

# NSE RESEARCH INITIATIVE

PAPER NO.: 7

**Changes in Liquidity Following Exposure to Foreign Shareholders:  
The effect of foreign listings and issues of American Depository Receipts  
by Indian firms**

Dr. Madhu Kalimipalli  
and  
Dr. Latha Ramchand

## **Changes in Liquidity Following Exposure to Foreign Shareholders: The effect of foreign listings and issues of American Depository Receipts by Indian firms**

DR. MADHU KALIMIPALLI  
AND  
DR. LATHA RAMCHAND\*

*The purpose of this paper is to document changes in returns, volatility and liquidity on the local market following foreign capital raising events by Indian firms. We examine a sample of 49 Indian firms that raised capital (via equity listing and/or ADR issue) abroad during 1990-2000. We find that subsequent to gaining foreign exposure, firms experienced a decline in all the following: returns (though not statistically significant), volatility of returns, high/low price ranges and volatility of the daily price range on the local (Indian) market. These together imply lower bid-ask spreads and hence improved liquidity in the domestic market. Comparing these to firms that raise capital on the local (Indian) market only, we find that there are no significant differences in price range changes across the two groups. Firms gaining foreign exposure in fact experience a smaller decline in volatility of returns as well as volatility of the daily high/low price range compared to firms issuing equity only on the local market. The results suggest that foreign issue of equity does not improve liquidity on the local (Indian) market anymore than domestic issue.*



National Stock Exchange of India Limited

\* Dr. Madhu Kalimipalli is an Assistant Professor, Finance at the School of Business and Economics, Waterloo, Ontario. Dr. Latha Ramchand is an Associate Professor, Department of Finance, C.T. Bauer College of Business, University of Houston.

## 1. Introduction

Equity markets all over the world are becoming increasingly integrated over time. For instance, in 1997, foreign firms raised \$350 billion in the U.S. market alone. Firms all over the world now have access to a broader investor group. This also means that investors now have new avenues for investment. Access to foreign equity occurs through several channels: listing securities on a foreign exchange, inclusion in foreign country funds, and issue of American Depositary Receipts (ADRs) to raise equity capital. Foerster and Karolyi (2000) point out that foreign firms raising capital in the U.S. do so primarily via the issue of ADRs. ADRs are negotiable certificates issued by an American bank that are backed by ownership claims on the company's equity which trades in the home market.

The purpose of this study is to examine how events that increase an Indian firm's exposure to foreign shareholders will affect the liquidity of trading and hence the firm value on the domestic Indian market. On account of the liberalization process in recent years, access to foreign equity through a variety of channels is becoming more common among Indian firms. Access to foreign investors has two effects on the issuing firm: on one hand, it would increase demand for the firm's shares thereby increasing stock price and firm value; on the other, it could lead to greater volatility in stock prices on account of larger volume of shares traded. The stated objective of access to foreign markets is to increase liquidity and hence lower the cost of capital to the firm. It is not clear how volume, volatility and liquidity of individual stocks in the domestic markets are affected when firms raise capital abroad. This paper intends to fill this gap in the literature and examine the effects of exposure to foreign markets on volume, volatility, liquidity of stocks in the domestic markets. To the extent that these measures affect the cost of capital, our results, will shed light on differences in cost of capital, if any, associated with foreign exposure via listing and equity issuance.

Our results suggest that firms that raise capital abroad do not see significant improvements to the liquidity of their equity traded on the local (Indian) market that can be attributed to the foreign capital-raising event. In particular, we find that firms raising capital on foreign markets experience an improvement in liquidity in the local market. Comparing the above results with a set of Indian firms that raise capital only in the home market, we find that the patterns are similar suggesting that the improvement in liquidity is associated not so much with the foreign capital raising but more with capital raising in general. Our results suggest that foreign exposure via equity issues with or without listing does not improve the liquidity of the firm's shares on the local (Indian) market over and above what can be achieved by issuing on the local (Indian) market alone.

The remainder of this paper is organized as follows. Section 2 surveys the existing literature in the area. Section 3 presents the data and methodology used in the paper. Section 4 presents results for firms that raise capital in global and domestic markets and compares operating performance for firms before and after the capital issue. Section 5 presents the summary and conclusions.

## 2. Related Literature

Previous literature has indicated that the globalization of equity markets is likely to enhance liquidity and hence firm value. Stulz (1999) discusses the advantages to market liberalization. The models in Stapleton and Subrahmanyam (1977), Errunza and Losq (1985) and Alexander, Eun and Janakiramanan (1987) demonstrate how firms from segmented markets can reduce their cost of capital and hence increase firm value by issuing equity on foreign markets. These models rely on the presence of restrictions such as taxes, transactions and information costs that segment markets. Firms that raise capital on foreign markets, by reducing one or more of these costs can effectively reduce their cost of capital and hence command a higher market value for their shares. The literature on cross-border listings as in Alexander, Eun and Janakiramanan (1988), Foerster and Karolyi (1993, 1999), Miller (1999) finds evidence that is mixed regarding the beneficial effects of foreign exposure. Foerster and Karolyi (2000) find that the long run excess returns of foreign firms that raise capital on the U.S. market exceed benchmark returns only when the foreign firms originate in developing countries that have low accounting standards. In other words, whether or not issuing equity in the U.S. market is value enhancing depends on whether or not the firm comes from a segmented market. Foerster and Karolyi (2000) also find that the abnormal performance of firms from developing markets is related to U.S. market share of the trading in these securities.<sup>1</sup>

In addition, raising capital abroad by allowing foreign shareholders to invest in a firm's shares could result in positive changes in corporate governance. Access to foreign shareholders usually is accompanied by tighter disclosure requirements. This provides a certification effect that could increase the value of the firm's equity. The access to foreign investment banks could also result in improved access to foreign funds. As a result, Indian firms that boast of a foreign shareholder base could, *ceteris paribus*, report an increase in market value subsequent to such exposure.

Choi and Stonehill (1982) report that enhanced visibility and prestige were the most common reasons cited for foreign listings by Japanese and Korean firms. Mittoo (1992) finds that in a survey of 78 CEOs of Canadian firms that list in the U.S. and U.K., 39% of those surveyed felt that improved access to foreign capital and the accompanying increased ability to raise equity as an

<sup>1</sup> See Karolyi (1998) for an exhaustive review of the literature on cross-border listings.

important reason to list abroad. While 32% and 27% of those surveyed pointed to increase in the shareholder base and increased visibility respectively as important reasons for listing abroad, about 28% of those surveyed referred to increased liquidity resulting from foreign listings as important.

Foerster and Karolyi (1993) show that Canadian firms that list their shares on U.S. markets experience a price increase prior to the listing as well as on the day of the listing itself although there is a decline in price three months after the listing. The increase in price before the listing results from the fact that listing abroad could increase the demand for a firm's shares and hence add value. In another study, Foerster and Karolyi (1999) measure liquidity of Canadian stocks that interlist in the U.S. and find that liquidity increases after the listing.

