How do firms finance investments in markets with business groups? Evidence from acquisitions by India's listed firms

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Abstract: We propose a new order of financing investments based on the considerations of control and financial constraints in markets with business groups. We base our analysis on a sample of 320 acquisitions, one of the largest forms of investments, made by India's publicly listed firms from 1998 through 2016. We test the relative propensity of group-affiliated firms as well as that of standalone (non-affiliated) firms to finance their investments with stock on one extreme, and either cash or debt on the other extreme. We find that group-affiliated bidders have the highest propensity to finance their investments with stock when taking over firms affiliated with the same business group (within-group acquisitions), followed by standalone firms making acquisitions (standalone acquisitions). Finally, group-affiliated bidders acquiring either standalone firms or firms not affiliated with their group (outside-group acquisitions) have the lowest propensity to finance their investments with stock.

Keywords: *Acquisitions, business groups, corporate control, financial constraints, investment financing, mergers*

JEL classification: G32, G34

1. Introduction

Do all firms in a market with the presence of business groups have similar preferences for financing investments? Does a group-affiliated firm finance its takeover deals the same way when it acquires another firm from the same group vis-à-vis when it acquires any other firm not affiliated with its group? How differently does a group-affiliated firm finance its acquisitions when compared to a standalone (non-affiliated) firm? We try to unravel these questions by considering one of the largest forms of investments, namely corporate acquisitions, made by firms from India, a country with one of the largest number of group-affiliated firms[1].

According to the corporate control hypothesis, insiders of a firm prefer to finance investments with either cash or debt in a bid to retain their control as well as to avoid the dilution of their stake in the firm (Amihud, Lev, & Travlos, 1990; Harris & Raviv, 1988; Martin, 1996; Stulz, 1988). This is because if an investment is financed with equity, the control of insiders may get diluted and at worst they might lose their control in the firm. We argue that blind application of the control hypothesis to countries with a dominant presence of business groups is likely to yield inconsistent and sometimes even contrary results. All prior studies[2] have been carried out in a context where insiders of an acquirer and that of a target are almost always different set of individuals. In markets with business groups, both in developing (for example, India, Thailand, South Korea, Indonesia, Taiwan, Brazil, Chile, Israel, Philippines, Mexico, Turkey, and Argentina)[3] and developed countries (for example, Italy, Japan, and Sweden), there is a distinct

[1] Table 1 of Khanna & Yafeh (2007, p. 332) depicts India having the largest number of firms affiliated with business groups among all the countries under consideration of the study.
[2] See Amihud, Lev, & Travlos (1990), Martin (1996), and Ghosh & Ruland (1998) for examples.
[3] The names of the countries are in in the descending order of the number of group-affiliated firms in these countries as provided in Table 1 of Khanna & Yafeh (2007).

possibility that both an acquirer and a target belong to the same business group[4] in case of corporate acquisitions, and hence share the same set of insiders[5].

Unlike acquisition of a firm affiliated with the same group, the insiders of a group-affiliated firm in case of an acquisition[6] outside the group risk losing their control over the acquiring firm when the deal is financed with equity. We conjecture that the way firms make investments is motivated not only by ownership of insiders in the firm making an investment but also how these insiders are related to insiders of the firm where the investment is being made. We are first, to the best of our knowledge, to test the implications of having common insiders at the investor (acquirer) as well as the investee (target) side on the mode of financing investments (acquisitions).

In addition to the considerations of corporate control, there is another important factor at play in markets with business groups, which can potentially affect the way firms finance investments. The group-affiliated firms owing to the presence of internal capital markets within their respective groups as well as better access to external capital markets are financially less constrained compared to standalone firms (Gopalan, Nanda, & Seru, 2007, 2014; Khanna & Palepu, 2000; Masulis, Pham, & Zein, 2011; Shin & Park, 1999). The lower financial constraints aid the insiders of group-affiliated firms to preserve their control by financing a greater proportion of the acquisitions made outside their respective groups with either cash or debt. On the other hand, the insiders of standalone firms, on account of higher financial constraints, may

[4] Business groups, by definition, consist of legally independent firms having a common insider ownership.

[5] Following La Porta et al. (2000), we use a broader definition of insiders, which encompasses controlling shareholders of a firm too in addition to its managers and directors. Using this definition, the promoters (or the promoter group) of a company, which directly or indirectly control its affairs using their positions as shareholders, directors, or managers, can be termed as the insiders. The board of directors is accustomed to act on the advice of promoters. See www.mca.gov.in/SearchableActs/Section2.htm (last accessed on April 23, 2017) to know the detailed definition of promoters given in Indian Companies Act, 2013. We use the terms "promoters" and "insiders" interchangeably throughout this paper.

[6] We use the terms "acquisitions", "takeovers", and "mergers" interchangeably throughout this paper.

find it difficult to finance the same proportion of their acquisitions with either cash or debt and may have to resort to issuing equity to target shareholders.

Consistent with our proposed order of financing investments based on the considerations of control and financial constraints, we find that the propensity of group-affiliated bidders to finance investments with equity is highest in case of acquisitions of firms affiliated with the same group (within-group acquisitions) and lowest in case of acquisitions of firms not affiliated with their group (outside-group acquisitions). The propensity of standalone firms to finance their acquisitions (standalone acquisitions) with equity lies in between the above two extremes.

We focus on only one kind of investment, namely corporate acquisitions, for two reasons. First, corporate acquisitions are generally large investments, and therefore the insider preferences for financing these investments are likely to be more pronounced. If the size of an investment is small, managers may be indifferent to the means of its financing, and we may not be able to capture the true preferences of managers in that case. Second, as brought out by Amihud et al. (1990), unlike an acquisition where the mode of payment is quite often disclosed publicly, financial statement of a firm is usually devoid of how an investment has been financed. Therefore, it may be difficult, if not impossible, to obtain the sources of financing investments other than acquisitions. We are, however, limited in terms of classification of the ways of financing investments into two broad categories: first, cash or debt, and second, equity[7]. This classification suffices the purpose of this study because we only need to classify the sources of financing investments into two broad categories, ones which may dilute the control of insiders and the others which do not.

[7] If a publicly listed acquirer is paying by cash to target shareholders, theoretically there is a possibility of the acquirer issuing equity (through a seasoned equity offering route) to raise cash and using its proceeds to pay the target shareholders. This possibility is akin to a firm issuing equity and using its proceeds to pay dividends to its shareholders. However, this possibility is rare in practice and can, therefore, be ruled out.

We choose India as a setting of our study because of several reasons. First, India is a home to one of the largest numbers of group-affiliated firms (Khanna & Yafeh, 2007) with several instances of within-group investments including acquisitions. This allows us to study the differential financing behavior of group-affiliated firms when they make investments within their respective groups vis-à-vis when they make investments outside their groups, and contrast the same with that of standalone firms. Second, once a group-affiliated firm acquires a target, it (the target) usually becomes a part of the acquirer's group. Even an acquirer's group affiliation might change if it gets acquired later on by another group-affiliated acquirer. In the absence of historical data pertaining to group affiliations of both acquiring and target firms, the inferences drawn are likely to be highly biased at best. The availability of the historical group affiliation data[8] is crucial for the purpose of this study, and this data has become recently available in the Indian context. We base our analysis on this unique hand-matched dataset of successfully completed takeover bids announced by India's publicly listed firms over a period starting from 1998 through 2016.

We contribute to several strands of literature. First, we contribute to the literature on investment financing by showing that in order to get a correct picture of financing an investment, it is imperative to distinguish whether the parties to an investment decision, an investor and an investee, share the same set of insiders. Second, we contribute to the literature on business groups by showing how differently group-affiliated firms finance their investments than standalone firms do. We show the cases where considerations of control become important (or unimportant), and the role internal capital markets possibly play in how group-affiliated firms

[8] Prowess, a financial database of Indian firms maintained by Centre for Monitoring Indian Economy (CMIE), provided only the latest affiliation status of a firm until 2013. However, from 2014 onwards, we are able to access the group affiliation data of Indian firms going back to 1988.

finance investments. Finally, we also contribute to the burgeoning literature on mergers and acquisitions by showing additional factors that studies need to take into account for explaining the method of payment choices in countries with business groups.

The rest of the paper is organized as follows: In Section 2, we review the related literature and develop our hypotheses. In Section 3, we describe our research design. In Section 4, we describe the data and the sample selection steps. In Section 5, we report the results of our empirical analysis as well as check their robustness. In Section 6, we conclude.

