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Price reaction to rights issues in the Indian capital market

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Abstract

This study examines securities price reaction to announcements of rights issues by listed Indian firms during the period 1997–2005. We document a positive but statistically insignificant price reaction to such announcements. The price reaction is significantly more negative for firms with a family group affiliation compared to firms with no family group affiliation. The notable differential price reaction between firms with and without a family group affiliation can be explained by the "tunneling hypothesis." For firms affiliated with a family group, we surmise that investors perceive that the proceeds of the rights issue may be misused for the benefit of the controlling shareholder. We also find that higher levels of individual shareholding in the firm are associated with a more positive price reaction to the announcement.

JEL classification: D82; G14; K22
Keywords: Price reaction; Rights issues; Disclosure regulation; Informed trading; Event study

1. Introduction

This study examines share price reaction to the announcement of rights issues in India. Rights issues are commonly used by firms in many countries to raise new capital. This is documented, among others, in Australia (Balachandran et al., 2007), China (Wang et al., 2006), Greece (Tsangarakis, 1996), Hong Kong (Ching et al., 2006), Korea (Dhatt et al., 1996), Malaysia

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(Salamudin et al., 1999), New Zealand (Marsden, 2000; Anderson et al., 2006), Norway (Bφhren et al., 1997), Singapore (Tan et al., 2002), Turkey (Adaoglu, 2006) and UK (Slovin et al., 2000).

In the United States, most industrial firms rely solely on firm-commitment underwritten offers or seasoned equity offerings (SEOs) to obtain new equity finance. For US firms, the share price reaction to both firm-commitment underwritten offers and rights offers has almost invariably been negative (see, for example, Mikkelson and Partch, 1986; Barclay and Litzenberger, 1988; Hansen, 1989; Eckbo and Masulis, 1992). Several hypotheses have been advanced to explain the negative price reaction to new equity issues and the choice of flotation method for new equity in the US. This includes the signaling hypothesis of over-valuation of assets (Myers and Majluf, 1984), the tax advantage to debt (DeAngelo and Masulis, 1980), agency costs and wasteful investment (Jensen and Meckling, 1976; Stulz, 1990) and the price pressure hypothesis (Corwin, 2003). More recent evidence by Kim and Purnanandam (2006) suggests US investors react negatively to firm-commitment offers when they perceive managers will misuse the issue proceeds and engage in value-destroying corporate acquisitions or negative NPV investments. However, when investor and manager interests are well-aligned, Kim and Purnanandam (2006) find the price reaction insignificant around the announcement period of the offer.

US firms that raise equity through underwritten offers are typically large and share ownership is widely dispersed. For these firms, Eckbo and Masulis (1992) posit that the expected level of current shareholder take-up to any rights issue would be low and that a firm-commitment underwritten offer minimizes information asymmetry and adverse selection costs between the issuer and investors. Hansen (1989) argues that a firm-commitment offering enables underwriters to sell equity to new investors at the current market price and avoids the need to incur a price discount required to raise new equity under a rights issue. Kothare (1999) also presents evidence that rights issues in the US increase the bid-ask spread of the issuing firm's stock. These hypotheses and explanations of a negative price reaction to US equity issues do not, however, fully explain price reaction to the announcement of equity issues in other markets. For instance, Balachandran et al. (2007) report an insignificant price reaction, on average, to the announcement of a fully underwritten renounceable rights issue and a significantly negative price reaction for non-underwritten non-renounceable issues in an Australian setting. This contradicts Eckbo and Masulis (1992), who report significant negative price reactions for underwritten rights issues and insignificant price reactions for non-underwritten issues. Wang et al. (2006) reports a significant positive abnormal return of 4.8% on the ex-date for Chinese rights issues. They also document a significant and positive relationship between post-offering abnormal returns and changes in the operating performance of rights issuing firms. Empirical studies from Japan (Kang and Stulz, 1996), Norway (Bφhren et al., 1997), Switzerland (Loderer and Zimmermann, 1988) and Korea (Kang, 1990; Dhatt et al., 1996) document an increase in shareholder wealth around the announcement of rights issues.

In a similar vein, Tan et al. (2002) reports that firms that undertake larger rights issues have higher abnormal returns in Singapore. This evidence is not supportive of the wasteful investment or price pressure hypotheses that may partly explain the negative price reaction to US equity announcements. Tan et al. (2002) attributes a larger rights issue size to more favorable news about the earnings prospects of a firm and postulates that the issue provides a positive signal to investors of greater than anticipated new investment opportunities available to the firm. Similarly, Salamudin et al. (1999) reports a positive price reaction to a rights issue announcement in the Malaysian market when economic conditions are favorable. They attribute this finding to the signaling of profitable investment opportunities when growth prospects are strong in an emerging country. However for Hong Kong, Ching et al. (2006) reports negative abnormal returns to rights issue announcements. Many Hong Kong firms are dominated by insiders — individuals or family members that also take

senior management positions in the firm. Insiders are observed to be net sellers of stock in the period six months before and six months after the rights issue announcement. Ching et al. (2006) attributes this evidence to insiders believing the firm's stock is overvalued by the market. In this light, we examine share price reaction to a rights issue announcement by Indian firms. Our study appears to be the first to examine share price reaction to Indian rights issues.

India is an emerging capital market and the largest democracy in the world, with a legal and common law system based on English law.[2] The Indian market has the potential to assume significant global economic importance. However, similar to many Asian and Latin American markets, the Indian market is dominated by family controlled business groups. Most of the firms are closely held either through direct ownership or through indirect ownership through group firms. These group firms constitute roughly 70% of Indian market capitalization and this puts India among the more highly concentrated markets by ownership in the world. Understanding the market reaction to the announcement of rights issue in the Indian market, with its unique institutional features, will broaden understanding of how investors react to the announcement of new equity issues.

We find average price reaction to the announcement of a rights issue by Indian firms to be more negative for firms affiliated with family groups. As a rights issue increases the cash resources of the firm, this enables the controlling family shareholder to expropriate some of the firm's wealth to entities where the family group shareholder has greater comparative cash flow rights. This results in a net wealth gain to the controlling family shareholder at the expense of other shareholders.[3] Johnson et al. (2000) define the transfer of assets and profits out of firms for the benefit of their controlling shareholders as tunneling. They argue that controlling shareholders have incentives to expropriate the firm's wealth to increase their own wealth. Tunneling is common in many Asian markets with less developed systems of corporate governance compared to more developed markets (see, Bae et al., 2002; Bertrand et al., 2002). Investors are cognizant of these high agency costs and the potential for tunneling and the misuse of funds raised under the rights issue. Thus, on average the share price reacts negatively to the announcement. We also find that higher levels of individual shareholding are associated with a more positive price reaction to the rights announcement. High levels of individual shareholding may expose the firm to a greater likelihood of takeover or subject managers to greater discipline in the market for corporate control. For these firms, the interests of managers and shareholders may be more closely aligned and thus price reaction to the announcement of a rights issue is more positive. This finding is consistent with Asuncion-Mund (2007) who state that minority shareholders' interest in Indian firms must be increased for improved corporate governance.

The rest of this paper is structured as follows. Section 2 outlines institutional aspects of the Indian stock market and rights issues in India. Section 3 develops our testable hypotheses. Section 4 discusses the data and methodology employed in this paper. Section 5 examines the price

[2] The Constitution of India, which came into effect on January 26, 1950, was drafted on the basis of English Common Law and incorporates several important US court decisions (see, Dayanand, 2004). Tetley (2000) states that Common Law evolved in England around the 11th century and that under this system judges have the authority and the duty to decide what the law is. Thus, once the higher courts (such as the Supreme Court of India which is the apex court established by the Constitution of India) have decided what the law is, the lower courts must abide by the decision of the appellate court. Tetley (2000) defines Civil Law (which has its roots in Roman Law) as a highly systematized and structured system which relies on declarations of broad general principles.

[3] Assume a public listed firm that is 75% owned and controlled by a 100% (non-listed) family owned entity. The 100% family owned entity then expropriates or tunnels $1 of wealth away from the 75% owned listed company to the 100% (non-listed) family owned entity. The net gain to the 100% (non-listed) family owned entity is $0.25 (i.e. the direct gain of $1 offset by the loss of $0.75 in respect of its 75% shareholding in the listed company).

reaction to the announcement of our sample of Indian rights issues. Section 6 presents the empirical results of the hypotheses developed to explain the differential price reaction to the rights issue announcement. Section 7 concludes the paper.

