

The interplay between capital flows and the domestic Indian financial system

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Table 1 India's integration with the world, 1992-93 to 2004-05

	Billion USD		Growth (%)	Percent to GDP	
	1992-93	2004-05		1992-93	2004-05
Net capital flows	5.16	31.03	16.1	2.40	4.79
Official	1.85	1.51	-1.9	0.88	0.23
Debt	2.38	12.71	15.0	1.11	1.96
FDI	0.32	5.59	27.1	0.15	0.86
Portfolio equity	0.24	8.91	35.1	0.11	1.37
Miscellaneous	-0.98	3.90		-0.45	0.60
Metric of integration	96.60	471.71	14.1	44.91	72.76
Current account	59.93	313.41	14.8	27.86	48.34
Capital account	36.67	158.30	13.0	17.05	24.42

1 Stylised facts about India's financial integration

From 1992 onwards, India has experienced a substantial integration with the world economy on both the current account and the capital account. Table 1 summarises the empirical facts of this period.

While GDP at Factor Cost, measured in USD, grew at a compound rate of 9.63 per cent per year, gross flows on the current account and the capital account grew much faster. Owing to an extensive program of trade liberalisation, and services exports made possible by telecommunications technology, gross flows on the current account rose at a compound rate of 14.8%, going from 27.86% of GDP to 48.34% of GDP. Similarly, through a more modest easing of capital controls, gross flows on the capital account grew at a slower rate of 13% per year, going from 17.05% of GDP to 24.42% of GDP. Putting these together, gross flows across the border rose from 44.91% of GDP to 72.76% of GDP. This constitutes a substantial change in the degree of globalisation of the economy.

While India continues to have onerous capital controls, the capital account is fairly open for FDI, and for "foreign institutional investors". In addition, as is well known in the literature, there is a strong relationship between a large and open current account, and capital controls. The needs of firms engaged in trade induce an easing of many capital controls, and capital controls become increasingly porous once there is a large current account. The current account can be used by economic agents to implement cross-border capital flows through over/under invoicing, lags in payments and trade credit (Patnaik and Vasudevan, 2000).¹ Combining across these elements of openness, India has made significant movement towards *de facto* convertibility.

Net capital flows grew by 16.1% per year, thus going from 2.4% of GDP in 1992-93 to 4.79%

¹Aizenman (2003) shows one theoretical model, where trade openness induces an easing of capital controls in order to avoid tax evasion. Aizenman and Noy (2004) show empirical evidence that there is a two-way feedback between trade openness and capital account openness.

Table 2 The *de facto* currency regime

	USD	JPY	EUR	GBP	σ_u	R^2
1992-93	1.08	-0.24	0.15	-0.09	1.01	0.79
1993-94	0.98	0.02	-0.00	0.04	0.11	1.00
1994-95	0.89	-0.01	0.18	0.07	0.33	0.95
1995-96	1.04	0.40	-0.89	0.01	1.20	0.77
1996-97	1.16	-0.05	-0.10	-0.02	0.50	0.86
1997-98	0.79	0.05	0.18	0.09	0.95	0.67
1998-99	0.91	-0.01	0.21	-0.06	0.61	0.84
1999-00	1.03	-0.01	0.12	-0.01	0.22	0.98
2000-01	1.03	0.02	0.03	-0.05	0.38	0.96
2001-02	1.02	0.00	0.16	-0.04	0.26	0.97
2002-03	1.00	0.00	-0.11	0.01	0.16	0.99
2003-04	0.97	0.09	0.18	-0.03	0.36	0.96
2004-05	0.68	0.17	0.13	0.27	0.63	0.83
2005-06	0.79	0.26	0.26	-0.11	0.40	0.90
Full period	0.94	0.04	0.06	0.01	0.62	0.86

of GDP in 2004-05. The outstanding feature of this increase appears to be a profound change in the *composition* of capital flows. Official flows faded away, from 0.88% of GDP to 0.23%. Debt flows grew slowly, going from 1.11% of GDP to 1.96%. Dramatic growth took place with FDI and portfolio equity. The sum of these two kinds of equity inflows rose from 0.26% of GDP to 2.23% of GDP over this 12-year period.

A quest for explanations about these broad empirical facts is central to understanding Indian macroeconomics today. Some elements are now well understood, but many unsolved puzzles remain.

2 Policy directions

India's financial globalisation has been enormously influenced by the policy stance on three fronts: the *de facto* currency regime, the system of capital controls, and the program of domestic financial sector reforms. This section describes these three areas.

2.1 Pegged exchange rate

The currency regime defines the backdrop within which issues of financial globalisation are played out. While India claims to have had a "market-determined exchange rate" from the early 1990s, the *de facto* currency regime has been a pegged exchange rate to the USD (Patnaik, 2003). Table 2 shows results of a regression model relating weekly changes in cross-currency exchange rates (Haldane and Hall, 1991; Frankel and Wei, 1994) for every

year from 1992-93 onwards. In this framework, the log-change in the exchange rate on date t between currency i and the numeraire k is denoted as $\Delta e_{i/k,t}$. A typical numeraire currency that is used in this context is the Swiss franc (CHF).² The model estimated is:

$$\Delta e_{i/k,t} = a_0 + a_1 \Delta e_{\text{USD}/k,t} + a_2 \Delta e_{\text{EUR}/k,t} + a_3 \Delta e_{\text{JPY}/k,t} + a_4 \Delta e_{\text{GBP}/k,t} + u_t$$

The results suggest that India has mostly had a peg to the USD with highly limited currency flexibility. The symptoms of pegging that are visible in the regression results are: an overall USD coefficient of 0.94, insignificant coefficients for other currencies, a low value for the residual standard deviation of 0.62% per week, and a high R^2 of 0.86. A closer examination of the time-series evidence on the currency regime shows extended periods of low-volatility pegging. The most recent year (2005-06) has a R^2 of 90%.

The implementation of such pegs, i.e. a lack of adjustment on the part of exchange rates, inevitably leads to a build-up of monetary policy distortions (Patnaik, 2005). Hence, these periods of low-volatility pegging are punctuated by episodes of large currency movements which “let off the steam” and restore a market exchange rate. Thus the R^2 was 1.0 and 0.95 over 1993-95, followed by a period of currency flexibility over 1995-99. The R^2 was then near 1 from 1999-2004, followed by bigger flexibility in 2004-05. There are five years in the table where the R^2 was lower than the full period average of 0.86; for eight out of 13 years, we see $R^2 \geq 86\%$.

2.2 Capital controls aimed at shaping the composition of capital inflows

Given the pegged exchange rate regime which was in place by the early 1990s, there were concerns about implementation difficulties. India had experienced a near-exhaustion of reserves in 1991. Policy makers felt that India should have strong capital controls against debt flows, while easing capital controls for equity flows, in the form of both FDI and portfolio flows.

In particular, the Indian State has had large fiscal deficits through this period. The system of capital controls was aimed at financing the fiscal deficit domestically, by issuing rupee denominated bonds, so as to limit the extent to which the intractable domestic fiscal problem could spillover into difficulties for the implementation of the pegged exchange rate. This framework was thought to be compatible with obtaining benefits of financial globalisation, achieving a sustainable current account deficit and thus investment that exceeds domestic savings, while being consistent with a pegged exchange rate.

The system of capital controls which was adopted may be summarised as follows:

²For the earlier period, where the Euro did not exist, returns on the DEM/CHF exchange rate are substituted for the EUR/CHF rate.