2. Related literature and hypotheses development

Corporate acquisitions, a form of external investments, make a large proportion of firms' total investments. In a market with the presence of business groups, the acquisitions made by firms may be classified into three broad categories: a group-affiliated firm acquiring another firm affiliated with the same group (within-group acquisitions), a group-affiliated firm acquiring either a standalone firm or a firm affiliated with a different group (outside-group acquisitions), and a standalone firm acquiring either a group-affiliated firm or another standalone firm (standalone acquisitions). We represent the classification of acquisitions pictorially in Figure 1. The motives of financing acquisitions falling in each of the three categories are likely to be different. These different sets of acquisitions may differ from one another in terms of considerations of control as well as financial constraints in addition to several acquirer, deal, and target characteristics, and are therefore also likely to have different financial outcomes.

The empirical evidence recognizes that firms, as opposed to Modigliani & Miller (1958)'s capital structure irrelevance proposition, have peculiar choices for financing investments. We review

and analyze the arguments related to considerations of control and financial constraints, which are likely to play an important role in deciding how investments may be financed in markets with the presence of business groups.

[INSERT FIGURE 1 ABOUT HERE]

2.1 Considerations of control

Prior empirical evidence shows that considerations of corporate control influence how firms choose to finance investments during corporate acquisitions. Amihud, Lev, & Travlos (1990) conjecture that corporate insiders of a firm prefer to finance investments with cash or debt in a bid to retain the control with them. This is because, if an investment is financed with equity, the control of insiders may get diluted and at worst they might lose their control in the firm (Harris & Raviv, 1988; Stulz, 1988). This set of arguments is popularly dubbed as the control hypothesis in the literature (Martin, 1996). While Amihud, Lev, & Travlos (1990) find a negative and linear relationship between the likelihood of stock-financed acquisitions and insider ownership, Martin (1996) find this negative relationship to hold only for intermediate levels of ownership. Later empirical evidence from several different countries also lends support to the control hypothesis by showing that ownership of insiders in a firm undertaking an investment plays a crucial role in influencing the source of its financing[9].

If a group-affiliated acquirer uses its stock to pay target shareholders, the insiders' stake in the acquirer might come down, and there is a possibility of the insiders losing their control in the acquiring firm post-acquisition in case the target is controlled by a different set of insiders. A group-affiliated acquirer can avoid issuing equity to target shareholders when its insiders risk

[9] See, for example, Yook, Gangopadhyay, & McCabe (1999), Faccio & Masulis (2005), Martynova & Renneboog (2009), Gu & Reed (2016) etc.

losing their control over the acquiring firm. Even if a group-affiliated firm does not have enough cash in its books to pay the target shareholders, it can use internal capital markets within its group to pay them with cash. On the other hand, in the case of a within-group acquisition, insiders are generally able to retain their control over the acquiring firm irrespective of the mode of financing because they usually have a concentrated ownership in both the acquirer and the target.

We illustrate the considerations of control using a hypothetical example. Suppose an acquirer and a target have N_{acq} and N_{tgt} number of shares outstanding respectively before the acquisition of the target, with their insiders owning X_{acq} and X_{tgt} fractions of shares in their respective firms. In case the acquisition is financed with either cash or debt, the insiders of the acquirer continue to own X_{acq} fraction of shares in the acquiring firm after the acquisition, and their control over the acquiring firm remains unaffected. On the other hand, in case the acquirer makes payment with its stock to the target shareholders, it generally issues new shares to the target shareholders (Erickson & Wang, 1999). If α is the negotiated exchange ratio (that is, for every share of the target firm, the target shareholders receive α shares of the acquiring firm), the acquiring firm issues $\alpha * N_{tgt}$ number of new shares to the target shareholders. The combined firm has a total of $N_{acq} + \alpha * N_{tgt}$ number of shares outstanding after the 100 percent acquisition of the target. The issue of shares to the target shareholders brings down the stake of acquiring firm's insiders to $\frac{N_{acq}*X_{acq}}{N_{acq}+\alpha*N_{tgt}}$, while the target firm's insiders get a stake of $\frac{\alpha*N_{tgt}*X_{tgt}}{N_{acq}+\alpha*N_{tgt}}$ in the combined firm. We summarize the impact on the insider holdings in case of a stock-financed acquisition for both the acquirer and the target in Table 1.

[INSERT TABLE 1 ABOUT HERE]

When both the acquirer and the target belong to the same business group (which we term as a within-group acquisition), and hence share the same group of insiders, not only the chances of dilution of insiders' stake in case of a stock-financed acquisition are less but the extent of dilution is also lesser (in case there is actually a dilution). Three possibilities may arise in case of such a within-group acquisition. First, if insiders have a greater stake in the target than that of the acquirer, the stake of insiders in the acquiring firm is going to rise after the within-group acquisition. Second, if insiders hold a greater stake in the acquirer than the target, the stake of insiders in the acquiring firm is going to get diluted after the acquisition to some extent depending on the difference in the insider stake in the two firms. However, the extent of dilution, in this case, is going to be much lesser than that of an outside-group acquisition. Finally, in case the insiders had the same proportional stake in both the acquirer and the target prior to the acquisition, their stake in the acquirer is going to remain unchanged after the within-group acquisition.

On the other hand, if the acquirer is a standalone firm in case of a stock-financed acquisition, the insiders of the firm do not only suffer a dilution in their stake but also stand a risk of losing their control to the insiders of the target firm. This case is equally applicable to outside-group acquisitions as well. We summarize these possibilities and their respective implications on the insider stake of acquiring and target firms in Table 2. The control of insiders in the acquiring firm is, however, likely to remain intact in case the acquisition is financed through either cash or debt.

[INSERT TABLE 2 ABOUT HERE]

We illustrate with an example how considerations of control may become virtually unimportant for the financing of a deal in the case of a within-group acquisition. Tata Infotech Ltd (TIL)'s merger with Tata Consultancy Services (TCS), both affiliated with Tata Group, brings out how the promoters of these firms continued to control the combined entity even after the merger. Tata Sons, the promoter (or the holding company) of Tata Group of companies, held 80.64 percent stake in TCS and 74.18 percent in TIL at the time of the announcement of the merger. TCS financed the merger entirely with equity by issuing its one share to TIL shareholders for their every two shares. The stake of Tata Sons in the combined firm was expected to be 80.52 percent after the merger[10]. Irrespective of the means of financing, the promoter stake would have changed very little after the merger because the same promoter group controlled both TIL and TCS with a very similar stake in both the firms. Therefore, the considerations for control would not have played a major role in the financing of this within-group acquisition.

2.2 Financial constraints

Compared to standalone firms, group-affiliated firms face lower financial constraints (Masulis et al., 2011; Shin & Park, 1999), which could stem from the existence of internal capital markets as well as better access to external capital markets. The group-affiliated firms enjoy the advantages of internal capital markets (S. J. Chang & Hong, 2000; Gopalan et al., 2007, 2014; Khanna & Palepu, 2000), whose role becomes especially important when external capital markets are not fully developed. Internal capital markets within business groups may help the affiliated firms to finance their projects with positive net present values, which may otherwise be difficult to

[10] See http://investors.tcs.com/investors/investor_news_events/announcements/Pages/TataInfotechLtdmergeswithTataConsultancyServicesLtd.aspx (last accessed on April 23, 2017)

finance in markets with underdeveloped external capital markets (Bae, Kang, & Kim, 2002). Also, group-affiliated firms may be able to borrow from other firms within their respective groups at a rate lower than that of the external capital market (Liebeskind, 2000).

In addition to the presence of internal capital markets, group-affiliated firms may have better access to external capital markets (particularly debt markets) than standalone firms on account of two reasons. First, financial institutions may prefer to lend to reputed firms. This especially holds true in emerging markets like India, where investor protection regulations have relatively been weak (Dharmapala & Khanna, 2013). In such environments, the name of a group may act as a substitute for a high-quality or a reputed brand for gaining credibility among the investors (Khanna & Palepu, 2000). Second, the presence of intra-group debt-guarantees among the member firms of a business group facilitates access to external finance (Ghatak & Kali, 2001; Shin & Park, 1999). We argue that because of lower financial constraints on account of the presence of internal capital markets as well as enhanced access to external capital markets, affiliated firms might find it easy to fund their investments with either cash or debt compared to standalone firms.

2.3 Hypotheses development

An acquirer may have a different set of incentives for financing different types of acquisitions. The considerations of control, as we have discussed in Section 2.1, become important mostly in the case of outside-group acquisitions as well as that of standalone acquisitions because if these investments are financed with stock, the control of insiders may get diluted or at times even lost. The insiders of group-affiliated firms in the case of outside-group acquisitions, as well as that of

standalone firms making acquisitions, may therefore have incentives to finance these investments with either cash or debt so as to keep the control intact with them. In the case of within-group acquisitions, on the other hand, the control of insiders remains largely unaffected irrespective of whether the deal is financed with cash, debt, or equity. We argue that insiders of group-affiliated firms may have incentives to conserve cash for financing future investments, where they stand a risk of diluting or even losing their control. If group-affiliated firms conserve cash for financing future investments, both internal and external (including acquisitions), within-group acquisitions should be financed more with equity compared to outside-group as well as standalone acquisitions. Based on the above arguments, we propose the following hypotheses:

Hypothesis 1. Compared to outside-group acquisitions, group-affiliated acquirers have a higher propensity to finance within-group acquisitions with stock.