2. Institutional aspects of the Indian stock market and rights issues in India

2.1. Overview of the Indian market

The Indian stock market is one of the oldest in the world. The Bombay Stock Exchange (the BSE), which initiated trading in 1875, is the oldest Asian stock exchange. With over 4000 firms listed on the BSE, India ranks as the second largest equity market in the world in companies listed.[4] Prior to the early 1990s, the institutional development of the Indian markets was limited by highly constrictive government policies. Reforms[5] to India's financial markets began to be implemented in the early 1990s. As noted by Asuncion-Mund (2007), banking sector reforms commenced with the elimination of interest rate controls, reductions in reserve and liquidity requirements, and an overhaul in lending to some priority sectors. Around the same time, the Government was keen to develop a sound capital market and, to achieve this objective, established The Securities and Exchange Board of India (SEBI) in 1992.[6] Shirai (2004) notes that the SEBI's guidelines allowing equity issuers to price their primary issues freely resulted in the 1993–1995 stock market boom. The liberalization program of the 1990s resulted in the creation of an equity "culture" among Indian investors, satisfying the increased capital needs of new enterprises. Table 1 reports the relative global importance of the Indian market. Despite the large number of listed firms in the Indian market, India's total market capitalization is still relatively small in world terms, but is growing in importance (0.4% of world market capitalization in 2001, increasing to 1.27% in 2005 according to the S&P Emerging Stock Market Factbook, 2006). In relation to the emerging markets, India's market capitalization was 9.19% in 2001, rising to 16.28% by 2005.

Despite impressive developments in the Indian capital markets, investor protections and legal remedies are still weak in practice. For instance, Allen et al. (2006) argue that the Indian market, notwithstanding its foundation in and legal protections derived from common law, is subject to corruption. Lack of consistent adjudication of legal matters and poor regulatory enforcement undermines investor protections.

2.1.1. Equity ownership in the Indian market

Two interesting features of the Indian market are the relatively high concentration of share ownership and the presence of many family-firm controlling shareholders. Table 2 breaks down the ownership structure of Indian firms. Entrepreneurs or promoters of Indian firms include family members, relatives and close associates (see, for example, Asuncion-Mund, 2007) and can

[4] The Indian market experienced a sudden jump in listings after the liberalization program in the early 1990s. Although there are more than 4000 stocks listed on the BSE many stocks are not actively traded.

[5] Nair (2006) notes that the reforms were the result of three landmark reports by, respectively, the Chakravarty Committee in 1985, the Vaghul Committee in 1987, and the Narasimhan Committee in 1991. Nair (2006) also notes that the Chakravarty Committee was responsible for activating the treasury bills market, while the Vaghul Committee recommended development of money markets and the gradual integration of money markets with short-term markets. The Narasimhan Committee recommendations were the blueprint for banking sector reforms.

[6] Bajpai (2006) notes that SEBI was established in 1989 as an informal body, and in 1992 became a statutorily autonomous regulator with two major objectives. The objectives are two-fold: (a) to protect the interests of investors; and, (b) to develop and regulate the securities markets.

Table 1
Descriptive data

Country/Region	2001	2002	2003	2004	2005
Developed Markets	22,242,989	20,957,836	28,370,952	34,173,600	36,538,248
All Emerging Markets	2,556,979	2,439,080	3,656,292	4,730,418	7,103,800
India	110,396	131,011	279,093	387,851	553,074
World Total	27,799,968	23,396,916	32,027,244	38,904,018	43,642,048
US market as a % of World	49.68%	47.24%	44.54%	41.96%	38.95%
Emerging Markets as a % of the world	9.19%	10.42%	11.14%	12.16%	16.28%
India as a % of Emerging Markets	4.31%	5.25%	7.63%	8.19%	7.79%
India as a % of World	0.40%	0.56%	0.87%	1.00%	1.27%

Sample Period: 2001–2005. Table 1 reports the relative importance of the Indian market in the world. This table shows the market capitalization for the developed markets, emerging markets and India as a percentage of emerging markets and the world. The data was obtained from the S&P Emerging Stock Market Factbook (2006). The market capitalization figures are in millions of dollars (USD).

be classified into two broad categories-promoters of standalone (non-group) firms, and promoters of group firms. Standalone firms are firms with no subsidiaries or otherwise related firms. For group firms,[7] there is a common promoter for the various firms within the group. The Indian group firms can be broadly classified, based on the nature of the owner, into family owned group, government owned group, or Multinational Corporations (MNCs) owned groups. The majority of group firms in India belong to families and ownership is highly concentrated. The high concentration has retained even after listing in the stock exchange.

2.1.2. Equity Issues in India

In India, firms can float shares mainly by three methods: (a) public issues; (b) rights issues; and (c) private placements. The most conventional methods for raising new equity are through public issues (i.e., IPOs and SEOs), and through rights issues. The requirements to issue rights are identical to those of IPO and other seasoned equity offerings. These norms are stringent and encourage only better quality firms to undertake public issues. The main criteria for issuing rights pursuant to SEBI (2000) guidelines are as follows:

1. the firm should have tangible net assets exceeding Rs. 3 crores[8] for a period of three full years
2. distributable profits in at least three successive years;
3. if the name of the firm changes, then at least 50% of the revenue for the preceding 12 months should be reported under the new name; and
4. the issue size should not exceed five times pre-issue net worth.

However, the above criteria can be overruled if (i) a special resolution in favor of a public issue by the firm is passed in a general meeting, or (ii) the votes cast in favor of a proposal exceed those cast against the proposal and a special approval is granted by the Central Government.[9] Table 3 illustrates that, similar to many developing markets and unlike the US market, rights issues are a

[7] We present the complex structure of Aditya Birla group, which is one of the largest family business groups in India (See, Appendix A). As shown in Appendix A, the controlling family (Aditya Birla family), directly or indirectly controls a part of all group firms.

[8] A crore represents 10 million Indian Rupees ("INR"). The average exchange rate over the last 12 months is approximately 45 INR per one US dollar.

[9] Section 81 (1)–(1A) of the Companies Act, 1956.

Table 2
Ownership of Indian Firms

Year	2001	2002	2003	2004	2005
Ownership of Indian Firms	Mean (S.D)	Mean(S.D)	Mean(S.D)	Mean(S.D)	Mean(S.D)
Promoter's equity (%PE)	44.54 (20.42)	46.62 (20.52)	47.32 (20.59)	48.10 (20.67)	47.40 (19.90)
Mutual funds' equity (%MFE)	3.03 (4.52)	2.55 (4.15)	2.21 (3.84)	1.99 (3.60)	2.69 (4.21)
Institutions' equity	6.42 (8.57)	6.40 (8.89)	6.27 (8.73)	5.55 (8.17)	5.26 (7.10)

Sample Period: 2001–2005. This table shows that substantial ownership of Indian firms is in the hands of promoters. Promoters can be broadly classified into two categories — promoters of stand alone (non-group) firms and promoters of group firms. In this table promoter's equity represents both group and non-group promoters. The definition of promoters is based on the PROWESS database where promoters include, family or relatives or people acting in concert. The other major owners are financial institutions and mutual funds. Institutions include banks, financial and insurance institutions. Mutual fund investors include both government-affiliated mutual funds and private mutual funds.

common flotation method in the Indian market for firms to raise new equity capital. The rights issues of the period 1997–2005 represent around 50% of the number of public issues (both IPOs and SEOs) currently standing in the Indian market. A listed firm may freely price its equity shares or convertible securities offered through a rights issue. It is mandatory to appoint a registrar for a rights issue. Rights offered by listed firms are generally renounceable. That is, investors can sell their rights entitlements during the rights trading period.[10]

3. Testable hypotheses

Myers and Majluf (1984) show that in the presence of asymmetric information between managers and shareholders, new equity issues signal unfavorable information about the firm. Managers are assumed to know more about the firm because they have access to firm-specific or inside information prior to this information becoming public knowledge. The adverse selection cost arguments of Eckbo and Masulis (1992) and the price pressure hypothesis as discussed by Corwin (2003) suggest that price reaction to a rights issue announcement should be negative. This discussion leads to our first hypothesis, in null form, for rights issues in the Indian capital market:

H 1. The price reaction to an announcement of a rights issue does not, on average, significantly differ from zero.

An interesting aspect of the Indian market is its high concentration of ownership. A high level of ownership concentration may reduce the level of information asymmetry and agency costs between managers (inside shareholders) and outside shareholders (Jensen and Meckling, 1976). A rights issue will also increase ownership concentration if major shareholders are expected to fully participate in the issue; and this provides a positive signal to the market on the announcement of the issue. When existing shareholder take-up of the issue is high, adverse selection costs are low (Eckbo and Masulis, 1992) and managers of undervalued firms have greater incentive to undertake a rights issue. This arises because the costs to existing shareholders of selling undervalued equity are lower than the costs to existing shareholders of selling under-valued equity to outside shareholders under a firm commitment offer. In respect of private placements, Wruck (1989) also presents evidence that an increase in ownership concentration or level of investment in a firm that

[10] Non-renounceable rights issues may arise where a preferential share issue results in a right to subscribe to shares of associated companies and where such an issue is offered by unlisted companies.