Table 3 FDI limits that are in force (Early 2006)

Limit on foreign ownership (Per Cent)	Sectors
0	Retail trading. Real estate below 25 acres. Atomic Energy. Lotteries, gambling. Agriculture.
20 / 49	Broadcasting
26	Print media and news channels. Defence. Insurance. Petroleum refining.
49	Airlines, Telecom, Investment companies in infrastructure.
51	Oil and gas pipelines. Trading.
51-100	Petroleum exploration.
74	Petroleum distribution. Mining for diamonds, precious stones, coal, nuclear fuel. Telecom. Satellites. Internet services. Banking. Advertising.
74-100	Airports.
100	All other areas.

Rules about FDI There are rules capping the fraction of a firm that can be owned by a foreign company doing business in India. Over the years, these limits have been steadily increased, to a point where there is no limit (i.e. a limit of 100%) on most industries. As of early 2006, the industries where limits continue to apply are shown in Table 3.

Rules about portfolio flows India has a fairly open capital account for stock market investment in equity instruments by “Foreign Institutional Investors (FIIs)”. These economic agents are able to bring capital in and out of the country, hedge currency exposures using the currency forward market, and trade on the equity derivatives market. By default, the ownership of all FIIs put together in a firm is capped at 24%, but the firm can raise this till 98%. Any one FII is blocked from owning more than 10% of any one firm. A foreign investor is permitted to either become an FII or open a “sub-account” with another FII, through which investment in India is channeled.

Rules about ADR/GDR issuance In 1993, the “Scheme for Issue of Foreign Currency Convertible Bonds (FCCBs) and Ordinary Shares (through Depository Receipts (DRs) mechanism)” was promulgated. A firm seeking to issue FCCBs or DRs has to take permission from the Department of Economic Affairs (DEA) of the Ministry of Finance. In 1996 and in 2000, the conditions that a firm desirous of issuance had to meet were relaxed. ADRs/GDRs issued by Indian companies have two-way convertibility.

Offshore debt issuance by the government Technically, India does not have sovereign bond issuance program. The borrowing outside the country that has been directly undertaken the government has entirely been concessional official debt. The entire debt issuance of the State thus appears to reflect a combination of rupee debt (at

market prices) and concessional offshore debt.

However, there is a considerable volume of quasi-sovereign borrowing. From time to time, para-statal organisations (government-owned banks) have borrowed abroad, based on decisions by the RBI and the Ministry of Finance.³ In addition, banks borrow abroad from “non-resident Indians” at interest rates set by the central bank. The bulk of this borrowing is by public sector banks, where there is little doubt that this borrowing is backed by guarantees from the State. For private banks also, borrowing from “non-resident Indians” constitutes quasi-sovereign borrowing to the extent that the State does not allow banks to fail.

Rules about ownership of government bonds by FIIs FIIs are permitted to trade in the government bond market. However, the *stock* of ownership by all FIIs, put together, of government bonds is blocked at \$1.5 billion.

Rules about ADR/GDR issuance In 1993, a *Scheme for Issue of Foreign Currency Convertible Bonds and Ordinary Shares (through Depository Receipts mechanism)* was promulgated. It made the issuance of GDRs and “Foreign Currency Convertible Bonds” (FCCBs) possible. The details of this mechanism have been amended over time.

Originally, approval from the Department of Economic Affairs, Ministry of Finance, was required for the issuer, who was required to be a “sound” company. In 2000, the track record scrutiny by the Ministry of Finance was abolished.

GDR / ADRs issued by Indian companies have two-way convertibility. This has facilitated arbitrage between the DR market and the local Indian market. However, given India’s FII framework, where all investors are unable to access the Indian market, substantial DR premia have persisted.

Rules about offshore borrowing by firms FIIs are permitted to trade in the corporate bond market. However, the *stock* of ownership by all FIIs, put together, of corporate bonds is blocked at \$1.5 billion.

The domestic corporate bond market is thus prevented from being a venue for financial intermediation between domestic firms and foreign investors. Instead, domestic firms have been forced to do offshore intermediation through a mechanism called “external commercial borrowing (ECB)”. This involves borrowing from banks outside the country, or issuing bonds outside the country. There is cap on the aggregate *gross* borrowing, across all firms, that takes place through ECB every year. In early 2006, the limit stood at \$15 billion.

³An example of this is the issuance in 2001 by the State Bank of India of the ‘Millennium India Bond’ (\$5.3 billion).

2.3 Evolution of the domestic financial system

2.3.1 What changed in Indian finance

There has been a remarkable interplay between the developments on the domestic financial system, and financial globalisation. Over the period after the early 1990s, a substantial effort took place on institution building in the areas of banking reform, bond market and securities markets. The extent of success in these areas was highly heterogeneous.

In the area of banking, India avoided a large economy-wide banking crisis, and considerable changes have come about in regulation and supervision (Sarkar and Agrawal, 1997; Mor and Chandrasekar, 2005). Attempts at bond market institution-building took place in a benign environment, owing to a substantial pace of government bond issuance induced by large fiscal deficits. However, both these areas were afflicted by flaws in institutional architecture and competition policy.

In parallel, a distinct policy effort obtained significant success on the equity market (Thomas, 2006). The equity market developed a sophisticated ‘ecosystem’ comprising:

- A professional private equity and venture capital industry for incubating firms (Dossani and Kenney, 2002),
- An effective IPO market, where firms go public for the first time (Shah, 1995),
- A remarkably liquid secondary market, with the third and the fifth ranked exchanges in the world measured by number of transactions (Shah and Thomas, 2000, 1997),
- Stock market indexes (Shah and Thomas, 1998) and index funds (Shah and Fernandes, 2001), and
- Equity derivatives based on both index and individual stock underlyings (Thomas, 2003). By late 2005, the daily turnover of equity derivatives, measured in notional value terms, ranged between \$4 billion to \$8 billion per day.

2.3.2 Some international comparisons

Few developing countries have been able to create such a rich ecosystem, with an interplay between foreign institutional investors, domestic institutional investors and households. Some cross-country evidence is found in Huang (2006), which reports survey evidence about the extent to which firms perceive that financing is a constraint in their growth. This uses data for the World Business Environment Survey (WBES), conducted by the World Bank in 1999 and 2000. This worldwide survey offers data for 188 firms in India and 101 firms in China on the perception of firms. Firms were asked (Question 38) *Please judge on a four-point scale how problematic are the following factors for the operation and growth of your business.* “General financing constraint” (GFC) is offered as one of twelve

constraints. The four-point scale runs from 1 (no constraint) to 4 (a major obstacle). The results show that two-thirds of Chinese firms give a score of 4, while only one-fourth of Indian firms report a score of 4. The difference between countries continues to obtain after controlling for a variety of firm characteristics.

Another area where an international comparison between India and China in the area of finance is readily achieved is the extent to which stock price movements are synchronous with the stock market index. As argued by Morck *et al.* (2000), high levels of market model R^2 are identified with poor corporate governance, poor information disclosure and weak minority investor protection. They find that China has a synchronicity score of 0.8, compared with India at 0.695 and the US at 0.579. This places India roughly midway between China and the US.

An integral part of a well-functioning equity market is the issue of corporate governance, which encourages investment by minority shareholders. The size of the Indian equity market and the participation by a broad range of minority shareholders - households, domestic institutions, foreign institutional investors - has helped induce significant policy activism on improving corporate governance (Sarkar and Sarkar, 2000). India appears to have done better than some other emerging markets on the quality of corporate governance. In December 2005, CLSA Asia-Pacific Markets and Asian Corporate Governance Association put out a scorecard with their subjective assessment about the quality of corporate governance in Asia, based on five areas: rules and regulations, enforcement, political and regulatory environment, international accounting and auditing standards and, "a nation's corporate governance culture". The scores, out of a maximum of 100, were: Singapore (70), Hong Kong (69), India (61), Malaysia (56), Taiwan (52), South Korea (50), Thailand (50), Philippines (46), China (44), Indonesia (37). This shows India lagging behind Singapore and Hong Kong, but doing better than many other Asian countries.

