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A new order of financing investments: 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 a market with the presence of business groups. We base our analysis on a sample of acquisitions, one of the largest forms of investments, made by India's publicly listed firms from 1997 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 the one hand, and either cash or debt on the other. We find that group-affiliated bidders have the greatest 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. The evidence of higher stock-financing of within-group acquisitions is robust to alternative explanations of tunneling and propping up in business groups.

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 most significant forms of investments, namely corporate acquisitions, made by firms from India, a country with one of the largest number of group-affiliated firms.[2]

Prior empirical evidence indicates that considerations of corporate control influence how firms choose to finance investments. Amihud et al. (1990) conjecture that corporate insiders of a firm prefer to finance acquisitions, one of the largest forms of investments, with either internal cash reserves or debt in a bid to retain the control over them. If an investment is financed with equity, the control of insiders may be diluted and, at worst, they could lose control of the firm (Harris and Raviv, 1988; Stulz, 1988). This set of arguments is popularly known as the control hypothesis in the literature (Martin, 1996).

While Amihud et al. (1990) confirm a negative and linear relationship between the likelihood of stock-financed acquisitions and

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[1] Rama Seth is on leave from the Indian Institute of Management Calcutta.
[2] Table 1 of Khanna and Yafeh (2007, p. 332) depicts India as having the largest number of firms affiliated with business groups among all of the countries under consideration for the study.

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insider ownership, Martin (1996) finds this negative relationship holds only for intermediate levels of ownership. Later empirical evidence from several different countries also lends support to the control hypothesis by demonstrating that the ownership of insiders in a firm undertaking an investment plays a crucial role in influencing the source of its financing (Faccio and Masulis, 2005; Gu and Reed, 2016; Martynova and Renneboog, 2009; Yook et al., 1999).

All prior studies have either been set in a context where the insiders of an acquirer and those of a target are almost always different sets of individuals, or they do not consider the possibility of having common insiders at the acquirer, as well as the target, when financing acquisitions. In markets with business groups, both in developing and developed countries, there is a distinct possibility that both the acquirer and the target belong to the same business group in case of corporate acquisitions, and thus, they share the same set of insiders.[3, 4]

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. The insiders of a group-affiliated firm in the case of an acquisition within the group do not risk losing their control over the acquiring firm even when the deal is financed with equity, unlike the acquisition of a firm not affiliated with the same group.[5] We conjecture that the way firms finance investments is motivated not only by the 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.

Additionally, there are two critical factors at play in markets with business groups that can potentially affect the way firms finance investments. First, the insiders of standalone and group-affiliated firms may not value control in the same way. The insiders of group-affiliated firms may value control more so than those of standalone firms as they may want to redistribute resources within their groups for overt or covert reasons in the future (George and Kabir, 2008). All else being equal, the insiders of group-affiliated firms may have a higher tendency to finance investments that could dilute their control with either cash or debt.

Second, group-affiliated firms are financially less constrained when compared to standalone firms (Masulis et al., 2011) owing to the presence of internal capital markets within their respective groups (Chang and Hong, 2000; Khanna and Palepu, 2000), as well as having better access to external capital markets (Ghatak and Kali, 2001; Shin and 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, due to higher financial constraints, could find it difficult to finance the same proportion of their acquisitions with either cash or debt and may have to issue 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. Our results are robust to alternative explanations of agency conflicts, which are manifested in the form of tunneling and propping up in business groups, between the majority and minority shareholders.

We focus on only one kind of investment, namely, corporate acquisitions, for two reasons. First, corporate acquisitions are generally large investments and, as such, 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. Additionally, as noted in Amihud et al. (1990), unlike an acquisition where the mode of payment is quite often disclosed publicly, the financial statement of a firm is usually devoid of the sources of financing investments. Thus, it may be difficult, if not impossible, to obtain the sources of financing investments other than acquisitions. We limit the classification of the method of financing investments into two broad categories: first, cash or debt, and second, equity.[6] These classifications fit the purpose of this study as we only need to classify the sources of financing investments into two broad categories, ones that may dilute the control of insiders and the others that do not.