Moel (2000) analyzes the effect of ADR listings from emerging markets on three aspects of development – openness, liquidity and growth- in the home market. He finds that following ADR issues, there is an increase in transparency and a decline in liquidity and growth of the home equity market in terms of size and the number of new listings. Accounting disclosure standards are used to proxy for openness of the market while liquidity is measured using the share turnover of the firms in the home market that do not list abroad. Finally, growth of the home equity market is measured using the total market capitalization (using firms that do not list abroad) to gross domestic product (GDP) ratio. Moel (2000) shows that listing abroad is detrimental to the home market liquidity and growth as defined above. He uses a sample of firms from 28 emerging markets and uses annual data to measure changes in openness, liquidity and growth.

Our results in this paper are consistent with the findings in Moel (2000) and suggest that firms that raise capital abroad do not see significant improvements to the liquidity of their equity traded on the local (Indian) market that can be attributed to the foreign capital-raising event. In particular, we find that firms raising capital on foreign markets experience a decline in the volatility of returns, high/low price range and the volatility of the high/low price range on the home or local (Indian) market subsequent to the foreign capital-raising event. Lower volatility of underlying asset returns implies lower inventory costs and reduced possibility of informed trading. The high/low price spread and its volatility also proxy volatility in the market. Declining spreads and volatility of spreads therefore imply better liquidity in the local market.

Next when we compare the above results to a set of Indian firms that raise capital only in the home market, we find that the patterns are similar suggesting that the improvement in liquidity is associated not so much with the foreign capital raising but more with capital raising in general. On controlling for size and other factors and comparing changes across the two groups, we find in fact that firms raising capital abroad experience a smaller decline in the volatility of daily returns and the volatility of the daily high/low price ranges

compared to firms that raise capital on the domestic (Indian) market. These results are qualitatively unchanged when we consider firms that raise capital but do not list their equity abroad. Our results suggest that foreign exposure via equity issues with or without listing does not improve the liquidity of the firm's shares on the local (Indian) market over and above what can be achieved by issuing on the local (Indian) market alone.

Our results are supportive of theoretical market microstructure models that suggest that the new foreign market could dry up liquidity for the security on the home market.<sup>2</sup> Pagano (1989), Chowdhry and Nanda (1991) and Domowitz, Glen and Madhavan (1998) show that the effect of cross-listing a firm's shares is not unequivocally value improving. In Domowitz, Glen and Madhavan (1998), cross-listing of shares on the domestic and a foreign market increases total number of trades and results in improved liquidity and firm value, only if markets are linked. If information is not freely available, volume will flow to the country where there is more information in the order flow and also where price revision is more likely to occur based on orders by informed traders- this country could very well be the foreign country. Chowdhry and Nanda (1991) show, using the model in Admati and Pfleiderer (1988) that one of the markets will emerge as the dominant market, which will attract the informed and liquidity traders. Hence, the volume of trade in the domestic market could decline. For these reasons, it is not clear that firms are unconditionally better off subsequent to foreign capital-raising.

### 3. Data and Methodology

The data for this study is obtained from various sources. We use Thomson Financial Security Data Corporation (SDC) New Issues database to obtain data on equity issues. Along with the launch dates, this data set also provides information on the amount issued, number of shares issued, price of the issue, exchanges where the issue will be listed, the proportion of primary shares issued.<sup>3</sup> We collect daily data on prices, volume turnover (number of shares traded daily) and high and low price ranges for stocks that list or raise capital on the U.S. market during the period 1990-2000 from DATASTREAM. Benchmark returns are collected using DATASTREAM's Bombay Stock Exchange (BSE) Index. Balance sheet and income statement information on the firms where available is also collected from DATASTREAM. Total market volume on the National Stock Exchange (NSE) is obtained from the Center for Monitoring Indian Economy (CMIE) database. We also use the firm level and market index data for Indian firms trading in US markets from the Center for Research in Security prices (CRSP) database. All firms in our sample have a

<sup>2</sup> See Smith and Sofianos (1997) and Fanto and Karmel (1997).

<sup>3</sup> Primary shares refer to the issue of new equity as opposed to sale of secondary shares, which would be the resale of shares that were issued at an earlier date.

market listing at the time of the capital raising event i.e. our study does not include initial public offerings (IPOs).<sup>4</sup>

We begin by documenting the effect of foreign exposure to firms by comparing performance measures before and after the event for the same firm to determine changes. We then examine the benefit, if any, to firms that seek foreign exposure by comparing them to firms that choose to list their shares on the Indian market alone. Next we compare both sets of firms - i.e. firms raising capital on global markets with those raising capital solely on the domestic markets - by controlling for firm value and risk. Hence the results of the study shed light on the direction of the changes for firms that raise capital abroad.

## 4. Results

### 4.1 Firms that Acquire Foreign Exposure

Table 1 presents the number and distribution by year of the firms that acquire foreign exposure via Foreign listing or Issue of ADRs or both. There are forty-nine equity issues by Indian firms in foreign markets during the period 1990-2000. These issues represent firms that are simultaneously raising capital at home (on the Indian market) and one or more foreign markets. The forty-nine issues represent thirty-nine firms with some firms making more than one issue.<sup>5</sup> Tata Engineering and Locomotive, Reliance Industries, Larsen and Toubro, Indorama Synthetics (India), India Cements, Hindalco, Crompton Greaves and Aptech Ltd. raise capital abroad twice during our sample period. In addition ICICI makes three issues, one in 1996, one in 1999 and the last in 2000. Of the 49 firms, eight firms raise equity but do not list their shares abroad.<sup>6</sup> Of the 49 firms, two firms list on the US markets (one each on the NYSE and NASDAQ) and the remaining list primarily in Luxembourg and London. The two firms listed on the US markets are ICICI (NYSE) and Satyam Infoway (NASDAQ).

Between 1992-1994, the number of equity issues has increased every year, with a big jump in 1994. In 1995, however, this trend slowed down with only five issues. Reports in the popular press suggest that the number of Indian firms raising equity declined in 1995. The second column represents the issue size in millions of dollars and the last column reports the number of shares issued on average in each year. The numbers in each cell are the mean and median respectively. For example, in 1996, the average issue size was \$109 million while the median issue size was \$106 million. The single issue in 1997 whose issue size and number of shares exceeds that for all other years was Mahanagar

<sup>4</sup> In an earlier version of the paper, we had planned on also examining firms that are included in country funds. Data on the date when the firms get included in such funds is however, not publicly available. In the absence of such data, comparisons of returns, volume and liquidity before and after the event is not feasible.

<sup>5</sup> The Appendix lists the firms that raise capital abroad.

<sup>6</sup> These firms are denoted by asterisk in the Appendix.