Hypothesis 2. Compared to acquisitions by standalone firms, group-affiliated acquirers have a higher propensity to finance within-group acquisitions with stock.

In addition to the considerations of corporate control, financial constraints too play an important role in markets with business groups, which can potentially affect the way firms finance investments. Standalone firms, in line with our discussion in Section 2.2, are financially more constrained than group-affiliated firms. If a standalone acquirer does not have enough internally generated cash, it is difficult for the firm to pay target shareholders with cash. On the other hand, a group-affiliated firm may be able to pay target shareholders with cash in spite of not having sufficient cash and bank balance in its books. Because of lower financial constraints on account of the presence of internal capital markets and enhanced access to external capital markets, group-affiliated firms might find it easy to fund their investments with either cash or debt. The

role of lower financial constraints comes into play for group-affiliated firms in the case of outside-group acquisitions where the insiders of these firms may end up diluting or even losing their control if these investments are financed with stock. On the other hand, insiders of standalone firms on account of higher financial constraints may find it difficult to finance the same proportion of their acquisitions with either cash or debt and may have to resort to issuing equity to target shareholders. Based on the above arguments, we propose the following hypothesis:

Hypothesis 3. Compared to acquisitions by standalone firms, group-affiliated acquirers have a higher propensity to finance outside-group acquisitions with either cash or debt.

We depict all the three hypotheses pictorially in Figure 2.

[INSERT FIGURE 2 ABOUT HERE]

3. Research design

To test how differently do group-affiliated firms finance their within-group acquisitions compared to outside-group acquisitions (Hypothesis 1), we take a subsample of acquisitions made by group-affiliated acquirers. Using this subsample, we perform a set of probit regressions of the following form modeling the probability of financing acquisitions with equity:

$$PROB(FIN\_EQUITY_i = 1) = \alpha + \beta_1 WITHIN\_GROUP_i + \gamma' CONTROLS_i + \varepsilon_i \quad (1)$$

The dependent variable in equation 1, *FIN_EQUITY*, is an indicator variable to represent the mode of financing of an acquisition deal. This variable takes a value 1 if an acquirer finances the deal with equity, and 0 if it finances the deal with either corporate cash reserves or debt. Our

main explanatory variable of interest in this equation, *WITHIN_GROUP*, is again an indicator variable, which denotes whether a group-affiliated bidder acquires a firm affiliated with the same group (*WITHIN_GROUP = 1*) or not (*WITHIN_GROUP = 0*). Since we consider only the set of acquisitions made by group-affiliated bidders in equation 1, if an acquisition is not within the same group of the affiliated acquirer, it has to be outside its group. So, the indicator variable for outside-group acquisitions, *OUTSIDE_GROUP*, is perfectly collinear with that of within-group acquisitions, *WITHIN_GROUP*. We, therefore, omit *OUTSIDE_GROUP* variable from our research design. The sign and magnitude of *WITHIN_GROUP* appear relative to that of *OUTSIDE_GROUP*. We expect a positive and significant sign on the coefficient of *WITHIN_GROUP* after controlling for variables which are likely to influence the method of payment in line with the prior literature.

Further, to examine how differently do group-affiliated firms finance their acquisitions compared to standalone firms (Hypotheses 2 and 3), we use the entire sample of acquisitions, and perform a series of probit regressions of the following form modeling the probability of financing acquisitions with equity:

$$PROB(FIN\_EQUITY_i = 1)$$
$$= \alpha + \beta_1 WITHIN\_GROUP_i + \beta_2 OUTSIDE\_GROUP_i + \gamma' CONTROLS_i + \varepsilon_i \quad (2)$$

Since in equation 2 we consider our entire sample of acquisitions, including those by group-affiliated as well as standalone bidders, if an acquisition is neither a within-group acquisition (*WITHIN_GROUP = 0*) nor an outside-group acquisition (*OUTSIDE_GROUP = 0*), it has to be necessarily the one made by a standalone bidder. This implies that the indicator variable for a standalone bidder, *STANDALONE_ACQUIRER*, is perfectly collinear with a linear combination

of *WITHIN_GROUP* and *OUTSIDE_GROUP* indicator variables and it has, therefore, been omitted from the research design. The sign as well as the magnitude of coefficients on the indicator variables *WITHIN_GROUP* and *OUTSIDE_GROUP* appear relative to that on *STANDALONE_ACQUIRER*. In line with our stated hypotheses, we expect within-group (outside-group) acquisitions to be financed with equity to a greater (lesser) extent compared to acquisitions made by standalone firms. Therefore, we expect the coefficient on *WITHIN_GROUP* to be positive and that on *OUTSIDE_GROUP* to be negative after controlling for the following acquirer, target, and deal characteristics.

Cross-border deal: An acquirer may not be as well known in a target's country as it is known in its own country (Coval & Moskowitz, 1999; French & Poterba, 1991; Grinblatt & Keloharju, 2001). Target shareholders may not, therefore, like to hold the equity of a "less-known" foreign acquirer (Faccio & Masulis, 2005; Martynova & Renneboog, 2009). Also, foreign equity investments may be regulated in target's country (Faccio & Masulis, 2005). These factors are likely to reduce the likelihood of an acquirer paying a target based in a foreign country with its stock. We, therefore, expect the coefficient on *CROSS_BORDER*, the indicator variable which takes a value of 1 in case a target is located in a foreign country and 0 otherwise, to be negative.

Relative deal size: In the case of corporate acquisitions, a target and an acquirer may not have the complete information about the value of each other. Hensen (1987) argues that an acquirer may prefer to finance investment with its stock in case it is less informed about the value of a target, making the target shareholders share the misvaluation effects after its acquisition. The impact of the problem of information asymmetry, in line with Hensen's predictions, is likely to commensurate with the size of a target or alternatively the size of a deal. Larger deals relative to the size of acquirers are, therefore, more likely to be financed with stock. Also, greater the size

of a deal relative to the size of an acquirer, more difficult it may become for the acquirer to finance it with cash using its reserves. We employ *REL_SIZE* to measure the value of the deal relative to book value of acquirer's total assets at the end of the financial year immediately preceding the acquisition announcement and expect a positive coefficient on this variable.

Industry relatedness: If an acquirer and a target operate in the same industry, the target is aware of both the prospects as well as the risks related to the common industry (Faccio & Masulis, 2005). Due to a lower information asymmetry between the acquirer and the target, the target may be less averse to accept the stock of the acquirer from the same industry. We employ *IND_REL* to measure the industry relatedness between an acquirer and a target based on whether the two share the same four-digit Standard Industrial Classification (SIC) code. The coefficient on *IND_REL*, in line with the above arguments, is expected to be positive.

Cash reserves of acquirer: If an acquiring firm has ample cash in its books, it can make use of its cash reserves to pay the target shareholders. The acquirer is unlikely to go to the market to seek funds when the opportunity cost of using internal cash reserves is lower (Gu & Reed, 2016). This expectation is also in line with the pecking order theory given by Myers (1984). We employ *CASH_TO_ASSETS* to measure natural logarithm of cash and bank balances an acquirer has relative to its assets at the end of the financial year preceding an acquisition announcement. We expect a negative coefficient on this variable.

Financial leverage of acquirer: The financial condition of an acquiring firm may also play an important role in how a deal may be financed. Acquirers which already have a high amount of debt in their books may find it difficult to borrow more from the market because the cost of borrowing may rise with an increase in the debt levels (Baxter, 1967). We, therefore, expect

highly levered bidders to have a greater tendency to finance their acquisitions with stock. We take the natural logarithm of the ratio of book value of debt to book value of assets of an acquirer at the end of the financial year prior to an acquisition to measure the financial leverage of the acquirer and name this variable *DEBT_TO_ASSETS*.

Acquirer size: The size of an acquirer may also influence the financing of a deal. Larger firms being usually more diversified than smaller ones have a lesser probability of going bankrupt for a given debt ratio and have, therefore, a greater debt capacity (Faccio & Masulis, 2005). We should, therefore, observe larger acquirers to have a greater propensity to finance their acquisitions with debt. We use *TOTAL_ASSETS*, the natural logarithm of total assets of an acquirer at the end of the financial year preceding an acquisition announcement, as a proxy for the acquirer size, and expect a negative coefficient on this variable.