Table 3
Equity issues in India

Year	Domestic public issues		Rights issues		International issues	
	Rs. Crores*	#	Rs. Crores	#	Rs. Crores	#
1997–1998	3061	62	1703	49	–	–
1998–1999	7911	32	568	26	–	–
1999–2000	7673	65	1560	28	–	–
2000–2001	6618	119	729	27	1684	5
2001–2002	6423	19	1041	13	2384	5
2002–2003	5732	14	431	12	1079	6
2003–2004	22130	34	1006	22	6969	17
2004–2005	25526	34	3616	26	25973	50
Total	85,074	379	10,654	203	38,089	83
Avg Issue Size	224.46		52.48		458.9	

Sample Period: 1997–2005. This table provides the number of public and rights issues and their offer proceeds made by Indian companies for the period 1997 to 2005. The table shows that rights issues are a common flotation method in the Indian market for firms to raise new equity capital. The rights issues during 1997–2005 represent around 50% of the number of public issues (both IPOs and SEOs) issued in the Indian market. We obtain this data from Prime Database Services. A crore represents 10 million Indian Rupees ("INR"). The average exchange rate over the last 12 months is approximately 45 INR per one US dollar. International public issues represent American and Global Depository Receipts (ADRs and GDRs).

more closely aligns ownership with managerial interests can increase firm value. This suggests a more positive price effect from the rights issue announcement when shareholder concentration is high. This discussion leads to our second hypothesis in null form:

H2. The price reaction to an announcement of a rights issue is unrelated to promoter ownership or the degree of shareholder concentration in the firm.

More recent evidence by Kim and Purnanandam (2006) suggests that agency costs may play an important role in explaining negative price reaction to the announcement of equity issues in the US market. Investors react particularly negatively to stock offerings where a mis-alignment of interests between managers and shareholders is high. Agency problems are reduced when there is a greater degree of monitoring of corporate control by institutional shareholders or where managers are subject to greater discipline from the market. Under this agency-based cost hypothesis, we would predict that the higher the level of institutional ownership and the potential for closer shareholder monitoring, the less negative or more positive the price reaction to the announcement. This discussion leads to our third hypothesis in null form:

H3. The price reaction to an announcement of a rights issue is unrelated to the level of institutional shareholding in a firm.

Kothare (1999) argues that, while a rights issue can increase shareholder concentration, this will reduce the liquidity of the firm's shares and imposes large indirect costs on shareholders. Consistent with these arguments, Kothare (1999) provides evidence that an increase in ownership concentration and a reduction in stock liquidity may explain the negative price reaction to the announcement of rights issues by US firms. An increase in ownership concentration may be less likely to occur when individual ownership in the firm is already high. High individual ownership may also act as a proxy for the degree of "public scrutiny" and the likelihood of a takeover. As already noted, Asuncion-Mund (2007) argues that the minority shareholder's interest must be increased for improved corporate governance in the Indian capital market. Thus, we would expect

the higher the level of individual ownership, the more positive the price reaction to the announcement. This discussion leads to our fourth hypothesis in null form.

H4. The price reaction to an announcement of a rights issue is not related to the level of individual shareholding in the firm.

In the Indian market, family business groups control many publicly listed firms. The wealth effects of rights issues by family-group affiliated firms are more difficult to ascertain. The literature on Indian family business group affiliation and group-affiliated firm performance is mixed. Khanna and Palepu (2000) and Khanna and Yafeh (2005) argue that group affiliated firms in India perform better than standalone firms due to perceived co-insurance and internal capital market benefits. Recent papers by Gopalan et al. (in press) and Marisetty and Subrahmanyam (2007) show that group firms have a higher ability to survive than standalone firms due to co-insurance benefits, as shown in Khanna and Yafeh (2005). However, Marisetty and Subrahmanyam (2007) find that the market performance of group-affiliated firms is negative compared to surviving standalone firms. This indicates that, although group affiliation helps firm survival when the external market is inefficient, this comes at a cost to non-group investors. Given this background, a rights issue by a family controlled firm can be viewed as a positive signal if the cost of raising new equity in the external market is relatively high.

On the other hand, a rights issue can also be viewed as a negative signal if investors perceive that the controlling family will tunnel or expropriate the cash proceeds or additional firm wealth from the new equity raised. Tunneling occurs when the family channels the resources of firms, where their cash flows rights are low relative to its control rights, to firms where the family's cash flows are higher relative to their control rights (see, for example, Faccio et al., 2001). In an interesting paper Bertrand et al. (2002) provide empirical evidence on tunneling activities in the Indian family based business groups and report that intra-group activities in the Indian business groups leads to a reduction of group affiliated firms' wealth, especially where the controlling owner has low cash flow rights. Bae et al. (2002) document that when a Korean chaebol-affiliated firm makes an acquisition, its stock price on average falls. While minority shareholders of a chaebol-affiliated firm make an acquisition loss, the controlling shareholder of that firm on average benefits. This is because the acquisition enhances the value of other firms in the group, which Bae et al. (2002) attribute to the tunneling hypothesis. Baek et al. (2006) investigate the pricing and the valuation effect of equity-linked private securities offerings by Korean firms and report that pricing decisions of private securities offerings are also affected by the tunneling incentives of the controlling shareholders. This discussion leads to our fifth hypothesis.

H5. The price reaction to an announcement of a rights issue is unrelated to the presence of a family controlling-shareholder.

4. Data and methods

4.1. Data

The number and names of Indian firms announcing rights issues spanning the period 1 January 1997 through 31 December 2005 were obtained from PRIME Database Services.[11] During this period there were a total of 203 rights issues (including issues of preference shares and convertible

[11] PRIME Database Services provides exclusive primary market data on the Indian market.

Table 4
Number of rights issues

Year	*N*=number of rights issues	Family group affiliated firm	Government owned affiliated firm	Foreign affiliated firm	Stand-alone firm
1997–1998	6	2	0	2	2
1998–1999	8	8	0	0	0
1999–2000	12	8	1	2	1
2000–2001	6	3	0	0	3
2001–2002	6	4	0	0	2
2002–2003	8	2	0	1	5
2003–2004	7	7	0	0	0
2004–2005	14	9	0	0	5
Total	67	43	1	5	18

Sample Period: 1997–2005. This table reports the break down of the number of rights issues for our sample of 67 Indian firms for the period 1997 to 2005.

bonds). However, the announcement date was available for only 88 issues. The announcement day, share price data and market returns were[12] obtained from Bloomberg. From this sample of 88 rights issues, we deleted 21 issues, as these stocks did not trade for at least one day during the period between the announcement date (specified as day [0]), and day [+2] (the second trading day post the announcement date) or at least 50% over days [−30 to +30] with respect to the announcement date. Our final sample comprised 67 rights issues. Data on each firm's shareholding characteristics, group affiliation, issue size, issue type, and industry classification were obtained from Prowess.[13] Table 4 provides a breakdown of the 67 rights issues in the sample by year of announcement, together with the group affiliation of the firm. The greatest number of rights issues in our sample occurred in 2004 (14 issues). Our final sample contained no rights issues in 2005. Forty-three out of 67 issues were by family controlled firms, one by a government controlled firm, five by MNC's and 18 by stand-alone firms.

Table 5 splits the sample of 67 rights issues between equity issues of ordinary shares at par value, equity issues of ordinary shares at a premium, equity issues of ordinary shares with attached warrants, preference share issues, and issues of convertible debt. The most common issue type (37 rights issues) was an issue of ordinary shares at a premium to their par or face value. There are 19 rights issues with an issue of ordinary shares at their par value and 11 rights issues of "equity" other than just pure ordinary shares.

Industry classification of sample firms announcing a rights issue is provided in Table 6. The sample of rights issues is spread over a wide variety of industries. The greatest number of issues (8) was in the banking and term lending sector.

Table 7 provides the trading frequency (in %) for the sample of 67 Indian firms announcing a rights issue over the event window periods [−210, +30] and [−30, +30]. The event window period [−210, +30] is the −210 days prior to the announcement of the rights issue (day [0]) to 30 days following the announcement of the rights issue.[14] The event window period [−30, +30] is the −30 days prior to the announcement of the rights issue to 30 days following the announcement of the rights issue. Over the periods [−210, +30] and [−30, +30] the mean trading frequency was

[12] All stock and market index returns were adjusted for dividends, bonus issues, and other capital changes.
[13] Announcement dates were not available on Prowess.
[14] For 6 firms we did not have share price data for the full period commencing days −210 prior to the announcement date. Our measure of trading frequency therefore starts on the first day that stock price data was available.

