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Information Asymmetry and the Choice between Rights Issue and Private Placement of Equity

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Abstract

This study examines the role of information asymmetry in the choice between rights issue and private equity placement from an important emerging market- India. In the post IPO scenario, Indian firms issue equity mainly through private placements as well as rights issues and follow-on public offers are negligible. We argue that problems associated with information asymmetry trickles down to all levels of equity issues. The outcome of this empirical exercise shows only those firms facing lesser information problems choose rights issue of equity. Private placements are chosen by firms facing higher information problems to circumvent information costs. The results remain invariant even after segregating the qualified institutional placements from private equity placement as the firms with information disadvantage choose to place equity privately.

Keywords: Capital Structure, Information Asymmetry, Rights Issue, Private Placement of Equity, Emerging Economy

JEL Classification: G32

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Introduction

Information based capital structure models argue that when faced with information asymmetry, firms issue securities that involve lower costs (Frank & Goyal, 2009). Myers (1984) and Myers and Majluf (1984) builds the pecking order model of security choice based on this contention and propose a hierarchical form of financing driven by information asymmetry. The sensitivity to information problems becomes severe when the funds are raised from external sources like debt or equity as the information problems increase the cost of raising funds. As Chang et al. (2006), the presence of information asymmetry impedes the interests of the firm and equity securities would be mispriced quite often. Therefore, firms have incentives to choose debt securities over equity when faced with information problems. Though the empirical evidence favoring the hierarchical pattern varies across economies and times, the role of information asymmetry as a key determinant of the security issue decision is widely accepted (Sony and Bhaduri, 2018; Gao and Zhu, 2015; Leary and Roberts, 2010; Bharat et al., 2009; Chang et al., 2006; Klien et al., 2002)

While the conventional models examine the debt-equity riddle, another set of literature has emerged, focusing on the choice between different forms of equity issue decisions itself. For example, studies by Chen et al. (2010), Cronqvist and Nilsson (2005), Wu, (2004) etc. argue that the type of equity issue method chosen by the firm is also driven by information asymmetry. In fact, among the literature on equity issues, one strand examines the factors that determine the market type in which the security is issued i.e., private security markets or public security markets (Martos-Vila, 2011; Chen et al., 2010; Wu, 2004). Empirical evidence suggests that information cost associated with any form of public issue is higher as the number of investors involved is large and in the presence of information asymmetry, firms would choose to place securities privately with investors than go for a public issue (Gomes and Phillips, 2012; Fulghieri and Lukin, 2001)

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Another strand of literature on equity issues explore the decision by the firms to choose between the two most popular equity issue method globally, rights issue and private placement of equity and the factors that influence the firm decision (Banerjee and Deb, 2015; Tuli and Shukla, 2014; Cronqvist and Nilsson, 2005; Tan et al., 2002). The exceptional rise of private placements as well as rights issues across the globe have gained the attention of several researchers in recent times (Minardi et al., 2017; Otsubo, 2017; Xu et al., 2017; Massa et al., 2016;).

This work is one such attempt where we pick the two most common forms of equity issues post-Initial Public Offer (IPO) made by the firms, i.e. rights issue and private placement- among the firms from one of the most important emerging markets, India. The remarkable growth of rights issues and private placements offer in the us an ideal opportunity to examine these issues empirically.

Extant literature highlights three major factors that drive the choice between rights issues and private placements. The first one stem from the monitoring hypothesis, where the presence of institutional investors along with their ability to monitor the managerial activities augment overall firm valuation (Dhaiya et al., 2017; Banerjee and Deb, 2015; Dai, 2011). This is particularly relevant in the case of private placements involving outside investors. The next argument comes from the managerial entrenchment hypothesis where the managers/owners try to retain the control over the firms by selecting friendly investors (Jetley and Mondal, 2015; Cronqvist and Nilsson, 2005; Dann and DeAngelo, 1988). This is specifically applicable in the case of family-owned firms where families try to retain their control. Notably, Wu et al., (2016) argues that firms choose the rights issue to avoid dilution of ownership and to maintain private control benefits.

Interestingly, one popular narrative on the choice between rights issue and private placements emerges from the information asymmetry arising out of the adverse selection costs involved in these securities (Tuli and Shukla, 2014; Cronqvist and Nilsson, 2005). Specifically, a rights issue is a form of public issue and the information cost associated with such securities are higher. The empirical evidence suggests that firms facing information problems often choose the private placements as the cost involved in convincing the specialized investors as well as the time taken is lower than rights issues (Tuli and Shukla, 2014; Gomes and Phillips, 2012; Cronqvist and Nilsson, 2005; Tan et al., 2002; Hertzel and Smith, 1993). Unlike most other studies in the Indian

context which deals with the conventional debt-equity framework, this study specifically tests the contention that the choice between rights issue and private placement is driven by information asymmetry.

In general, seasonal equity offerings (SEO) in India take place through four major channels; follow-on-public offer (FPO), bonus issues, rights issue, and private placements.[1] Among these, FPOs and rights issues are typically public issues as it targets a wider audience and private placements involve a selected set of investors- high net worth individuals and Qualified Institutional Buyers (QIBs). Interestingly, among the public issues, the rights issue is the most common mode and instances of follow-on-public offers are rare.[2] On the other hand, the most common form of equity issuance is the private placement of equity (See Table 1 in section 4). The private placements cover more than 80% of all the seasonal equity issues in India. Further, the private placements of equity are classified into Preferential Allotments and Qualified Institutional Placements (QIPs).[3] Preferential allotment, which is more common, is the allotment of shares to select groups of persons and QIPs are allotment of shares to QIBs.