Insider ownership in acquirer: Insiders of a firm with a concentrated ownership generally prefer to finance investments with either cash or debt in order to retain their control in the firm (Amihud et al., 1990; Harris & Raviv, 1988; Martin, 1996; Stulz, 1988). While Amihud, Lev, & Travlos (1990) find a negative and linear relationship between the likelihood of stock-financed acquisitions and insider ownership, Martin (1996) find this negative relationship to hold only for intermediate levels of ownership. We separately control for the proportion of shareholding by insiders in an acquirer (*INSIDER_OWN*) and the square of this term (*INSIDER_OWN_SQ*) to take into account the possible linear as well as non-linear negative relationships between these variables and the mode of financing acquisitions.

Investment or growth opportunities: Due to a greater degree of discretion involved in the equity financing, firms with growth opportunities may prefer raising equity over debt (Jung, Kim, &

Stulz, 1996; Martin, 1996). We use *SALES_GROWTH*, compounded annual growth rate in sales of an acquirer over a three-year period immediately prior to the acquisition announcement, as a proxy for the acquirer's investment or growth opportunities, and expect a positive coefficient on this variable.

Target status: The status of a target may also influence how an acquirer might choose to pay the target shareholders. The owners of the targets which are not public (or not listed) have usually concentrated and illiquid holdings in these firms. Because of their liquidity needs, the owners of non-public targets are less likely to accept stock (Faccio & Masulis, 2005; Martynova & Renneboog, 2009). We construct an indicator variable *TARGET_PUBLIC*, which takes a value of 1 in case a target is a public firm and 0 otherwise. We expect a positive coefficient on this variable.

Financial crisis: A period of financial crisis may too have an impact on how acquirers might want to finance their investments. During a financial crisis, the liquidity dries up (Cornett, McNutt, Strahan, & Tehranian, 2011) and stock market places a greater weight on cash reserves (Y. Chang, Benson, & Faff, 2017). An acquirer may not want to pay target shareholders with cash during these times. Therefore, we expect a period of financial crisis to be accompanied with a disproportionately high number of acquisitions financed with stock. We employ two indicator variables, *CRISIS_2001* and *CRISIS_2007_2009*, for the periods 2001, and 2007 through 2009, to indicate the dot-com bubble financial crisis and the global financial crisis, respectively. In line with the above arguments, we expect positive coefficients on these two variables.

4. Data and descriptive statistics

Our initial sample includes acquisitions announced by publicly listed Indian bidders from 1995 through 2016 and successfully completed subsequent to their announcement. Since there are very few acquisitions made by Indian firms prior to 1995, we start our sample from 1995 in line with the prior literature (Banerjee, Banerjee, De, Jindra, & Mukhopadhyay, 2014; Bhaumik & Selarka, 2012). We cover a period before as well as after the global financial crisis. We remove those deals for which the deal size is unavailable because this is one of the important factors in determining how a deal may be financed. We exclude the deals undertaken by public sector acquirers because the government might aid in the financing of such deals even if the acquiring firms are unable to finance the deal on their own. Finally, we also exclude the repurchase deals.

We take the business group affiliation as well as the firm financial data from the Prowess database maintained by Centre for Monitoring Indian Economy (CMIE). Prowess, which principally sources its data from the annual reports of firms, is a comprehensive financial database of Indian firms, and has been employed in several studies in the past[11]. We drop those deals for which the acquirers' financial data for any of the variables of interest is unavailable in CMIE Prowess. We consider only those deals for which acquirers have paid shareholders of target firms either completely with cash or completely with stock[12]. The final sample consists of 320 deals. We provide the definition of variables in Table 3 and the criteria for selecting our sample in Table 4.

[INSERT TABLE 3 AND TABLE 4 ABOUT HERE]

[11] See, for example, Khanna & Palepu (2000), Bertrand, Mehta, & Mullainathan (2002) and Gopalan, Nanda, & Seru (2014).

[12] There are very few deals by Indian acquirers during our sample period which are financed using a mix of cash and stock. We, therefore, do not include the hybrid deals (financed with a mix of cash and equity) in our sample. This is also a reason why we use probit regressions in our research design instead of using ordered probit models.

Table 5 summarizes the acquisition activity by year and type of firm. Among 320 acquisitions, 119 (37.2 percent) are those made by standalone firms (standalone acquisitions) and 201 (62.8%) by group-affiliated firms. Out of 201 acquisitions made by group affiliates, in 85 cases both acquirer and target belong to the same business group (within-group acquisitions), and in the rest 116 target is either a standalone firm or a firm affiliated with a group different from that of the acquirer (outside-group acquisitions).

[INSERT TABLE 5 ABOUT HERE]

Panel A of Table 6 provides descriptive statistics for our overall sample, while Panel B of Table 6 reports descriptive statistics based on the classification of acquisitions into three categories, viz., standalone acquisitions, within-group acquisitions, and outside-group acquisitions. 27 percent of the sample acquisitions are financed with equity. The distribution of financing, however, varies across the three categories. While only 13 percent of outside-group acquisitions are financed with equity, 52 percent of within-group acquisitions are financed with equity. The financing of standalone acquisitions with equity lies in between that of within-group and outside-group acquisitions at 20 percent. This is in line with our expectations. The differences in the financing of acquisitions with equity are statistically significant between within-group and standalone, and within-group and outside-group, but not between outside-group and standalone acquisitions.

The mean as well as median ownership of insiders in acquiring firms is 51 percent. The differences in equity ownership of insiders between any two categories are not statistically significant, which is consistent with the study by Sarkar & Sarkar (2008)[13]. This indicates that

[13] Sarkar & Sarkar (2008) do not find any significant difference between the insider ownership of group-affiliated and standalone firms in their sample of Indian firms.

ownership of insiders in acquiring firms is unlikely to be a reason for differences in the pattern of financing among the three categories.

[INSERT TABLE 6 ABOUT HERE]

5. Empirical analysis

5.1 Empirical findings

We report in Table 7 the results[14] for a set of probit regression models for a subsample of 201 acquisitions, all made by group-affiliated acquirers, which show how differently do group-affiliated firms finance their within-group acquisitions compared to outside-group acquisitions. Model (1) includes only our main variable of interest, *WITHIN_GROUP*; models (2) and (4) include only a set of control variables; models (3) and (5) include explanatory as well as control variables. While models (2) and (3) include ownership stake of insiders in the acquiring firm, models (4) and (5) include the square of this term to accommodate for a possible non-linear relationship between the mode of financing and insider ownership of acquiring firms. Since all the within-group acquisitions are domestic deals (see Panel B of Table 6), the indicator variable for cross-border acquisitions has been omitted from the research design. Consistent with Hypothesis 1, we find the coefficient on *WITHIN_GROUP* to be positive and significant at the 1 percent level across all our models with this variable.

Next, we augment models (2) through (5) with the inclusion of acquirer as well as target industry dummies at the one-digit SIC level, and arrive at models (6) through (9), respectively. This step

[14] For easier interpretation and sake of brevity, we report only the average marginal effects of various probit regression models throughout the paper.

brings down the number of acquisitions made by group-affiliated firms in the sample from 201 to 192 because the deals for which acquirer and target industry dummies completely determine the mode of financing are dropped from the sample. The results shown in Table 7 indicate that the coefficient on *WITHIN_GROUP* continues to remain significant at the 1 percent level even after the inclusion of industry-fixed effects of acquiring and target firms. In particular, within-group acquisitions, on average, have a 28.7 percent higher likelihood of being financed with equity than that of outside-group acquisitions (models (7) and (9) of Table 7), which is economically significant too.

To test whether the inclusion of within-group indicator variable (*WITHIN_GROUP*) increases the explanatory power of the base model with only control variables, we perform the Likelihood Ratio (LR) tests for models (3), (5), (7), and (9) using models (2), (4), (6), and (8), respectively as the baseline models. We are able to reject the null hypotheses in all the four cases at the 1 percent level that within-group indicator variable does not impact how acquirers finance their acquisitions.

We also report the sensitivity, the specificity, and the correctly specified percentage for each model. Sensitivity (specificity) provides the percentage of equity (cash or debt) deals that a model is able to predict correctly. Models (7) and (9), having both explanatory and control variables along with industry-fixed effects of acquiring and target firms, are able to correctly predict about 84, 91, and 70 percent of all deals, cash or debt deals, and stock deals, respectively. All significant variables in Table 7 carry the expected signs on their respective coefficients.

[INSERT TABLE 7 ABOUT HERE]

Next, using our entire sample of 320 acquisitions, we test how differently do group-affiliated firms finance their acquisitions compared to standalone firms. We report in Table 8 the results for this sample for a set of probit regression models. Model (1) includes only our main variables of interest, *WITHIN_GROUP* and *OUTSIDE_GROUP*; models (2) and (4) include only a set of control variables; models (3) and (5) include explanatory as well as control variables. Similar to the reported results in Table 7, models (2) and (3) include ownership stake of insiders in the acquiring firm and models (4) and (5) include the square of this term.