Table 5
Number of rights issues by type

Year	N=number of rights issues	Equity issue of ordinary shares at par or face value	Equity issue of ordinary shares at a premium to their par or face value	Equity shares with attached warrants	Preference shares	Convertible debentures
1997–1998	6	1	5	0	0	0
1998–1999	8	1	5	0	0	2
1999–2000	12	5	5	1	0	1
2000–2001	6	3	3	0	0	0
2001–2002	6	2	2	0	1	1
2002–2003	8	3	3	0	0	2
2003–2004	7	2	5	0	0	0
2004–2005	14	2	9	2	1	0
Total	67	19	37	3	2	6

Sample Period: 1997–2005. This table reports the number of rights issues by issue type. This table splits our sample of 67 firms between equity issues of ordinary shares at par value, equity issues of ordinary shares at a premium, equity issues of ordinary shares with attached warrants, preference share issues and issues of convertible debt.

90% and 94% respectively, with the 25% percentile trading frequency equal to 87% and 95%.[15] The minimum trading frequency was 29% in the period between [−210, +30] and 56% in the period [−30, +30]. We control for thin trading in our model used to ascertain abnormal returns as discussed below.

4.2. Methods

4.2.1. Measurement of abnormal return

A single-factor market model was used to measure stock market response to the announcement of a rights issue. The single factor market model is

$$R_{it} = \alpha_i + \beta_i R_{m,t} + \varepsilon_{i,t} \tag{1}$$

Where $R_{i,t}$ is the return to security i at time t, $R_{m,t}$ is the corresponding market return, β_i is the parameter estimate for security i taken from ordinary least squares estimates, α_i is the intercept term for security i taken from ordinary least squares estimates and ε_{it} is the error term.

To control for thin trading bias a "trade-to-trade" approach using multi-period event returns was used (Maynes and Rumsey, 1993). Under the trade-to-trade returns approach, the observed multi-period return to security i (R_{i,n_t}) is measured over n_t days, where n_t is the length of the return interval ending on day t or the number of days between observed and traded prices ending on day t.[16]The single-factor market model, Eq. (1), becomes:

$$R_{i,n_t} = \alpha_i n_t + \beta_i R_{m,n_t} + \sum_{s=0}^{n_{t-1}} \varepsilon_{i,t-s}, \tag{2}$$

where R_{m,n_t} is the return on the market index over n_t days (n_t days matches the number of days between the observed and traded prices for security i).

[15] Out of the final sample, 88% of the stocks traded on every trading day over the period [0 to +2].
[16] For example if the stock does not trade for 1 day, the return is measured based on the price change over a two day interval with n_t equal to 2.

Table 6
Industry Classification of the sample of firms

Industry	Number
Aluminum and aluminum products	1
Automobile components	2
Automobiles — 4 wheelers and tractors	1
Banking and term lending	8
Batteries	1
Breweries and distilleries	1
Cables/wires/conductors	1
Castings/forgings	1
Cement and construction materials	1
Chemicals	4
Domestic appliances	4
Electric/electrical equipment	2
Electronics — consumer and media	2
Electronics — general	2
Fertilizers	1
Financial services	4
Hotels and resorts	1
Information technology	5
Laminates/decoratives	1
Milk and dairy products	1
Paper and board	2
Pharmaceutical and drugs	5
Photographic and allied products	1
Plastics	1
Power generation and supply	1
Printing	1
Project contracting/machinery manufacture	2
Shipping	1
Sugar	3
Textile machinery	1
Textiles	5
Total	67

Sample Period: 1997–2005. This table presents the Industry classification of the sample of 67 Indian firms announcing a rights issue. We follow Prowess industry classification. Prowess provides a unique code for each firm based on its economic activity. If a company has multiple economic activities then the classification is based on the dominant economic activity that contributes to the firms' revenue.

The error term in Eq. (2) will be heteroskedastic, with variance equal to $n_t\sigma_j^2$ (assuming the variance of residuals is proportional to the length of the period between trades). Thus, the parameters α and β are estimated by Eq. (3) below:

$$\frac{R_{i,n_t}}{\sqrt{n_t}} = \alpha_i\sqrt{n_t} + \frac{\beta_i R_{m,n_t}}{\sqrt{n_t}} + \mu_{i,t}. \tag{3}$$

The abnormal return for security i over the event period is calculated as:

$$AR_{i,n_t} = R_{i,n_t} - E\lfloor R_{i,n_t}\rfloor, \tag{4}$$

where AR_{i,n_t} is the abnormal return for security i over the period n_t days and $E\lfloor R_{i,n_t}\rfloor$ is the expected return for security i over the period n_t days.

Table 7
Trading frequency of the sample of firms

Event window period	% of days that stock traded in the event window period	
	[−210, +30]	[−31, +30]
Mean	90%	94%
Median	98%	100%
Max	100%	100%
Min	29%	56%
25% percentile	87%	95%
75% percentile	100%	100%
Standard deviation	16%	11%

Sample Period: 1997–2005. This table presents the trading frequency (in %) for the sample of 67 Indian firms announcing a rights issue. The event window period [−210, +30] is the −210 days prior to the announcement of the rights issue (day [0]) to 30 days following the announcement of the rights issue. The event window period [−30, +30] is the −30 days prior to the announcement of the rights issue (day [0]) to 30 days following the announcement of the rights issue.

The mean abnormal return on any day is then measured as the cross-sectional average abnormal returns of those N firms that traded on that day.

$$\overline{AR} = \frac{1}{N}\sum_{i=1}^{N} AR_{i,n_t} \tag{5}$$

The significance of the abnormal returns was tested using the t-statistic under a trade-to-trade approach (see Maynes and Rumsey, 1993). The sign test was also used to detect evidence of abnormal returns around the announcement period.

4.2.2. Announcement day, event window and model estimation period

The announcement day of the rights issue is defined as day zero in the event window period. Abnormal returns were calculated over an event window period of [−30 to +30] trading days around the announcement day of the issue. The estimation period used to calculate the parameters in Eq. (2) comprised returns over days [−210 to −31] prior to the announcement day of the issue.

5. Returns around the rights issue announcement date

5.1. Abnormal return around the period of a rights issue announcement

Table 8 summarizes the mean cumulative abnormal return ("CAR") across firms around various announcement day event-window periods, together with the results of the t test and the sign test measuring the significance of any abnormal returns. Columns 2–5 summarize the CARs for all rights issues in the sample. Columns 6–9 provide the CARs for the sample of 56 pure rights issues of "ordinary equity" only, and columns 10–13 provide the results for the sample of equity issues with attached warrants, preference shares or convertible bonds. For the entire sample of rights issues (columns 2–5 of Table 8), the mean CAR around the event window periods [0 to +1] and [0 to +2] was .03%, not significantly different from zero under both the t test and the sign tests. The mean CARs for the sample of 56 rights issues of ordinary equity and for the sample of 11 rights issues of other equity were also not significantly different from zero over these same

event window periods. There is, however, some evidence of a negative return prior to the announcement date of the issue. For the full sample of 67 rights issues, the mean CARs over the period [−5 to −1] was −1.4%. This was significantly negative at the 10% level under the *t* test and at the 5% under the sign test. For the sub-sample of 56 rights issues of ordinary equity, the mean CAR over the period [−5 to −1] was also negative (−1.3%) and significant at the 5% level under the sign test. Over wider event window periods between days [−30 to −5], [30 to −1] and [+2 to +30] the CARs for the full sample of 67 rights issues were positive but not significant. Only for the sub-sample of 11 rights issues of an equity issue with warrants, preference shares, or convertible notes was the CAR over the period [+2 to +30] significant and positive (10.04%) at the 5% level under the *t* test.

Fig. 1 plots the mean CARs over the event window period [−30 to +30] for the rights issues in our sample. Consistent with the results shown in Table 8, there was only a small post-announcement drift following the announcement day [0] for the full sample of 67 rights issues. For the sub-sample of 11 rights issues of an equity issue with warrants, preference shares or convertible notes, the post-announcement drift was more positive.

Overall, we accept H 1 and conclude that the price reaction to a rights issue announcement for an Indian firm is, on average, not significantly different from zero.