Importantly, the equity issues through rights issues and private placements witnessed exceptional growth in one of the most important emerging markets, India. For example, rights issues grew from Indian Rupees (₹) 4310 million in the year 2002 to ₹77870 million in 2015. During the same period, Preferential Allotments grew from ₹21410 million to ₹219970 million in 2015. Meanwhile, the Qualified Institutional Placements, a form of institutional private placement from increased from ₹4,9630 million in 2006 to ₹275690 million in 2015.[4] Therefore, it is natural to examine the relatively unexplored area on the choice between the two most common forms of equity issues, rights issues, and private placement.

Several studies have examined these security issue decisions of Indian firms and information asymmetry emerges as one of the key factors limiting the equity issues (Sony and Bhaduri, 2018; Bhaduri, 2015). It is often argued that information asymmetry is deep-rooted in Indian capital markets due to the widespread market imperfections, poor legal and institutional systems, lack of

[1] https://www.sebi.gov.in/sebi_data/commondocs/subsection1_p.pdf
[2] Handbook of Statistics 2016, Part II, page SEBI
[3] https://www.sebi.gov.in/sebi_data/commondocs/subsection1_p.pdf
[4]Sebi Hand book of statistics, years, 2016, 2005

solid redressal mechanism for common investors and inadequate information disclosure mechanisms (Sarkar and Sarkar, 2002). The market regulator, Securities and Exchange Board of India (SEBI) has taken several steps to address the information problems, but the problems persist.[5] Moreover, empirical evidence also points out the prevalence of information asymmetry in the Indian markets (Sarkar and Sarkar, 2012). Importantly, Sony and Bhaduri (2018) and Bhaduri (2015) argue that the information asymmetry as a key determinant of capital structure decisions of Indian firms. Therefore, India turns out to be the right setting to examine the impact of information asymmetry.

Further, we measure the degree of information asymmetry faced by the firms by incorporating analyst specific variables like the number of analysts providing the earnings estimates of a firm, the surprise element in the estimates and the dispersion among various analyst earnings forecasts in a given financial year. In comparison to the conventional variables like age, size, dividend issues, tangible assets, etc., which are used as proxies for information asymmetry, analyst specific variables have several advantages (Chen et al., 2015; Kovacs, 2010;)

Firstly, the conventional variables don't account for information asymmetry alone and therefore, using these variables weakens the real impact of information asymmetry (Bharath et al., 2009). Secondly, analysts are market intermediaries who have the resources and skills to gather private information about the firms. The research reports published by analysts provide more information to the investors and the public, thereby alleviating information asymmetry. Therefore, using analyst coverage related variables overcomes the problems of conventional variables and turns out to be a better proxy for capturing information asymmetry (Sony and Bhaduri, 2018; Gomes and Phllips, 2012; Chang et al., 2006). For instance, a firm with larger analyst coverage is supposed to have lesser degree of information problems as the analysts provide more information about the firm or the analysts are naturally attracted to firms disclosing more information (Bowen et al., 2008). In either case, the degree of information asymmetry reduces. Similarly, a lower degree of surprises and dispersion in the forecasts made by the analysts also suggest lower information

[5] The report of the committee on Corporate Governance, Uday Kotak- https://www.sebi.gov.in/reports/reports/oct-2017/report-of-the-committee-on-corporate-governance_36177.html

problems as available information is adequate to make accurate earnings estimates (Gomes and Phillips, 2012; Halov and Heider, 2011).

We use several empirical specifications to test our arguments. To begin with, we use a discrete choice model to examine the role played by information asymmetry in the rights issue private placement choice. All three analyst specific variables are incorporated separately and tested for the impact of information asymmetry. We also add three robustness tests to strengthen the case for using the analyst coverage variables. Additionally, we segregate the private placements as PA's and QIP's and then test if the information asymmetry affects the choice between these and rights issues.

The study contributes to the corporate finance literature in two ways. First, this study provides empirical evidence for the impact of information asymmetry among different types of equity issues in an emerging economy. Mainly, public form of equity issues through rights issues is chosen only by those firms facing lesser information asymmetry. The firms that chose private placement were all facing a higher degree of information problems when compared to the rights issuers. This narrative is consistent across all alternate specifications in this study and therefore conforms to the arguments that firms facing higher information problems circumvent the problem by issuing equity privately. Our results remain consistent even after controlling for the ownership structure and firm performance. Secondly, information problems need to be addressed by firms trying to raise equity through public issues. The evidence presented in this paper shows that the impact of information asymmetry is not just limited to the broader debt-equity framework alone but trickles down to different levels of equity issues.

2. Prior literature

Corporate finance literature extensively discusses the role of information asymmetry on the debt-equity choice and empirical evidence in favour of the information asymmetry as a key determinant is widely reported. (Gao and Zhu, 2015; Bessler et al., 2011; Bharath et al., 2009; Chang et al., 2006). Moving away from the conventional debt-equity framework, several studies have explored the role of information asymmetry with the debt issues or equity issues as well. Importantly, a handful of studies exclusively look in the equity issues alone and explore factors that potentially

influence the seasonal equity issue decisions (Shu and Chiang, 2014; DeAngelo et al., 2010; Bowen et al., 2008; Harjoto and Garen, 2003 Eckbo and Masulis, 1995).

A few interesting observations emerge from examining equity issue decisions. First, empirical evidence suggests that monitoring hypothesis, family control benefits and certification hypothesis do play a role in the equity issue decisions. Second, information asymmetry is prevalent at all levels of security issue decisions and particularly in the market type in which securities are issued i.e. private and public issues (Gomes and Phillips, 2012; Brophy et al., 2004; Fulghieri and Lukin, 2001). Third, a similar trend is observed when firms are to choose between rights issue and private placement (Banerjee and Deb, 2015; Cronqvist and Nilsson, 2014). Forth, information asymmetry is prevelant across emerging markets (Seifert and Gonenc, 2010).