**Table 1 : Number and distribution by year of firms that raise capital abroad (via foreign listing or ADRs or both) 1990-2000**

Year	Number	Issue Size (Millions of US \$)	# of shares issued (Millions)
1992	1	150	9.2
		<i>150</i>	<i>9.2</i>
1993	2	61	5.9
		<i>61</i>	<i>5.9</i>
1994	20	81	5.6
		<i>59</i>	<i>4.3</i>
1995	5	71	9.7
		<i>55</i>	<i>5.3</i>
1996	8	109	10.5
		<i>106</i>	<i>8.7</i>
1997	1	358	30
		<i>358</i>	<i>30</i>
1998	0	N.A	N.A
1999	4	125	12.5
		<i>98</i>	<i>10.4</i>
2000	8	77	6.7
		<i>75</i>	<i>5.9</i>

**Notes:** The data is obtained from Thomson Financial SDC's New Issues database. The first number in the last two columns is the mean and the second number (*in italics*) is the median. There are eight firms in this sample that raise capital abroad but do not list on a foreign exchange. Of the eight issues, two are issued in 1994, one in 1995, two in 1999 and three in 2000.

Telephone Nigam, which sold equity in London, Bombay and Singapore. These numbers suggest that on average, the number of Indian firms issuing capital abroad has increased over the years as also the total volume of equity.

Table 2 presents issuer and issue characteristics related to these foreign capital-raising issues. All the issues in our sample represent firms that are simultaneously raising capital at home (on the Indian market) and one or more foreign markets.<sup>7</sup> Over the entire period, the average amount raised on the home market is \$100 million (median of \$81 million) whereas the total raised on all markets is \$102 million (median of \$87 million). Hence the big chunk of the issue is raised on the home (Indian) market. SDC provides the codes for the industry that a firm belongs to and dummies out firms from high-technology areas. Sixteen percent of our sample firms are from high-tech areas. We also

<sup>7</sup> None of these firms show up in the list of firms that raise capital only in domestic markets that are discussed in Section 4.2.

find that 98% of the capital offer involves the sale of primary (new) equity while the remaining 2% of the issue is sale of secondary shares that were previously issued. Traditionally the larger the proportion of primary shares, the greater the downward pressure on prices, *ceteris paribus*.

We also find from Table 2 that 47% of our sample of Indian firms raising capital abroad are Rule 144A issues. In April 1990, the Securities and Exchange Commission (SEC) in the U.S. approved Rule 144A, which allowed resale of private placements without registration requirements so long as the sale of securities was to “qualified institutional buyers (QIB).” Prior to the passing of this initiative, purchasers of private placements were restricted in their ability to resell private placements. The rule was intended to ease the process of entry of foreign firms into the U.S. capital market.<sup>8</sup>

Table 3 presents the industrial composition of the sample. We use the four digit SIC code provided by SDC to classify the industry groups. Firms from the paper and textiles industry and electronics and electrical equipment

**Table 2 : Issuer and Issue characteristics of the Indian firms that raise capital abroad 1990-2000**

	Mean <i>Median</i>
Capital raised in India (Millions of dollars)	100 <i>81</i>
Capital raised in all markets (Millions of dollars)	102 <i>87</i>
Number of shares (Millions)	8.2 <i>6.1</i>
Proportion from hi-tech industries	16%
Proportion of primary shares offered	98%
Rule 144A	47%
# of exchanges	2.4 <i>2.0</i>

**Notes:** The data is obtained from Thomson Financial SDC’s New Issues database. Where applicable, the first number in the cell represents the mean and the second (*in italics*) the median for that variable. Capital raised in India is the size of the issue that is sold on the Indian market, Capital raised in all markets is the sum total of equity raised in India and all other foreign markets associated with the issue, Number of shares is the number of shares issued, Proportion from hi-tech industries is the proportion of firms coded as high-technology firms by SDC, Proportion of primary shares offered is the percentage of the number of shares that are newly issued shares (not outstanding) relative to the total number of shares to be sold in the issue, Rule 144A is the proportion of firms that raise capital abroad via Rule 144A offerings and # of exchanges is the number of exchanges where the issue will be listed.

<sup>8</sup> Chaplinsky and Ramchand (2000) examine the development of this initiative and find it has reduced the borrowing costs for foreign firms especially those from emerging markets.

**Table 3 : Distribution by industry of the Indian firms that raise capital abroad 1990-2000**

Industry	SIC Code	Proportion
Mining	1041-1221	0%
Oil and gas	2911,1311-1411, 1479-1499	4%
Homes, construction	1521-1799	0%
Foods	2013-2121	4%
Furniture, paper, textiles	2211-2679	19%
Printing	2711-2796	0%
Chemicals/pharmaceuticals	2812-3299	10%
Steel works, metals	3312-3499	4%
Machinery, computer & office equip.	3511-3599	0%
Electronics, electrical equipment	3612-3799	23%
Measuring instruments	3812-3873	0%
Misc. manufacturing	3911-4000	4%
Transportation	4011-4783	0%
Telecommunications/Media	4812-4899	6%
Electricity distribution	4911	4%
Pipelines	4922-4959	0%
Wholesalers	5012-5199	0%
Retail	5211-5999	0%
Restaurants	5812-5813	0%
Financial institutions	6000-6799	10% *
Resorts, casinos	7011-7041	2%
Services	7211-8999	10%

\* Includes government agencies like ICICI

**Notes:** The data is obtained from Thomson Financial SDC’s New Issues database. SIC code is the 4 digit industry code used to classify firms by industrial group. Proportion is the percentage of firms in each category.

make up the two largest categories followed by financial institutions, chemicals and pharmaceuticals and services. The first two categories represent industries that can compete globally in terms of presumably lower resource cost either raw materials or labor. The next two prominent categories are represented by large firms. Hence Indian firms going abroad to raise capital either boast a comparative advantage in terms of lower resource cost or are large in size.