6. Determinants of the size effect from the rights issue announcement

6.1. Univariate and multivariate analysis

We first conduct univariate analysis of factors that may explain the price reaction to the announcement of the rights issue. We also examine the following cross-sectional regression model,

$$\begin{aligned}\mathrm{CAR}[0,+2]_i = {} & a_0 + a_1\mathrm{CAR}[-30,-1]_i + a_2\mathrm{IssuesSize}_i + a_3\mathrm{PromotersInterest}_i \\ & + a_4\mathrm{InstitInterest}_i + a_5\mathrm{IndivInterest}_i + a_6\mathrm{Sharecon}_i \\ & + a_7\mathrm{FamilyGroup}_i + a_8\mathrm{IssueType}_i + \varepsilon_i. \end{aligned} \quad (6)$$

Eq. (6) establishes the functional relationship between share price reaction and the various variables used to test our hypotheses in Section 3. The dependent variable $\mathrm{CAR}[0, +2]_i$ is the cumulative abnormal return for firm *i* between days [0 and +2]. We use a three-day event window to ensure that we capture the full price impact of the rights issue announcement. Over this period, all stocks must have traded at least once.[17]

This paper examines differential price reaction according to firm ownership and, specifically, the level of control of an Indian firm by a family group. The variables PromotersInterest, InstitInterest, IndivInterest, and Sharecon proxy for share ownership and for the level of shareholder concentration in an Indian firm. The variable PromotersInterest is the percentage interest held in a firm by promoters. InstitInterest is the percentage interest held in a firm by institutional investors, and IndivInterest is the percentage interest held in a firm by Indian retail investors. The variable Sharecon is defined as [PromotersInterest/(InstitInterest+IndivInterest)]. The variable FamilyGroup is a dummy variable equal to 1 if the firm is controlled by a family shareholder, and zero otherwise.

[17] A total of 59 stocks traded each day over the event-window-period between days [0 and +2], 7 stocks traded on 2 days between days [0 and +2] and 1 stock traded on 1 day only between days [0 and +2]. Deleting the stock that traded only once over the period [0 to +2] did not qualitatively change our results.

Table 8
Abnormal Return around the Period of a Rights Issue Announcement

	All 67 rights issues in the sample.				Sample of 56 firms — equity issue of ordinary shares only.				Sample of 11 rights issues of ordinary equity with warrants, preference shares or convertible notes.			
Column No	2	3	4	5	6	7	8	9	10	11	12	13
Event window period	Mean CAR (*t*-statistic)	No. of CARs>=0	No. of-ve CARs	Sign test	Mean CAR (*t*-statistic)	No. of CARs>=0	No. of -ve CARs	Sign test	Mean CAR (*t*-statistic)	No. of CARs>=0	No. of -ve CARs	Sign test
[−30, −5]	0.0375 0.529	29	38	−1.100	0.0254 −0.089	21	35	−1.871	0.0990 1.510	8	3	1.508
[−30, −1]	0.0241 −0.170	28	39	−1.344	0.0134 −0.603	22	34	−1.604	0.0786 0.945	6	5	0.302
[−5, −1]	−0.014 **−1.727**[a]	22	44	**−2.708**[b]	−0.013 −1.460	18	37	**−2.562**[c]	−0.020 −0.972	4	7	−0.905
[−2, +2]	0.0016 0.518	33	34	−0.122	0.0018 0.436	28	28	0.000	0.0007 0.303	5	6	−0.302
[−1,0]	0.0032 0.537	30	37	−0.855	0.0058 0.816	27	29	−0.267	−0.0092 −0.494	3	8	−1.508
[0, +1]	0.0003 0.222	36	31	0.611	0.0037 0.733	33	23	1.336	−0.0162 −1.070	3	8	−1.508
[0, +2]	0.0003 0.788	33	34	−0.122	−0.0002 0.691	28	28	0.000	0.0032 0.397	5	6	−0.302
[−1, +2]	0.0041 0.749	35	32	0.367	0.0036 0.654	28	28	0.000	0.0072 0.383	7	4	0.905
[+2,30]	0.0061 0.932	39	28	1.344	−0.0138 −0.122	32	24	1.069	0.1004 **2.520**[b]	7	4	0.905

Sample Period: 1997–2005. This table reports the mean cumulative abnormal returns (CAR), *t*-statistic (in parentheses) and number (*n*) of cases where CARs are positive for the sample of Indian firms that announced a rights issue in the period 1997 to 2005. The table also reports the (CAR) and *t*-statistic for the sample of 56 firms (equity issue of ordinary shares only) and the sample of 11 firms (rights issues of ordinary equity with warrants, preference shares or convertible notes.). In this table, Columns 2 to 5 present the CARs for all rights issues in the sample, columns 6 to 9 provide the CARs for the sample of 56 pure rights issues of "ordinary equity" only and columns 10 to 13 provide the results for the sample of the equity issues with attached warrants, preference shares or convertible bonds.

[a] Significant at the 10% level.

[b] Significant at the 5% level.

[c] Significant at the 1% level.

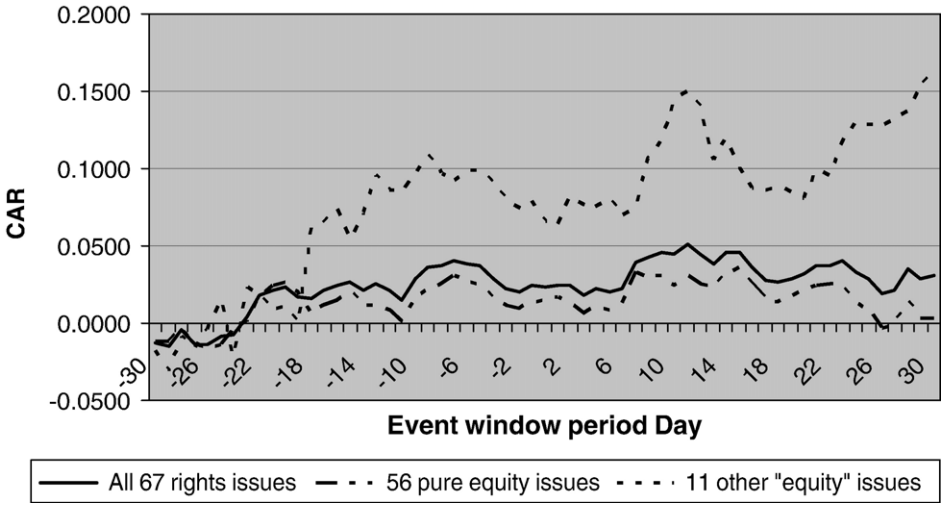

Fig. 1. Mean Cumulative Abnormal Returns. Fig. 1 Presents the Mean CARs over the event window period [−30, +30] for all 67 rights issues, 56 pure equity issues and 11 other equity issues in our sample.

The remaining variables in Eq. (6) are control variables for other factors that may influence the price reaction to the announcement of the rights issue. The variable $CAR[-30, -1]_i$ is the cumulative abnormal return for firm i between days [−30 to −1]. This variable captures share price run-up prior to the announcement. Lucas and McDonald (1990) argue that overvalued firms have incentives to issue new equity immediately, whereas undervalued firms will delay issuing new equity until favorable news about the firm is released. Thus, on average, new equity issues will be announced only following a period of positive abnormal returns to a firm and will signal that the firm's share price is overvalued. Lucas and McDonald (1990) predict that the higher the price run-up prior to a new equity issue, the more negative the price reaction to the announcement.[18] Viswanath (1993), however, argues that an increase in the firm's stock price prior to the announcement may reflect the existence of profitable investment opportunities. The announcement of the rights issue signals that the firm will commit to the new investment opportunity and that the price reaction to the announcement will be positive.[19]

The variable IssueSize is defined as the number of new shares or equity instruments offered under the rights issue announcement divided by the number of existing shares outstanding prior to the announcement.[20] Miller and Rock (1985) posit that external equity issues signal negative inside managerial information about a firm's cash flow and therefore, the larger the issue size, the more negative the price reaction to the announcement. On the other hand, Tan et al. (2002) document that the larger a rights issue, the more favorable the news about the earnings prospects and investment opportunities of the firm, and the more positive the price reaction to the announcement.

[18] A number of empirical studies also provide evidence that firms seek to time the issue of new shares when their stock is overvalued (see, for example, Loughran and Ritter, 1995).

[19] For US stocks, Dierkens (1991) and Pilotte (1992) provide evidence consistent with a less negative price reaction to new equity announcements for those firms with greater new investment opportunities.

[20] We calculated the variable IssueSize from the entitlement ratio. For example, if the rights entitlement is one right to a new share for every existing share held in the firm, then the variable IssueSize equals 1.