2.3.3 Impact on the financing of firms

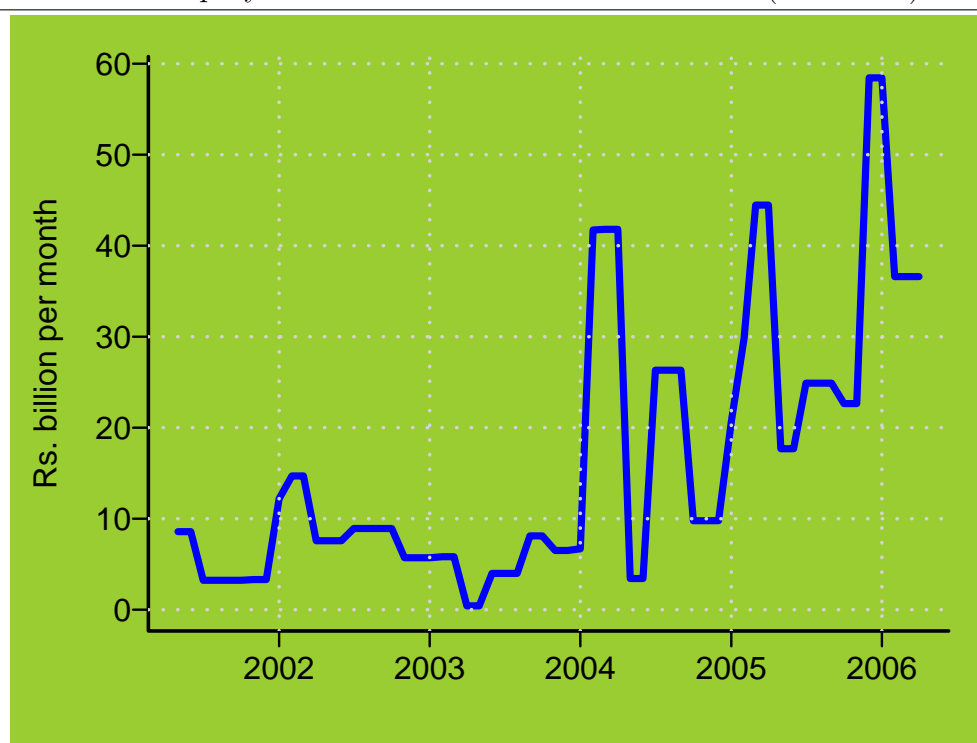
The exceptional success of the equity market may have shaped the corporate financial structure chosen by firms. In addition, the distress experienced by many leveraged firms in period of slow economic growth from 1997 to 2001, when many trade restrictions and entry barriers were removed, may have also shaped the optimisation of managers in choosing the level of leverage.

The stylised empirical fact of this period is that a dramatic deleveraging has taken place on the part of large non-finance firms. Using accounting measures of debt and equity, the debt-equity ratio dropped from 1.43 in 1989-90 and 1.82 in 1992-93 to a level of 1.06 in 2004-05. Using the market value of equity, the debt-equity ratio dropped from 2.19 in 1989-90 to 0.27 in 2004-05. By January 2006, aggregate bank credit - to all firms and individuals put together - stood at Rs.13.3 trillion, while the equity market capitalisation of the biggest 2,550 firms (only) stood at Rs.26 trillion. These relationships suggest that

Table 4 Features of the sources of funds of the corporate sector

Period	1990-1993	2002-2005
Internal financing (percent of total)	25.3	51.7
Securities markets (percent of total)	19.6	1.1
Borrowing from banks / other institutions	30.4	12.1
Number of companies	2455	6060

Figure 1 Revival of equity issuance after the 2001-02 recession (smoothed)



India has evolved into a equity-market-dominated financial system.

An examination of the sources and uses of funds, aggregated across all large firms in the country, shows that the phenomenon which appears to have been at work is an increased importance of internal financing (Table 4). Internal financing rose from roughly a quarter in 1990 to roughly half in 2005.

In the 2002-05 period, securities (the sum of debt and equity) as a source of funds stood at roughly zero: the repayment of outstanding bonds offset the fresh issuance of equity. However, this may reflect the relatively low pace of investment activity in the aftermath of the 2001-02 recession. In recent years, investment activity has picked up, and the importance of securities issuance from 2005-06 onwards might be greater (Figure 1).

2.3.4 Relationship with the trajectory of financial globalisation

There has been a duality between India's path in financial globalisation, and the evolution of the equity-market-dominated financial system. On one hand, because foreign portfolio flows were given the most flexibility as compared with other forms of capital inflows, this is likely to have exerted a positive effect on the equity market in terms of availability of equity capital, the development of market liquidity and improved corporate governance. Conversely, the sophisticated institutional capacity and liquidity of the Indian equity market has served to help overcome home bias and attract foreign investment flows.

As India has moved towards an equity-market-dominated financial system, the economic significance of openness on portfolio flows has become greater. Portfolio flows are linking the centrepiece of Indian finance into the global financial system. Hence, a deeper understanding of India's financial globalisation critically requires a deeper understanding of foreign portfolio investment.

2.3.5 Depository receipts

The relationship between ADR/GDR issuance and the domestic financial system has been an interesting one. In the early 1990s, when portfolio flows into India commenced, the market design was inadequate both in terms of the high standards of foreign investors for an efficient market design, and in terms of the physical capacity to settle using paper-based share certificates. In late 1993, there was a crisis of settlement with truckloads of share certificates being moved across Bombay.

As a response to these weaknesses, many domestic firms chose to disintermediate the domestic securities markets, and engage in offshore issuance through American Depository Receipts (ADR) or Global Depository Receipts (GDR) markets. This allowed these firms to exploit the superior market design which was available outside in London or New York. From 1993 to 1995, a substantial volume of GDR and ADR issuance took place.

However, from 1995 onwards, the market design in the domestic market started falling into place. In October 1995, the new electronic exchange, NSE, became the biggest in the country. By end-1996, the new clearing corporation and depository were both in place. These developments improved the viability of domestic trading when compared with the GDR / ADR trading venues. In addition, securities issued outside the country did suffer from poor liquidity owing to the lack of widespread trading interest and incompatible time zone. Liquidity on the DR market for many securities tended to fade away after issuance date, as some investors defected from the DR by converting into the underlying shares, and then using the services of the domestic market.

As a consequence, after an early period of a high level of issuance, GDR/ADR issuance has been below \$1 billion from 1997-98 onwards. The stagnation of the volume of DR issuance, measured in nominal USD, is particularly striking considering that the market

Table 5 GDR/ADR issuance

		(million USD)	
Year	Inflows (US \$ million)		
1992-93	240	1997-98	645
1993-94	1,520	1998-99	270
1994-95	2,082	1999-00	768
1995-96	683	2000-01	831
1996-97	1,366	2001-02	477
		2002-03	600
		2003-04	459
		2004-05	613

capitalisation of the relatively liquid firms rose by a factor of five in the period from 1997 to 2005.⁴ The domestic equity market now dominates trading, and the dominant mechanism for financial globalisation is foreign investment on the domestic equity market.

3 The evolution of debt obligations

The standard measures of debt show that India has experienced a sea change on external debt when compared with 1991, in favour of reduced debt and reduced sovereign debt. Going by an official classification of debt, the external debt of the Government of India has stagnated at roughly \$44 billion to \$46 billion over the 1998-2005 period, a time of hectic GDP growth. Further, the official classification of “contingent liability” of the government has dropped from \$10.6 billion in 1994 to \$6.6 billion in 2004.