Next we examine the changes in various measures of return, risk, volume and price range changes after the foreign capital-raising event. Table 4 reports these measures. In calculating these measures we use a 250 day window

**Table 4 : Change in return and risk, volume and price range characteristics before and after the issue for a sample of Indian firms raising capital abroad 1990-2000**

	Before the issue	After the issue	P value of differences
<b>Return and risk (N = 36)</b>			
Absolute Daily Return	1.73% <i>1.84%</i>	1.61% <i>0.81%</i>	0.44 <i>0.11</i>
Volatility	2.40% <i>2.74%</i>	1.88% <i>1.68%</i>	0.03 <sup>b</sup> <i>0.06<sup>c</sup></i>
Market adjusted return	0.21% <i>0.13%</i>	-0.01% <i>-0.10%</i>	<0.01 <sup>a</sup> <i>&lt;0.01<sup>a</sup></i>
Volatility of market adjusted return	2.98% <i>3.30%</i>	2.48% <i>1.87%</i>	0.07 <sup>c</sup> <i>0.06<sup>c</sup></i>
Beta	0.80 <i>0.54</i>	0.78 <i>0.34</i>	0.82 <i>0.82</i>
<b>Volume (N = 28)</b>			
Turnover by volume (in 000's)	302.0 <i>2.1</i>	297.1 <i>7.7</i>	0.98 <i>0.39</i>
Turnover by relative volume	0.015 <i>0.001</i>	0.005 <i>0.0004</i>	0.11 <i>0.12</i>
Volatility of volume	331.5 <i>3.14</i>	187.7 <i>17.1</i>	0.29 <i>0.27</i>
<b>Price range (N = 31)</b>			
High/low price range	3.6% <i>3.1%</i>	3.3% <i>2.0%</i>	0.35 <i>0.07<sup>b</sup></i>
Volatility of high-low price range	2.3% <i>1.8%</i>	2.1% <i>1.4%</i>	0.22 <i>0.06<sup>b</sup></i>

**Notes:** In the cells labeled 'Before the issue' and 'After the issue', the first number is the mean value and the second number (*in italics*) is the median value. P value of differences reports two numbers - the first is the p value associated with a difference of means t test and the second is associated with a Wilcoxon signed rank test. <sup>a</sup> indicates significance at the 1% level; <sup>b</sup> indicates significance at the 5% level and <sup>c</sup> indicates significance at the 10% level. 'Before the issue' is a 250-day window starting 300 days before the issue date and ending 50 days before the issue. 'After the issue' is a 250-day window starting 50 days after the issue date and ending 300 days after the issue date.

Daily return is computed using price differences across two consecutive days. Volatility is the standard deviation of the daily returns. Beta is computed by regressing daily returns on the BSE Sensex Index for the same period. Turnover by volume is the number of shares traded daily (in thousands). Turnover by relative volume is the number of shares traded daily as a proportion of the total market volume of trades on the National Stock Exchange. Data for total volume of shares traded on the NSE is obtained from CMIE. Volatility of volume is the standard deviation of the turnover measure. High/low price range is the difference between the high and low price expressed as a percentage of the low price and Volatility of high-low price range is the standard deviation of the high/low range.

starting 300 days before the issue date and ending 50 days before the issue date to calculate return, risk and volume measures in the 'Before the issue' period. Similarly the 'After the issue' window uses a time frame beginning 50 days after the launch date and ends 300 days after the issue date. We do this so as to eliminate biases in these measures around the launch date. All our measures are estimated using data on the home market i.e. we compare returns on the Indian market before and after the foreign capital-raising event. The first number in each cell reports the mean across the firms that issue abroad and the second number is the median. P value of differences reports the p value resulting from two tests. The first number uses a difference of means t test and the second uses a Wilcoxon signed rank test to test for differences before and after the issue.

All else equal, equity issues should result in a larger number of shareholders, greater liquidity and volume of trade after the issue relative to before. We find that the absolute value of the daily return is lower (1.7% versus 1.6%) although the difference is not statistically significant. A lower return is consistent with a larger number of buyers and sellers reducing the return on the asset. Volatility is the standard deviation of returns before and after the issue date. The Wilcoxon test suggests that after the issue, there is a decline in the volatility of returns, which is significant at the 8% level of significance. We also compute market adjusted returns estimated as the difference between the firm return and the market return on that particular day. To do this we use the BSE - Sensex index available on DATASTREAM. The average market adjusted return is close to zero and declines after the issue. The decline is marginally significant although the economic significance of the change is debatable. The volatility of market adjusted returns also declines after the foreign capital-raising event. Beta is calculated by regressing daily returns for the firm on the BSE Sensex index for the same period.<sup>9</sup> We need at least 30 days data to calculate these measures. A firm is dropped from the sample if it does not have data for the 30-day period both before and after the issue. As a result of this the number of observations is reduced to 28 firms for measuring changes in beta and 31 firms for measuring changes in price range. As can be seen from the table, there is no significant difference in betas using both the mean and median measures.

To measure changes in liquidity we examine changes in volume and the high-low daily price range. In general, volume should increase after the event based on the increase in the number of shares available for trade. In the case of foreign issues, however, part of the equity is sold on a foreign market and hence, need not result in a larger volume of trade on the home market. We use three measures of volume to examine changes in volume before and after the event:

<sup>9</sup> An earlier version of this paper used the CNX Nifty index to compute betas and the results are qualitatively unchanged. We report results using the BSE index in this paper given the relatively longer time series.

a) turnover by volume defined as the number of shares traded daily (in thousands)<sup>10</sup>; b) turnover by relative volume defined as the number of shares traded daily as a proportion of the total market volume of trades on the National Stock Exchange and c) volatility of volume defined as the standard deviation of turnover over the 250 days before and after the event. For our sample we find that volume measures, both absolute and relative decline after the issue although the difference does not seem to be significant. Volatility of volume also declines after the issue although the decline is again, not significant.

The price range measures examine changes in the daily high/low price range.<sup>11</sup> *Ceteris paribus*, improved liquidity would result in a lower price range and volatility of the price range. Our results suggest that while the high price is on average 3.6% larger than the low price of the day before the event, this changes to 3.3% after the event (medians are 3.1% before and 2% after the event respectively). The Wilcoxon test suggests that the decline is significant at 7% level of significance. We also measure the standard deviation of the high/low price range and find that there is a decline in the volatility (mean declines from 2.3% to 2.1% and the median declines from 1.8% to 1.4%). The Wilcoxon test suggests that this decline is significant at the 8% level of significance.

The univariate comparisons in Table 4 do not control for other factors such as size and risk. To control for these factors Table 5 reports regressions of changes in beta, volatility and price ranges controlling for size and other factors. The first column in Table 5 reports a regression of changes in the market adjusted daily returns after the issue for firms that raise capital abroad. Changes are measured as percentage changes after the issue. The independent variables are designed to control for changes in returns that might result from other factors. Log of Issue Size is the log value of issue size (in millions of dollars) and is used as a proxy for risk. The ‘#’ of exchanges denotes the number of exchanges where the issue will be listed. The larger the number of issues, *ceteris paribus*, the larger the improvement in liquidity. Year 1995 dummy is a dummy variable equal to 1 if the issue was in 1995 and is 0 otherwise. As noted above, there was a general decline in the number of Indian firms raising equity in 1995.<sup>12</sup> If more foreign equity is raised after 1995 then this may induce some bias in our results, hence this control variable. A dummy variable equal to 1 for firms that only issue equity but do not list their equity abroad is meant to isolate the

<sup>10</sup> We tried to normalize the number of shares traded by the total number of shares for the firm, however this data is not available on a daily basis on DATASTREAM and resulted in a significant reduction in sample size. Hence we report the raw volume measures. We also obtained data from the NSE but this data set also includes number of trades and does not contain the total number of shares available to be traded for that firm.