The studies that examine the type of equity issuance method chosen by the firms provide some notable insights. For example, in the case of private placement of a security, Gomes and Phillips (2012) argue that the demand for public information disclosure is a tad lower when compared to the public security markets. Private placements involve selected investors who have superior information production techniques (Fulgheiri and Lukin, 2001). Therefore, poor quality firms, smaller and younger firms and firms with higher information problems exploit the private security markets to overcome the mispricing they would face in a public issue of equity (Tuli and Shukla, 2014; Kale and Meneghetti, 2011; Hertzal and Smith, 1993). Specifically, the lower information production costs, presence of friendly investors attract firms with a higher degree of information problems to issue securities privately (Kale and Meneghetti, 2011; Chen et al., 2010; Wu, 2004). It is also important to note that private placement comes with the added advantage external monitoring (Solvin et al., 1990).

On the contrary, rights issues are open to all existing shareholders including the retail investors, thereby giving characteristics of a form of public issue. Hence the disclosure requirement is more and the possibility of under-pricing is high for firms facing a higher degree of information problems (Banerjee and Deb, 2015; Cronqvst and Nilsson, 2004). It is also argued that the firms choosing rights issues issue often do not face much information asymmetry problems when compared to private placements. Several studies also emphasize that promoters who are reluctant to give away management control prefer rights issue to avoid dilution of ownership (Banerjee and

Deb, 2015, Tuli and Shukla, 2014). Further, Wu et al. (2016) argue that firms with higher control benefits choose rights issues. Therefore, the factors driving choice between rights issues and private placements seem to be distinct and the degree of information asymmetry have different impact on each of these.

Prevalence of wide spread information asymmetry have made emerging markets an ideal setting for testing security issue decisions (Sony and Bhaduri, 2018). The next section throws some insights into the equity markets in India, one of the most important emerging economy.

2.1. The equity market in India

The Indian economy underwent a dramatic turnaround in the early 1990s when the economy was liberalized and sweeping reforms took place in the capital markets. Post liberalization, access to capital became easier for firms and several new forms of debt and equity securities were introduced over a while. The mid 1990's witnessed a large number of Indian corporates accessing both equity and debt market for capital. Despite the sweeping changes during the post-liberalization era, banks remain the single largest source of Indian firms (Chauhan, 2017; Shukla and Prabhu, 2014)

Equity issues in India are broadly classified into four types- public issues, rights issues, bonus issues and private placements.[6] A set of features makes Indian capital markets unique. Unlike, the developed economies, the activities in the public debt are minimal and dominated by financial institutions and government-controlled entities. This void is filled by the private security market where most of the debt securities are traded (Handbook of Statistics of Indian Economy, 2018; Sony and Bhaduri, 2018; Acharya, 2011). The private placement markets are the most common way of issuing debt or equity securities among Indian firms (Handbook of Statistics of Indian Economy, 2018).

Contrary to the public issues where a larger number of investors are involved, a private placement involves selected set of investors. The Companies Act, 1956 which was replaced by the new Companies Act, 2013, and time to time regulations by Securities and Exchange Board of India (SEBI), the capital markets regulator, guides the private placements in the Indian market. The Companies Act, 2013 (GOI, 2013) defines a private placement as a "security offer or invitation to purchase securities to a selected set of investors by a company through a private placement offer

[6] https://www.sebi.gov.in/sebi_data/commondocs/subsection1_p.pdf

letter and other conditions specified". The act also restricts the number of investors to fifty in a private placement. Further, the act covers all aspects of private placements involving debentures, bonds, shares and other marketable securities.

A security issue is considered private placement when the number of selected investors is less than 50. Chapter VII, Chapter VIII, and Chapter VIII-A of SEBI (ICDR) Regulations, 2009 classifies the private equity placements into Preferential Allotments, Qualified Institutional Placements and Institutional Placement Program. All requirements for each of the equity issue methods are detailed in SEBI guidelines.[7]

Preferential Allotments remain a popular mechanism among the owner-managers to acquire more equity (or convertible warrants) holding of the firms due to the non-requirement of sending a private placement offer letter. However, this also comes with a three-year lock-in period for transactions and a pricing formula outlined by SEBI. The QIP program was introduced in 2006 and firms can issue equity, convertible debentures, or any securities other than warrants to selected institutions known as Qualified Institutional Buyers. Both domestic and foreign financial institutions, mutual funds, pension funds, insurance firms are all classified as QIBs. Since the filing with SEBI is not mandatory before the issue, the process can be completed faster. QIP is the second fastest method to issue equity after PAs.

The lower compliance requirements, the possibility of tailor-made offers for investors and the short period involved completing the procedure make private placements attractive to investors (Shukla and Prabhu, 2014). Unique to India, relaxed norms on public disclosure of information and the fast pace of the process make the private placement of bonds and debentures a preferred route to raise funds instead of a public issue (Acharya, 2011).

A rights issue is a share issue to the existing shareholders on a record date and it is offered in a ratio to the existing number of shares. This mechanism is adopted by a firm in general to avoid the potential control dilution arising due to the issuance of additional shares. Companies Act, 2013 and the time to time guidelines from SEBI regulates the rights issue among Indian firms.

Despite being the most common form of equity issues, the literature on the choice between private placements and rights issues is limited. The main observations emerging from the literature suggest

[7] Tuli and Shukla (2014), Shukla and Prabhu (2014) and Banerjee and Deb (2016) discusses the nature of rights issue and private placements in India in detail.

that information asymmetry is indeed an important factor in determining the choice between rights issues and private placements as well. However, private control benefits and monitoring by outsides are also influencing the decisions. Given that information asymmetry is rampant in the Indian markets and the popularity of rights issues and private placements in issuing equity, provide a window of opportunity test for the impact of information asymmetry.