However, in addition to the explicit contingent liability, there is the implicit contingent liability of the government of India. This includes borrowing by public sector enterprises and finance companies that are in the safety net of the State.

Banks borrow offshore through “Non-resident Indian (NRI) deposits” (Gordon and Gupta, 2004). The borrowing that takes place through this channel is explicitly a tool for policymakers: the interest rates on NRI deposits are set by the RBI. The NRI deposits that are held by public sector banks are clearly guaranteed by the Government of India, for the State will not allow any public sector bank to fail. The NRI deposits of private banks are also, for all practical purposes, a contingent liability of the State, since the State has no track record of allowing non-trivial banks to fail. However, in the official classification, NRI deposits are not treated as part of sovereign debt or the government’s contingent liabilities.

Similarly, borrowing by para-statal organisations like the State Bank of India (SBI),

⁴In the period after 2003, it appears that some Indian ADRs on NYSE and NASDAQ have attained significant liquidity. In the future, this could induce new kinds of behaviour on the part of firms, when compared with the highly limited role of DRs seen in Table 5.

Table 6 Reclassification of India’s external debt: Annual time-series

(Billion USD)				
	Sovereign	Quasi-sovereign	Private	Total
1990	42.40	14.85	18.61	75.86
1991	47.29	16.67	19.84	83.80
1992	48.62	15.96	20.71	85.28
1993	52.24	17.66	20.12	90.02
1994	53.80	18.48	20.41	92.69
1995	56.89	19.65	22.47	99.01
1996	52.20	19.14	22.39	93.73
1997	48.84	19.85	24.78	93.47
1998	45.88	19.74	27.91	93.53
1999	45.43	24.17	27.28	96.89
2000	45.98	25.63	26.65	98.26
2001	43.31	33.41	24.61	101.33
2002	42.86	34.41	21.57	98.84
2003	42.76	41.00	21.20	104.96
2004	42.53	43.25	25.93	111.72
2005	44.51	44.34	34.46	123.31

Table 7 Reclassification of components of India’s external debt: Summary perspective

	1991	2001	2005
Stock of debt (Billion USD)			
Sovereign debt	47.29	43.31	44.51
Quasi-sovereign debt	16.67	33.41	44.34
Private debt	19.84	24.61	34.46
Total debt	83.80	101.33	123.31
Ratios (in percent)			
Sovereign + quasi-sovereign debt to total debt	76.33	75.72	72.06
Private debt to total debt	23.67	24.28	27.94

through instruments such as the Resurgent India Bonds and India Millennium Deposits, are classified as External Commercial Borrowing in the official classification. However, there were bonds issued by public sector banks at the initiative of the GoI. In the case of RIB, the RBI gave a guarantee against currency fluctuations that would be borne by the investor. These bond issues were clearly a disguised case of offshore sovereign borrowing.

This suggests that greater care needs to be exercised in understanding Indian external debt data. Obtaining an accurate picture requires reclassifying the underlying components of the official debt data.

In Table 7 we reclassify India’s external debt into sovereign, quasi-sovereign and private debt based on the *de facto* involvement of the State in the liabilities.⁵ We define “Sovereign”

⁵The underlying data is drawn from RBI’s *Handbook of Statistics on Indian Economy*, 2005, Table 159.

as government borrowing, rupee debt and IMF debt. We define “Quasi sovereign” as public sector and financial sector multilateral and bilateral borrowings, Resurgent India Bonds (RIB), India Millennium Deposits (IMD) and NRI deposits. We define “Private” comprises private sector borrowing, trade credit, commercial borrowing and foreign currency (banks and others) deposits. The complete annual time-series obtained by this reclassification effort is shown in Table 6, however Table 7 supports greater understanding.

This reclassification yields a somewhat different picture as compared with common perceptions. It shows that while sovereign debt stagnated in nominal USD after the 1991 crisis, the government continued to engage in significant *de facto* offshore borrowing. Quasi-sovereign debt grew by roughly 2.5 times over the 1991-2005 period. Put together, sovereign and quasi-sovereign debt, expressed as a proportion of GDP, fell from 22% to 14%. This decline is not as dramatic as that implied by the stagnation of sovereign debt measured in nominal USD as reported by the government.

Capital controls strongly constrained debt issuance by the private sector, which now accounts for only 27.9% of total debt. Private debt grew by only 1.5 times over this period, going from 7% of GDP to 5% of GDP. A fascinating feature of this experience is that while capital controls against private debt were eased from 1999 onwards, private debt only showed a significant rise in 2004 and 2005. This may reflect the expectations of exchange rate appreciation which were in place by 2004.

These empirical facts are consistent with the consequence of capital controls that are in place on a key component of private debt, i.e. “external commercial borrowing” (ECB), where the *gross* inflow per year is capped. Every year, some past debt is repaid and some new debt is contracted. If the gross annual borrowing through ECB is capped, and if the maturity structure of the debt is not changing, then in steady state, this cap translates to a stagnant *stock* of ECB in nominal USD. In addition, we know that the explicit sovereign borrowing has been stagnant, in nominal USD. Yet, in Table 1, we see that debt *flows* have risen slightly from 1.99% of GDP in 1992-93 to 2.19% of GDP in 2004-05. The missing piece that reconciles these facts is the rapid growth of quasi-sovereign borrowing.

4 Understanding equity flows

As the empirical evidence above has emphasised, the most important interaction between Indian firms and the global financial system takes place through foreign portfolio flows. Hence, there is a need for a closer examination of these transactions. In this section, we approach the phenomenon of FII inflows into India from two perspectives: analysis of aggregate daily data for net equity inflows in order to learn about time-series characteristics, and analysis of firm-level data about ownership in order to learn about cross-sectional characteristics.

<http://rbidocs.rbi.org.in/rdocs/Publications/PDFs/66019.pdf>

Table 8 Mean transaction size on the equity market (in rupees)

	2002	2003	2004	2005
NSE spot	26,703	26,993	27,716	24,293
NSE derivatives	300,334	425,077	488,790	501,946

Table 9 FII turnover on the equity market

	(Trillion rupees)			
	2002	2003	2004	2005
Total turnover	26.07	55.15	86.29	120.32
Institutions	1.13	2.56	5.47	12.36
Of which, FII	0.54	1.58	5.03	9.79

4.1 How big are FII transactions when compared against the domestic equity market?

We may usefully classify the participants in the equity market as being domestic institutional investors (DIIs), foreign institutional investors (FIIs) and non-institutional participants. The term “retail investors” is often used in India to convey non-institutional participants. However, there is actually a wide range of players under this category, including proprietary trading by securities firms, and agency structures for portfolio management that are similar to hedge funds.

An outstanding feature of the equity market is domination by these retail participants (in this sense). Table 8 shows the mean transaction size on the spot and derivatives market.⁶ These show remarkably small values. Translating into USD at the 2005 exchange rate of Rs.44 per USD, the 2005 values stand at a mean transaction size on the equity spot market of \$552 and a mean transaction size on the equity derivatives market of \$11,407. These suggest a large number of small transactions, as opposed to the large transactions that would be associated with institutional trades.

Foreign institutional investors form a subset of total institutional turnover. Table 9 shows the role of FIIs in the equity market, summing across spot and derivatives.⁷ In 2005, this shows that institutional turnover accounted for roughly 10% of total turnover. This is a

⁶Source: Table 4.9 from *Securities Markets*, Chapter 4, *Economic Survey*, Ministry of Finance, February 2006.