Consistent with Hypothesis 2, we find the coefficient on *WITHIN_GROUP* to be positive and significant at least at the 5 percent level across all our models with this variable, implying that within-group acquisitions are financed to a greater extent with equity compared to standalone acquisitions. Further, the coefficient on *OUTSIDE_GROUP* is negative and significant at the 1 percent level in models (3) and (5), which lends support to Hypothesis 3 and implies that outside-group acquisitions are financed to a lesser extent with equity compared to standalone acquisitions.

Next, we augment models (2) through (5) with the inclusion of acquirer as well as target industry dummies at the one-digit SIC level, and arrive at models (6) through (9), respectively. This step reduces 2 sample deals for analysis because the deals for which acquirer and target industry dummies completely determine the mode of financing are dropped from the sample. The results shown in Table 8 indicate that the coefficients on *WITHIN_GROUP* as well as *OUTSIDE_GROUP* remain significant at the 5 percent level even after the inclusion of industry-fixed effects of acquiring and target firms. In terms of economic significance, within-group (outside-group) acquisitions have about 13.1 percent more (11.6 percent less) likelihood of being

financed with equity compared to acquisitions made by standalone firms (models (7) and (9) of Table 8).

Further, to test whether the inclusion of *WITHIN_GROUP* and *OUTSIDE_GROUP* indicator variables increases the explanatory power of the base model with only control variables, we perform the Likelihood Ratio (LR) tests for models (3), (5), (7), and (9) using models (2), (4), (6), and (8), respectively as the baseline models. We reject the null hypotheses in all the four cases at the 1 percent level that inclusion of *WITHIN_GROUP* and *OUTSIDE_GROUP* indicator variables does not impact how acquirers finance their acquisitions.

All significant variables in Table 8 carry the expected signs on their respective coefficients. Models (7) and (9) having both explanatory and control variables have the most predictive power out of all the models. These two models are able to correctly predict about 84, 92, and 61 percent of all deals, cash or debt deals, and stock deals, respectively.

[INSERT TABLE 8 ABOUT HERE]

Our research design is highly unlikely to suffer from the problem of simultaneity or reverse causality. It is simply not possible for an acquiring firm to change its affiliation (from standalone to a group-affiliated firm and vice-versa) in anticipation of the mode of financing of an acquisition deal. Therefore, we can safely attribute the mode of financing of a deal to our main variables of interest after controlling for the variables given in the prior literature.

5.2 Robustness checks

In this section, we briefly report the results of various robustness checks.

In our empirical analysis, we classify an acquisition into a related industry if acquiring and target firms share the same four-digit SIC code. We use three alternative definitions of industry relatedness based on the matching of one-, two-, and three-digit SIC codes, and check if our results are robust to using them as one of our control variables one by one. Our results remain qualitatively unchanged.

The coverage of promoter or insider ownership data for Indian firms in CMIE Prowess starts from 2001 onwards. Similar to Banerjee et al. (2014), we have used the ownership data of the earliest available date (that is, the first quarter of 2001) for 19 acquisitions taking place prior to the first quarter of 2001 for our empirical analysis. Our results are robust to the exclusion of these 19 acquisitions.

6. Conclusion and discussion

In this paper, we propose and test a new order of financing investments made by firms in markets with business groups. Specifically, we examine the effect of having common insiders at an investor (acquirer) as well as an investee (target) side on the way of financing investments (acquisitions), a possibility not studied in the prior literature. The control hypothesis, which attributes a greater propensity to finance investments with either cash or debt to a greater ownership of insiders in the firm undertaking those investments, fails to explain why within-group investments are financed more with equity.

We postulate that a firm's propensity to finance its investment with a particular medium depends not only on its own characteristics, but also where the firm is making an investment as well as whether the firm is able to pool with other firms to create capital markets, especially when the

external financing is not easy. We propose as well demonstrate that firms tend to finance investments with equity in the descending order of the following: a group-affiliated firm acquiring another firm from the same group, a standalone firm acquiring any other firm, and finally, a group-affiliated firm acquiring any firm other than one from its own group. We conclude that differences related to considerations of control as well as financial constraints facing a firm dictate a new order of the means of financing investments in markets with business groups.

This study suffers from a few limitations. First, the sample of acquisitions in this study is small compared to that of several developed countries, which is primarily because of relatively low acquisition activity in India compared to these countries. Second, our sample understates the number of acquisitions made by group-affiliated firms because we exclude those acquisition deals from our sample for which we are unable to ascertain affiliation of the target firms. Third, we recognize that in a takeover transaction both a bidder and a potential target can influence how the bidder pays to the target. The proposed takeover deal may, however, get aborted in case the target's desired mode of payment is unacceptable to the bidder (Faccio & Masulis, 2005). A bidder's choice of mode of payment, therefore, takes precedence over that of a target.

Our work has implications for further extensions to other markets with business groups. The differences in the investment financing behavior between standalone and outside-group acquisitions could partly be driven because of the Indian regulations. The prohibition for acquirers in India to finance their domestic acquisitions with bank loans (Sharma & Irani, 2008) amplifies the impact of financial constraints for standalone firms more severely than that for group-affiliated firms. More research into investment financing may be carried out in countries where no similar regulation exists. Also, we have categorized the financing of acquisitions into

either stock or a mix of cash and debt. The different kinds of acquisitions may have different propensity to be financed with stock, cash, and debt. Future work based on a relatively large sample can segregate the financing of acquisitions into three categories, viz., stock, cash, and debt, and study these differences as well.

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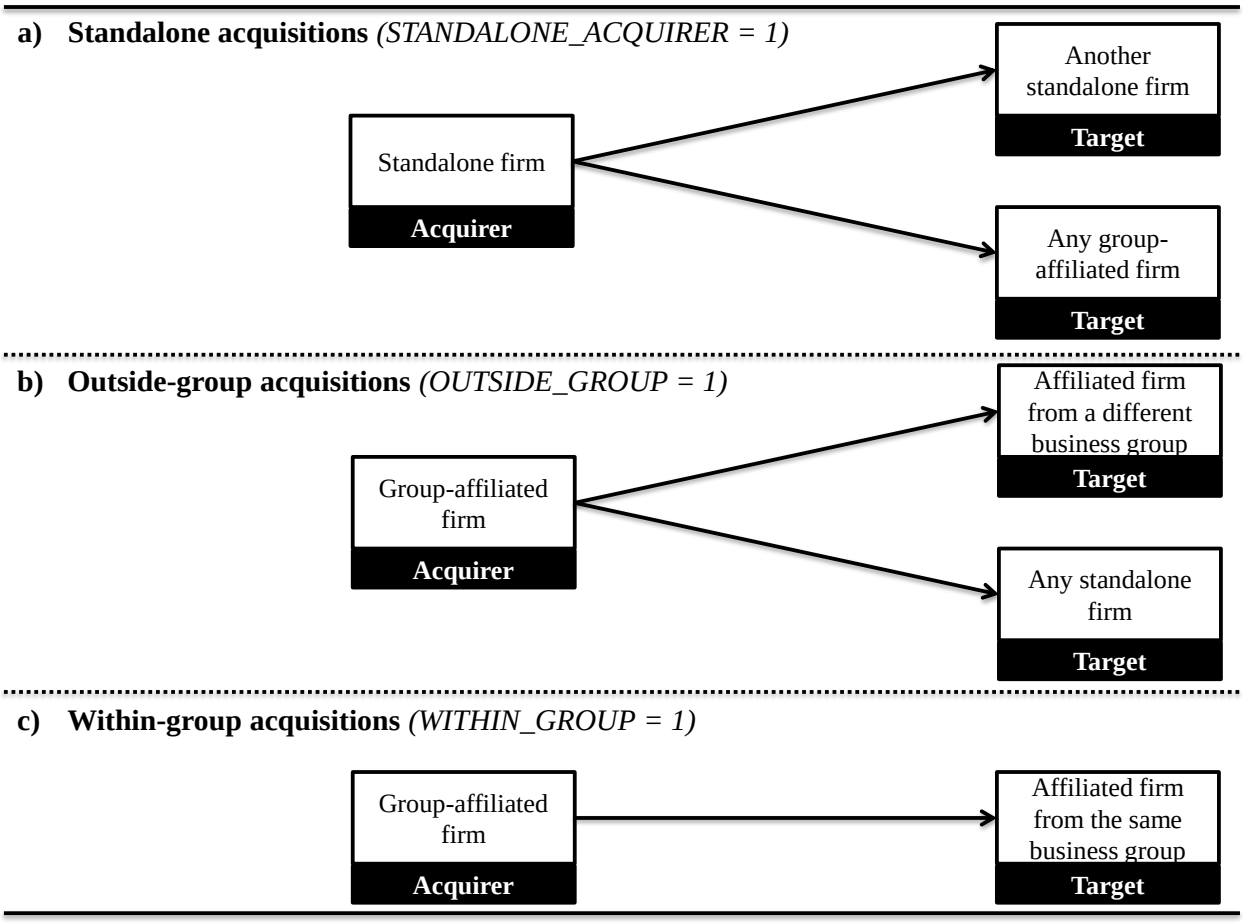

Figure 1: Classification of acquisitions in markets with business groups into three broad categories

Notes: This figure shows the classification of acquisitions in markets with the presence of business groups into three broad categories, viz., standalone, within-group, and outside-group acquisitions. Standalone acquisitions refer to the acquisitions made by standalone (non-affiliated) acquirers of either standalone firms or firms from a business group; outside-group acquisitions refer to the acquisitions made by group-affiliated firms of either standalone firms or firms from a different business group; within-group acquisitions refer to the acquisitions made by group-affiliated firms of firms affiliated with the same business group.

