of the Act.

On the issue of the role of the Reserve Bank, the level of monetisation should always be at the initiative of the central bank. There is the issue of imposing a borrowing rule possibly circumscribed by a debt-GDP ratio. However, that would hinge upon the separation of the debt management function from that of monetary management by the central bank. Whether the central bank should participate only in the borrowing programme of the Government in the primary market or withdraw from the primary and operate only through the secondary market is the main question to be addressed. There is also the question of the quantum of devolvement. A stringent precision rule based regime in the present Indian scenario, given the large overhang of debt and the huge borrowing programme of the Government, seems difficult to envisage. However, a corrective strategy capsulated as rules aimed at medium-term rectification of the fiscal imbalance would definitely be a responsive signal indicating and enhancing the credibility of the governments in their intent towards fiscal consolidation and facilitating macroeconomic balance.

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that followed a policy of either a fixed exchange rate or a predictable exchange rate regime. Finally, since debt servicing has ultimately to be funded out of current earnings, the policy efforts have been aimed at achieving a commensurate growth in current receipts. It may be noted that in line with the current trend in the liability management, the Central Government has set up a high level steering

Table 6.9: Fiscal Policy Rules in Selected Countries

Country	Target or Ceiling	Effective Period	Statutory Instrument	Government Level	Penalty for Non-compliance
1	2	3	4	5	6
Netherlands	Structural deficit limit	1961-74	Government policy	Central Government	Reputational
European Union (EU) members	Medium-term overall balance Yearly deficit limit (3 per cent of GDP)	Since 1997	International Treaty ¹ (Stage 3 of EMU)	General Government	Reputational Financial (from 1999)
United States (US)	Yearly overall balance	Proposal	Constitutional amendment	Federal Government	Judicial
Costa Rica	Yearly deficit limit (1per cent of GDP)	Proposal	Constitutional Amendment	Public sector	judicial
Switzerland	Cyclically adjusted balance	Proposal	Constitutional amendment	Federal Government	Reputational
New Zealand	Medium-term operating balance	Since 1994	Legal provision	Public sector	Reputational
Germany	Yearly current balance	Since 1949	Constitutional amendment	Federal and sub-national Governments	Judicial
Japan	Yearly current balance	1946-75 and proposed from 2003	Legal provision	Central Government	Judicial
United States	Yearly current balance	Various	Constitutional amendment	Subnational Governments	Judicial
Canada	Overall balance or deficit limit	Since 1993	Legal provision	Subnational Governments	Judicial
Indonesia	No domestic borrowing	Since 1967	Government policy	General Government	Reputational
EU members	No borrowing from central bank	Since 1994	International treaty (Stage 2 of EMU)	General Government	Judicial
Argentina, US, Canada, Chile, Ecuador, Peru, Hungary, Japan	No borrowing from central bank	Various	Various	General Government	Judicial
Brazil, Egypt, Morocco, Philippines, Slovak Republic	Borrowing from central bank limited as fixed proportion of last year's revenue	Various	Various	General Government	Judicial or reputational
European Union members	Gross debt limit (60 per cent of GDP)	Since 1997	International treaty (Stage 3 of EMU)	General Government	Judicial

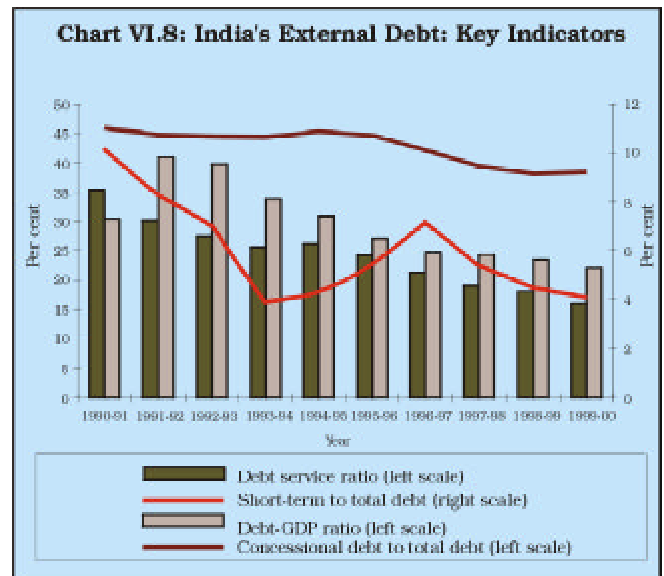
¹Including Stability and Growth Pact and pertinent European Council Regulations.

Source: Kopits, G. and S. Symansky, (1998), "Fiscal Policy Rules", *IMF Occasional Papers*, No.162, IMF, Washington.

Table 6.10: External Debt Sustainability Indicators – Cross-Country Comparisons

Country	End-1998 (US \$ billion)		1996-98 (per cent)	
	EDT	PV	PV/XGS	PV/GNP
1	2	3	4	5
Argentina	144	151	424	53
Brazil	232	220	347	28
China	155	135	67	15
India	98	84	147	20
Indonesia	151	145	238	84
Korea	139	135	83	31
Mexico	160	156	121	44
Russia	184	165	166	45
Thailand	86	85	116	58
Turkey	102	100	176	52

EDT: Total external debt PV: Present Value of external debt
XGS: Export of goods and services (including workers' remittances)
Source: Global Development Finance.



committee and a technical group to work out the modalities for more active sovereign external liability management in India. The Group in collaboration with the World Bank is developing a risk management model for sovereign external liability management in India.

6.39 Reflecting the above multi-pronged approach to external sector management, external debt has remained almost range-bound since 1995. The stock of external debt initially increased from US \$ 83.8 billion as at end-March 1991 to US \$ 99.0 billion as at end-March 1995. Subsequently, it declined to US \$ 93.5 billion as at end-March 1997. As at end-March 2000, external debt at US \$ 98.4 billion, was still lower than its March 1995 level. Notwithstanding the higher external debt stock as at end-March 2000 as compared with the end-March 1992 level, the ratio of external debt-GDP has almost halved from a peak of 39 per cent as at end-March 1992 to 22 per cent as at end-March 2000 (Chart VI.8). Similarly, the debt-service ratio halved from 35 per cent in 1990-91 to 16 per cent in 1999-2000. The proportion of concessional debt in external debt declined from 46 per cent as at end-March 1991 to 39 per cent as at end-March 2000.

6.40 A more noteworthy aspect of external debt consolidation is the decline in short-term debt. Short-term debt, by original maturity, declined significantly from US \$ 8.5 billion as at end-March 1991 to US \$ 4.0 billion as at end-March 2000. As a result, short-term debt, as a proportion of total external debt, fell sharply from 10.2 per cent

to 4.1 per cent over the same period. In view of the importance of short-term debt by residual maturity as highlighted by the recent financial crises, the Status Report by the Ministry of Finance on India's external debt has started publishing data on short-term debt by residual maturity.