⁷There is a difficulty in measurement which needs to be addressed in obtaining comparable data. Turnover data is reported “one-way”: when 1 share is sold, there is one buyer and one seller, and a turnover of 1 share is reported. In contrast, institutional and FII turnover is reported “two-way” : when one FII buys 1 share, it is reported as 1 share. In order to make the two data sources comparable, turnover is converted into “two-way” by doubling it. Hence, while the table shows the turnover of the Indian equity spot+derivatives market at Rs.120 trillion in 2005, this is actually a number of Rs.60 trillion (or almost 200% of GDP) if measured in the conventional one-way manner.

small value by international standards. FII turnover stood at just 8.1%. This suggests that while FIIs are an important part of the equity market ‘ecosystem’, their transactions are as yet a small part of the equity market.

4.2 Time-series evidence

As the empirical evidence above has emphasised, the most important interaction between Indian firms and the global financial system takes place through foreign portfolio flows. Hence, there is a need for a closer examination of these transactions. In this subsection, we examine the question of the extent to which portfolio flows affect the domestic stock market index. Alternatively we investigate the extent to which foreign investors – as a class - are positive feedback traders.

4.2.1 Questions

A large number of observers in India, including the mass media, believe that FII flows “cause” Indian equity returns. A google search for “India FII domination” and “India FII dominated” yielded roughly 800 hits each. We repeatedly see phrases like “stock prices rose owing to heavy FII purchases”.

However, as argued in the previous subsection, the present size of FII transactions is too small, when compared with the liquidity of the Indian equity market, for FII transactions to overly influence the market owing to the sheer size of transactions. Considering the small size of FII transactions, other channels of influence need to be conceived of, if we believe that FII flows “cause” Indian equity market index fluctuations.

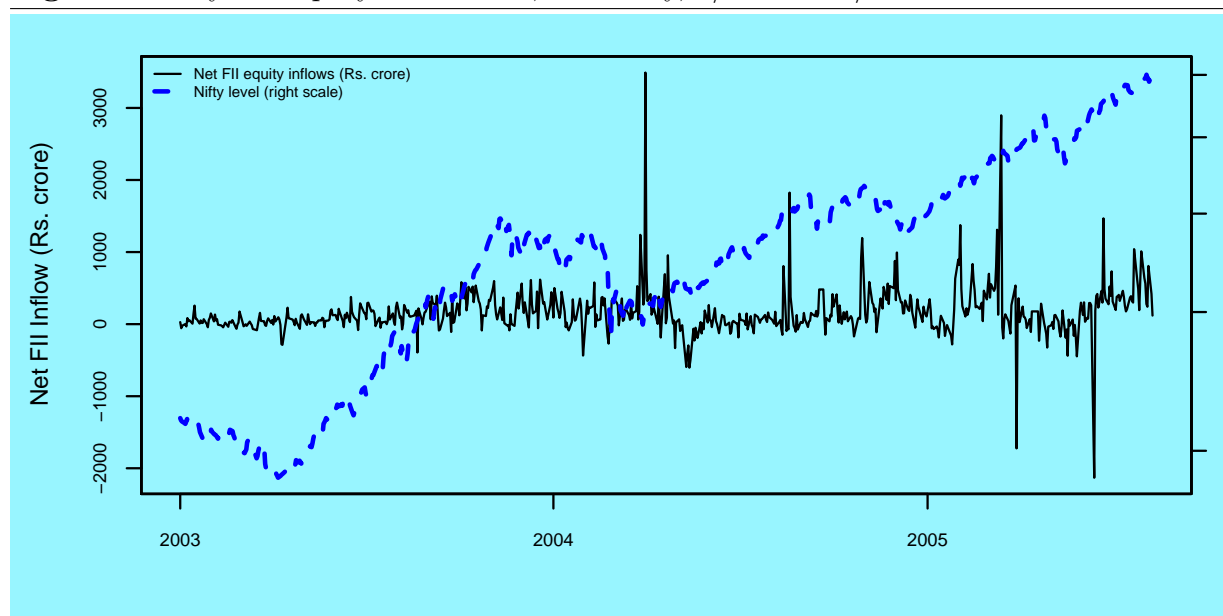
In a modern finance perspective, it is possible that FII flows cause fluctuations in the local stock market index, even though FIIs engage in small transactions: this would require FIIs who have superior skills at stock market speculation. Hence their purchases and sales would accurately predict future market movements.

This argument, if justified by the empirical evidence, has important policy consequences. If FIIs have superior skills at stock market speculation, then they are making an contribution to the market efficiency of the Indian market, and need to be encouraged and given a greater field of play in order to enlarge this contribution of improved price discovery.

Alternatively, it is possible to argue that FIIs *respond* to movements in the Indian equity index. When Nifty does well, owing to improved Indian prospects, FIIs send capital into the Indian equity market. In this case, portfolios flows are procyclical, and FIIs are consumers of liquidity sold by local limit-order placement.

The elaborate system of capital controls in India, coupled with high quality availability of information, makes it possible to bring empirical evidence to bear on understanding these relationships.

Figure 2 Daily net equity FII inflows, and Nifty, 1/2003 to 9/2005



4.2.2 Data

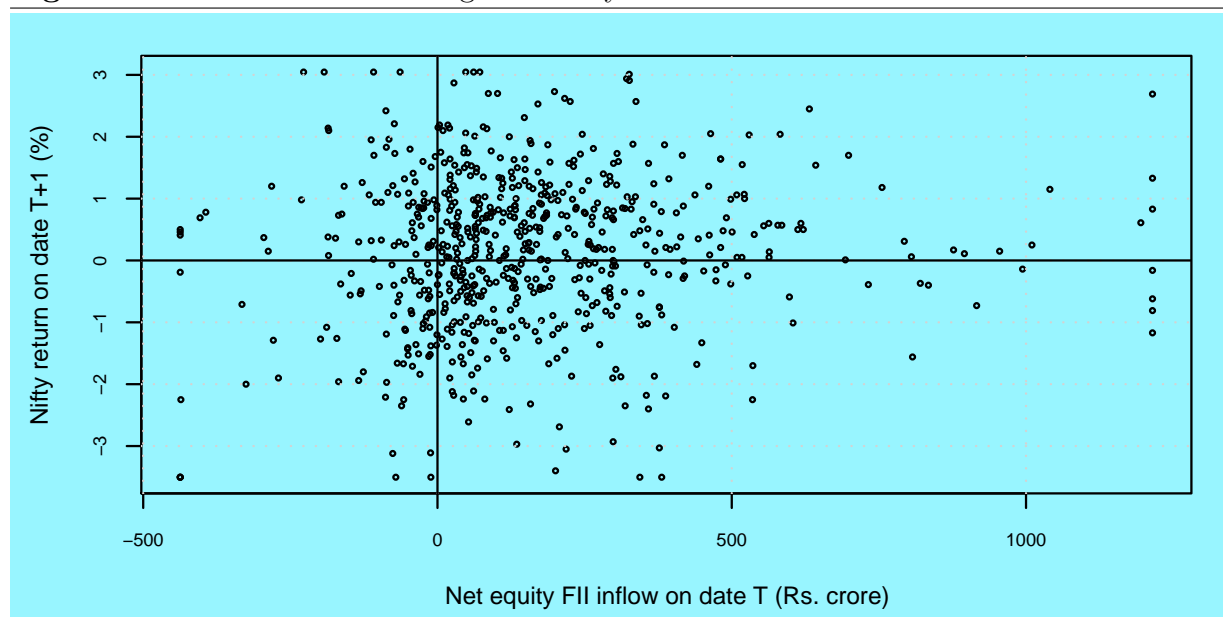
A long time-series for FII flows, going back to 1993, contains a secular rise in FII flows that has come about owing to the global acceptance of India as an investment destination, and India's progress on easing capital controls. The relationships seen over such a long span could be influenced by these extraneous effects. Hence, we use data from January 2003 till September 2005, which is a stable period in terms of capital controls and the visibility of India amongst global investors.