We choose India as a setting of our study for two primary reasons. First, India is home to one of the largest numbers of group-affiliated firms (Khanna and 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 invest within their respective groups vis-à-vis when they invest outside their groups, and contrast the same with that of standalone firms. In addition, 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 could change if it is acquired

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

[4] Following La Porta, Lopez-de-Silanes, Sheifer, and Vishny (2000), we use a broader definition of insiders that encompasses controlling shareholders of a firm in addition to its managers and directors. Using this definition, the promoters (or the promoter group) of a company, who directly or indirectly control its affairs using their positions as shareholders, directors, or managers, can be termed as insiders. The board of directors is accustomed to acting on the advice of the promoters. See www.mca.gov.in/SearchableActs/Section2.htm (last accessed on April 23, 2017) for a detailed definition of promoters given in the Indian Companies Act, 2013. We use the terms “promoters” and “insiders” synonymously throughout this paper.

[5] We use the terms “acquisitions,” “takeovers,” and “mergers” interchangeably throughout this paper.

[6] If a publicly listed acquirer is paying 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. This possibility, however, is rare in practice and can be ruled out. In the robustness tests, we check for this possibility. We do not find any acquiring firm in our sample that has paid the target shareholders with cash, raising money through either follow-on public offerings or rights issues between the dates of the announcement and completion of the deal.

later on by another group-affiliated acquirer. In the absence of historical data pertaining to the group affiliations of both the acquiring and the target firms, the inferences drawn are likely to be highly biased at best. The availability of historical group affiliation data is crucial for the purpose of this study, and this data has recently become available in the Indian context.[7] We base our analysis on this unique hand-matched dataset of successfully completed takeover bids announced by India's publicly listed firms over the period 1997–2016.

We contribute to several strands of literature. First, we add to the literature on investment financing by demonstrating that in order to obtain a complete picture of investment financing, it is imperative to distinguish whether the parties to the investment decision, an investor and an investee, share the same set of insiders. We also document the relevance of certain factors in firm financing including a firm's reputation in the capital markets, access to sources of alternative finance, and the existence of debt guarantees, which are often ignored in the literature on firm financing. Our view is also consistent with Allen et al. (2012), who find that alternative finance, a form of non-market and non-bank financing, is an important channel of firm financing in emerging markets like India.

Second, we contribute to the literature on business groups by demonstrating how differently group-affiliated firms finance their investments relative to standalone firms. The prior research does not distinguish between the acquisition financing choices of standalone and that of group-affiliated firms (see, for example, Yang et al., 2019). We show that financing decisions of group-affiliated firms could be very different depending upon whether an affiliate makes an acquisition within or outside the group. Failure to distinguish between the two possibilities may lead us to arrive at erroneous conclusions about the differences in the acquisition financing choices of standalone and group-affiliated firms.

Finally, we also contribute to the burgeoning literature on mergers and acquisitions by providing additional factors that future studies should take into account when explaining the method of payment choices in countries with business groups. We also extend the strand of literature that calls for moving beyond the narrow lens of studying the effect of focal firms' ownership structure on their acquisition decisions without taking into account the possibility of overlapping ownership (Goranova et al., 2010).

The rest of the paper is organized as follows. In Section 2, we provide an overview of the Indian context with a focus on its institutional setting. In Section 3, we review the related literature and develop our hypotheses. Section 4 describes our research design, while Section 5 describes the data and the sample selection steps. In Sections 6 and 7, we report the results of our empirical analyses and check their robustness, respectively. In Section 8, we conclude.

2. The Indian context and the institutional setting

Unlike the U.S. market, the Indian corporate landscape is dominated by firms with concentrated shareholdings in the hands of founding families, popularly known as promoters in India (Narayanaswamy et al., 2012). The promoters of a firm directly or indirectly control its affairs using their positions as shareholders, directors, or managers, and its board of directors is accustomed to acting on their advice.[8] That is why it is very common to term promoters of a firm as its insiders. The mean insider shareholding in the listed companies in India has hovered around 50% historically (Balasubramanian et al., 2010; Chakrabarti et al., 2008; Sarkar and Sarkar, 2008).