6.41 Recent events have also highlighted the need to monitor external contingent liabilities of the Government. In the Indian context, the Central Government provides guarantees on a selective basis on external borrowings by public sector enterprises, DFIs and in some instances, to private sector companies. These contingent liabilities are monitored by the Government and efforts have been made to reduce the magnitude of such guarantees. For instance, Government guarantees declined from US \$ 12.2 billion as at end-March 1994 to US \$ 7.5 billion as at end-December 1999, mainly on account of the decline in guarantees to public sector enterprises from US \$ 8.6 billion to US \$ 4.6 billion. Guarantees to the financial sector declined from US \$ 3.3 billion to US \$ 2.6 billion over the same period, Guarantees to the private sector have been insignificant at around US \$ 0.3 billion. An important point to note is that since these guarantees have been provided to residents, the invoking of guarantees would only shift liabilities from residents to the Government and would not imply any additional liability for the country as a whole.

6.42 In sum, the Indian financial system is

reasonably stable. The banking system is well protected against risks with a median CRAR exceeding 11.0 per cent for the nationalised as well as the Indian private sector banks as at the end of 1999-2000. The CRAR for all-India DFIs is still higher. However, there are some weaknesses in the system that need to be addressed. These include the high level of non-performing loans in some banks and some DFIs. There are also disciplinary issues with regard to NBFCs that are being addressed by the regulators by putting in place a stricter supervision and regulatory system. There is also a need for

ensuring greater transparency through disclosure norms for the mutual funds industry. Reinforcing financial stability would necessitate tackling these problems, as also problems of low asset quality through adequate recognition for impaired assets and adequate provisioning for losses. While external debt is moderate, the Governments' domestic debt and guarantees continue to be an area of concern from the viewpoint of macroeconomic stability. Although substantial progress has been made in addressing the areas of weaknesses, further improvements would be necessary.

VII

FINANCIAL SECTOR EFFICIENCY

7.1 Financial sector efficiency reflects efficiency of both financial markets and financial institutions. Markets are viewed as efficient when market prices faithfully reflect all available information, so that it is not possible for any trader to earn excess profits in a systematic manner, based on the available information. A financial entity, on the other hand, could be viewed as relatively efficient when it offers competing services at relatively lower prices, without exposing it to higher levels of risk. In a competitive market, inefficient institutions are expected to be driven out by efficient ones, unless protected under certain safety nets or bailout measures. With a view to enhancing financial sector efficiency, therefore, it is necessary to not only foster competition among institutions but also to develop a system that facilitates transparent and symmetric dissemination of maximum information to the markets.

7.2 The financial sector reforms in India since the early 'nineties that covered the deregulation of financial markets, advances in technology, growing customer sophistication, stricter regulations and transition to undertaking banking activities under a flexible interest rate and exchange rate environment have generated intense competition among banks, non-banks and other financial institutions in India. Its impact has been felt in terms of competitive pricing of services, narrower spreads and improvement in the quality of services. Competition among financial institutions is also expected to have enhanced efficiency in saving mobilisation, credit allocation and in the provision of a diversified range of financial services. Indian markets have also become more information sensitive and, as a matter of policy, transparent dissemination of quality information on critical economic and financial variables has been accorded high priority. As a result of this, as also the deregulation of financial markets in terms of market forces setting asset prices, the informational efficiency of the markets has improved, which has also helped in the conduct of public policies.

Efficiency of Institutions

7.3 Generating enhanced competition in the banking sector has been an integral part of the overall design for creating a more efficient and stable financial system. Greater competition is sought to be fostered by permitting new private sector banks and more liberal entry of branches of foreign banks. As on March 31, 2000 eight new private sector banks and 42 foreign banks were in operation. In the rural and semi-urban areas, competition is being encouraged through Local Area Banks. Modest diversification of ownership of select public sector banks has helped the process of autonomy and also contributed to strengthening the competitive pressures. Over a period of time, this has resulted in a gradual reduction of spreads (defined as net interest income to total assets) and a tendency towards their convergence across all bank-groups, except foreign banks (Chart VII.1). Reduced spreads have been supported by improved efficiency reflected in a decline in the intermediation costs as percentage to total assets, especially for public sector banks and new private sector banks, due largely to a decline in their wage costs (Table 7.1). At the same time, there has been a gradual

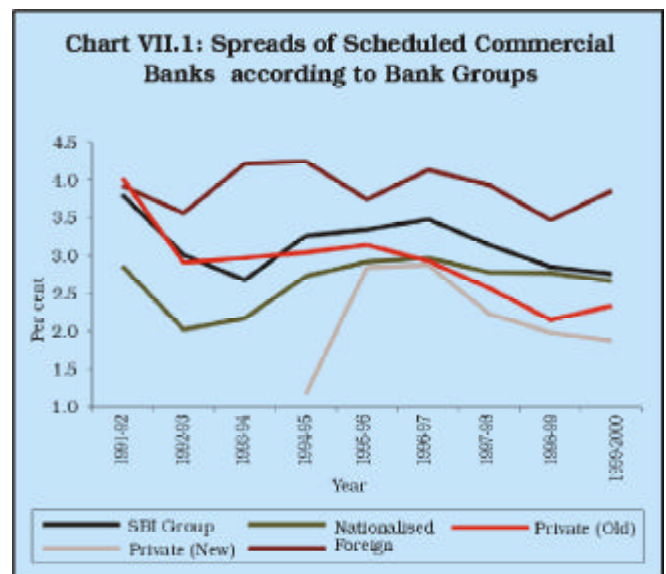
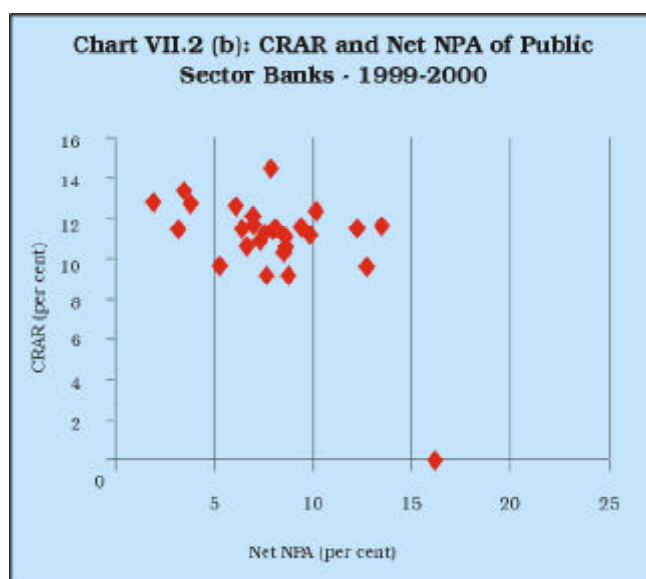
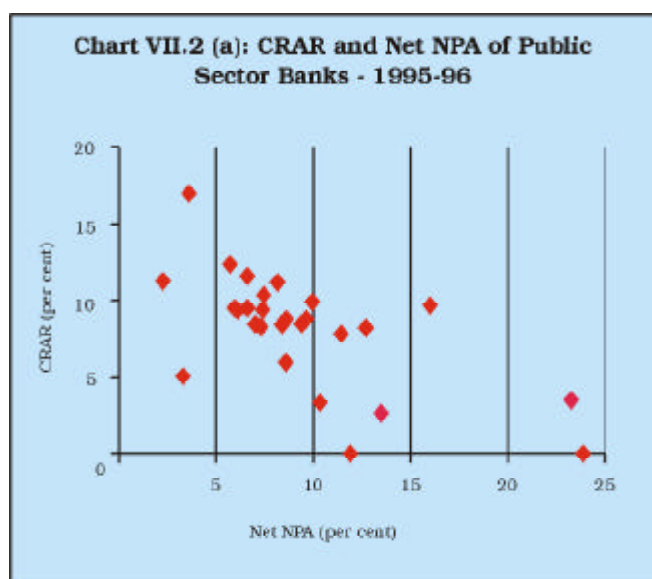