<sup>11</sup> We sought to obtain daily bid-ask ranges but this data is not available either through DATASTREAM or through NSE. Likewise depth measures that would need number of trades at the bid and ask were also not available. To this extent our measures do not fully capture changes in liquidity after the event.

<sup>12</sup> An earlier version of the paper used the year rather than a 1995 dummy and the results are qualitatively identical. Removing the dummy alters the value of the constant term in the regression.

**Table 5 : Regressions of changes in market adjusted returns, volatility of market-adjusted returns and beta for firms that issue abroad**

	Dependent variables		
	Regression 1	Regression 2	Regression 3
	Change in market adjusted returns	Change in the volatility of market adjusted returns	Change in beta
<b>Independent variables</b>			
Constant	0.001 (0.69)	0.019 (0.01)	-0.301 (0.12)
Year 1995 dummy issue	0.003 (0.02)	-0.002 (0.42)	-0.190 (0.17)
Log of Issue size (millions of dollars)	0.0001 (0.04)	0.0001 (0.05)	0.001 (0.11)
# of exchanges	-0.002 (0.02)	-0.013 (<0.01)	0.071 (0.29)
Only issue but do not list abroad	-0.001 (0.38)	-0.012 (0.02)	0.107 (0.25)
N	29	29	29
R <sup>2</sup>	0.185	0.463	0.029

**Notes:** There are three regressions reported. The dependent variables are Change in market-adjusted returns, Change in volatility of market-adjusted returns and Change in beta. Change in market adjusted returns is the percentage change returns after the issue relative to returns before the issue (adjusted for the market). Change in the volatility of market adjusted returns is the change in the standard deviation of returns after the issue relative what was before the issue (adjusted for the market) and Change in beta is the percentage change in beta after the issue relative to the beta before the issue.

The independent variables used are the same across all regressions. Foreign dummy is a dummy variable equal to 1 if the issue involves capital raising on a foreign market, else is equal to 0. Year 1995 dummy is a dummy variable equal to 1 if the issue was in 1995 and is 0 otherwise. Log of issue size is the natural logarithm of the issue size (expressed in millions of dollars). # of exchanges is the number of exchanges on which the issue will be listed. Only issue but do not list abroad is a dummy variable equal to 1 if the issue involves foreign capital raising without listing on a foreign exchange and is 0 otherwise - this variable is 0 for all domestic issues. N is the number of firms used in the regression, N<sub>f</sub> is the number of firms that raise capital abroad and N<sub>d</sub> is the number of firms that raise capital on the local (Indian) market. R<sup>2</sup> is the adjusted R squared of the regression.

The numbers in each cell are the coefficients and the p values (in parentheses) are associated with the null hypothesis that the coefficient is zero. P values are calculated using heteroscedasticity consistent standard errors.

differences for this group. There are 8 firms in our sample of 49 that issue equity without listing abroad. These firms are indicated in the Appendix. Ideally this group should be considered in isolation and the regression repeated. The small size of this group however, does not allow us to do this; hence we use a dummy variable instead to capture differences, if any, in this group. The coefficient of the constant term will help determine if the changes in beta, volatility and high/low price ranges are significant after controlling for other factors.

Table 5 results for the first regression suggest that post-1995 issues are marked by significantly higher market adjusted returns after the issue. Similarly, larger issue sizes are associated with increases in market-adjusted returns. The more the number of exchanges where the issue will be listed the smaller the increase in returns. The constant term is positive but not significant suggesting that after controlling for other factors, the capital raising event does not significantly change market adjusted returns after the issue. The second regression suggests that the large issue sizes are associated with increases in volatility of the market-adjusted returns after the issue. Firms that list on multiple exchanges experience a decline in volatility. Firms that simply issue but do not list abroad also experience a decline in volatility. The constant term is positive and significant suggesting that when other factors are controlled for, the equity issue is associated with an increase in volatility of returns. The third regression shows that there is no significant change in beta after the event. We did examine similar regressions of changes in volume and the price range but find that very low explanatory power in these regressions (the adjusted R squared is negative). Hence these regressions are not reported.

Overall our results from Tables 4 and 5 suggest that after the equity issue, firms on average experience no significant decline in market adjusted returns and beta. The evidence on stock price volatility however is mixed with the univariate results suggesting that volatility declines after the event while the regression suggests the reverse. The results in Table 4 suggest a significant decline in high/low price spread and its volatility. Declining spreads and volatility of spreads are associated with improved liquidity in the local market. Overall, foreign equity issues result in improved liquidity on the home market. While not significant, we find that volume of trade declines on the home market subsequent to the issue. Whether this is attributable to equity issues in general or to the fact that the equity was issued simultaneously on a foreign and domestic market is not clear from these numbers.

We next examine the foreign performance of Indian stocks after they are issued in the foreign markets. Majority of the stocks are listed on the

Luxembourg and London exchanges. We checked DATASTREAM for these exchanges and are unable to find data on our sample stocks. Only two stocks (ICICI and Satyam Infoway) are listed on US markets (NYSE and NASDAQ respectively) for which data is available from CRSP (Center for Research in Security Prices).

For ICICI, daily CRSP data is available only from 10/29/1999, implying that the stock began public trading on NYSE from that date. ICICI made two equity issues prior to this date (see Appendix). As a result we cannot infer what the price and liquidity effects were for those two issue dates. ICICI made a third foreign equity issue on 03/28/2000. For this issue we find that the market adjusted returns increased marginally i.e. mean returns before and after the issue are  $-0.00061\%$  (median  $-0.0014\%$ ) and  $-0.00019\%$  (median  $-0.00057\%$ ) respectively.<sup>13</sup> The same is true of volatility of market-adjusted returns. Average daily volume (total number of shares traded) increases from 28,000 shares to 160,000 shares after the issue.

For Satyam Infoway, daily CRSP data is available from 10/19/1999 implying that the stock began trading from that date on NASDAQ. For the 02/17/2000 issue both market adjusted returns and volatility do not change significantly after the issue. Satyam Infoway has a significantly higher trading volume on average compared to ICICI. Daily trading volume is, however, lower after the issue (mean and median of number of shares traded are 900,000 and 532,000 respectively before the issue compared to 500,000 and 389,000 shares after the issue). Given that we have data on only two firms we do not report significance tests based on this information.

#### 4.2 Firms that Do Not Acquire Foreign Exposure

In Table 6 we examine the returns, volatility, volume and price range measures for a sample of Indian firms that issue equity only on the home market. We start with a sample of 149 firms from the Thomson Financial SDC's New Equity Issues database. Data on daily prices, volume and price ranges were not easily available on either DATASTREAM or the NSE for these firms. Part of the problem was that many of these firms traded on the BSE and other local exchanges for which data was not available at the daily frequency level. For all but the volume measure, we found data matches for nineteen firms which are included in the analysis below. A list of these firms appears in the Appendix. For the volume measure we have data only for two firms and hence the comparison statistics are not relevant.