3. Data

Data of the non-finance Indian firms are collected from the Centre of Monitoring Indian Economy's Prowess IQ database. The study covers a five year data period from 2010 to 2014.[8] We selected the data for all non-finance firms already listed either in Bombay Stock exchange or National Stock exchange from this sample. Firms with missing observations, public sector enterprises, firms in utility and service industry were removed following the standard practice in capital structure studies. We applied another criterion where firms reporting consistent losses for 6 or more years were taken out as the access to external capital is limited for such firms. This left us with a sample of 1373 firms and 6849 firm-year observations. Another segment in CMIE Prowess lists out all equity issues through preferential allotments, QIPs and rights issues. We match these instances of equity issues to the other firm-specific data. This leaves us with 351 instances of PA's or QIP's or rights issues. In this sample, 89.7% of the firms go for private placements and 10.3% of the firms choose rights issues.

In few instances where the firm issued both rights issues and private placement, we followed the a priori logic suggested by Myers (1984), where a firm choosing rights issue is considered to have addressed the information problems and mark them as rights issues. The analyst coverage data were manually collected from the pages of each firm from the website of the Financial Times. This publically available data from Financial Times from 2010-2014 was merged with the data set from CMIE Prowess.

The study incorporates several firm-specific factors highlighted in the extant literature as the main determinants of capital structure decisions (Frank and Goyal, 2009; Gao and Zhu, 2015; Bhaduri, 2015). All the variables used in the study are described in Appendix A. Further, we use three

[8] Though the private placement and rights issues are placed for a longer time, we were forced to restrict the data period to 2010-2014 because the analyst specific variables, which were hand collected were available for only this period.

variables specifically to capture information asymmetry which are- the number of analysts covering a firm, the surprises in the earnings estimates presented by analysts in each financial year-end, and the dispersion among these earnings estimates.

The first variable, analyst coverage is a measure of the number of analysts presenting earnings estimates. Financial analysts are specialists who have better skills to analyze firm performance and access to private information which enables them to make estimates on the firm's earnings from time to time. Several studies incorporating analyst following as a measure of information asymmetry suggests a negative association between the two. Increased analyst coverage suggests that the level of information about the firm in the market is higher. Further, it is also reported that analysts get attracted to transparent firms making more disclosures (Chang et al., 2006; Bowen et al., 2008; Chen et al., 2015; He et al., 2013; Derrien et al., 2016). Since financial analysts generate several new insights into the quality and earnings of the firm, a lesser or no analyst coverage imply a lower level of information about the firm in the market, when compared to the firms that receive analyst coverage (Chang et al., 2006). Therefore, we argue that firms with higher analyst following have lesser information problems.

The next analyst specific variables stem from the surprises in the earnings forecasts made by the analysts. If the conscience values of the analyst estimates are closer to the actual reported numbers by the firm, it suggests that the analysts were able to make an accurate prediction about the firm performance with the available information. This typically happens when the firms are transparent enough and make more disclosures. However, when the information is not enough to make accurate predictions, the reported numbers and the estimates tend to deviate from each other, thus resulting in a surprise element. This suggests that information asymmetry and the forecast surprises share a positive relationship. (Liu and Chen, 2015; Gomes and Philips, 2012;) Li and Zhao, 2008)

The third analyst specific variable used in this study is dispersion in the forecasts made by the analyst. The estimates presented by analysts tend to vary widely from each other when the level of information is not sufficient enough. Therefore, the dispersion of earnings estimates would be larger for a firm with lower information disclosures. Better disclosures ensure that the estimates by analysts do not vary much. Therefore, information asymmetry and dispersion in the analyst forecast share a positive association. (Halov and Heider, 2011; He et al., 2013; Gomes and Phillips, 2012; Kovacs, 2010)

The study also controls for various firm-specific factors like size, age, the dividend paid, tangibility, profitability, etc. following the conventional capital structure literature (Frank and Goyal, 2009; Delcoure, 2013; Chakraborty, 2010). Further, literature also suggests that corporate control also play a role in the choice between rights issue and private placement as both of them involve dilution of private control (Banerjee & Deb, 2015; Cronqvist & Nilsson, 2005). To account for this, we control for the promoter ownership and institutional ownership. Sarkar and Sarkar (2012) suggest that a large number of Indian firms are associated with a business group, which are a part of a family business. Therefore, a dummy variable is introduced where a business group affiliated firm takes the value one and a standalone firm takes the value zero.

4.Methodology

This work tests the role of information asymmetry in two scenarios. In the first framework, we use a binary logistic regression model to test the impact of information asymmetry in the choice between private placements and rights issues. Here the dependent variable takes the value one if the firm opted for a rights issue and zero for private placements. The binary logistic regression model is given by

$$\ln\left(\frac{\pi}{1-p_\pi}\right) = \beta_0 + \beta_1 X_1 + \cdots \beta_n X_n \quad (1)$$

$$P(Y) = \frac{\exp(\beta_0 + \beta_1 X_1 + \cdots \beta_n X_n)}{1 + \exp(\beta_0 + \beta_1 X_1 + \cdots \beta_n X_n)} \quad (2)$$

where π is the probability of the desired outcome, β is the slope parameter for each of the X variables.

Since keeping all three analyst specific variables in the same model might lead to obvious multicollinearity issues, they are incorporated separately as three models along with all other control variables.

In the second framework, we segregate the private placements into two, preferential allotments and qualified institutional placements. This exercise serves two purposes. Firstly, it will help us to confirm if there exists any difference in the role of information asymmetry within private placements itself. Secondly, this will bring in more clarity in the public-private security choice. Since the dependent variable has three categories, namely preferential allotments, qualified institutions and rights issues, we use a multinomial logistic regression model (Starkweather and

Moske, 2011). A multinomial logistic regression model needs a base category against the odds of other outcomes are calculated and rights issues are used as base model in this study.

5. Empirical findings

5.1. Trends and patterns

The trends in the choice of the two popular methods of raising equity i.e., private placements and rights issues by the Indian firms from 2006 to 2014 are presented in Panel A of Table1. Private placements remain the most preferred route for raising equity capital for Indian firms. As presented in Table 1, since 2010 more than 85% of the equity issues have been through private placements. The rights issue is less frequently used by Indian firms. Panel B of Table 1 further classifies the private placements into preferential allotments and qualified institutional placements. Interestingly, QIPs are the most favoured private equity placement method.