Table 7.1: Bank Group-wise Intermediation Costs and Wage Bill - 1995-96 to 1999-2000

Bank Group	(Per cent of Total Assets)				
	1995-96	1996-97	1997-98	1998-99	1999-2000
1	2	3	4	5	6
Intermediation Costs					
SBI Group	3.10	2.94	2.68	2.70	2.46
Nationalised Banks	2.93	2.85	2.65	2.63	2.56
Private Sector Banks (Old)	2.60	2.52	2.31	2.26	2.18
Private Sector Banks (New)	1.89	1.94	1.76	1.74	1.42
Foreign Banks	2.77	3.00	2.97	3.59	3.21
Wage Bill					
SBI Group	2.31	2.13	2.01	1.92	1.76
Nationalised Banks	2.14	2.07	1.91	1.93	1.88
Private Sector Banks (Old)	1.70	1.53	1.40	1.41	1.39
Private Sector Banks (New)	0.27	0.30	0.31	0.31	0.28
Foreign Banks	0.98	1.06	0.95	1.01	1.04

improvement in the capital level of the banking sector and on asset quality (Chapter VI). This is evident from the plot of CRAR and net NPAs (as per cent of net advances) of public sector banks for the years 1995-96 and 1999-2000 [Charts VII.2 (a) and VII.2(b)]¹. The improved efficiency and stability of the banking sector as analysed in the previous chapter augurs well for the Indian financial system.

per cent. The same is the case for all new private sector banks (Table 7.2). Among scheduled commercial banks other than foreign banks, only four nationalised banks and four old private sector banks have return on asset ratios up to 0.25 per cent. In contrast, in 1999-2000 as many as 14 out of 42 foreign banks have return on asset ratio up to 0.25 per cent. Since 1993-94, there are indications of improvement in the efficiency of the



7.4 Although the banking industry in recent years has become more competitive, cost reductions have enabled banks to maintain their profitability levels. All the eight banks of the SBI Group have return on asset ratios exceeding 0.50

Indian banking system (Box VII.1). The spreads of scheduled commercial banks declined in the latter half of the 'nineties. The wage bill as percentage of total assets had also declined during this period from 2.05 in 1995-96 to 1.66 in 1999-2000.

¹ The CRAR of two banks, which were negative as at end-March 1996 and that of one bank, which was negative as on March 2000, have been set at zero.

7.5 The share of financial institutions (comprising all-India term lending and refinancing

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Table 7.2: Frequency Distribution of Return on Assets - Scheduled Commercial Banks

Year/Bank Group	Public Sector Banks		Private Sector Banks		Foreign Banks
	SBI Group	Nationalised	Old	New	
1	2	3	4	5	6
1996-97					
Less than and up to 0.25 %	Nil	4	6	Nil	9
Above 0.25% and upto 0.50%	Nil	5	2	Nil	4
Above 0.50%	8	10	17	9	26
1997-98					
Less than and up to 0.25 %	Nil	4	3	Nil	11
Above 0.25% and upto 0.50%	Nil	2	4	Nil	1
Above 0.50%	8	13	18	9	30
1998-99					
Less than and up to 0.25 %	Nil	4	8	Nil	18
Above 0.25% and upto 0.50%	4	5	3	Nil	3
Above 0.50%	4	10	14	9	23
1999-2000					
Less than and up to 0.25 %	Nil	4	4	Nil	14
Above 0.25% and upto 0.50%	Nil	7	3	Nil	4
Above 0.50%	8	8	17	8	24

Note : The Return on Assets (RoA) figure of 0.25 per cent is based on the Reserve Bank Discussion Paper on Prompt Corrective Action.

institutions, state level institutions, investment institutions like UTI, LIC and GIC and its subsidiaries, and other institutions like DICGC and ECGC) in the total assets of banks and financial institutions taken together grew from 26.2 per cent in 1980-81 to 34.5 per cent in 1990-91 and further to 36.0 per cent by 1999-2000. In the recent years, the effect of competition on the efficiency was also in evidence for financial institutions. For all-India financial institutions, the spread declined from

2.25 per cent in 1998-99 to 1.80 per cent by 1999-2000, at which it was almost 100 basis points lower than that for the public sector banks. The wage bill as percentage of total assets at 0.14 per cent was also lower than that of banks. It is, however, necessary to note that the operating environment of banks and financial institutions and their areas of strategic operations are different and, therefore, the ratios may not be strictly comparable.

Box VII.1

Efficiency of Financial Institutions

The concept of efficiency of financial institutions, though interpreted differently in academic literature, broadly represents (i) optimisation of output mix so as to fully exploit the economies of scale and scope, and (ii) optimisation of the input-mix so as to avoid both excessive levels of input usage (technical X-inefficiency) as well as non-optimal relative proportions of inputs (allocative X-inefficiency) (Allen and Rai, 1996). Technical inefficiency has been empirically observed to be the key factor behind weak performance of a financial institution rather than scale and scope economies. In other words, if a financial institution has not fully exhausted its scale economies or has over-expanded to reap diseconomies of scale, then its performance may not show drastic deterioration if it succeeds in reaping technical efficiency. Technical efficiency refers to the ability to produce as much output as possible per unit of input or use as little input as possible to produce one unit of output. Commonly used methods for estimating efficiency include data

envelopment analysis (DEA), free disposable hull analysis, the stochastic frontier approach, the thick frontier approach, and the distribution-free approach. While the first two represent non-parametric techniques, the latter three are parametric in nature. Estimates of efficiency alone may not prove useful unless the sources of different levels of efficiency across financial institutions are identified. Berger and Mester (1997) identified three such sources: (i) differences in the concept of efficiency, (ii) differences in the methodology used, given a particular concept, and (iii) presence of potential correlates – which are partially exogenous but may affect the efficiency level.

Using data for Indian banks for 1994-95, Chatterjee (1997) studied the effect of output expansion from the existing branches as also through opening of new branches. He concluded that Indian banks could reap cost efficiency gains

(Contd...)