<sup>13</sup> We use the CRSP value weighted returns for NYSE and NASDAQ to adjust the daily returns and derive a market adjusted return.



**Table 6 : Change in return and risk, volume and price range characteristics before and after the issue for a sample of Indian firms raising capital in India 1990-2000**

	Before the issue	After the issue	P value of differences
<b>Returns and Risk (N = 18)</b>			
Absolute Daily Return	2.4% <i>2.2%</i>	2.0% <i>2.8%</i>	0.13 <i>0.11</i>
Volatility	5.1% <i>9.8%</i>	3.4% <i>4.7%</i>	0.03 <sup>b</sup> <i>0.01<sup>a</sup></i>
Market adjusted return	0.27% <i>0.19%</i>	-0.0001% <i>-0.26%</i>	<0.01 <sup>a</sup> <i>&lt; 0.01<sup>a</sup></i>
Volatility of market adjusted return	5.31% <i>5.23%</i>	3.41% <i>4.78%</i>	0.01 <sup>a</sup> <i>&lt;0.01<sup>a</sup></i>
Beta	0.49 <i>0.61</i>	0.51 <i>1.12</i>	0.86 <i>0.48</i>
<b>Volume (N = 16)</b>			
Turnover by volume *	0.79* <i>0.79</i>	11.17 <i>1.36</i>	N.A
Turnover by relative volume**	0.0001 <i>0.0001</i>	0.00007 <i>0.00007</i>	N.A.
Volatility of volume*	1.25* <i>1.25</i>	19.04 <i>1.63</i>	N.A
<b>Price range (N = 16)</b>			
High/low price range*	5.54% <i>6.48%</i>	4.48% <i>8.03%</i>	0.20 <i>0.16</i>
Variability of high-low*	5.07% <i>6.29%</i>	3.53% <i>5.56%</i>	0.02 <sup>b</sup> <i>0.02<sup>b</sup></i>

\* Source: DATASTREAM

\*\* Source: DATASTREAM and CMIE

Notes: In the cells labeled 'Before the issue' and 'After the issue', the first number is the mean value and the second number (*in italics*) is the median value. P value of differences reports two numbers - the first is the p value associated with a difference of means t test and the second is associated with a Wilcoxon signed rank test. <sup>a</sup> indicates significance at the 1% level; <sup>b</sup> indicates significance at the 10% level. 'Before the issue' is a 250 day window starting 300 days before the issue date and ending 50 days before the issue. 'After the issue' is a 250 day window starting 50 days after the issue date and ending 300 days after the issue date.

Daily return is computed using price differences across two consecutive days. Volatility is the standard deviation of the daily returns. Beta is computed by regressing daily returns on the BSE Sensex Index for the same period. Turnover by volume is the number of shares traded daily (in thousands). Turnover by relative volume is the number of shares traded daily as a proportion of the total market volume of trades on the National Stock Exchange. Volatility of volume is the standard deviation of the turnover measure. High/low price range is the difference between the high and low price expressed as a percentage of the low price and Volatility of high-low price range is the standard deviation of the high/low range.

N.A: Data on volume for the firms in our sample is not available before the issue. The volume data starts in 1995 (when NSE became operational) and we find only 2 firms for which this data is available. Hence the comparison before versus after is not meaningful.

Similar to the foreign equity issues, the domestic issue firms experience a decline in daily market adjusted returns and the volatility of these returns that is statistically significant. There is no significant change in beta after the event. The average beta for this group of firms is lower compared to firms raising equity abroad. The average size of the equity issue for this group of firms (not reported in the tables) is smaller (equal to \$50 million) compared to firms raising equity abroad. While we have only two firms with volume data (preventing meaningful comparisons before and after the issue) we find that the average turnover increases (although the relative turnover is more or less unchanged) after the issue consistent with the larger number of shares now outstanding. The results on the mean high/low price range and the volatility of the range are similar in spirit to the numbers in Table 4. Both the average high/low range and the volatility of the range decline following equity issues and the decline in volatility is significant at the 2% level of significance. Consistent with these firms being smaller and hence all else equal, less liquid to begin with, compared to the firms in Table 4 we find that the high/low price ranges and the volatility of the same are higher for this group.<sup>14</sup>

Regressions similar to Table 5 for firms issuing only on the domestic markets resulted in very poor explanatory power (negative adjusted R squared). This may be due to the fact that we only have 19 firms with data on returns and 2 firms with data on volume based measures. Given the small number of firms we do not report regressions for them in the spirit of Table 5.

### 4.3 Results for the Pooled Sample

Overall results from Tables 4-6 suggest that firms issuing equity experience a decline in returns, volatility of returns, range of high/low prices and the volatility of the high/low daily price range thereby implying better liquidity in the local market. These results are not unique to firms raising capital abroad. In addition, our univariate comparisons in Tables 4 and 6 do not control for other factors such as the size of the issue, the number of exchanges where the issue is listed and so on. To control for these factors and determine if there are any differences across the two groups of firms, Table 7 reports pooled regressions of changes in market adjusted returns, volatility of returns and beta controlling for size and other factors for all the firms in our sample. The sample here is all firms that issue equity during our sample period both in foreign and domestic markets.

<sup>14</sup> The number of firms for which data exists is 16 for measuring changes in beta and 18 for measuring changes in the high/low price range.

**Table 7 : Pooled regressions of changes in market adjusted returns, volatility of market-adjusted returns and beta for firms that issue equity.**

Dependent variables			
Independent variables	Regression 1 Change in market adjusted returns	Regression 2 Change in the volatility of market adjusted returns	Regression 3 Change in beta
<b>Independent variables</b>			
Constant	-0.001 (0.16)	-0.006 (0.18)	-0.225 (0.11)
Foreign dummy	0.004 (0.05)	0.050 (0.01)	-0.350 (0.13)
Year 1995 dummy	0.001 (0.27)	0.005 (0.23)	-0.045 (0.39)
Log of Issue size (millions of dollars)	0.00001 (0.01)	0.0001 (0.03)	0.001 (0.03)
High-tech code	-0.001 (0.35)	-0.023 (0.15)	0.278 (0.18)
Rule 144A dummy	-0.002 (<0.01)	-0.009 (0.01)	-0.098 (0.17)
# of exchanges	-0.002 (0.05)	-0.013 (<0.01)	0.068 (0.29)
Only issue but do not list abroad	-0.001 (0.27)	-0.014 (0.01)	0.095 (0.30)
N (N <sub>f</sub> / N <sub>d</sub> )	47 (29/18)	47 (29/18)	47 (29/18)
R <sup>2</sup>	0.078	0.187	0.010

**Notes:** There are three regressions reported. The dependent variables are Change in market-adjusted returns, Change in volatility of market-adjusted returns and Change in beta. Change in market-adjusted returns is the percentage change in returns after the issue relative to returns before the issue (adjusted for the market). Change in the volatility of market adjusted returns is the change in the standard deviation of returns after the issue relative what was before the issue (adjusted for the market) and Change in beta is the percentage change in beta after the issue relative to the beta before the issue.