The variable IssueType is a dummy variable equal to 1 for the 19 rights issues of new shares at par or face value, and zero otherwise.[21] We use IssueType as a proxy for an implicit dividend increase to shareholders under a rights issue. We posit that when new shares are issued under a rights issue shareholders may infer an increase in total dividends. An increase in dividends to shareholders will result if the firm seeks to maintain constant dividends per share on the greater number of issued shares outstanding subsequent to any rights offerings. Thus, any implicit dividend increase will likely be greater for those rights issues where new shares are offered to shareholders at their par or face value, compared to a rights issue where new shares are offered to shareholders at a higher price or a premium to their face value. Shareholders are predicted to react positively to an increase in total dividends and therefore we expect the coefficient for IssueType to be positive.[22] On the other hand, arguments by Heinkel and Schwartz (1986) would suggest an issue of new shares at their par value compared to the issue of new shares at a premium to their par value may signal low firm-quality to investors. That is where the cost of the failure of the rights issue are high managers choose a low subscription price to self-insure against the failure of the rights issue. Under the certification hypothesis of Heinkel and Schwartz (1986), the coefficient for IssueType will be negative.

6.1.1. Summary statistics

Table 9 presents summary statistics for the explanatory variables in our cross-sectional sample model. Although our final sample consists of 67 rights issues, we have 61 data points for the variables InstitInterest, IndivInterest, and Sharecon alone. Data for these variables in respect of 6 rights issues were not available on Prowess. The mean value of CAR [−30, −1] was 2.41%. However, there is substantial variation between the firms in the sample of rights issues. The maximum CAR[−30, −1] was 102% and the minimum CAR[−30, −1] was −83.8%. The maximum (minimum) value of IssueSize was 250% (2.4%).[23] That is, under the largest (smallest) rights issue, 2.5 (0.024) new shares or equity instruments were offered to shareholders for each existing share already owned. The mean (median) value of PromotersInterest was 45.0% (43.6%), with a maximum (minimum) value of 96.2% (0.0%). The mean (median) values of InstitInterest and IndivInterest were 20.2% (14.6%) and 26.4% (23.8%) respectively. The mean (median) value of Sharecon was 1.75 (0.85). The evidence is suggestive of relatively high shareholder concentration within the Indian capital markets and for those firms that announced rights issues in our sample. There is, nevertheless, wide variation in the levels of promoter, and institutional and individual shareholding of firms.

6.1.2. Cross-sectional correlations of explanatory variables

Table 10 presents the correlation coefficients between the explanatory variables for all firms in our sample that announced rights offerings between 1997 and 2005. The variable PromotersInterest is strongly negatively correlated with the variables InstitInterest and

[21] See Table 5.

[22] For the sub-sample of 56 stocks that announced a rights issue of ordinary shares only, we also proxied any implicit dividend increase using the measure $[1-P_{sub}/P_{t=-30}]$, where P_{sub} equals the subscription price for new shares under the rights issue and $P_{t=-30}$ equals the market price of the stock at day −30. In our regressions, the coefficient on this variable was not significantly different from zero (similar to our results using the dummy variable IssueType).

[23] For the sub-sample of 56 stocks that announced a rights issue of ordinary shares only the minimum value of IssueSize was 10.9%. In our regressions for this sub-sample, the coefficient on IssueSize was not significant at the 5% level. We also tested the robustness of our results by defining IssueSize as equal to the (number of new shares issued under the rights offer × rights subscription price)/firm market capitalization 30 days prior to the announcement. Our results reported in this paper were not qualitatively different using this alternative definition of the issue size of a rights issue.

Table 9
Summary statistics

Variable	*N*=number of observations used to calculate the statistic depending on data availability (max 67).	Mean	Standard deviation	Median	Min	Max	25% Quartile	75% Quartile
CAR[0, +2]	67	0.0003	0.0734	−0.0016	−0.2789	0.1450	−0.0412	0.0550
CAR[−30, −1]	67	0.0241	0.2794	−0.0248	−0.8382	1.0202	−0.1162	0.1052
IssueSize	67	60.92%	46.76%	50.00%	2.40%	2.5000	0.2500	1.000
PromotersInterest	67	44.98%	25.13%	43.59%	0.00%	96.22%	28.67%	61.85%
InstitInterest	61	20.22%	17.99%	14.63%	0.00%	60.58%	3.98%	34.49%
IndivInterest	61	26.35%	17.74%	23.79%	3.18%	77.00%	13.25%	35.13%
Sharecon	61	1.7485	3.0727	0.8520	0.0000	17.500	0.4780	1.7612

Sample Period: 1997–2005. This table reports the summary statistics of explanatory variables for all firms in the sample that announced a rights issue in the period 1997 to 2005. The dependent variable CAR[0, +2] is the cumulative abnormal return between days [0, +2] around the announcement day zero. The variable CAR[−30, −1] is the cumulative abnormal return between days [−30, −1]. The variable IssueSize is defined as the number of new shares or equity instruments offered under the rights issue announcement divided by the number of existing shares outstanding prior to the announcement. PromotersInterest, InstitInterest, IndivInterest, and Sharecon proxy for share ownership and the level of shareholder concentration in the firm. PromotersInterest is the percentage interest held in the firm by the promoters. InstitInterest is the percentage interest held in the firm by institutional investors and the IndivInterest is the percentage interest held in the firm by Indian retail investors. Sharecon is defined as [PromotersInterest/(InstitInterest+IndivInterest)].

IndivInterest and positively correlated with Sharecon. There is also evidence of moderate positive correlation between CAR[−30, −1] and IssueSize, and negative correlation between CAR[−30, −1] and Sharecon. The dummy variable FamilyGroup is positively correlated with the variables IssueSize and PromotersInterest and negatively correlated with the variable IndivInterest. In our cross-sectional analysis, we use the Belsley et al. (1980) approach to test for multicollinearity.[24] We do not find any evidence of multicollinearity impacting our regression results.

6.2. Empirical results and tests of hypotheses

6.2.1. Univariate results

Table 11 compares the mean CARs over the period [0 to +2] for the sample of rights issues where, except for the dummy variables, FamilyGroup and IssueType, the samples are split according to the median values of the explanatory variables to explain the differential share price reaction to the announcement. Table 11 also reports the *t*-statistic, the number of positive and negative CARs over the period [0 to +2] for each sub-group, together with the results of the *t* test for equality of means and the Wilcoxon signed rank test (*p*-values).

The univariate analysis shows that only the variables IndivInterest and FamilyGroup explain differences in the price reaction of firms that announce a rights issue. For firms showing a value for the level of individual shareholding or IndivInterest below (above) the median value of 23.8%, the mean CAR over the period [0 to +2] was −2.4% (2.0%). The difference was significant at the

[24] We used the condition index and the variance inflation factors to detect multicollinearity. The condition index is defined as the square root of the ratio of the largest eigenvalue to each individual eigenvalue. It is suggested that if the condition index is between 10 and 30, then there is moderate to strong multicollinearity and if the index exceeds 30 then there is severe multicollinearity. If the condition index is below 10, multicollinearity is said to be absent.

Table 10
Correlation matrix for the explanatory variables

	CAR[−30, −1]	IssueSize	PromotersInterest	InstitInterest	IndivInterest	Sharecon	FamilyGroup	IssueType
CAR[−30, −1]	1	0.33163	−0.09869	−0.01491	0.18586	−0.31998	−0.09858	0.13335
		(0.006)	(0.427)	(0.909)	(0.152)	**(0.0120)**	(0.427)	(0.282)
	67	67	67	61	61	61	67	67
IssueSize	0.33163	1.0000	0.0634	−0.0397	0.0280	−0.0301	0.2096	0.1225
	(0.006)		(0.610)	(0.761)	(0.830)	(0.818)	**(0.089)**	(0.323)
	67	67	67	61	61	61	67	67
PromotersInterest	−0.09869	0.0634	1.0000	−0.5307	−0.5227	0.6681	0.3159	0.0178
	(0.427)	(0.610)		**(<.0001)**	**(<.0001)**	**(<.0001)**	**(0.009)**	(0.886)
	67	67	67	61	61	61	67	67
InstitInterest	−0.01491	−0.0397	−0.5307	1.0000	−0.3885	−0.3579	−0.1307	−0.1638
	(0.909)	(0.761)	**(<.0001)**		**(0.002)**	**(0.005)**	(0.315)	(0.207)
	61	61	61	61	61	61	61	61
IndivInterest	0.18586	0.0280	−0.5227	−0.3885	1.0000	−0.3530	−0.2988	0.1989
	(0.152)	(0.830)	**(<.0001)**	**(0.002)**		**(0.005)**	**(0.019)**	(0.124)
	61	61	61	61	61	61	61	61
Sharecon	−0.31998	−0.0301	0.6681	−0.3579	−0.3530	1.0000	0.0322	0.0356
	(0.012)	(0.818)	**(<.0001)**	**(0.005)**	**(0.005)**		(0.805)	(0.785)
	61	61	61	61	61	61	61	61
FamilyGroup	−0.09858	0.2096	0.3159	−0.1307	−0.2988	0.0322	1.0000	0.1247
	(0.427)	**(0.089)**	**(0.009)**	(0.315)	**(0.019)**	(0.805)		(0.315)
	67	67	67	61	61	61	67	67
IssueType	0.13335	0.1225	0.0178	−0.1638	0.1989	0.0356	0.1247	1.0000
	(0.282)	(0.323)	(0.886)	(0.207)	(0.124)	(0.785)	(0.315)	
	67	67	67	61	61	61	67	67