Approximately 60% of the top 500 Indian firms, which comprise 65% of the market capitalization, are affiliated to business groups (Chakrabarti et al., 2008; Jackling and Johl, 2009). Each business group essentially comprises of a set of legally independent firms having common insider ownership. A vast majority of both group-affiliated and standalone firms are family firms in India.[9] In fact, about 91% of the listed firms in India are family firms with standalone firms comprising 63% of the total number of family firms (Bang et al., 2017). Since both group-affiliated and standalone firms are predominantly family firms in India, it is not surprising that both of these types of firms have concentrated shareholding in the hands of insiders.

Investor and creditor protection regulations come in several forms including those related to securities, company, and bankruptcy laws (La Porta et al., 2000). Despite having a well-functioning stock market since 1875 and a corpus of strong corporate governance regulations (*de jure* protection), India has offered poor de facto protection to investors due to poor enforcement of these regulations (Allen et al., 2012; Chakrabarti et al., 2008; Dharmapala and Khanna, 2013). Also, prior to the promulgation of the Insolvency and Bankruptcy Code, 2016, the bankruptcy regime in India has been inefficient. The erstwhile bankruptcy law, the Sick Industrial Companies (Special Provisions) Act of 1985, relied on accounting numbers of a firm for determining its bankruptcy rather than its inability to pay creditors and favored a firm's management over its creditors (Gopalan et al., 2016). Under this law, all legal lawsuits filed by creditors against the defaulting firms remained suspended, there was a moratorium on the repayment of principal or the payment of interest on debt, and insiders continued to control their firms during the process of reorganization (Gopalan et al., 2016; Gopalan et al., 2007). In an environment that lacked strongly enforced regulations, insiders had strong incentives to derive private benefits of control (La Porta et al., 2000).

[7] 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.

[8] See www.mca.gov.in/SearchableActs/Section2.htm (last accessed on April 23, 2017).

[9] It is commonly perceived that all group-affiliated firms are family firms, and all standalone firms are non-family firms. However, this is not necessarily true. A group-affiliated firm can be a non-family firm, and a standalone firm can be a family firm. The prominent examples of non-family group-affiliated firms in India include firms like those belonging to Larsen & Toubro and ITC groups.

3. Related literature and hypotheses development

In this section, we review and analyze the arguments related to considerations of control and financial constraints that are likely to play an important role in deciding how investments can be financed in markets with the presence of business groups.

3.1. Considerations of control

Prior research indicates that corporate control is one of the critical factors influencing how firms tend to finance investments. Amihud et al. (1990) are the first to empirically demonstrate, for a sample of U.S. acquirers, that insiders of a firm prefer to finance acquisitions with either cash or debt to retain their control, as well as to avoid the dilution of their stake in the firm. In another study, Martin (1996) finds that insider stake has a non-linear relationship with the likelihood of stock financing of acquisitions using a sample of U.S. firms. In particular, the negative relationship between the probability of stock-financed acquisitions and insider stake, which is known as the control hypothesis, holds only over an intermediate range of ownership levels in the acquiring firms. Ghosh and Ruland (1998) and Faccio and Masulis (2005) lend credibility to Martin's (1996) study by demonstrating that the incentives to pay shareholders of target firms with cash or debt are more pronounced over an intermediate range of insider ownership in the acquiring firms for a sample of U.S. and European acquirers, respectively. In a recent study, Gu and Reed (2016) also confirm that marginal control of insiders in the acquiring firms influences how these firms pay target shareholders.

None of the studies, to the best of our knowledge, addresses the question as to how firms finance acquisitions when the acquiring and target firms share the same set of insiders. This scenario is particularly applicable to markets with business groups where within-group investments are not uncommon. We postulate that blind application of the control hypothesis to markets with business groups is likely to yield inconsistent results if the possibility of common insider ownership in the acquiring and target firms is not taken into account. Our arguments are consistent with the stream of the literature that calls for taking into account the possibility of overlapping ownership in the context of takeover decisions (Goranova et al., 2010).