Table 1: Trends in private placements and rights issues.

	Panel A		Panel B		
Year	Private placement	Rights issue	Preferential allotment	Qualified institutional placement	Rights Issue
2006	81.95	18.05	73.68	8.27	18.05
2007	88.79	11.21	75.86	12.93	11.21
2008	78.48	21.52	74.68	3.80	21.52
2009	88.51	11.49	56.32	32.18	11.49
2010	89.01	10.99	63.74	25.27	10.99
2011	85.48	14.52	77.42	8.06	14.52
2012	91.55	8.45	81.69	9.86	8.45
2013	87.50	12.50	82.14	5.36	12.50
2014	94.3	5.97	68.66	25.37	5.97

Note: Authors' own calculation based on the sample collected from CMIE Prowess.

Table 2 presents the summary statistics of all variables used in this study. The mean and median values of the analyst coverage suggest that firms choosing the rights issues face lesser information problems as they have more analyst coverage and the standard deviation is lower. The dispersion and surprise values are lower for the firms choosing rights issues once again suggesting that they face lesser information problems. The presence of better information seems to reduce the surprises and dispersion in the analyst estimates. The analyst's related variables demonstrate that firms choosing private placements have information disadvantages.

Further, the firms issuing rights issues are typically older, larger and have more tangible assets all suggesting lower information problems faced by them. Interestingly, the rights issuers also have a lower interest coverage ratio. The difference between the other variables between private placements and rights issues are not very evident. Specifically, factors representing the corporate control, promoter ownership and institutional ownership are not different. Similarly, the group affiliations of firms that choose rights issues as well as private placement are also not different.

Table 2: Descriptive statistics

Variables	Private Placement			Rights Issue		
	Mean	Median	Standard Deviation	Mean	Median	Standard Deviation
Analyst coverage	0.91	0.91	3.89	1.14	1.14	3.29
Forecast surprise	0.87	0.87	0.33	0.79	0.79	0.39
Forecast dispersion	0.87	0.87	0.33	0.80	0.80	0.38
Age	30.80	30.80	16.06	37.17	37.17	21.26
Size	6.17	6.17	1.71	6.58	6.58	1.94
Dividend	0.01	0.01	0.02	0.01	0.01	0.01
Profitability	0.03	0.03	0.09	0.03	0.03	0.06
Tangibility	0.21	0.21	0.15	0.23	0.23	0.16
Interest coverage	12.72	12.72	51.88	2.31	2.31	2.96
Non debt tax shield	0.25	0.25	0.67	-0.20	-0.20	2.94
Group affiliation	0.49	0.49	0.50	0.47	0.47	0.51
Promoter Shareholding	50.79	50.79	16.15	50.33	50.33	16.97
Institutional Shareholding	8.73	8.73	12.50	8.39	8.39	11.61

Note: Authors' own calculation using data collected from CMIE prowess.

5.2 Empirical Analysis

To empirically verify that only those firms facing lower information asymmetry choose rights issues when compared to the private placements, a binary logistic regression is used where the dependent variable takes the value one, if the firm is choosing rights issues and zero if the firm chooses private placements. The findings are reported in Table 3.

The first empirical model (Model 1) uses the analyst coverage variable along with the other control variables. We observe that firms choosing rights issues have a significant positive association with the number of analysts covering the firm implying that they face lesser information asymmetry when compared to the private placements. Model 2 incorporates the second analyst specific

variable, analyst forecast surprise. The results show a negative association with firms opting for rights issues indicating that the surprises are lesser with rights issuers. As discussed earlier, a lower degree of forecast surprises means, analysts can make better predictions based on the available information indicating that such firms are facing lesser information problems. Similarly, the third analyst specific variable, the dispersion in analyst forecasts also shows a negative association with rights issues (Model 3 of Table 3). The dispersion is expected to be lower when the information content is sufficient for analysts to make more accurate predictions about earnings estimates. All three analyst specific variables convey the same two narratives. First, the rights issuers are typically facing lesser degree of information asymmetry. Second, a private placement route is chosen by firms facing higher information problems to circumvent the information problems.

Some of the conventional variables also conform to the information story present in the analyst specific variables. For example, the firms choosing rights issues are positively associated with age and size of the firms. Information based capital structure models argue that older firms and large firms face lower information problems and the evidence from this study corroborates with these findings (Frank and Goyal, 2009).

Table 3: Choice between Rights Issues and Private Placements

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Analyst coverage	0.180**					
	(2.419)					
Forecast surprise		-2.599***				
		(-3.041)				
Forecast dispersion			-1.724**			
			(-2.247)			
Asymmetry Index				-2.096**		
				(-2.292)		
Analyst coverage (L2)					0.171**	
					(2.320)	
Predicted analyst coverage						0.166**
						(1.998)
Age	0.0252**	0.0258**	0.0215*	0.0195*	0.0250**	0.0265**
	(2.340)	(2.337)	(1.924)	(1.711)	(2.200)	(2.493)
Size	0.330*	0.324**	0.313**	0.255*	0.320*	0.137
	(1.959)	(2.044)	(1.991)	(1.664)	(1.747)	(0.347)
Dividend	-87.07**	-71.66**	-60.28*	-57.57**	-72.05*	-49.74*
	(-2.112)	(-2.209)	(-1.930)	(-2.130)	(-1.771)	(-1.776)
Profitability	1.514	0.706	0.754	1.015	1.229	1.064
	(0.825)	(0.432)	(0.489)	(0.622)	(0.704)	(0.650)
Tangibility	-1.259	-1.895	-1.782	-1.715	-0.970	-0.987
	(-0.848)	(-1.301)	(-1.234)	(-1.166)	(-0.608)	(-0.647)
Non-debt tax shield	0.504**	0.615***	0.563***	0.571***	0.566**	0.603***
	(2.396)	(2.950)	(2.951)	(2.937)	(2.538)	(2.651)
Group affiliation	-0.819	-0.742	-0.648	-0.741	-0.673	-0.453
	(-1.609)	(-1.479)	(-1.329)	(-1.437)	(-1.299)	(-0.992)
Institutional ownership	-0.258**	-0.265**	-0.232**	-0.241**	-0.287**	-0.145
	(-2.140)	(-2.174)	(-2.016)	(-2.068)	(-2.320)	(-1.380)
Promoter shareholding	-0.402	-0.427	-0.486	-0.491	-0.639	-0.426
	(-0.816)	(-0.867)	(-0.952)	(-0.935)	(-1.225)	(-0.837)