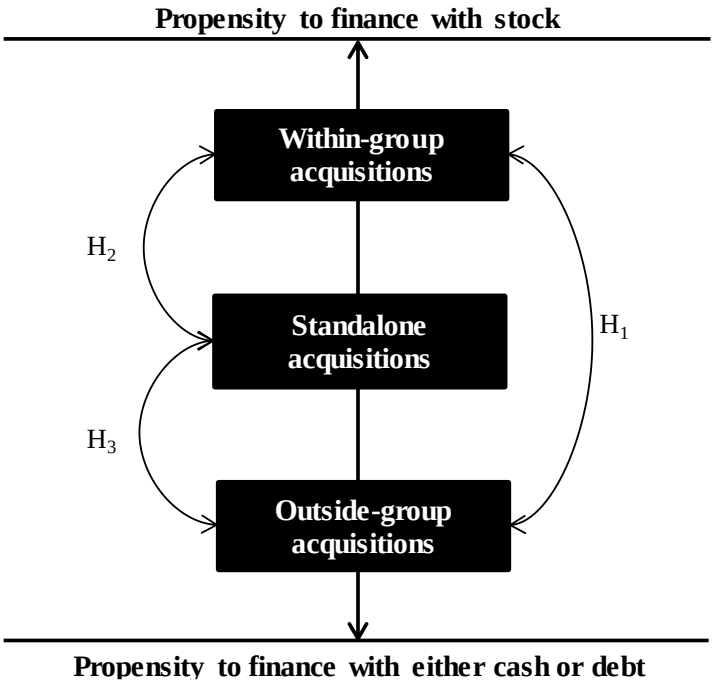

Figure 2: The proposed order of financing investments in markets with business groups

Notes: This figure shows the proposed order of financing different kinds of acquisitions with stock on one hand and either cash or debt on the other hand. Standalone acquisitions refer to the acquisitions made by standalone (non-affiliated) acquirers; outside-group acquisitions refer to the acquisitions made by group-affiliated firms of either standalone firms or firms from a different business group; within-group acquisitions refer to the acquisitions made by group-affiliated firms of firms affiliated with the same business group. H_1, H_2, and H_3 refer to hypotheses 1, 2, and 3 respectively which depict how differently the three categories of acquisitions differ in terms of their mode of financing by acquirers.

Table 1: The impact of a stock-financed acquisition on insider holdings of an acquirer and a target

	Acquirer	Target
Before Acquisition		
Number of shares outstanding	N_{acq}	N_{tgt}
Respective insider stake (%)	X_{acq}	X_{tgt}
Number of shares with respective insiders	$N_{acq} * X_{acq}$	$N_{tgt} * X_{tgt}$
After Acquisition		
Number of shares outstanding	$N_{acq} + \alpha * N_{tgt}$	–
Number of shares with acquirer's insiders	$N_{acq} * X_{acq}$	–
Number of shares with erstwhile target's insiders	$\alpha * N_{tgt} * X_{tgt}$	–
Stake of acquirer's insiders (%)	$\frac{N_{acq} * X_{acq}}{N_{acq} + \alpha * N_{tgt}}$	–
Stake of erstwhile target's insiders (%)	$\frac{\alpha * N_{tgt} * X_{tgt}}{N_{acq} + \alpha * N_{tgt}}$	–

Notes: N_{acq} and N_{tgt} denote the number of shares and X_{acq} and X_{tgt} the fraction of total shares outstanding of the acquiring and the target firms respectively before the acquisition. It is assumed that the acquiring firm acquires 100 percent stake in the target firm by issuing new shares to the target shareholders with a negotiated exchange ratio of α (that is, for every share of the target firm the target shareholders receive α shares of the acquiring firm). The target firm ceases to exist after its acquisition by (or merger with) the acquirer.

Table 2: The impact on the control of an acquirer's insiders in a stock-financed acquisition

Case	Standalone acquisitions	Outside-group acquisitions	Within-group acquisitions
$N_{acq} * X_{acq} < \alpha * N_{tgt} * X_{tgt}$	Change of control	Change of control	Increase in control
$N_{acq} * X_{acq} = \alpha * N_{tgt} * X_{tgt}$	Sharing of control	Sharing of control	No change in control
$N_{acq} * X_{acq} > \alpha * N_{tgt} * X_{tgt}$	Dilution of control	Dilution of control	Less dilution of control

Notes: This table shows how the control of an acquirer's insiders gets impacted after it acquires a target in a stock-financed acquisition which can take any one of the following three forms: standalone acquisition, within-group acquisition or outside-group acquisition. Standalone acquisitions refer to the acquisitions made by standalone (non-affiliated) acquirers; outside-group acquisitions refer to the acquisitions made by group-affiliated firms of either standalone firms or firms affiliated with different business groups; within-group acquisitions refer to the acquisitions made by group-affiliated firms of firms affiliated with the same business group. N_{acq} and N_{tgt} denote the number of shares and X_{acq} and X_{tgt} the fraction of total shares outstanding of the acquiring and the target firms respectively before the acquisition. It is assumed that the acquiring firm acquires 100 percent stake in the target firm by issuing new shares to the target shareholders with a negotiated exchange ratio of α (that is, for every share of the target firm the target shareholders receive α shares of the acquiring firm).

Table 3: The table of definitions and sources of data

Variable	Definition	Source
CASH_TO_ASSETS	Natural logarithm of the ratio of cash to total assets of the acquirer at the end of the financial year immediately preceding the acquisition announcement	CMIE Prowess
CRISIS_2001	Equal to 1 if the acquisition was announced during the year 2001	ThomsonOne
CRISIS_2007_2009	Equal to 1 if the acquisition was announced during the years 2007, 2008, or 2009	ThomsonOne
CROSS_BORDER	Equal to 1 if the target is not based in India and to 0 otherwise	ThomsonOne
DEBT_TO_ASSETS	Natural logarithm of the ratio of debt to total assets of the acquirer at the end of the financial year immediately preceding the acquisition announcement	CMIE Prowess
FIN_EQUITY	Equal to 1 if the acquirer finances the deal with equity and to 0 if the acquirer finances the deal with either corporate cash reserves or debt	ThomsonOne
IND_REL	Equal to 1 if the acquirer and the target share the same four-digit SIC code and to 0 otherwise	ThomsonOne
INSIDER_OWN	Proportion of total shares held by the promoter group of the acquirer at the end of the quarter immediately preceding the acquisition announcement	CMIE Prowess
INSIDER_OWN_SQ	Square of the proportion of total shares held by the promoter group of the acquirer at the end of the quarter immediately preceding the acquisition announcement	CMIE Prowess
TOTAL_ASSETS	Natural logarithm of the total assets of the acquirer at the end of the financial year immediately preceding the acquisition announcement	CMIE Prowess
OUTSIDE_GROUP	Equal to 1 if the acquirer is a group-affiliated firm and it acquires either a standalone firm or a firm from a different business group and to 0 otherwise	CMIE Prowess
REL_SIZE	Size of the deal relative to size of the acquirer, arrived at by dividing deal size (converted to Indian Rupees using USD-to-Rupee Exchange Rate) with total assets of the acquirer at the end of the financial year immediately preceding the acquisition announcement	ThomsonOne, RBI, CMIE Prowess
SALES_GROWTH	Compounded annual growth rate in sales over a three-year fiscal period immediately preceding the acquisition announcement	CMIE Prowess
STANDALONE_ACQUIRER	Equal to 1 if the acquirer is a standalone firm (not affiliated with any business group) and to 0 otherwise	CMIE Prowess
TARGET_PUBLIC	Equal to 1 if the target is a publicly listed firm and to 0 otherwise	ThomsonOne
WITHIN_GROUP	Equal to 1 if the acquirer is a group-affiliated firm and it acquires another firm from the same group and to 0 otherwise	CMIE Prowess

Table 4: Sample selection

Step	Count
Number of deals announced by Indian firms starting from 1995 through 2016	14,974
Less: deals not completed successfully	(5,572)
Less: deals undertaken by acquirers which are not public	(5,821)
Less: deals with value of transaction unknown or undisclosed	(2,021)
Less: deals with method of payment unknown or undisclosed or hybrid	(810)
Less: deals undertaken by acquirers which could not be found in CMIE Prowess	(13)
Less: deals undertaken by the government acquirers	(19)
Less: deals where acquirer and target are the same (that is, repurchase deals)	(74)
Less: deals where it could not be ascertained whether the deal is within a business group or outside the group	(193)
Less: reduction in number of observations due to clubbing of deals with same announcement dates, acquirers, and targets	(19)
Less: deals where data on any of the explanatory variables is missing	(112)
Final sample	**320**

Notes: This table details the step-by-step procedure to arrive at the final sample of 320 acquisitions. Though the sample period starts from 1995 through 2016, there is no acquisition deal satisfying all the sample selection steps from 1995 through 1997. Therefore, the final sample pertains to acquisitions made by India's publicly listed firms between 1998 and 2016.