The independent variables used are the same across all regressions. Foreign dummy is a dummy variable equal to 1 if the issue involves capital raising on a foreign market, else is equal to 0. Year 1995 dummy is a dummy variable equal to 1 if the issue was in 1995 and is 0 otherwise. Log of issue size is the natural logarithm of the issue size (expressed in millions of dollars). # of exchanges is the number of exchanges on which the issue will be listed. Only issue but do not list abroad is a dummy variable equal to 1 if the issue involves foreign capital raising without listing on a foreign exchange and is 0 otherwise - this variable is 0 for all domestic issues. N is the number of firms used in the regression, N<sub>f</sub> is the number of firms that raise capital abroad and N<sub>d</sub> is the number of firms that raise capital on the local (Indian) market. R<sup>2</sup> is the adjusted R squared of the regression.

The numbers in each cell are the coefficients and the p values (in parentheses) are associated with the null hypothesis that the coefficient is zero. P values are calculated using heteroscedasticity consistent standard errors.

The first column in Table 7 reports a regression of changes in market-adjusted returns after the issue. Changes are measured as percentage changes after the issue. The independent variables are designed to control for other factors. In addition to the variables included in Table 5, we also include High-tech code and a Rule 144A dummy. The High-tech code is 1 if the firm belongs to a high-tech industry and is 0 otherwise. We use the high-tech code in SDC to determine this status. This variable is meant to capture industry level differences across the two groups that were described in Table 3. Rule 144A dummy is a dummy variable equal to 1 if the issue is offered under Rule 144A and is 0 otherwise. Rule 144A issues, ceteris paribus could be associated with lower liquidity effects. A dummy variable equal to 1 for firms that only issue equity but do not list their equity abroad is meant to isolate the differences for this group. Ideally this group should be considered in isolation and the regression repeated. However, there are only eight such firms and because of the small size of this group, we use a dummy variable to capture differences if any in this group. Finally the foreign dummy is set equal to 1 if the issue raises equity abroad and is equal to 0 for domestic issues. The coefficient of this dummy will help determine if changes in beta, volatility and high/low price ranges are significantly different for firms raising capital abroad relative to those that raise capital in India after controlling for other factors.

The results from Table 7 suggest that larger issue sizes are associated with increases in market adjusted returns as well as volatility of returns after the issue. Offers that list on more than one exchange are associated with lower returns and lower volatility post-offer. The same is true for Rule 144A issues. Additionally firms that issue but that do not list abroad experience a decline in volatility after the issue. The foreign dummy is positive and significant in the first and second regressions suggesting that relative to firms that issue on the domestic market, those issuing abroad are associated with an increase (smaller decline) in market-adjusted returns and return volatility after the issue. The univariate results in Tables 4 and 6 suggested that firms raising equity in general experience a decline in the volatility of returns. The regression results from Table 7 suggest that after controlling for other factors, firms that raise equity abroad experience an increase (or a smaller decrease) in the volatility of returns after the issue.<sup>15</sup>

<sup>15</sup> We repeat our regressions using several other independent variables such as the proportion of primary shares and the high-tech dummy but our results are qualitatively unchanged. Hence these regressions are not reported in the paper.

#### 4.4 Changes in Operating Performance After the Issue

The results in sections 4.1-4.3 suggest that a foreign issue of equity does not improve liquidity on the local (Indian) market anymore than domestic issue. To examine if the operating performance of the firms differed after the issue, we collected balance sheet and income statement data from DATASTREAM for the firms. We examined growth rate of the earnings per share (EPS) and growth rate of the market to book value ratios before and after the issue. For each firm we computed the average growth rates for the two variables over a period ranging from one to three years before and after the issue depending on data availability. While we found data for nineteen firms that issue capital abroad we found data for only three firms that raise capital on the local (Indian) market. Given that we lack complete data on several firms, we report our results in the text below.

The average growth of EPS before the issue is 33% for firms raising equity abroad (median is 29%) and this drops to -11% on average after the issue. While economically significant, the difference in growth rates after the issue is not statistically significant.<sup>16</sup> Based on median growth rates, in both cases (firms issuing capital on the local or foreign markets) we observe a decline in performance as measured by earnings.

#### 5. Summary and Conclusions

We examine returns, volatility of returns, volume and price range measures for a sample of Indian firms that raise equity capital on foreign markets. We find that on average there is a decline in returns, the range of high/low prices and the volatility of the daily high/low price range of the firms' equity on the local (Indian) market subsequent to the foreign capital-raising event. Volatility of underlying returns is however, higher after the equity issue. Lower bid-ask spreads imply better liquidity in the local market. The high/low price spread and its volatility also proxy volatility in the market. Declining spreads and volatility of spreads therefore imply better liquidity in the local market.

Comparing the above to a sample of Indian firms raising capital on the local (Indian) market we find a similar pattern in returns, volatility and high/low price ranges. Controlling for size and other factors we find that on average, the changes in beta and high/low price range are similar across the two groups. Firms raising capital abroad however experience a smaller decline in the volatility of returns compared to firms that raise capital on the local (Indian) market.

---

<sup>16</sup>We tried using other measures such as return on equity, sales growth etc. but are unable to make meaningful comparisons of the before and after the issue growth rates owing to the lack of availability of data.

Exposure to a foreign capital market via equity issue and listing, hence, does not result in a significant improvement in liquidity on the home market compared to firms that do not have this foreign exposure. In addition our results suggest that not all firms have the option to gain foreign exposure. Given that firms that raise capital abroad are generally larger firms issuing significantly greater amounts of equity, the results suggest that foreign exposure via listing or equity issue may not be an available option to small firms.

Consistent with Moel (2000), we find that, although not significant, firms raising capital abroad experience a decline in volume on the local (Indian) market after the issue. These results suggest that foreign exposure is not unconditionally liquidity enhancing. Part of the explanation can be found in microstructure models as in Pagano (1989), Chowdhry and Nanda (1991) and Domowitz, Glen and Madhavan (1998) where cross-listing of shares on a domestic and foreign market need not result in higher liquidity on the local (home) market if the informativeness of trade is higher on the foreign market. We leave the investigation of the informativeness of trade on the local (Indian) market versus the foreign market to future research. We hope that the results in this paper will help shape future policy and hence be of substantial value to firms, regulatory authorities as well as investors.