(...Concl.)

by expanding their business at the existing branches. If new branches are opened to expand output, only the small and medium sized private sector banks may prove efficient. Indian banks, thus, appear to possess significant unrealised potential scale economies and can expand their business without expanding their branch network. Sarkar and Das (1997) examined the inter-bank differences in the efficiency levels of banks in India using balance-sheet data for 1994-95 and observed wide variation in the performance among banks based on indicators of profitability, productivity and financial management. In another study covering the period 1992 to 1998, Das (1999) found that banks in India have succeeded in achieving a reduction in their burden of raising working funds. Spreads, however, constitute the driving factor behind profitability of Indian banks and in a competitive environment banks must assign high importance to customer services to become more profitable through higher non-interest income in the form of commissions, brokerages, etc. There is scope for reduction in establishment expenses, particularly wage bills, and mechanisation of banks can enhance profitability of banks. The risk-averse behaviour of the banks in response to the tightening prudential regulations have contributed to the shift in the banks' preference for investments, as opposed to loans and advances. The Indian banking system, however, is gradually

getting used to the risk-return trade-off in a liberalised market economy while improving its performance simultaneously. There has been some evidence of convergence in the performance of banks in recent years, with weak banks coming under greater pressures to meet the minimum efficiency standards.

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3. Chatterjee, G., (1997), "Scale Economies in Banking: Indian Experience in Deregulated Era", *RBI Occasional Papers*, March.
4. Das, A., (1999), "Profitability of Public Sector Banks: A Decomposition Model", *RBI Occasional Papers*, Summer.
5. Sarkar, P.C. and A. Das, (1997), "Development of Composite Index of Banking Efficiency: The Indian Case", *RBI Occasional Papers*, December.

7.6 With regard to profitability-based indicators, the median profit per employee of public sector banks witnessed a significant rise, between the periods 1996-97 and 1999-2000, due largely to a rise in the same in the case of the SBI Group [Table 7.3(a)]. Most of the other bank groups also posted a significant rise in this ratio, the most prominent being in the case of the new private sector bank group. Among other indicators, non-interest income to working funds, which also is reflective of a bank's profit margin, posted a modest increase for the median public sector bank, while the median foreign bank posted a noticeable rise in this ratio [Table 7.3(b)].

7.7 In addition, other earnings/cost-based indicators have also been used to examine the efficiency of banks in the Indian context. Using the ratio of wage bill to total expenses, it is observed that over the last two years, this ratio has remained at a high level for public sector banks, while the same has remained low for foreign banks and new private sector banks. The return on advances, defined as the interest earned on advances/bills to average advances has witnessed a decline for the median bank and across all bank groups [Tables 7.4(a) and 7.4 (b)].

7.8 Another widely used measure of efficiency

Table 7.3 (a): Profitability-based Indicator of Efficiency of Commercial Banks

Bank Group	Profit per Employee (Rs. '000s)					
	1996-97			1999-2000		
	High	Low	Median	High	Low	Median
1	2	3	4	5	6	7
A. Scheduled Commercial Banks						
Of which						
i. Public Sector Banks*	170.0	10.0	35.5	220.0	14.0	64.5
Of which						
SBI Group	89.0	25.0	38.5	187.0	54.0	104.0
Nationalised Banks*	170.0	10.0	32.5	220.0	14.0	48.0
ii. Old Private Sector Banks \$	400.0	11.0	80.0	963.0	9.0	91.0
iii. New Private Sector Banks	2,900.0	200.0	800.0	1,323.0	603.0	937.0
iv. Foreign Banks \$	9,700.0	0.0	700.0	3,199.0	0.0	703.5

* Excluding 3 weak banks.

\$ Excluding banks with negative figures.

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Table 7.3 (b): Profitability-based Indicators of Efficiency of Commercial Banks

(Per cent)

Bank Group	Non-interest Income to Working Funds					
	1996-97			1999-2000		
	High	Low	Median	High	Low	Median
1	2	3	4	5	6	7
A. Scheduled Commercial Banks						
<i>Of which</i>						
i. Public Sector Banks	1.69	0.80	1.27	2.41	0.78	1.34
<i>Of which</i>						
SBI Group	1.69	1.06	1.58	2.41	1.31	1.78
Nationalised Banks	1.37	0.80	1.22	1.79	0.78	1.25
ii. Old Private Sector Banks	2.48	0.49	1.31	3.08	0.59	1.74
iii. New Private Sector Banks	3.40	0.75	2.00	3.88	1.46	2.12
iv. Foreign Banks	10.06	-2.04	1.47	21.75	-1.28	2.25
Bank Group	Spread to Total Assets					
	1996-97			1999-2000		
	High	Low	Median	High	Low	Median
1	2	3	4	5	6	7
A. Scheduled Commercial Banks						
<i>Of which</i>						
i. Public Sector Banks	4.28	0.71	3.21	3.86	1.61	2.86
<i>Of which</i>						
SBI Group	4.28	3.18	3.66	3.86	2.27	3.10
Nationalised Banks	3.89	0.71	3.17	3.07	1.61	2.73
ii. Old Private Sector Banks	4.65	1.29	3.05	3.85	1.24	2.39
iii. New Private Sector Banks	4.11	2.09	2.60	2.62	1.36	1.78
iv. Foreign Banks	7.79	0.75	4.27	7.87	-0.47	3.43

Table 7.4 (a): Earnings/Cost-based Indicators of Efficiency of Commercial Banks

(Per cent)

Bank Group	Wage Bill to Total Expenses					
	1998-99			1999-2000		
	High	Low	Median	High	Low	Median
1	2	3	4	5	6	7
A. Scheduled Commercial Banks						
<i>Of which</i>						
i. Public Sector Banks	27.28	13.06	21.90	27.84	10.65	21.46
<i>Of which</i>						
SBI Group	26.96	16.96	24.90	27.84	18.75	21.74
Nationalised Banks	27.28	13.06	21.13	27.16	10.65	20.65
ii. Old Private Sector Banks	25.82	3.36	14.28	25.02	4.29	14.61
iii. New Private Sector Banks	6.94	1.99	3.50	8.89	2.02	3.21
iv. Foreign Banks	58.06	3.21	10.81	39.78	3.38	10.29
Bank Group	Operating Profits to Total Assets					
	1998-99			1999-2000		
	High	Low	Median	High	Low	Median
1	2	3	4	5	6	7
A. Scheduled Commercial Banks						
<i>Of which</i>						
i. Public Sector Banks	2.34	-0.76	1.39	2.85	0.10	1.52
<i>Of which</i>						
SBI Group	2.34	1.39	1.84	2.85	1.47	2.03
Nationalised Banks	2.06	-0.76	1.11	2.54	0.10	1.22
ii. Old Private Sector Banks	2.42	-0.95	1.10	3.19	0.06	1.74
iii. New Private Sector Banks	2.90	1.01	1.78	3.29	1.25	1.87
iv. Foreign Banks	12.89	-27.32	2.40	7.23	-9.75	2.93