Past equity issues					-6.823	
					(-0.877)	
Constant	-3.530*	-1.367	-1.833	-0.835	-1.137	-2.439
	(-1.665)	(-0.618)	(-0.812)	(-0.347)	(-0.558)	(-1.131)
Year & Industry Dummy	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R^2	0.1617	0.1700	0.1463	0.1561	0.1770	0.1166
Observations	296	296	296	296	294	294

Note: This table presents the findings of the binary logistic regressions where rights issues take the value one and private placements takes the value zero. All the variables are lagged by one year. z-statistics is presented in parentheses. "***", "**", "*" shows significance at 1%, 5% and 10% respectively.

In contrast, we also find that rights issuers issue lesser dividends and the institutional shareholding is lower when compared to the private placements. The larger dividend pay-out in the previous year could be one of the factors that draw the investors to private placements. Interestingly, we observe a negative association between institutional investors and rights issues suggesting that firms with lesser institutional holdings choose rights issues. While, this might appear contrarian to the information asymmetry arguments (more institutional investors, lower information problems), this could arise as the firms with a higher institutional shareholding are already lower on the promoter stake holding and therefore a further control dilution is not warranted. However, this claim cannot be validated as the promoter shareholding doesn't show a significant relationship. In brief, the findings show ample evidence favouring the role of information asymmetry in the choice between rights issue and private placement. Consequently, only those firms overcoming information problems go for a rights issue.

5.1. Robustness checks

To examine the robustness of these findings, we use three approaches. One could argue that all three analysts' specific variables could be included in the same model. However, due to the obvious multicollinearity issues, using all three analyst specific variables together might lead to wrong conclusions. In the absence of any obvious method to use these variables together, we use the strategy adopted by Sony and Bhaduri (2018) by creating an atheoretical information asymmetry index using a simple additive method using the following formula

$$\text{Information Asymmetry Index} = \frac{1}{3}\left(\frac{1}{\exp(\text{Analyst Coverage})} + \text{Analyst Surprise} + \text{Analyst Dispersion}\right)$$

We use an analyst coverage dummy here where a firm receiving coverage takes the value one and others zero. This method assigns a value close to one for firms with higher information problems and a value close to zero if the information problems are lower. Therefore, the first robustness measure incorporates the information we expect a negative association with the rights issue and information asymmetry index.[1] The findings of this robustness method are presented in Model 4

[1] This index is capped between one and zero. Since there are no pre-defined methods to assign different weights to each of the factors, we applied different weights to each of them in the index and tested. The results remained

of Table 3 and observe a negative association between rights issue and information asymmetry index. This confirms the claim of the early models that firms with lower information problems choose rights issue.

Analyst specific data also comes with a set of concerns as well, since there might be potential endogeneity issues arising out of the correlation between analyst coverage and firm-specific characteristics. For example, Chang et al. (2006) argue that analysts get attracted to larger or big players in the market and giving them an informational advantage. This needs to be addressed and the study adopts two methods to circumvent the endogeneity problems. The first method stems from the argument that the analyst coverage variable should have sufficient lags and prior equity issues need to be controlled for as analysts expect more equity issues in the future. Therefore, by following the method outlined by Chang et al. (2006), where we use two-period lagged analyst's coverage and incorporate a dummy variable that takes a value one if the firm has issued equity in the past three years.

The second method uses a two-step estimation process which helps us to predict the analyst coverage using a set of firm-specific characteristics (Chang et al., 2006). In the first step, a negative binomial regression is used to predict the analyst following a firm. A set of firm-specific factors like firm size, age, part of being a stock index, market to book ratio, recent equity issues volume/growth of sales, etc. are often cited as factors attracting analysts to a firm (Chang et al., 2006; Kurshev and Strebulaev, 2015; Kumar et al., 2017). The negative binomial regression model predicts the number of analysts covering a firm after controlling for these factors. Since all the independent variables used in this model are lagged by one year, the predicted analyst coverage is also lagged by one year and therefore, the independent variables used in the count data model are all lagged by two years. In the second step, the predicted numbers of analysts are used in the estimation. Similar to the analyst coverage variable, the predicted analyst coverage is also expected to share a positive association with the rights issue.

The findings of the second endogeneity test using two-year lag and control for the volume of equity issues in the past 3 years is presented in Model 5 of Table 3. The findings presented in model 5 show that the probability of rights issue increases with the number of analysts covering the firm

unchanged despite the weights being different in different specifications. In this paper we choose to present the model with same weights for all.

despite lagging it by two years, confirming the arguments about the role of information asymmetry discussed in the other models. This model also controls for past equity issue volume, which doesn't show any meaningful association with the issue decisions.

The third measure uses the predicted analyst coverage derived from the negative binomial regression after controlling for factors like firm age, size, profitability, price to book ratio, growth, past equity issue behaviour, a big firm dummy and a dummy if the firm is part of an Index like BSE 500.The result of the negative binomial regression is presented in Table 4. The predicted analyst coverage derived from this count data model is used as an explanatory variable in Model 6 of Table 3. The predicted analyst coverage is positively associated with the rights issue, similar to the analyst coverage variable. This approach further validates our argument that firms issuing rights issues have lesser information problems. The relationship with other control variables remains consistent with the earlier models.