Many papers on the impact of FII flows have used monthly or atmost weekly data. However, the causes and effects of FII flows are likely to play out over very short horizons. Hence, it is important to use daily data. Our dataset has 650 days of data for Indian stock market indexes and daily net FII equity inflows. This data is shown in Figure 2.⁸

As Figure 2 suggests, there are some extreme values in the time-series of both Nifty returns and net FII inflows. Hence, in addition to the raw data, we also check the robustness of results using modified time-series which are Winsorised at the 1% and 99% levels. This transformation drops the standard deviation of daily Nifty returns from 1.414 to 1.241. For the daily FII inflows data, the standard deviation drops from 323.89 to 249.14. Figure 3 graphs the two Winsorised vectors, juxtaposing Nifty returns on date $t + 1$ against net

⁸SEBI data has a reporting lag of one day, which needs to be corrected. What SEBI shows as "FII transactions reported on date T " are roughly equal to the transactions which took place on date $T - 1$. If this is not corrected, then estimates made using daily data will be wrong by one lag, which is of central importance in an exploration like this.

Figure 3 FII inflows on date t against Nifty returns on $t + 1$



FII equity inflows of date t . A visual examination suggests a weak relationship at best.

4.2.3 Granger causality

Table 10 shows results of testing for Granger causality. Lagged values of Nifty returns are important in explaining FII flows, but lagged values of FII flows are not important in explaining Nifty. As is well known in the literature, tests of Granger causality need to be cautiously explored for robustness in many ways:

Extreme values Using Winsorised vectors, the prob value for one-way causality from Nifty returns to FII flows drops to 9.69×10^{-5} . In other words, the result is much stronger if extreme values are given reduced importance in estimation.

Period If the overall dataset is broken up into two periods, then one-way causality at the 95% level is found in the first but not the second period. However, with Winsorisation, one-way causality from Nifty returns to FII flows is found in both periods.

Lag order The basic features of these results appear across a broad range of lag orders. With raw data, FII flows Granger-cause Nifty returns at a lag order of 2 (only), yielding bidirectional causality for this one case. But once Winsorisation is done, this difficulty also goes away, and one-way causality is found at all lag orders from 1 to 10.

Choice of index The basic character of these results is found with both the Nifty index

Table 10 Granger causality between net daily equity FII inflows (“fii”) and Nifty returns (“rM”)

Model 1: fii \sim Lags(fii, 1:5) + Lags(rM, 1:5)

Model 2: fii \sim Lags(fii, 1:5)

	Res.Df	Df	F	Pr(>F)
1	640			
2	645	5	2.6101	0.02386 *

Model 1: rM \sim Lags(rM, 1:5) + Lags(fii, 1:5)

Model 2: rM \sim Lags(rM, 1:5)

	Res.Df	Df	F	Pr(>F)
1	640			
2	645	5	1.2648	0.2774

and the CMIE Cospi index. But these results are not obtained for the Nifty junior index, for which there is no causality in either direction. This suggests that FIIs respond to movements of the largest stocks, and not the stock prices of smaller stocks.

Currency expectations FII flows are known to also respond to the deviation from covered interest parity on the currency market (Shah and Patnaik, 2006 (Forthcoming)). A variation of these estimates was made by additionally placing the CIP deviation in the regressions. The character of the results was unchanged.

4.2.4 OLS estimates

Table 11 shows OLS estimates of a vector autoregression explaining daily Nifty returns (measured in percent) and net daily FII inflows into the equity market (measured in Rs. crore).⁹

The models have relatively little explanatory power, which suggests weak linkages at best. The model explaining FII inflows has an adjusted R^2 of 14.4%. A model explaining Nifty returns using lagged Nifty returns alone has an adjusted R^2 of 4.3%. This goes up to 4.4% when lagged FII equity inflows are added into the model. In other words, lagged FII equity inflows have an ability to incrementally explain 0.1% of the variance of Nifty.

The slopes do not seem to be large. For example, a 1% rise in Nifty on date T appears to be associated with higher FII flows on date $T + 1$ to the tune of Rs.28.8 crore. An incremental net equity inflow of Rs.1,000 crore from FIIs on date T appears to be associated with

⁹These models were also estimated using a robust least squares procedure, in order to avoid problems caused by extreme events such as the large value of Nifty returns on 17 May 2004 or the occasional large values of FII inflows. The coefficients are only slightly different. E.g. instead of the coefficient of Rs.28.8 crore, we have a value of Rs.27.3 crore. Alternative estimates were also made after Winsorising both vectors, with similar results.

Table 11 Vector autoregression for r_M and net equity inflows

This table shows estimates for a VAR explaining Nifty returns and net FII inflows, based on lagged values of Nifty returns and lagged values of net FII inflows. Five lags are used, which corresponds to roughly a working week.

	r_M				FII			
	Estimate	Std. Error	t value	Pr(> t)	Estimate	Std. Error	t value	Pr(> t)
Intercept	0.0891	0.0687	1.30	0.1950	71.7887	14.8306	4.84	0.0000
Lagged r_M								
1	0.1199	0.0403	2.97	0.0031	0.1829	0.0405	4.52	0.0000
2	-0.1618	0.0408	-3.97	0.0001	0.0786	0.0412	1.91	0.0569
3	0.0586	0.0412	1.42	0.1560	0.1574	0.0408	3.86	0.0001
4	0.0734	0.0407	1.80	0.0719	0.0765	0.0411	1.86	0.0629
5	-0.0473	0.0407	-1.16	0.2455	0.0197	0.0401	0.49	0.6242
Lagged FII								
1	0.0004	0.0002	2.02	0.0439	28.8074	8.7073	3.31	0.0010
2	0.0001	0.0002	0.47	0.6382	7.7662	8.7999	0.88	0.3778
3	-0.0001	0.0002	-0.33	0.7437	8.3015	8.9016	0.93	0.3514
4	0.0001	0.0002	0.57	0.5722	-3.1614	8.7849	-0.36	0.7191
5	-0.0002	0.0002	-1.22	0.2219	-2.2050	8.7746	-0.25	0.8017

higher Nifty returns on date $T + 1$ to the tune of 40 basis points.¹⁰

4.2.5 What have we learned?

The evidence from aggregate data thus suggest the following relationships:

- FII flows appear to respond positively to lagged Nifty returns. Thus, foreign investors appear to engage in positive feedback trading.
- Nifty returns do not appear to respond to lagged FII inflows. Lagged FII inflows add 0.1% to the R^2 of a model explaining Nifty returns.
- The relationships are fairly unimportant. Nifty returns of 1% appear to induce additional net FII equity flows of less than \$10 million on the next day.

On average, the three days in a typical year with the biggest net FII flows have an inflow of over Rs.1,155.5 crore in a day. On average, a net FII inflow of Rs.1,155.5 crore on a day induces additional Nifty returns of roughly 0.4% on the next day.

¹⁰The “incremental” net equity inflow of Rs.1,000 crore described above is in excess of the average inflow. In this dataset, the average inflow works out to Rs.155.5 crore per day. Hence, the case discussed here, of an incremental net flow of Rs.1,000 crore in one day is one where Rs.1,155.5 crore came into India in one day. In our dataset, this happened on 8 days out of 650, i.e. on 1.23% of the days or roughly 3 days per year.

4.3 Firm-level evidence on foreign portfolio investment

In this subsection, we examine foreign portfolio inflows into India at the level of the ownership structure of individual firms.

4.3.1 Questions

A central empirical regularity in the field of international capital flows is ‘home bias’, where investors deviate substantially from ICAPM weights in their purchases of foreign stocks, particularly emerging market stocks. It is, hence, interesting to examine the determinants of ownership of foreign investors in Indian stocks.