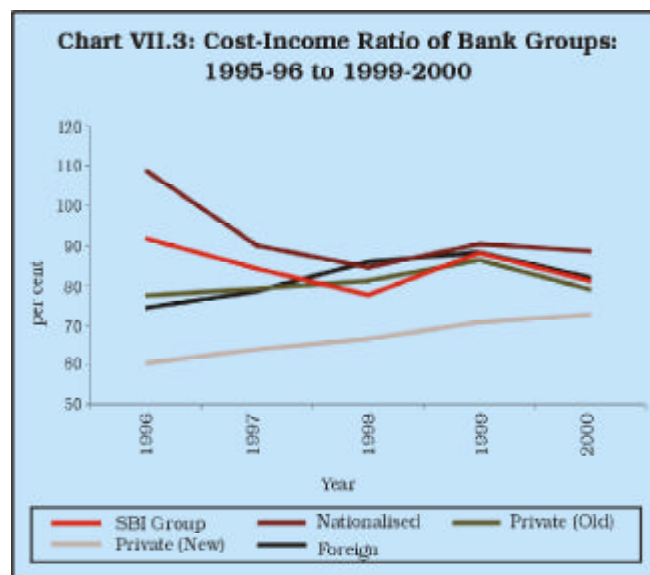
Table 7.4 (b): Earnings/Cost-based Indicator of Efficiency of Commercial Banks

Bank Group	Return on Advances (per cent)					
	1998-99			1999-2000		
	High	Low	Median	High	Low	Median
1	2	3	4	5	6	7
A. Scheduled Commercial Banks						
<i>Of which</i>						
i. Public Sector Banks	14.42	10.87	12.28	14.99	8.40	11.84
<i>Of which</i>						
SBI Group	14.42	10.96	12.28	13.67	10.59	11.62
Nationalised Banks	13.84	10.87	12.44	14.99	8.40	11.86
ii. Old Private Sector Banks	16.61	11.03	13.84	16.18	10.16	13.38
iii. New Private Sector Banks	19.30	12.07	13.87	14.26	10.24	11.84
iv. Foreign Banks	28.44	1.74	14.38	22.63	5.16	13.04

is the cost-income ratio. Simply defined, it is the ratio of operating cost (non-interest expense) to net total income (total income less interest expense). Bank group-wise figures of this ratio reveals that both the SBI Group and the nationalised banks witnessed a decline in the ratio, which is an indicator of increased efficiency (Table 7.5). The ratio has, however, witnessed an increase in respect of the other bank groups indicating a tendency towards gradual convergence of efficiency between the public sector bank group on the one hand, and other bank groups, on the other. However, the ratio is quite high by international standards and would need to be lowered further to improve efficiency (Chart VII.3).

7.9 In India, application of technology varies across different bank groups. Generally, public sector banks tend to use more labour intensive technology, while new private sector banks and foreign banks use relatively capital-intensive technology. The past history of these bank groups and the entry of new private sector banks into these groups have influenced the varying capital intensity in these groups. Historically, the bank groups use divergent input mix and have different goals and objectives. For example, while foreign banks have a greater concentration in the metropolitan areas,

public sector banks have penetrated into rural and semi-urban areas. The possibility of exhausting branch level economies of scale in a public sector



bank is expected to be quicker than that for a foreign bank. Hence, instead of analysing economies of scale for the scheduled commercial banks as a whole, economies of scale for various bank groups need to be studied separately.

Table 7.5: Bank Group-wise Cost-Income Ratio

Bank Group	(Per cent)				
	1995-96	1996-97	1997-98	1998-99	1999-2000
1	2	3	4	5	6
SBI Group	91.8	84.2	77.6	88.1	81.0
Nationalised Banks	108.9	90.0	84.5	90.4	88.6
Private Sector Banks (Old)	77.5	79.2	81.2	86.3	79.0
Private Sector Banks (New)	60.4	64.0	66.6	70.7	72.6
Foreign Banks	74.2	78.6	85.9	88.3	81.9

7.10 A majority of studies relating to Indian banks, however, concern public sector banks (nationalised banks and banks belonging to the State Bank group) exclusively, in view of their dominance - accounting for four-fifths of the assets of the commercial banking system (excluding regional rural banks). A recent study has adopted the intermediation approach in examining the overall efficiency – technical, allocative and scale - of all public sector banks which operate under the same regulatory framework and are subject to same social obligations². The study decomposed overall efficiency into allocative efficiency and technical efficiency; with the latter further decomposed into pure technical efficiency and scale efficiency. It was found that the overall efficiency declined in the immediate post-nationalisation period of 1970-78 and remained unchanged thereafter (up to 1990). The study also noted fluctuation in technical efficiency during 1970-90 – improvement up to 1978 followed by decline in 1984 and improvement thereafter – entirely due to pure technical efficiency, with the scale efficiency remaining almost constant.

7.11 During the period 1990-96, the overall efficiency exhibited a slide as decline in technical efficiency-both pure technical efficiency and scale efficiency-was not offset by improvements in allocative efficiency. It was observed that the improvement in allocative efficiency was due to ushering in of financial sector reforms. A disaggregated analysis indicates that the deterioration in technical efficiency of public sector banks as a whole was primarily accounted for by four nationalised banks. These banks exhibited a sharp deterioration in the pure technical efficiency component following the introduction of prudential accounting norms of asset classification, income recognition and provisioning which sharply increased their provisioning requirement, causing severe dent on operating as well as net profits. The sharply increased provisioning requirement mainly reflected the surfacing of the stock-pile of non-performing assets accumulated primarily in the period prior to 1991-92. The marking to market of a progressively higher proportion of Government securities since 1992-93 also necessitated a higher order of provisioning in

respect of a few banks. Consequently, the expected growth in the operating margin was not in line with the growth in deposits which gave rise to the underutilisation of the input, viz., deposits. Significant asset-liability mismatches also adversely affected on technical efficiency.

7.12 Developments in the subsequent period indicate that a majority of the public sector banks have been able to progress considerably towards the direction of passing the 'acid test' of achieving competitive efficiency. They have been actively engaged in overcoming the challenges of progressively conforming to the international best practices in various areas. The forces of competition are compelling banks to optimise resource use to attain pure technical efficiency and choose the optimal firm size including the quantity of various inputs and outputs so as to reap the maximum economies of scale/scope.

Efficiency of the Rural Credit System

7.13 The efficiency of the financial system also depends to a substantial extent on the efficiency of the rural credit delivery system. While these issues have not been covered at length in this report, the Report on Trend and Progress of Banking in India 1999-2000, documented the developments in detail. However, it may be added here that several weaknesses remain in the rural credit delivery system. For instance, the credit co-operative system is plagued by high transaction costs. The organisational structure of co-operative credit system consisting of separate wings for providing short and long-term credit and multiplicity of tiers have contributed to these high costs.