Sample Period: 1997–2005. This table reports the Pearson correlation coefficients between explanatory variables for all firms in the sample that announced rights issues in the period 1997 to 2005 (p-values in parentheses). Correlations significant at the 5% level or better are highlighted in bold. CAR[−30, −1] is the cumulative abnormal return between days [−30, −1]. IssueSize is defined as the number of new shares or equity instruments offered under the rights issue announcement divided by the number of existing shares outstanding prior to the announcement. PromotersInterest, InstitInterest, IndivInterest, and Sharecon proxy for share ownership and the level of shareholder concentration in the firm. PromotersInterest is the percentage interest held in the firm by the promoters. InstitInterest is the percentage interest held in the firm by institutional investors and the IndivInterest is the percentage interest held in the firm by Indian retail investors. Sharecon is defined as [PromotersInterest/(InstitInterest+IndivInterest)]. FamilyGroup is a dummy variable equal to one if the firm is controlled by a family shareholder and zero otherwise. IssueType is a dummy variable equal to one if the rights issue is an ordinary issue of new shares at par value and zero otherwise.

5% level under both the *t* test and the Wilcoxon test.[25] For the sample of rights issues where the value of IndivInterest exceeded the median value (23.8%), the mean return of 2.0% was also significantly positive at the 10% level under the *t* test. There is no evidence that high promoter interests or a high level of firm ownership by institutional shareholders (proxy for degree of level of shareholding monitoring) explain the price reaction to the announcement of the issue. When the sample of rights issues was split by the dummy variable FamilyGroup, there emerged 43 rights issues in the sample affiliated with firms with a family group affiliation. For this sample of rights issues, the mean CAR [0, +2] was −1.3%. For the sample of 24 rights issues by firms with no family group affiliation, the mean CAR [0, +2] was 2.3%, significantly positive at the 10% level under the *t* test. The differences in the CARs over the period [0 to +2] were also significantly different between family and non-family affiliated groups at the 5% level under the *t* test and at the 10% level under the Wilcoxon test.[26] For the sample of rights split according to the remaining variables-CAR[−30, −1], IssueSize and IssueType, there was no evidence of any significant difference in the price reaction to the announcement.

Overall, the univariate analysis suggests that hypotheses H 4 and H 5 should be rejected. Low shareholder concentration as proxied by high levels of individual or retail share ownership is associated with a more positive price reaction to the announcement of a rights issue. The results also support the tunneling hypothesis, whereby a rights issue increases the cash resources or financial slack of the firm. This enables a family group that exerts control over the listed firm to engage in a higher level of expropriation of firm wealth to the detriment of other shareholders.

6.2.2. Cross-sectional regression results

Cross-sectional regression results are reported in Table 12. All the regression results were estimated using weighted least squares.[27] The results of our multivariate analysis largely support the findings of our univariate results. In regression equation no. 3 of Table 12, the coefficient on the variable IndivInterest is positive and significant at the 10% level under the *t* test. Thus, we weakly reject hypothesis H 4 and find that the higher the level of individual ownership of the firm, the more positive price reaction to the announcement. We surmise that higher levels of individual ownership increases investor public scrutiny of the firm and increase the likelihood of takeover under the market of corporate control. High individual ownership of Indian firms may also lead to improved corporate governance (see Asuncion-Mund, 2007). This may reduce the likelihood that mangers misuse the proceeds of rights issues for investments that do not enhance the wealth of all shareholders. The coefficients on the other variables (PromotersInterest, InstitInterest and Sharecon) that proxy for the level of shareholder concentration and monitoring are not significant, consistent with our null hypotheses H 2 and H 3.

For regression equations (1 to 8) the coefficient on the variable FamilyGroup is negative and significant at the 10% level or better. In regressions 9 and 10, the coefficient FamilyGroup is also significantly negative at the 5% level for the sub-sample of 56 stocks that announced a rights issue

[25] An analysis was undertaken of the sub-sample of 56 stocks that announced a rights issue of ordinary shares only. For this sub-sample of rights issues partitioned by the median value of IndivInterest, the *t* test of equal means and the Wilcoxon test were also significant at the 5% level.

[26] For the sub-sample of 56 stocks that announced a rights issue of ordinary shares only, the *t*-value was 1.96 (significant at the 10% level). However, the Wilcoxon test for the difference in the median values was not significant.

[27] The weights for the observations were proportional to the reciprocals of the error variances of the market model used to estimate the abnormal return for each firm announcing a rights issue. Karafiath (1994) shows that weighted least squares estimators are well specified even in the presence of possible heteroskedasticity in market model residuals. We also checked the regression results for outliers and influential data points that may change the significance levels of the independent variables.

Table 11
Univariate results

Explanatory variable	CAR[−30, −1]		IssueSize		PromotersInterest		InstitInterest		IndivInterest		Sharecon		Family Group affiliated Firm		IssueType	
Value of explanatory variable	≤−0.0248	>−0.0248	<50.00%	≥50.00%	<43.59%	≥43.59%	<14.63%	≥14.63%	<23.79%	≥23.79%	≤0.8520	>.8520	Family Group=1	Family Group=0	Issue Type=1 (i.e., rights issue at par value)	Issue Type=0 (i.e., rights issue other than at par value)
Number of observations	*N*=34	*N*=33	*N*=28	*N*=39	*N*=33	*N*=34	*N*=30	*N*=31	*N*=30	*N*=31	*N*=31	*N*=30	*N*=43	*N*=24	*N*=19	*N*=48
CAR [0, +2]	−0.0113	0.0122	0.0123	−0.0084	0.0034	−0.0027	0.0001	−0.0040	−0.0242	0.0197	0.0030	−0.0072	−0.0127	0.0229	−0.0226	0.0090
t-statistic	0.096	1.026	1.095	0.106	0.575	0.541	1.044	−0.064	−0.788	**1.744**[a]	0.664	0.441	−0.481	**1.95**[a]	−0.272	1.092
Number +ve /-ve	14/20	19/14	16/12	17/22	16/17	17/17	17/13	12/19	9/21	20/11	15/16	14/16	18/25	15/9	9/10	24/24
t test of equal means	1.26		-1.18		-0.33		-0.20		**2.29**[b]		-0.52		**2.07**[b]		1.30	
Wilcoxon rank sum test (p value)	0.2262		0.3061		1.0000		0.4752		**0.0268**[b]		0.8231		**0.0809**[a]		0.2289	

Sample Period: 1997–2005. This table reports the mean cumulative abnormal return, CAR [0+2] for the sample of rights issues where, except for the dummy variables FamilyGroup and IssueType, the sample are split according the median values of the explanatory variables to explain the share price reaction to the announcement. CAR[0, +2] is the mean cumulative abnormal return between days [0, +2] around the announcement day zero. CAR[−30, −1] is the cumulative abnormal return between days [−30, −1]. IssueSize is defined as the number of new shares or equity instruments offered under the rights issue announcement divided by the number of existing shares outstanding prior to the announcement. PromotersInterest, InstitInterest, IndivInterest, and Sharecon proxy for share ownership and the level of shareholder concentration in the firm. PromotersInterest is the percentage interest held in the firm by the promoters. InstitInterest is the percentage interest held in the firm by institutional investors and the IndivInterest is the percentage interest held in the firm by Indian retail investors. Sharecon is defined as [PromotersInterest/(InstitInterest+IndivInterest)]. FamilyGroup is a dummy variable equal to one if the firm is controlled by a family shareholder and zero otherwise. IssueType is a dummy variable equal to one if the rights issue is an ordinary issue of new shares at par value and zero otherwise.
[a]significant at the 10% level, [b]significant at the 5% level.