The simplest H_0 that can be posed is that foreign investors, as a class, are index investors. In this world, foreign investors only do country-picking, and country characteristics are all that shape home bias. Under H_0 , there should be no cross-sectional variation in foreign ownership of Indian firms. This null is obviously rejected by the evidence. India has some firms with a very high FII ownership, and a large number of firms with zero FII ownership. Foreign investors only invest in some firms, and there is large heterogeneity in the fraction of the shares that are bought by foreign investors.

This motivates a quest for an examination of the cross-sectional characteristics of firms, which explains the variation in foreign ownership. The unit of observation in traditional discussions about home bias has been the country. However, understanding why some firms are able to have substantial foreign shareholding while others do not could give us new insights into home bias. Such results can also be useful in doing normative corporate finance, in addressing the question of an Indian firm which seeks to obtain greater foreign shareholding.

Our dataset is drawn from the CMIE Prowess database, and is composed of all firms present in January 2006 with market value of above \$10 million. It is unbalanced panel data:

(Number of firms)					
2001	2002	2003	2004	2005	Total
1071	1097	1112	1127	1162	5569

Thus we observe a full set of 1162 firms in 2005, which dwindles down to 1,071 firms in 2001, giving 5,569 firm-years of observations. A full set of information is available in the CMIE Prowess database, covering ownership structure, corporate finance and stock market.

The foreign ownership in Indian firms exhibits strong cross-sectional variation. On 31 March 2005, of these 1200 firms, there were 332 firms with “high” foreign ownership of over 5%, 119 firms with “medium” foreign ownership of between 1% and 5%, 119 firms with “low” foreign ownership between 0.05% and 1%, and 522 firms with zero foreign ownership.

Table 12 Evolution of FII ownership of Indian equity

Year	FII ownership		Number of firms				
	(%)	(Rs. Trn)	None	Low	Med.	High	Total
2001	8.5	0.45	670	121	93	184	1071
2002	8.1	0.52	733	126	76	156	1097
2003	6.9	0.44	768	117	67	154	1112
2004	10.1	1.20	663	131	93	235	1127
2005	11.1	1.83	522	185	119	332	1162

Table 12 shows summary statistics about foreign ownership in our dataset. The market value of foreign ownership rose from Rs.0.45 trillion in 2001 (\$9.6 billion) to Rs.1.83 trillion (\$42 billion) in 2005, which constituted an 11.1% ownership share. Over this period, the number of firms with “high” foreign ownership rose from 184 to 332.

With this backdrop, we may articulate some interesting questions about firm characteristics. Does foreign ownership shift drastically from one firm to another? Or are firms able to obtain sustained globalisation of liabilities? And, what is the role of explanatory variables such as size, liquidity and ownership structure in influencing FII ownership?

4.3.2 Descriptive statistics

The first issue that we face is that of parameterisation of foreign ownership. Foreigners can at most own 100% of the outside shareholding. Hence, it is useful to express FII ownership as fraction of outside shareholding. As an example, consider two firms: Infosys and Wipro:

	Wipro		Infosys	
	2000	2005	2000	2005
Raw data	2.33	3.80	28.89	42.87
Rescaled	14.53	22.52	40.78	54.79

The apparent data on foreign ownership makes it seem that foreign ownership of Infosys (42.87% in 2005) is enormously bigger than that in Wipro (3.8%). However, when foreign ownership is expressed as a proportion of outside shareholding, the difference between the two firms is smaller (54.79% against 22.52%).

Table 13 shows summary statistics about foreign ownership, once this rescaling is done. The median firm has foreign ownership of 0.002%. Foreign ownership of 1.74% is only found at the 75th percentile. This table clearly shows a lumping of many (1,061) observations with “High” foreign ownership, and many (3,356) observations with zero foreign ownership, while relatively few observations appear to be in the in-between categories.

Table 14 shows the structure of outside shareholding expressed in trillion rupees. It shows that foreign investors, as a class, owned roughly as much Indian equity in 2005 as Indian

Table 13 Characteristics of rescaled FII ownership

	Min	25%	Median	75%	Maximum
Full dataset	0.00	0.00	0.002	1.74	76.86
Non-zero FII only	0.05	0.56	4.45	15.49	76.86

Summary statistics about rescaled FII ownership

	None	Low	Med.	High
	3356	680	448	1061

Number of observations of rescaled FII ownership in four bins

Table 14 Structure of outside shareholding

	(Rs. Trn)		
Year	FII	DII	Retail
2001	0.45	0.62	1.89
2002	0.52	0.61	2.46
2003	0.44	0.57	2.64
2004	1.20	1.07	3.99
2005	1.83	1.28	4.74

retail investors did in 2001. However, foreign institutional investors (FIIs) had eclipsed domestic institutional investors (DIIs) by 2005. In all years, “retail” investors dominated the outside shareholding of Indian firms.

4.3.3 Transitions across four categories

Table 15 shows the transition probability matrix about transitions of firms from one FII ownership category to another over a one year time-horizon. As an example, this shows that there is a 4% chance that a firm with “Zero” FII ownership will jump to “High” (i.e. over 5%) FII ownership over one year.

These transitions show significant stickiness. Firms that are in the Zero category have an 86% probability of staying there. Firms that have achieved high investment have an 82% chance of retaining it. The intermediate categories appear to exhibit significant mobility, both in the upward and the downward directions.

4.3.4 Size and liquidity

Size and liquidity are well known to affect the decision making of institutional investors, which require a certain minimum transaction size in order to justify the fixed costs of information processing, and liquidity required to obtain adequate execution costs when

Table 15 Transitions across foreign ownership categories

	Zero	Low	Medium	High
Zero	0.86	0.06	0.03	0.04
Low	0.19	0.60	0.11	0.10
Medium	0.16	0.16	0.43	0.24
High	0.06	0.04	0.08	0.82

Table 16 Quartiles by size and liquidity

	0-0.045	0.045-0.18	0.18-0.65	0.65-	Sum
0.3-16.9	672	367	163	73	1275
16.9-55.5	350	391	343	244	1328
55.5-205	185	324	395	407	1311
205-	108	232	413	590	1343
Sum	1315	1314	1314	1314	5257

implementing these minimum transaction sizes. We use the “turnover ratio”, of the latest one-years trading volume divided by the latest market value, as a metric of liquidity.

Table 16 shows the joint distribution of size and liquidity quartiles. The lowest size quartile has market value from Rs.0.3 crore to Rs.16.9 crore. The lowest liquidity quartile has a turnover ratio from 0 till 0.045. The table shows that while size and liquidity are correlated, there is significant off-diagonal mass.

Some preliminary evidence on the interplay of size and liquidity in influencing foreign ownership is shown in Table 17. Bigger firms and more liquid stocks are likely to attract greater FII investment; however, there is considerable off-diagonal mass in both tables.

4.3.5 What have we learned?

- Just 332 firms in India have over 5% of their outsider shareholding with FIIs. But once a firm gets into this set, there is a 82% chance in staying there next year. Selectivity and propensity effects are distinct.
- Size and liquidity both appear to play a role in determining FII ownership.

4.4 The financing of inbound FDI

Indian corporate law enshrines considerable powers to a shareholder who owns more than 25% of the company. Hence, in an Indian setting, ownership of over 25% constitutes insider shareholding.