7.14 Transaction or management costs and costs associated with credit risks are required to be met out of the interest spread available. Low interest spread/margin is affecting the credit co-operatives. As at end-March 1998, the overall net margin available to State Co-operative Banks (StCBs) ranged between 0.29 per cent (Gujarat) and 2.03 per cent (Andhra Pradesh). In the case of Central Co-operative Banks (CCBs), it ranged from 0.11 per cent (Andhra Pradesh) to 2.28 per cent (Himachal Pradesh). The position at the level of Primary Agricultural Credit Societies was more disturbing with the available information indicating that the net margins ranged from (-) 3.80 per cent (Jammu and Kashmir) to 0.40 per cent (Madhya Pradesh). At the level of Primary

² Das, A., (1997), 'Technical, Allocative and Scale Efficiency of Public Sector Banks in India', *RBI Occasional Papers*, 18, June-September.

Co-operative Agriculture and Rural Development Banks (PCARDBs), the same ranged from (-) 1.93 per cent (Madhya Pradesh) to 1.53 per cent (Tamil Nadu).

7.15 To ensure the viability of co-operative banks, it is necessary to charge such rates of interest on their loans and advances as will cover the cost of raising funds, transaction and risk costs. Consequently, in view of the recommendations of the Narasimham Committee (1991), the StCBs and CCBs were given freedom from the interest rate regulations in regard to deposits and advances from October 1994 subject to the prescription of floor lending rate of 12 per cent. Likewise State Co-operative Agriculture and Rural Development Banks (SCARDBs)/PCARDBs were also given the same freedom from August 1995.

7.16 The poor recovery of loans, coupled with

high transaction cost and lower level of loan business, results in losses in large amounts and thus, low financial viability. The total losses increased from Rs.440 crore in 1997-98 to Rs.498 crore in 1998-99 in the case of short-term co-operative institutions, and from Rs.120 crore to Rs.137 crore in 1998-99 in the case of long-term institutions. Many of these institutions have accumulated losses, which outstrip their net worth.

Efficiency of Financial Markets in India

7.17 There is some evidence that on the stock market and the foreign exchange market in India are becoming informationally more efficient than before. The concept of market efficiency, however, has often been differently interpreted and alternative empirical tests have been applied to assess the efficiency of a market (Box VII.2).

Box VII.2

Market Efficiency

Three commonly discussed forms of market efficiency are found in the literature. Weak form efficient market hypothesis suggests that current price of any asset reflects all information embodied in the past history of the asset price itself. Semi-strong form efficient market hypothesis states that all publicly available information such as financial statements, strategy and past history, *etc.* is fully reflected in the current price of the asset. Strong form efficient market hypothesis advocates that all public and private information is fully reflected in the price and, therefore, even the agents with inside information cannot constantly beat the market. The underlying assumptions of efficient markets in fact make it difficult to test their empirical relevance. The assumptions include: (a) large number of rational, profit maximising investors who actively participate in the markets based on informed analysis and valuation, (b) flow of information is symmetric, random and unrelated over time, and (c) market agents react quickly and accurately to any new information, causing the prices to instantly reflect any new information.

Empirical tests of weak form efficiency are generally done through the autocorrelation and variance ratio tests. Non-parametric runs-tests are also used. Event studies help in empirical analyses of semi-strong form of efficiency. Comparative analyses of the performance of different class of market participants help in evaluating the relevance of strong form efficiency. The most common test of weak form efficiency is the random walk hypothesis which states that successive price or return changes are independent over time and that the actual price hovers around a fundamental value. Campbell, Lo and Mackinlay (1997) define three types of random walk (RW) models: RW1 assumes identically

and independently distributed (i.i.d.) increments, RW2 assumes independently and not identically distributed increments (i.n.i.d.), and RW3 assumes uncorrelated increments. Given that emerging market returns on assets generally exhibit non-normality and heterosecdasticity, RW3 tests using autocorrelation and variance ratio tests are commonly applied. RW1 also assumes that the increments are uncorrelated but such increments need not be independent because squared increments may be correlated. In practice, market efficiency test is essentially a test of a joint hypothesis. According to Fama (1965), market efficiency and asset pricing represent an inseparable joint hypothesis and, therefore, any inefficiency observed on the basis of empirical tests may actually be the result of wrong models used for pricing of assets and determination of returns. For example, besides the widely known Capital Asset Pricing Model (CAPM), P/E ratio, market capitalisation, book to market, small versus large, credit ratings *etc.* have been used to explain equity returns. However, if stock returns can be predicted on the basis of these factors, then the market cannot be characterised as informationally efficient.

Efficiency of the foreign exchange markets is contingent upon forward premia serving as an unbiased predictor of future spot rate changes. Excess returns prevail if that is not the case. The existence of excess returns in the foreign exchange markets has been one of the most intractable puzzles in the international finance literature. With the exchange rate getting primarily getting determined in the market, the issue of foreign exchange market efficiency has assumed importance for India in recent years. The trading in the forward segment has

(Contd...)

(...Concl.)

picked up since 1994 making the alignment of the term structure of forward premia an important issue.

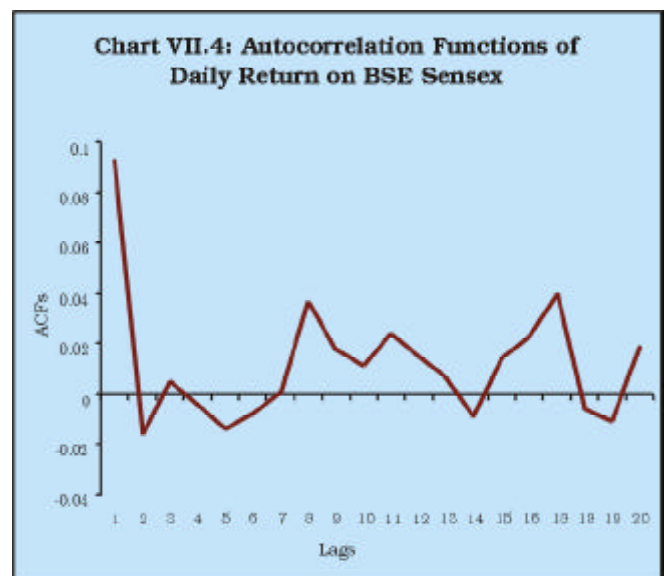
Evidence for recent years suggests that unlike in the case of the most developed countries, informational efficiency is not observed in the Indian foreign exchange markets. However, there is some evidence of such efficiency at the short-end of the market. Joshi and Sagar (1998) using monthly data, covering both pre and post-liberalisation period, note that Indian forex markets are not efficient, that forward premia are persistent and that volatility of expected depreciation is larger than implied excess returns.