In a market with the presence of business groups, 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 acquisition), a group-affiliated firm acquiring either a standalone firm or a firm affiliated with a different group (outside-group acquisition), and a standalone firm acquiring either a group-affiliated firm or another standalone firm (standalone acquisition). We represent the classification of acquisitions pictorially in Fig. 1. These different sets of acquisitions are likely to differ from one another in terms of considerations of control, as well as financial constraints, in addition to several acquirer, deal, and target characteristics. Thus, they are also likely to

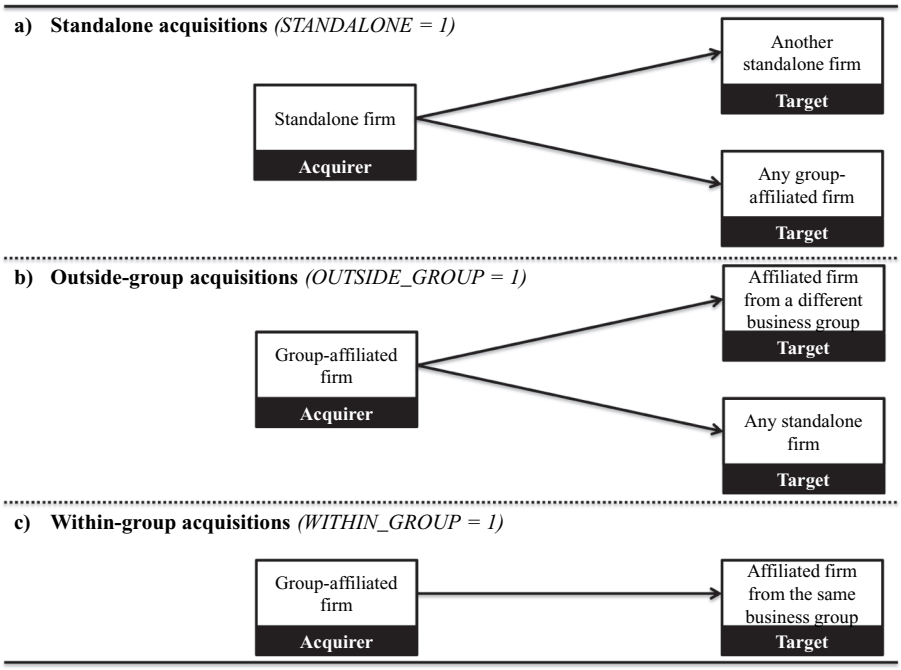

Fig. 1. Classification of acquisitions in markets with business groups into three broad categories.
This figure presents the classification of acquisitions in markets with the presence of business groups into three broad categories: standalone, within-group, and outside-group acquisitions. Standalone acquisitions refer to acquisitions made by standalone (non-affiliated) acquirers of either standalone firms or firms from a business group. Outside-group acquisitions refer to acquisitions made by group-affiliated firms of either standalone firms or firms from a different business group. Within-group acquisitions refer to acquisitions made by group-affiliated firms of firms affiliated with the same business group.

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 (%)	$\frac{\alpha * N_{tgt} * X_{tgt}}{N_{acq} + \alpha * N_{tgt}}$	–

This table reports how the control of insiders of an acquirer and that of a target is impacted in a stock-financed acquisition. N_{acq} and N_{tgt} denote the number of shares and X_{acq} and X_{tgt} indicate the fraction of total shares outstanding of the acquiring and the target firms, respectively, prior to the acquisition. It is assumed that the acquiring firm acquires a 100% stake in the target firm by issuing new shares to the target shareholders with a negotiated exchange ratio of α (i.e., 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.

have different financing outcomes.