Table 17 Variation of foreign ownership by size and liquidity quartiles

	Size quartiles				Sum
	Q1	Q2	Q3	Q4	
Zero	1165	1021	796	280	3262
Low	108	171	242	159	680
Medium	25	67	138	218	448
High	66	104	183	706	1059
Sum	1364	1363	1359	1363	5449

	Liquidity quartiles				Sum
	Q1	Q2	Q3	Q4	
Zero	1128	874	678	409	3089
Low	77	175	191	236	679
Medium	24	81	139	194	438
High	86	182	306	475	1049
Sum	1315	1312	1314	1314	5255

Table 18 Ownership structure of FDI

Year	Number	Market value	FDI	FII	Domestic
2001	168	1.22	0.57	0.11	0.52
2002	176	1.24	0.59	0.13	0.51
2003	169	0.78	0.40	0.06	0.31
2004	166	1.35	0.70	0.12	0.52
2005	180	1.87	1.02	0.17	0.68

Some firms which are part of FDI into India are listed on the Indian securities markets. FDI firms can be classified into two types: those which are joint ventures with a local management team, and those which are not a joint venture. In some cases, firms which are *not* joint ventures have chosen to obtain a domestic listing and access equity capital from the domestic capital market, while retaining atleast 25% so as to have control. Alternatively, there are listed firms where there is over 25% ownership by a foreign partner, which constitutes FDI.¹¹

In both these situations, FDI into India is being partly financed using the domestic capital market. On the domestic capital market, FIIs are able to buy shares of these companies. Here, foreign investors and local investors are providing capital for FDI into India. To this extent, the Indian equity market is the venue where intermediation is taking place between a foreign firm bringing FDI into India and foreign portfolio investors.

Table 18 shows that the number of FDI firms which are listed on the domestic equity

¹¹Our data clearly distinguishes between equity ownership by foreign institutional investors, as opposed to foreign ownership associated with FDI.

market has fluctuated between 166 and 180 in the recent five years.¹² The market value of such firms stood at Rs.1.87 trillion in 2005. Of this, Rs.1.02 trillion was equity capital brought in by the foreign firm involved in the FDI, Rs.0.17 trillion was capital from foreign portfolio investors and Rs.0.68 trillion was from local investors.

4.5 Outbound FDI

The literature on capital flows has long emphasised the relationships between inbound FDI and exports as part of global production chains. In the Indian case, the sophistication of local firms has implied that local firms have begun to engage in outbound FDI.

Over a 12 year period, from 1992-93 to 2004-05, FDI flows in both directions changed considerably. In 1992-93, inbound flows were \$0.35 billion and outbound flows were at \$0.03 billion. Gross flows added up to 0.17% of GDP. In 2004-05, gross inbound flows stood at \$5.65 billion, of 0.87% of GDP. Outbound flows were also substantial: at \$2.58 billion, or 0.4% of GDP.

The standard Indian data for net FDI reflects 0.87% of GDP of inbound flows coupled with 0.4% of GDP of outbound flows, giving net FDI inflows of \$3 billion or 0.47% of GDP.

Examination of individual transactions shows that the firms which engage in outbound FDI are almost entirely large firms seeking to become multinational corporations. Initially, small amounts of capital are used to build a branch network. Larger amounts of capital are used to do acquisitions, such as the purchase of the UK firm Tetley, by Tata Tea, for GBP 271 million, in 2000. This transaction illustrates the flows of financing which could be at work. FIIs are investors in Tata Tea, and have thus helped finance the Tata Tea acquisition. The financing of outbound FDI is thus based on local financial intermediation where Indian firms access multiple sources of capital, including foreign investors.

5 Looking forward

India now has a fairly open capital account. Over the years, India has made fairly steady progress on easing capital controls. More importantly, the current account has been growing at a hectic pace. Gross flows on the current account doubled in the last 2.5 years. Through this, capital controls will become increasingly ineffective, and India will increasingly achieve *de facto* capital account convertibility.

¹²In preceding decades, Indian rules about FDI had required mandatory listing on the domestic capital market. In the early 1990s, this restriction was eliminated. Many FDI firms chose to buy back their public shareholding, and delist. While some large firms such as Cadbury, Kodak, Otis and Philips have chosen to delist, other large firms, such as Unilever, have chosen to not delist. The fluctuations in the number of firms in Table 18 thus reflects two processes: that of new FDI firms who choose to list versus old FDI firms who choose to delist.

There have been repeated conflicts between the pegged exchange rate and the needs of domestic monetary policy. The open capital account is likely to increasingly constrain the implementation of the monetary regime, which is a pegged exchange rate. There will be episodes where the domestic business cycle requires raising rates, or lowering rates, but these moves would be incompatible with the peg.

The central bank has been advocating a return to greater capital controls, as a way to win back monetary policy flexibility. The views expressed by RBI¹³ include the following positions:

- Given India's restrictions on the entities that can participate in the Indian equity market, a substantial market has sprung up by existing permit-holders, who earn a rent by letting other entities utilise the permit. These access products are called "participatory notes". The fraction of overall FII investment which flows through access products has risen from 26% in September 2003 to 35% in February 2005 to 48% in February 2006. Almost all issuance of these access products is taking place from 17 out of the 733 SEBI-registered FIIs as of June 2005.

RBI has been seeking to obtain capital controls in the form of banning them.

- RBI has argued that access to FII "subaccounts" should now be limited, for new applications, to firms which meet the requirement for FII accounts.
- RBI advocates not giving out permissions to hedge funds to participate in the Indian market, and if any hedge funds are amongst the ranks of existing FIIs, then these should be removed from the country. At present, it has been estimated that 60-80 percent of participatory notes are sold by FIIs to hedge funds.
- RBI has suggested that a "Tobin tax" on foreign portfolio investors, or a Chilean-style unremunerated reserve requirement, should be evaluated.

It appears that two scenarios could shape up.

Scenario I: India sets course for a floating rate. One possible scenario is one where India is able to shift away from the pegged exchange rate. In this case, RBI would recover monetary policy autonomy by steadily giving up the pegged exchange rate. This would involve a sustained increase in currency flexibility, as opposed to the episodic 'letting off of steam' that has been utilised in the past to remove distortions in monetary policy. The rise in INR/USD volatility could be accompanied by building currency derivatives markets in order to give the private sector the ability to voluntarily substitute the removal of public sector risk management in the form of a pegged exchange rate. In this scenario, it would become possible to move on in terms of easing capital controls.

Scenario II: Staying with the pegged exchange rate. While Scenario I is an appealing one, the

¹³These facts are distilled from the speech at IGIDR by Y. V. Reddy, the RBI governor, on 12 December 2003, and from the dissent note by the RBI in the Ashok Lahiri Committee report on policies about FII flows.

history of central banks worldwide is littered with examples where currency policy became dogma. The other scenario is hence one where there are continued conflicts between fast-growing globalisation and a central bank that seeks to bring back capital controls.

One feature of this scenario would be a continued political tension about capital controls. Contemporary India is very different from the situation in the 1940s and 1950s, when capital controls were first brought about. India now has a new political economy where many firms and investors now have a stake in globalised liabilities. For example, in December 2004, when RBI advocated new restrictions on portfolio flows, there was a sharp political backlash, which blocked these moves. Hence, RBI is unlikely to be able to bring back the extent of capital controls required for monetary policy autonomy.

Hence, a disruptive breakdown of the pegged exchange rate could materialise at a future date. As is well known in the literature, a central bank can always distort monetary policy and maintain any currency regime. However, there would be a point where the political cost of distorted monetary policy becomes considerable. Since India is an open society with an active free press, it is unlikely that large distortions in monetary policy would be sustainable. As an example, in March 2004, the process of buying USD in order to support the peg was abandoned, partly owing to considerable criticism of the policy framework in the public domain.

Rational speculators who understand Indian political economy will be able to engage in large cross-border transfers of capital, through both the current account and capital account. These shifts could become large enough, in a future episode, to induce a disruptive breakdown of the peg.

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