References

1. Campbell, J.Y., A.W. Lo and A.C. MacKinlay, (1997), *Econometrics of Financial Market*, Princeton University Press.
2. Fama, E.F., (1965), "Random Walk in Stock Market Prices", *Financial Analysis Journal*, September/October.
3. Joshi, H. and M.K. Sagar, (1998), "Excess Returns, Risk-Premia and Efficiency of the Foreign Exchange Market: Indian Experience in the Post Liberalisation Period", *RBI Occasional Papers*, June.

7.18 Standard random walk based tests of efficiency indicate that the Indian equity market may not be efficient. The stock returns series is non-stationary and exhibits persistence (Chart VII.4).³ However, there is growing evidence that the Indian stock market is showing improvement in efficiency. The stock market has become more liquid. With the establishment of National Stock Exchange (NSE) and various other reform measures, the institutional mechanism has undergone significant changes to minimise the possibility of manipulations. With the emergence of portfolio management activities by banks, mutual funds and other non-bank financial institutions, the information content of these securities has improved. With electronic order matching, the transaction cost in stock exchanges has come down considerably.

7.19 The foreign exchange market has also become relatively more efficient. Efficiency tests using daily spot and forward exchange rates for the recent period indicate that at the short end of the market, particularly for one month, the Indian forex market exhibits parametric efficiency. Improvements in informational efficiency of the markets may, however, be constrained by the



presence of noise traders in both the stock and the forex markets (Box VII.3).

7.20 Several steps have been initiated to improve information collection and dissemination in India so as to enhance informational efficiency of the markets. The Government of India has constituted a National Statistical Commission - NSC (Chairman: Dr. C. Rangarajan) in order to (i) examine critically the deficiencies of the present statistical system - in terms of timeliness, reliability and adequacy, (ii) review the existing legislations for collection of statistics, (iii) examine the need for instituting statistical audit of the range of services provided by the Government and the local bodies, and (iv) recommend measures for correcting the deficiencies and for revamping the statistical system. The NSC has since set up seven sub-groups

³ The first order autocorrelation coefficient (estimated as the slope of the regression of daily return on BSE Sensex on one period lagged return) at 0.093 (with t = 6.02) indicates that the BSE daily returns are autocorrelated, and therefore time dependent. The autocorrelation coefficients (for 20 lags) also show that the return series is not stationary (Graph III.14) and the Box Pierce Q statistics reject the null hypothesis that all the autocorrelation coefficients are zero. The variance ratios also validate the presence of significant first order autocorrelation.

Box VII.3

Noise Trader Risk and Professional Arbitrage

One of the reasons why financial markets may not be efficient is the presence of noise traders. The case for efficient market hypothesis (EMH) exists on three suppositions. First, financial market participants are assumed to be rational in setting their price expectations. However, it is not generally realised that the EMH does not depend on this supposition for its survival. Realistically, not all agents in any financial markets can be expected to be rational. Second, to the extent some investors do not behave rationally, their trades cancel each other out. Third, irrational trades do not off-set each other, but the asset prices still get efficiently determined as the impact of these irrational trades are wiped out by gains by the professional arbitrageurs. Arbitrageurs by making simultaneous purchase and sale of the same, or similar, security in two different markets to book profits from the price differential in the two markets play a vital role in ensuring market efficiency. For instance, by buying underpriced security and selling short another similar security they are able to hedge risks, in the process correcting the underpricing in a fairly short-run.

Arbitrage is a common practice in financial markets and yet, empirical support for EMH is limited. As Black (1986) points out, a large segment of traders are unsophisticated and trade on noise rather than information on fundamentals. These noise traders sell winning stocks or hold losing stocks and fail to diversify risks because they react to irrelevant information. Odean (1998) examines the proven irrationality of investors not to sell stocks at losses, specially after slump. However, otherwise, short of correct information on fundamentals, noise traders do not choose to adopt passive trading opportunities. They may take trading positions that are very different from those that may be rationally set under the Neuman-Morgenstern framework (Kahneman and Riepe, 1998). They may systematically take positions that are inexplicable in terms of Bayesian probability theory. They may not fully factor in all information based on past prices and returns and instead take a short history in setting their trade quotes. The short history may have a high element of chance and may not fit the true model for the financial

markets. It is because of this short-history that investors hold more bonds and less of equities in several countries (Benartzi and Thaler, 1995). This could be a possible explanation for Mehra-Prescott equity premium puzzle.

Psychological factors reflected in investor sentiments and heuristic beliefs are important elements in noise trading, specially so in stock and forex markets. Biases, rumours, following the errors in beliefs that some time take the shape of herd mentality are more common in the market place than what the pure theorists accept. It is only recently that economists as part of behavioural finance are studying these aspects. While at least some arbitrageurs can be expected to be rational, their impact in financial markets can be constrained by limited and risky arbitrage opportunities in the absence of sufficiently good substitute securities. Also, when investor sentiments rule the roost, professional arbitrageurs' ability to lean against them becomes limited. In several such cases, the rational arbitrageur chooses to trail the noise traders. He finds arbitrage risky on account of uncertainty attached to investor sentiments that makes future prices unpredictable. Agency costs involved in arbitrage further reduce arbitrageurs' abilities to lean against the market trend. Incentive contracts for fund managers typically penalises losses with a rather limited profit sharing, except that in cases of hedge funds.

References

1. Benartzi, S. and R. Thaler, (1995), "Myopic Loss Aversion and the Equity Premium Puzzle," *Quarterly Journal of Economics*, 110.
2. Black, Fisher, (1986), "Noise", *Journal of Finance*, 41.
3. Kahneman, D. and M. Riepe, (1998), "Aspects of Investor Psychology", *Journal of Portfolio Management*, 24.
4. Odean, T., (1998), "Are Investors Reluctant to Realize Their Losses?" *Journal of Finance*, 53.

on statistics pertaining to various sectors of the economy and these groups have prepared technical papers on their respective areas. It is expected that the information gaps and related statistical issues in respect of various markets would be addressed comprehensively by the Group. India is one of the initial members to have subscribed to the Special Data Dissemination Standards (SDDS) of the IMF. Recognising the importance of generation and dissemination of information on a level comparable to international standards so as to facilitate better functioning of markets and also to consider applicability of international standards and codes to Indian conditions, a Standing Committee on International Financial Standards and Codes was

constituted by the Reserve Bank in December 1999. Ten advisory groups have been appointed by the Standing Committee to assist the Committee in diverse areas like accounting and auditing, data dissemination, securities market regulation, corporate governance, payment and settlement systems, banking supervision, transparency of monetary and financial policies, insurance regulation, fiscal transparency, and bankruptcy laws (See Box VI.5, Chapter VI).

Payment System and Efficiency

7.21 The operational efficiency of a financial system hinges critically on minimising transaction costs through the institution of a well-functioning

payment system. The Reserve Bank has, in recent years, initiated payment system reforms. It has facilitated orderly development of modern payment and settlement systems, focusing on commercially important centres which account for 65 per cent of the banking business in terms of value. The Reserve Bank's initiatives place emphasis on three broad inter-related heads, viz., (i) development of an institutional framework to oversee payment system, (ii) operationalisation of information technology applications, thereby improving functionality of financial system, and (iii) institution of satellite-based and terrestrial-based communications infrastructure and providing for adequate bandwidth.