Table 4: Prediction of analyst coverage

Variables	Coef.	z-stat
Age	-0.143	-0.553
Size	0.302*	1.759
Profitability	3.668**	2.110
Price to book ratio	-0.002	-0.170
Index	1.894***	4.543
Big firm	1.323**	2.387
Sales growth	0.587*	1.744
Past equity issues	-1.011	-0.227
Constant	-3.544***	-2.733
Pseudo R^2	0.2929	
Observations	333	333

Note: This table presents the results of the negative binomial regression to find the predicted analyst coverage. The dependent variable is lagged by one year and all independent variables are lagged by two years. "***", "**", "*" shows significance at 1%, 5% and 10% respectively.

Additionally, we segregate private placements into Preferential Allotments and Qualified Institutional Placements and check if the results still hold when compared to the rights issue. Therefore, we run a conditional regression model incorporating all three security issue types in the dependent variable. As there are three choices, we use a multinomial logistic regression where rights issue is chosen as the base model to which comparisons are made. The rights issue was

chosen as the base model and PA's and QIPs are tested in comparison with it. Note that, in the earlier binary regressions rights issue was assigned as one and the interpretation was made accordingly.

The empirical results of this multinomial regression models are presented in Table 5 for different specifications of analyst specific variables used in the study. The first panel (Panel 1) presents the results of the model using the analyst coverage variables. Compared to the base model- rights issue, the firms issuing PA's and QIP's have lesser analyst coverage indicating that they are facing higher information problems. The coefficient values suggest that the impact of analyst coverage is pronounced in the case of PA's than QIP's.

The findings presented in Panel 2 and Panel 3 of Table 5 also presents the same narrative on information asymmetry. In comparison to the rights issue, the surprises and dispersion of analyst coverage are more for the private placements and rights issue meaning that these firms face higher information problems. The interpretation of the conventional variables remains invariant here as well. Despite the alternate specifications by combining the different equity issue choices, our results are consistent with the earlier findings and information asymmetry seems to push firms to choose private placements.[2]

In addition, we check the robustness of these findings by incorporating asymmetric information index, two-period lagged analyst coverage and the predicted analyst coverage, similar to the method used earlier in the paper. The results reported in Table 6 strengthen the case presented earlier. The asymmetric information index shares a positive association with both PA's and QIP's suggesting that they have an information disadvantage (Panel 1, Table 6). The two-period lagged analyst coverage shows a negative association with the private placement and QIPs, indicating that they receive less analyst coverage and consequently more information problems (Panel 2, Table 6). The essence of the predicted analyst coverage also shows that firms issuing private placements have information disadvantage (Panel 3, Table 6).

[2] Further, one of the requirements of the multinomial logistic regression model is that the assumption of Irrelevance of Independent Alternatives (IIA) should not violated. IIA property envisages that inclusion or exclusion of any of the categories does not affect the relative risks associated with the other categories. We use Hausman test, suest based Hausman test and Small-Hsiao test to check if the IIA property holds in this model. The findings from these tests suggest that the IIA property is not violated

Table 5: Rights issue versus Preferential Allotments (PA) and Qualified Institutional Placement (QIP)

	Panel 1		Panel 2		Panel 3	
Variables	PA	QIP	PA	QIP	PA	QIP
Analyst coverage	-0.206**	-0.195**				
	(-2.398)	(-2.549)				
Forecast surprise			2.685***	2.095**		
			(3.053)	(2.088)		
Forecast dispersion					1.812**	0.924
					(2.332)	(1.134)
Age	-0.0310***	-0.0283*	-0.0280**	-0.0259	-0.0258**	-0.0230
	(-2.591)	(-1.858)	(-2.358)	(-1.644)	(-2.199)	(-1.500)
Size	-0.312*	0.149	-0.263	0.141	-0.289*	0.108
	(-1.806)	(0.653)	(-1.601)	(0.675)	(-1.736)	(0.515)
Dividend	79.97*	110.7**	65.26*	86.90**	50.25	70.73**
	(1.830)	(2.444)	(1.800)	(2.340)	(1.473)	(2.045)
Profitability	-1.424	3.332	-0.819	3.325	-1.001	3.012
	(-0.808)	(0.874)	(-0.541)	(0.876)	(-0.644)	(0.790)
Tangibility	2.341	-0.0770	2.768*	-0.185	2.613*	-0.473
	(1.474)	(-0.0399)	(1.737)	(-0.0905)	(1.680)	(-0.234)
Non-debt tax shield	-0.545**	-0.620**	-0.636***	-0.742**	-0.597***	-0.702**
	(-2.532)	(-2.120)	(-2.994)	(-2.438)	(-2.838)	(-2.259)
Group affiliation	0.863	0.467	0.712	0.255	0.672	0.221
	(1.561)	(0.746)	(1.363)	(0.434)	(1.320)	(0.377)
Institutional ownership	0.238**	0.442***	0.216*	0.458***	0.198*	0.440***
	(1.977)	(2.650)	(1.800)	(2.817)	(1.727)	(2.811)
Promoter shareholding	0.324	1.816**	0.428	1.809**	0.506	1.862**
	(0.648)	(2.130)	(0.861)	(2.246)	(0.985)	(2.292)
Constant	3.557*	-7.569**	-0.883	-9.792***	-0.162	-8.625**
	(1.646)	(-2.019)	(-0.422)	(-2.864)	(-0.0750)	(-2.528)
Pseudo R^2	0.2395		0.2094		0.2017	
Year and Industry dummy	Yes		Yes		Yes	
Observations	294	294	294	294	294	294

Note: This table presents the findings of the multinomial logistic regression where rights issues are treated as the base category. All the variables are lagged by one year. z-statistics is presented in parentheses. "***", "**", "*" shows significance at 1%, 5% and 10% respectively.