Table 5: Investment (acquisition) activity by year and type of firm

Year	Overall	Standalone	Business group	Within-group	Outside-group
1998	3	2	1	0	1
1999	6	0	6	1	5
2000	10	4	6	5	1
2001	8	1	7	3	4
2002	10	5	5	3	2
2003	11	5	6	1	5
2004	3	0	3	2	1
2005	12	4	8	5	3
2006	17	7	10	3	7
2007	32	16	16	4	12
2008	20	6	14	8	6
2009	25	11	14	11	3
2010	30	10	20	10	10
2011	21	6	15	5	10
2012	22	2	20	11	9
2013	17	9	8	3	5
2014	13	3	10	1	9
2015	37	20	17	6	11
2016	23	8	15	3	12
Total	**320 (100%)**	**119 (37.2%)**	**201 (62.8%)**	**85 (26.6%)**	**116 (36.3%)**

Notes: The table lists the number of acquisitions made by all firms, standalone firms, and group-affiliated firms from 1995 through 2016 for which the data for multivariate analysis are available. Conditional on the data availability, our sample of acquisitions starts from 1998 onwards. Acquisitions made by group-affiliated firms have been further split into within-group and outside-group acquisitions. Within-group refers to the acquisitions made by group-affiliated firms of firms affiliated with the same business group; outside-group refers to the acquisitions made by group-affiliated firms of either standalone firms or firms from a different business group.

Table 6: Descriptive statistics

Panel A: Descriptive statistics for the overall sample

Variable	N	Mean	St Dev	Min	Q1	Median	Q3	Max
FIN_EQUITY	320	0.27	0.44	0	0	0	1	1
WITHIN_GROUP	320	0.27	0.44	0	0	0	1	1
OUTSIDE_GROUP	320	0.36	0.48	0	0	0	1	1
STANDALONE_ACQUIRER	320	0.37	0.48	0	0	0	1	1
CROSS_BORDER	320	0.21	0.41	0	0	0	0	1
REL_SIZE	320	0.31	0.93	0.00	0.01	0.05	0.21	10.95
IND_REL	320	0.37	0.48	0	0	0	1	1
CASH_TO_ASSETS	320	-3.61	1.56	-10.45	-4.72	-3.47	-2.38	-0.33
DEBT_TO_ASSETS	320	-2.13	1.85	-10.47	-2.37	-1.52	-1.00	-0.11
TOTAL_ASSETS	320	9.54	1.90	4.03	8.29	9.56	10.85	14.74
INSIDER_OWN	320	0.51	0.19	0.08	0.34	0.51	0.65	0.94
INSIDER_OWN_SQ	320	0.29	0.20	0.01	0.12	0.26	0.42	0.89
SALES_GROWTH	320	0.30	0.67	-0.56	0.09	0.19	0.34	9.48
TARGET_PUBLIC	320	0.41	0.49	0	0	0	1	1
CRISIS_2001	320	0.03	0.16	0	0	0	0	1
CRISIS_2007_2009	320	0.24	0.43	0	0	0	0	1

Notes: The table shows the summary statistics for the overall sample of acquisitions announced between 1998 and 2016 and successfully completed by the publicly listed Indian bidders. Variable definitions have been provided in Table 3, and the sample selection procedure has been detailed in Table 4. The number of observations varies depending on the availability of data for various variables under consideration.

Panel B: Descriptive statistics for various sub-groups

	Standalone acquisitions (A) N = 119		Within-group acquisitions (B) N = 85		Outside-group acquisitions (C) N = 116		Test of difference (B - A)		Test of difference (C - A)		Test of difference (B - C)	
Variables	**Mean**	**Median**	**Mean**	**Median**	**Mean**	**Median**	**t-test**	**Wilcoxon z-test**	**t-test**	**Wilcoxon z-test**	**t-test**	**Wilcoxon z-test**
FIN_EQUITY	0.20	0	0.54	1	0.13	0	0.34***	1***	-0.07	0	0.41***	1***
CROSS_BORDER	0.34	0	0.00	0	0.23	0	-0.34***	0***	-0.11*	0*	-0.23***	0***
REL_SIZE	0.35	0.11	0.24	0.04	0.32	0.03	-0.11	-0.07***	-0.03	-0.08***	-0.08	0.01
IND_REL	0.40	0	0.28	0	0.41	0	-0.12*	0*	0.01	0	-0.13*	0*
CASH_TO_ASSETS	-3.27	-2.91	-3.76	-3.65	-3.85	-3.84	-0.49**	-0.74**	-0.58***	-0.93***	0.09	0.19
DEBT_TO_ASSETS	-2.59	-1.75	-1.76	-1.45	-1.94	-1.36	0.83***	0.3**	0.65**	0.39**	0.18	-0.09
TOTAL_ASSETS	8.29	8.36	10.34	10.36	10.25	10.26	2.05***	2.00***	1.96***	1.90***	0.09	0.10
INSIDER_OWN	0.49	0.53	0.49	0.51	0.53	0.52	0.00	-0.02	0.04	-0.01	-0.04	-0.01
INSIDER_OWN_SQ	0.29	0.28	0.27	0.26	0.31	0.27	-0.02	-0.02	0.02	-0.01	-0.04*	-0.01
SALES_GROWTH	0.46	0.28	0.25	0.16	0.18	0.19	-0.21*	-0.12***	-0.28***	-0.09***	0.07	-0.03
TARGET_PUBLIC	0.21	0	0.65	1	0.43	0	0.44***	1***	0.22***	0***	0.22***	1***
CRISIS_2001	0.01	0	0.04	0	0.03	0	0.03	0.00	0.02	0	0.01	0
CRISIS_2007_2009	0.28	0	0.27	0	0.18	0	-0.01	0.00	-0.10*	0*	0.09	0

Notes: The table shows the summary statistics for the sample of acquisitions announced between 1998 and 2016 and successfully completed by publicly listed bidders segregated into various groups. Standalone acquisitions refer to the acquisitions made by standalone (non-affiliated) acquirers; outside-group acquisitions refer to the acquisitions made by group-affiliated firms of either standalone firms or firms from a different business group; within-group acquisitions refer to the acquisitions made by group-affiliated firms of firms affiliated with the same business group. The number of observations varies depending on the availability of data for various variables under consideration. Two-sample t-test (Wilcoxon-Mann-Whitney rank sum test) has been used to check if the difference in means (medians) of a variable is significantly different from zero, first between standalone acquisitions and within-group acquisitions and later between standalone acquisitions and outside-group acquisitions. ***, **, and * denote statistical significance at the 1%, 5%, and 10% level, respectively.