7.22 The Reserve Bank constituted a Payment System Group (PSG) in 1998 dedicated to various aspects of the payment system to oversee the institution of appropriate information technologies that draw on cross-country experiences and are consistent with our objectives of financial policies. The National Payments Council - NPC (Chairman: Shri S.P. Talwar) was also constituted as the apex body to co-ordinate reforms in payment and settlement in May 1999, along with five permanent task forces. These are (i) monetary policy and related issues, (ii) oversight of payment and settlement systems, (iii) legal issues, (iv) technology related issues and (v) issues relating to systems and procedures, supervises policy initiatives and guidelines for strengthening the payment and settlement system, including a time bound implementation of the Real Time Gross Settlement (RTGS) system. The Reserve Bank's Committee on Technology Upgradation in the Banking Sector (Chairman: Dr. A.Vasudevan) has laid out an agenda for future reforms in the technological environment for banking in India. Among others, the Indian Financial Network (INFINET) User Group acts as a bridge of understanding between the Reserve Bank and commercial banks.

7.23 The sharp increase in paper-based financial transactions is evident from the fact that the cheque clearance as a proportion to GDP is estimated to have reached over 403 per cent in 1999-2000 as against 350 per cent in 1998-99. This is partly reflective of Magnetic Ink Character Recognition (MICR) cheque clearing process, introduced in the 'mid-eighties and operating in 12 cities in 1999-2000. Other initiatives include introduction of electronic funds transfers through the inter-city RBI Electronic Fund Transfer (EFT) scheme (extended to 29 scheduled commercial banks, including the 27 public sector banks in

1999-2000, with monthly transactions amounting to Rs.5 lakh in 1998-99) and the intra-city Electronic Clearing Service (ECS) (extended to 8.4 lakh transactions valued at Rs.301.87 crore for debits in 1999-2000). In addition, initiatives such as inter-bank electronic payments system, clearing bank for extension of Delivery versus Payment (DvP) mode of trading in government securities, spread of automated teller machines by almost all major banks and putting in place shared payments network system termed as SWADHAN in Mumbai have also been undertaken. The Reserve Bank has also taken initiatives to introduce smart card technology.

7.24 The Reserve Bank introduced the INFINET in June 1999, jointly with public sector banks and the Institute for Development and Research in Banking Technology (IDRBT) at Hyderabad. It is a wide area based satellite communication and terrestrial lines network using VSAT technology, and is a critical precursor to an efficient telecommunication backbone for the banking and financial sector. The INFINET connectivity would be extended from the present 439 VSATs to 5,000 VSATs in the long-run, with augmented transponder capacity. As the INFINET depends critically on the messaging systems in place, the Reserve Bank set up a Working Group on Design of Message Formats, which submitted its report in October 1999, on issues relating to designing message formats relating to government transactions, currency chest transactions and open market operations. The state-of-the-art year 2000 compliant IBM S/390 mainframe systems with imaging capability (or faculty) were operationalised at the National Clearing Cells in four metropolitan cities in July-October 1999 to replace the existing MICR cheque processing system. In non-MICR centres, magnetic media based clearing was introduced during 1999-2000.

7.25 The payment system reforms crucially hinge on the institution of a full-fledged RTGS, in line with international best practices (Table 7.6). Apart from providing a real time fund settlement system domestically and internationally, the RTGS provides an effective risk control strategy for pre-empting domino effects of individual defaults. The Working Group on Operational and Technology Issues constituted by the Indian Banks Association in 1998 made several recommendations in this regard. The requisite infrastructure, in terms of the communication backbone, is being put in place along with the development of the Payment System

Table 7.6: RTGS in Select Developed Economies

Country	Name of the RTGS System	Owner/ Manager	No. of Participants	Processing	Settlement	Membership
1	2	3	4	5	6	7
Belgium	ELLIPS	B+CB	103	RTT	RTGS	RM
France	TBF	CB	216	RTT	RTGS	O
Germany	ELS	CB	2,773	RTT	RTGS	O
Italy	BI-REL	CB	769	RTT	RTGS	O
Japan	BOJ-NET	CB	429	RTT	RTGS #	RM
Switzerland	SIC	B+CB	288	RTT	RTGS *	RM
UK	CHAPS	B	434	RTGS**	N	RM
USA	Fedwire	CB	10,034	RTT	RTGS	O

* Combination of large-value system and retail system.

** Changed to RTGS from April 1996.

The system has been designed to allow participants to enter funds transfer instructions continuously, in which case the settlement takes place on the central bank's books immediately. It is however, also used to settle on a net basis.

B : Banks; CB: Central Bank; N: Multilateral Netting; RTT: Real-time Transmission.

O : Open membership (any bank can apply). RM: Restricted Membership (subject to criteria).

Source: Statistics on Payments System in the Group of Ten Countries, February 2000.

Generic Architecture Model for both domestic and cross-border payments. Pending the institution of a full-fledged RTGS system, the Reserve Bank is implementing a Centralised Funds Management System (CFMS), as an intermediate service facility, which would be implemented in phases to provide back-office support and funds transfer. As part of this strategy, the centralised funds inquiry system would now enable consolidation of banks' current accounts across all branches of the Reserve Bank.

7.26 With the smooth transition to Y2K dateline, the stage has been set for reinforcing efforts to integrate the financial markets and improve the systemic stability and efficiency. The approach should continue to be to avoid disruptions that may occur from any big-bang strategy. What is needed, however, is to implement the conceived changes in the financial system and to put in place supportive measures to enforce transition of the financial system along competitive and efficient lines.

7.27 With the on-going efforts to revitalise the payment system and structure it along modern lines (with the system being largely run through electronic media), it would be possible to make more rapid strides towards connecting various financial market segments. This would help promote informational efficiency in financial markets, align prices and return on various financial assets on an efficient basis, reduce risks

and prevent fraudulent practices and help improve financial integration. The RTGS could facilitate further financial innovation as new cash management products could emerge. Since RTGS transactions would be collateralised, repo activity could widen in terms of number of players as well as the term structure itself, helping emergence of benchmark term rates in the process. The payment system cannot be looked at in isolation, but needs to be developed in tandem with development of other segments of the financial markets.

7.28 Public ownership of banks, while contributing to systemic stability, has thrown a challenge to the integrity of the organisational structure in the banking system to improve the competitive provision of financial services. The changes brought about in the banking structure since 1992-93, when the Reserve Bank granted 'in-principle' approval for the establishment of new banks in the private sector, have helped to restructure the industry on more competitive lines. Provision for private shareholding in public sector banks, blurring up of distinctions among providers of various financial services and increasing integration of various market segments have generated greater competition. However, there is a scope to improve the markets further, especially the debt and the forex markets, so that the financial entities are able to manage their risks more effectively.