Table 6: Robustness check- Rights issue versus Preferential Allotments (PA) and Qualified Institutional Placement (QIP)

	Model 1		Model 2		Model 2	
Variables	Private Pl	QIP	Private Pl	QIP	Private Pl	QIP
Asymmetry Index	1.888**	1.850**				
	(2.207)	(1.970)				
Analyst coverage (L2)			-0.167**	-0.210***		
			(-2.101)	(-2.785)		
Predicted analyst coverage					-0.192**	-0.0870
					(-2.113)	(-0.892)
Age	-0.0183	-0.0195	-0.0238**	-0.0259*	-0.0282**	-0.0209
	(-1.570)	(-1.327)	(-2.151)	(-1.725)	(-2.543)	(-1.587)
Size	-0.313*	0.119	-0.364**	0.114	-0.00784	-0.896*
	(-1.879)	(0.559)	(-2.065)	(0.499)	(-0.0194)	(-1.686)
Dividend	47.60*	68.49**	79.28*	102.3**	46.10	71.84**
	(1.737)	(2.353)	(1.931)	(2.385)	(1.609)	(2.340)
Profitability	-1.667	3.362	-2.287	3.159	-1.543	3.182
	(-0.899)	(0.890)	(-1.133)	(0.794)	(-0.859)	(0.874)
Tangibility	2.167	-0.429	1.775	-0.981	1.532	-0.516
	(1.441)	(-0.230)	(1.174)	(-0.517)	(0.966)	(-0.265)
Non-debt tax shield	-0.561***	-0.679**	-0.498**	-0.641**	-0.600***	-0.625**
	(-2.755)	(-2.396)	(-2.372)	(-2.193)	(-2.660)	(-2.551)
Group affiliation	0.786	0.360	0.867*	0.480	0.520	0.335
	(1.497)	(0.614)	(1.668)	(0.815)	(1.092)	(0.619)
Institutional ownership	0.185	0.441***	0.200*	0.468***	0.111	0.395***
	(1.576)	(2.756)	(1.678)	(2.812)	(1.036)	(2.645)
Promoter shareholding	0.394	1.791**	0.302	1.669**	0.172	1.999**
	(0.762)	(2.149)	(0.605)	(2.080)	(0.344)	(2.335)
Constant	0.136	-9.356**	2.652	-7.058**	3.034	-5.466
	(0.0583)	(-2.509)	(1.266)	(-2.010)	(1.419)	(-1.490)
Year & Industry Dummy	Yes		Yes		Yes	
Pseudo R^2	0.2395		0.2094		0.2017	
Observations	294	294	294	294	294	294

Note: This table presents the findings of the multinomial logistic regression where rights issues are treated as the base category. All the variables are lagged by one year. z-statistics is presented in parentheses. "***", "**", "*" shows significance at 1%, 5% and 10% respectively.

All models discussed in this study consistently narrate the importance of information asymmetry in the equity issue decisions. Specifically, firms facing information disadvantages avoid public

issues. The popularity of private placements in the Indian markets can be therefore attributed to the information problems present in the market.

Conclusion

Information based capital structure models argue that in the presence of information asymmetry, firms invariably choose securities with lesser information asymmetry and equity issues are in general rare events, owing to the higher information costs. Unlike the many other capital structure studies, this study looks into the two most common forms of equity issues post-IPO by the by Indian firms. Specifically, this study tests the contention that information asymmetry plays a key role in the type of equity issue method chosen by the firms.

The findings of this study demonstrate the importance of information asymmetry in the type of equity issue chosen by Indian firms. Consistent with arguments of the information-based models, only those firms overcoming the information hurdle issue equity to a larger public crowd through the rights issue. The firms facing information disadvantages issue equity through private placements. This facilitates firms with higher information problems to get around information problems and raise equity capital. All analyst coverage related variables and the alternate specifications convey the same narrative that firms with higher information problems choose private security markets. The popularity of private placement of equity in the Indian market seems to be driven by information asymmetry. The findings reported here also imply that the information disclosure and dissemination mechanism in the India need an overhaul. The regulator needs to devise strategies and mechanisms to ensure smooth flow of information for better functioning of the equity markets. Further, if the firms need to raise capital through public equity issues, information issues have to be addressed.

Appendix A

Variables	Definition
Analyst Coverage	Number of analysts predicting revenue estimates of a firm in a year
Analyst forecast surprise	The absolute difference between the reported revenue and the analyst consensus value divided by the reported revenue value. The Firms that are not followed by analysts are assigned a value of one treating them as firms with the highest degree of asymmetric information. Few firms in the sample have values higher than one and since such firms have a higher degree of asymmetric information, we mark them one for standardization purpose.
Analyst forecast dispersion	The absolute value of the range between the highest revenue forecast and the lowest revenue forecast by analysts divided by the highest analyst forecast value. Firms that are not followed by analysts have greater asymmetric information and such firms are treated as one in the sample.
Age	Difference between the year under consideration and year of incorporation
Size	Natural logarithm of total assets of the firm
Dividend	Dividend paid divided total assets.
Profitability	Net profit to total assets
Tangibility	Net fixed assets to total assets
Non-debt tax shield	Depreciation to total assets
Promoter Share holding	Ownership of promoters in percentage
Institutional Share holding	Ownership of non-promoter institutions in percentage
Group affiliation	Dummy=1, if affiliated to a business group, otherwise 0.
Sales growth	Growth of Sales reported by the firm
Past equity issues	Volume of the equity issues in the last three years
Index constituent	Dummy=1 if the firm is a part of BSE Sensex or Nifty 50 at time t, 0 otherwise
Big player	Dummy=1 if firm size falls in the largest quartile, 0 otherwise

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