Table 12
Multivariate results

Regression no.	1	2	3	4	5	6	7	8	9	10
Constant	0.0324	0.0496	0.0196	0.0440	0.0132	0.0262	0.0326	0.0326	0.0645	0.0269
	(2.00) [a]	**(3.02)** [b]	**(2.99)** [b]	**(2.99)** [b]	(0.86)	**(2.45)** [a]	**(2.52)** [a]	**(2.54)** [a]	**(3.07)** [b]	**(2.22)** [a]
CAR[−30, −1]	−0.0120	−0.0225	−0.0201	−0.0217			−0.0120	−0.0120	−0.0076	
	(−0.30)	(−0.55)	(−0.49)	(−0.53)			(−0.31)	(−0.31)	(−0.15)	
IssueSize	−0.0147	−0.0134	−0.0141	−0.0142			−0.0147	−0.0149	−0.0402	
	(−0.94)	(−0.85)	(−0.90)	(−0.90)			(−0.94)	(−0.98)	**(−1.70)** [c]	
PromotersInterest	0.0007									
	(0.03)									
InstitInterest		−0.0509								
		(−1.35)								
IndivInterest			0.0572		0.0544					
			(1.70) [c]		(1.62)					
Sharecon				−0.0025					−0.0034	
				(−1.19)					(−1.49)	
FamilyGroup	−0.0262	−0.0319	−0.0262	−0.0335	−0.0299	−0.0284	−0.0261	−0.0262	−0.0364	−0.0333
	(−1.87) [c]	**(−2.23)** [a]	**(−1.84)** [c]	**(−2.30)** [a]	**(−2.12)** [a]	**(−2.10)** [a]	**(−1.89)** [a]	**(−1.92)** [c]	**(−2.05)** [c]	**(−2.06)** [a]
IssueType	−0.0013	−0.0119	−0.0171	−0.0176			−0.0013		−0.0163	
	(−0.07)	(−0.60)	(−0.87)	(−0.88)			(−0.07)		(−0.75)	
Adjusted R^2	0.011	0.079	0.096	0.073	0.096	0.049	0.027	0.043	0.112	0.055
F statistic	1.15	**2.03** [c]	**2.27** [c]	1.94	**4.17** [a]	**4.42** [a]	1.46	1.98	**2.24** [c]	**4.22** [a]
No. of obs.	67	61	61	61	61	67	67	67	56	56

Sample Period: 1997–2005. This table reports the weighted least squares estimates of coefficients in linear cross-sectional regressions of the announcement period abnormal return for the sample of firms that announced rights issues in the period 1997 to 2005 (t-statistics in parentheses). The regression equation is $\text{CAR}[0, +2]_i = a_0 + a_1\ \text{CAR}[-30, -1]_i + a_2\ \text{IssueSize}_i + a_3\ \text{PromotersInterest}_i + a_4\ \text{InstitInterest}_i + a_5\ \text{IndivInterest}_i + a_6\ \text{Sharecon}_i + a_7\ \text{FamilyGroup}_i + a_7\ \text{IssueType}_i + \varepsilon$. The dependent variable $\text{CAR}[0, +2]_i$ is the cumulative abnormal return for firm i between days [0, +2] around the announcement day zero. For independent variables (subscripts i deleted for convenience) CAR[−30, −1], is the cumulative abnormal return between days [−30, −1]. IssueSize is defined as the number of new shares or equity instruments offered under the rights issue announcement divided by the number of existing shares outstanding prior to the announcement. PromotersInterest, InstitInterest, IndivInterest, and Sharecon proxy for share ownership and the level of shareholder concentration in the firm. PromotersInterest is the percentage interest held in the firm by the promoters. InstitInterest is the percentage interest held in the firm by institutional investors and the IndivInterest is the percentage interest held in the firm by Indian retail investors. Sharecon is defined as [PromotersInterest/InstitInterest +IndivInterest)]. FamilyGroup is a dummy variable equal to one if the firm is controlled by a family shareholder and zero otherwise. IssueType is a dummy variable equal to one if the rights issue is an ordinary issue of new shares at par value and zero otherwise.

[a] Significant at the 5% level.
[b] Significant at the 1% level.
[c] Significant at the 10% level.

of ordinary shares only. The null hypothesis H 5 is rejected. The results are consistent with adverse agency costs and the tunneling hypothesis, whereby the family group shareholder has incentives to expropriate the firm's wealth and additional cash resources to the detriment of other shareholders. Investors aware of the potential for increased wealth expropriation cause a negative price reaction to the rights issue announcement. There is no evidence that price reaction to the announcement is explained by the prior share price run-up (proxied by CAR[−30, −1]), the size of the rights issue (proxied by IssueSize) and whether or not the issue is at par value (proxied by IssueType).

7. Conclusion

This paper examines security price reaction to the announcement of rights issues by Indian firms. India is a large economy and a major emerging capital market. Our study adds to the literature on the effects on shareholder wealth of new equity announcements in an emerging market with unique institutional and regulatory features compared to more developed markets. Unlike many other emerging markets, India is the world's largest democracy and has a legal and common law system based on English law. Despite this there is still much concern in the Indian market about poor corporate governance, weak investor protections, and lack of enforcement of investor property rights (Allen et al., 2006).

On average, we find an insignificant price reaction to the announcement of rights issues by Indian firms. When we examine differential price reaction to the announcement, we find evidence broadly supportive of the tunneling hypothesis and agency cost explanations. The price reaction to the announcement of the issue was more negative for firms affiliated to a family group. A rights issue increases the cash resources or level of a firm's financial slack. We surmise that this provides greater opportunities for the controlling family shareholder to expropriate wealth from the firm to entities where the family group shareholder has greater comparative cash flow rights. Investors therefore react negatively to the announcement of the issue.

We also find some evidence that higher levels of individual shareholding are associated with a more positive price reaction to the rights issue announcement. Our results support the arguments of Asuncion-Mund (2007), which states that the minority shareholder's interest in Indian firms must be increased for improved corporate governance. High levels of individual shareholding may expose the firm to a greater likelihood of takeover or impose greater market discipline on managers through the market for corporate control. High levels of individual shareholding may also be associated with greater public scrutiny or monitoring of the use of the proceeds of the rights issue. This ensures less investment in projects that do not enhance the wealth of all shareholders and the price reaction to the announcement of the issue is more positive. Overall the results should be of interest to regulators in the Indian capital market. Improvement of investor protection rights and corporate governance has the potential to improve the integrity of India's capital market and the ability of listed firms to raise new equity finance.

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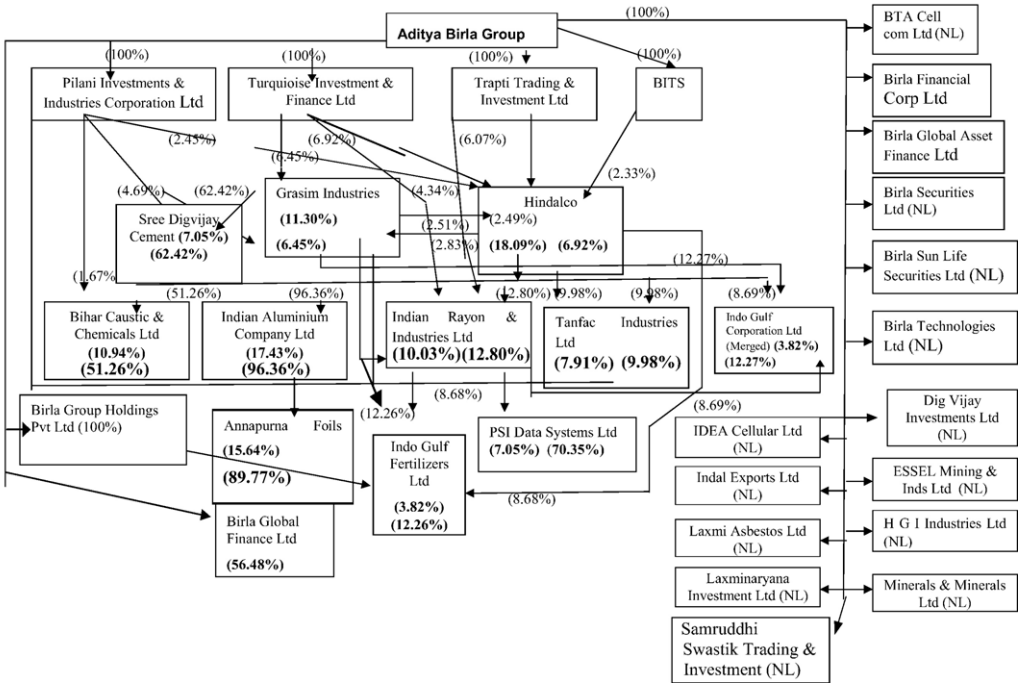
Appendix A



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