Table 7: Determinants of the sources of financing investments (acquisitions) for group-affiliated firms

	Expected sign	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
WITHIN_GROUP	+	0.357***		0.314***		0.313***		0.287***		0.287***
		(0.000)		(0.000)		(0.000)		(0.000)		(0.000)
REL_SIZE	+		0.305***	0.278***	0.308***	0.280***	0.307***	0.248***	0.308***	0.249***
			(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.001)	(0.001)
IND_REL	+		-0.036	0.024	-0.037	0.023	-0.037	0.025	-0.037	0.024
			(0.544)	(0.656)	(0.537)	(0.667)	(0.533)	(0.624)	(0.523)	(0.636)
CASH_TO_ASSETS	-		-0.028	-0.022	-0.029	-0.023	-0.027	-0.022	-0.028	-0.022
			(0.175)	(0.175)	(0.162)	(0.164)	(0.162)	(0.168)	(0.147)	(0.161)
DEBT_TO_ASSETS	-		0.012	0.011	0.012	0.012	-0.001	-0.008	-0.000	-0.008
			(0.544)	(0.538)	(0.532)	(0.516)	(0.972)	(0.706)	(0.993)	(0.729)
TOTAL_ASSETS	-		0.028	0.023	0.026	0.022	0.025	0.013	0.023	0.012
			(0.104)	(0.146)	(0.119)	(0.166)	(0.173)	(0.415)	(0.202)	(0.447)
INSIDER_OWN	-		-0.107	-0.092			-0.022	-0.027		
			(0.546)	(0.557)			(0.900)	(0.861)		
INSIDER_OWN_SQ	-				-0.152	-0.127			-0.073	-0.059
					(0.380)	(0.404)			(0.672)	(0.693)
SALES_GROWTH	+		-0.062	-0.085	-0.062	-0.085	-0.220	-0.082	-0.218	-0.082
			(0.358)	(0.122)	(0.359)	(0.123)	(0.243)	(0.217)	(0.248)	(0.216)
TARGET_PUBLIC	+		0.213***	0.142***	0.206***	0.138**	0.213***	0.121**	0.205***	0.116**
			(0.001)	(0.008)	(0.001)	(0.010)	(0.001)	(0.020)	(0.001)	(0.026)
CRISIS_2001	+		-0.135	-0.144	-0.139	-0.146	-0.096	-0.122	-0.100	-0.124
			(0.464)	(0.338)	(0.450)	(0.328)	(0.522)	(0.278)	(0.507)	(0.270)
CRISIS_2007_2009	+		0.142**	0.114*	0.146**	0.117**	0.186***	0.118**	0.190***	0.121**
			(0.042)	(0.053)	(0.037)	(0.046)	(0.006)	(0.047)	(0.004)	(0.043)
Acquirer industry fixed-effects		No	No	No	No	No	Yes	Yes	Yes	Yes
Target industry fixed-effects		No	No	No	No	No	Yes	Yes	Yes	Yes
Observations		201	201	201	201	201	192	192	192	192
Pseudo R^2		16.3%	17.6%	32.9%	17.8%	33.0%	30.8%	45.1%	30.9%	45.1%

Log pseudolikelihood	-103.297	-101.644	-82.752	-101.452	-82.601	-81.957	-65.045	-81.875	-64.985
Wald χ^2	37.446	34.542	61.752	34.248	62.037	57.955	75.188	58.033	75.215
Sensitivity	75.4%	37.7%	62.3%	39.3%	60.7%	50.9%	69.5%	52.5%	69.5%
Specificity	72.1%	94.3%	88.6%	94.3%	87.9%	93.2%	91.0%	93.2%	91.0%
Correctly classified	73.1%	77.1%	80.6%	77.6%	79.6%	80.2%	84.4%	80.7%	84.4%

Notes: This table reports the results for a set of probit regression models of the likelihood that an acquiring firm finances a deal with its equity (the dependent variable is FIN_EQUITY, which takes a value equal to 1 if an acquirer finances the deal with equity and to 0 if it finances the deal with either corporate cash reserves or debt). For easier interpretation and sake of brevity, only the average marginal effects of various probit regression models have been reported. p-values computed from standard errors robust to heteroskedasticity are given in parentheses. Model (1) includes only the main variables of interest; models (2), (4), (6), and (8) include only a set of control variables; models (3), (5), (7), and (9) include explanatory as well as control variables. While models (2), (3), (6), and (7) include ownership stake of insiders in the acquiring firm, models (4), (5), (8), and (9) include the square of this term. Models (1) through (5) do not control for industry-fixed effects of acquiring and target firms. In models (6) through (9), we control for acquirer as well as target industry dummies at the one-digit SIC level. The definitions of variables along with the source of data are given in Table 3. The procedure for selecting the sample is detailed in Table 4, and the summary statistics are provided in Table 5. Sensitivity (specificity) of a model provides the percentage of equity (cash or debt) deals that the model is able to predict correctly. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 8: Determinants of the sources of financing investments (acquisitions) for all firms

	Expected sign	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
WITHIN_GROUP	+	0.269***		0.110**		0.110**		0.131**		0.131**
		(0.000)		(0.042)		(0.042)		(0.013)		(0.013)
OUTSIDE_GROUP	-	-0.084		-0.153***		-0.152***		-0.117**		-0.116**
		(0.134)		(0.007)		(0.007)		(0.023)		(0.023)
CROSS_BORDER	-		-0.444***	-0.384***	-0.444***	-0.385***	-0.469***	-0.394***	-0.470***	-0.395***
			(0.001)	(0.002)	(0.001)	(0.003)	(0.000)	(0.000)	(0.000)	(0.000)
REL_SIZE	+		0.218***	0.206***	0.219***	0.207***	0.220***	0.204***	0.222***	0.206***
			(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
IND_REL	+		0.035	0.060	0.034	0.059	0.050	0.071*	0.049	0.071*
			(0.408)	(0.139)	(0.420)	(0.145)	(0.246)	(0.078)	(0.253)	(0.080)
CASH_TO_ASSETS	-		-0.035**	-0.034***	-0.035**	-0.034***	-0.041***	-0.037***	-0.041***	-0.038***
			(0.016)	(0.008)	(0.014)	(0.007)	(0.002)	(0.001)	(0.001)	(0.001)
DEBT_TO_ASSETS	-		-0.008	-0.006	-0.008	-0.006	-0.007	-0.007	-0.007	-0.007
			(0.547)	(0.639)	(0.540)	(0.639)	(0.611)	(0.636)	(0.607)	(0.639)
TOTAL_ASSETS	-		0.007	0.007	0.007	0.007	-0.002	-0.004	-0.003	-0.004
			(0.527)	(0.578)	(0.552)	(0.600)	(0.839)	(0.744)	(0.814)	(0.724)
INSIDER_OWN	-		-0.071	-0.038			-0.104	-0.085		
			(0.568)	(0.745)			(0.371)	(0.417)		
INSIDER_OWN_SQ	-				-0.097	-0.060			-0.123	-0.101
					(0.430)	(0.597)			(0.271)	(0.309)
SALES_GROWTH	+		-0.009	-0.014	-0.009	-0.015	0.007	0.002	0.007	0.001
			(0.741)	(0.604)	(0.726)	(0.594)	(0.779)	(0.924)	(0.803)	(0.949)
TARGET_PUBLIC	+		0.147***	0.126***	0.145***	0.125***	0.120**	0.091**	0.118**	0.090**
			(0.001)	(0.003)	(0.001)	(0.003)	(0.011)	(0.044)	(0.012)	(0.048)
CRISIS_2001	+		-0.162	-0.152	-0.164	-0.154	-0.213	-0.181*	-0.216	-0.183*
			(0.265)	(0.221)	(0.258)	(0.216)	(0.147)	(0.087)	(0.141)	(0.083)
CRISIS_2007_2009	+		0.189***	0.165***	0.190***	0.165***	0.188***	0.159***	0.189***	0.160***
			(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)

Acquirer industry fixed-effects	No	No	No	No	No	Yes	Yes	Yes	Yes
Target industry fixed-effects	No	No	No	No	No	Yes	Yes	Yes	Yes
Observations	320	320	320	320	320	318	318	318	318
Pseudo R^2	11.9%	26.3%	34.3%	26.4%	34.3%	33.9%	41.3%	34.0%	41.4%
Log pseudolikelihood	-163.122	-136.569	-121.743	-136.396	-121.646	-122.112	-108.390	-121.918	-108.246
Wald χ^2	42.624	50.983	66.924	50.826	66.718	72.087	93.699	72.252	93.678
Sensitivity	54.1%	44.7%	57.7%	45.9%	57.7%	51.7%	61.2%	54.1%	61.2%
Specificity	83.4%	93.6%	92.8%	92.8%	92.8%	94.0%	92.3%	94.0%	92.3%
Correctly classified	75.6%	80.6%	83.4%	80.3%	83.4%	82.7%	84.0%	83.3%	84.0%

Notes: This table reports the results for a set of probit regression models of the likelihood that an acquiring firm finances a deal with its equity (the dependent variable is FIN_EQUITY, which takes a value equal to 1 if an acquirer finances the deal with equity and to 0 if it finances the deal with either corporate cash reserves or debt). For easier interpretation and sake of brevity, only the average marginal effects of various probit regression models have been reported. p-values computed from standard errors robust to heteroskedasticity are given in parentheses. Model (1) includes only the main variables of interest; models (2), (4), (6), and (8) include only a set of control variables; models (3), (5), (7), and (9) include explanatory as well as control variables. While models (2), (3), (6), and (7) include ownership stake of insiders in the acquiring firm, models (4), (5), (8), and (9) include the square of this term. Models (1) through (5) do not control for industry-fixed effects of acquiring and target firms. In models (6) through (9), we control for acquirer as well as target industry dummies at the one-digit SIC level. The definitions of variables along with the source of data are given in Table 3. The procedure for selecting the sample is detailed in Table 4, and the summary statistics are provided in Table 5. Sensitivity (specificity) provides the percentage of equity (cash or debt) deals that the model is able to predict correctly. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.