**REFERENCES:**

- Admati, A and P. Pfleiderer, 1988, A Theory of Intraday Patterns: Volume and Price Variability, Review of Financial Studies, 1, 3- 40
- Alexander, G.C., C. Eun and S. Janakiramanan, 1987, Asset Pricing and Dual Listing on Foreign Capital Markets: A Note, Journal of Finance, 42, 151-158
- Chaplinsky Susan and Latha Ramchand, 2000, The Impact of SEC Rule 144A for Foreign Borrowers, Working Paper, University of Virginia
- Choi, F.D.S. and A.I. Stonehill, 1982, Foreign Access to U.S. Security Markets: the Theory, Myth and Reality of Regulatory Barriers, Investment Analyst, July, 17-26
- Chowdhry, B and V. Nanda, 1991, Multi-market Trading and Market Liquidity, Review of Financial Studies, 3, 483-511
- Domowitz Ian, Jack Glen and Ananth Madhavan, 1998, International Cross-Listing and Order Flow Migration: Evidence from an Emerging Market, Journal of Finance, Vol. LIII No.6, 2001-2027
- Errunza, V. and E. Losq, 1985, International Asset Pricing and Under Mild Segmentation: Theory and Test , Journal of Finance, 40, 105-124
- Fanto J., and R. Karmel, 1997, A Report on the Attitudes of Foreign Companies Regarding a U.S. Listing, Stanford Journal of Law, Business and Finance, 3, 143-162
- Foerster Steve and Andrew Karolyi, 1993, International Listings and Stock Price Reactions: The Case of Canada and the U.S., Journal of International Business Studies, Volume 24, 1993, 763-784.
- Foerster Steve and Andrew Karolyi, 1999, Multimarket Trading and Liquidity: A Transactions Data Analysis of Canada-U.S. Interlistings, Journal of International Financial Markets, Institutions and Money , 8, December 1998, 393-412.
- Foerster Steve and Andrew Karolyi , 2000, The Long Run Performance of Global Equity Offerings The Journal of Financial and Quantitative Analysis, Vol. 35, 4, 499-528
- Karolyi, A., 1998, What happens to stocks that list shares abroad? A survey of evidence and its managerial implications, NYU Salomon Brothers Center Monograph series, Volume 7, #1.
- Miller, D., 1999, The Market Reaction to International Cross-Listings: Evidence from Depository Receipts, Journal of Financial Economics, 51, 103-123

- Mittoo, U.R., 1992, Managerial Perceptions of the Net Benefits of Foreign Listing: Candian Evidence, Journal of International Financial Management and Accounting 4, 41-62
- Moel, Alberto, 2000, The Role of ADRs in the Development of Emerging Markets, Working Paper, Harvard Business School
- Pagano, M, 1989, Trading Volume and Asset Liquidity, Quarterly Journal of Economics, 104, 255-274
- Smith, K. and G. Sofianos, 1997, The Impact of an NYSE-listing on the Global Trading of Non-U.S. Stocks, Working paper, NYSE
- Stapleton, R and M . Subrahmanyam , 1977, Market Imperfections, Capital Market Equilibrium and Corporate Finance, Journal of Finance, 32, 307-319
- Stulz Rene M., 1999, Globalization, Corporate Finance and the Cost of Capital, Journal of Applied Corporate Finance, 12, 8-25

## APPENDIX

**List of firms that raised capital abroad  
(Simultaneous issue of equity on the domestic (Indian) and one or  
more foreign markets)**

Name of the firm	Issue date
1 Reliance Industries	05/27/1992
2 Hindalco Industries Ltd.	07/22/1993
3 Bombay Dyeing & Manufacturing	11/02/1993
4 Reliance Industries	02/15/1994
5 Calcutta Electric Supply	04/14/1994
6 DCW	05/27/1994
7 Grasim Industries Ltd.	06/09/1994
8 KEC*	06/24/1994
9 Hindalco Industries Ltd.	07/08/1994
10 Tata Engineering & Locomotive	07/14/1994
11 JCT Ltd	07/28/1994
12 SIV Industries	07/29/1994
13 Finolex Cables Ltd.	08/08/1994
14 Hindusthan Development Corp	09/19/1994
15 Century Textiles and Inds Ltd.	09/21/1994
16 India Cements Ltd.	10/11/1994
17 JK Corp Ltd.	10/14/1994
18 Shriram Ind Entrp Ltd.	10/14/1994
19 Bajaj Auto Ltd.	10/27/1994
20 Larsen & Toubro	11/01/1994
21 NEPC-Micon Ltd.	11/03/1994
22 Raymond Woollen Mills Ltd.	11/09/1994
23 Crompton Greaves*	11/18/1994
24 Ashok Leyland(Hindujas)	03/09/1995
25 Indian Hotels	04/27/1995
26 Indorama Synthetics(India)Ltd.*	06/08/1995
27 Himachal Futuristic Commun	07/31/1995
28 Flex Industries	11/29/1995
29 Larsen & Toubro	02/29/1996
30 Bombay Suburban Elect Supply	03/04/1996
31 Indorama Synthetics(India)Ltd.	03/21/1996
32 Crompton Greaves	07/01/1996
33 Kesoram Industries Ltd.	07/31/1996
34 ICICI Ltd.	08/01/1996

Name of the firm	Issue date
35 Tata Engineering & Locomotive	08/06/1996
36 State Bank of India	10/03/1996
37 Mahanagar Telephone Nigam Ltd.	12/03/1997
38 Nestle India Ltd(Nestle SA)*	01/15/1999
39 Videsh Sanchar Nigam(India)	02/10/1999
40 Aptech Ltd.*	03/18/1999
41 ICICI Ltd	09/22/1999
42 Sri Adhikari Brothers TV*	01/28/2000
43 India Cements Ltd.*	02/11/2000
44 Satyam Infoway Ltd.	02/17/2000
45 Tata Tea Ltd(Tata Group)	03/02/2000
46 ICICI Ltd.	03/28/2000
47 Silverline Technologies Ltd.	06/20/2000
48 Aptech Ltd.	07/24/2000
49 HDFC Bank Ltd.*	11/03/2000

\* represents firms that issue but do not list their equity on a foreign market

**List of firms that raised capital on the Indian market only**

Name of the firm	Issue Date
1 Pudumjee Pulp	01/07/1993
2 Kotak Mahindra	02/15/1993
3 CRB Capital Marketx	08/23/1993
4 Zee Telefilms	09/01/1993
5 United Breweries	11/18/1993
6 Greaves	11/22/1993
7 SOL Pharmaceuticals	12/15/1993
8 SBI	12/15/1993
9 ITC Classic	03/23/1994
10 Gujarat Sidhhee	07/07/1994
11 Triveni Glass	10/07/1994
12 Hindustan Organinc	11/10/1994
13 Hindustan Petroleum	02/13/1995
14 Kitply Industries	02/21/1995
15 Star Paper Mills	05/02/1995
16 Pennar Paterson	06/07/1995
17 CRB	01/31/1995
18 Mastek	3/26/1996
19 Marvel	8/5/1996