In the case of a cash- or debt-financed acquisition, the stake of the insiders in the acquiring firm remains unaffected after the acquisition is complete. However, if an acquirer uses its stock to pay target shareholders, the insiders' stake in the acquirer could come down, and there is a possibility of the insiders losing their control in the acquiring firm post-acquisition in case a different set of insiders controls 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 the 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 the shares in the acquiring firm after the acquisition, and their control over the acquiring firm remains unaffected. Alternatively, in the case where the acquirer makes payment with its stock to the target shareholders, it generally issues new shares to the target shareholders (Erickson and Wang, 1999). If α is the negotiated exchange ratio (i.e., 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% acquisition of the target. The issue of shares to the target shareholders brings down the stake of the acquiring firm's insiders to $\frac{N_{acq} * X_{acq}}{N_{acq} + \alpha * N_{tgt}}$, while the target firm's insiders obtain a stake of $\frac{\alpha * N_{tgt} * X_{tgt}}{N_{acq} + \alpha * N_{tgt}}$ in the combined firm. We summarize the impact on insider holdings in the case of a stock-financed acquisition for both the acquirer and the target in Table 1.

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

We illustrate with an example as to how considerations of control can become virtually unimportant to 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 demonstrates 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 the Tata Group of companies, held an 80.64% stake in TCS and a 74.18% 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% after the merger.[10] Irrespective of the means of financing, the promoter stake would have changed very little after the merger as 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.

Alternatively, if the acquirer is a standalone firm in the case of a stock-financed acquisition, the insiders of the firm not only suffer

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

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

This table reports how the control of an acquirer's insiders is impacted after it acquires a target in a stock-financed acquisition that can take any one of the following three forms: standalone acquisition, within-group acquisition, or outside-group acquisition. Standalone acquisitions refer to acquisitions made by standalone (non-affiliated) acquirers. Outside-group acquisitions refer to acquisitions made by group-affiliated firms of either standalone firms or firms affiliated with different business groups. Within-group acquisitions refer to 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} indicate the fraction of total shares outstanding of the acquiring and the target firms, respectively, prior to the acquisition. It is assumed that the acquiring firm acquires a 100% stake in the target firm by issuing new shares to the target shareholders with a negotiated exchange ratio of α (i.e., for every share of the target firm the target shareholders receive α shares of the acquiring firm).

dilution in their stake, but also stand the 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 the acquiring and target firms in Table 2.

3.2. Financial constraints

When compared to standalone firms, group-affiliated firms face fewer financial constraints (Lensink et al., 2003; Masulis et al., 2011; Shin and Park, 1999), which could stem from the existence of internal capital markets, as well as better access to external capital markets. Group-affiliated firms enjoy the advantages of internal capital markets (Almeida et al., 2015; Carney et al., 2011; Chang and Hong, 2000; Gopalan et al., 2007; Gopalan et al., 2014; Khanna and Palepu, 2000) whose role becomes especially important when the external capital markets are not fully developed. Internal capital markets within business groups, an alternative financing channel, may help the affiliated firms to finance their projects with positive net present values that may otherwise be difficult to finance in markets with underdeveloped external capital markets (Allen et al., 2012), as well as during and immediately after a financial crisis (Almeida et al., 2015). Standalone firms do not have access to this form of financing. Additionally, group-affiliated firms can borrow from other firms within their respective groups at a rate lower than that of the external capital market (Gopalan et al., 2007; Liebeskind, 2000).

In addition to the presence of internal capital markets, group-affiliated firms are likely to have better access to external capital markets, particularly debt markets, than standalone firms do. Group-affiliated firms' improved access to debt financing stems from two reasons. First, financial institutions are likely to prefer lending to reputed firms. This especially holds true in emerging markets like India where investor protection regulations have been relatively weak (Dharmapala and Khanna, 2013; Khanna and Rivkin, 2001). In such environments, the name of a group acts as a substitute for a high quality or a reputed brand for gaining credibility among investors (Khanna and Palepu, 2000; Lensink et al., 2003). In addition, the presence of intra-group debt guarantees among the member firms of a business group facilitates access to external financing (Ghatak and Kali, 2001; Shin and Park, 1999). We argue that due to fewer financial constraints, affiliated firms are likely to find it easy to fund their investments with cash or debt compared to standalone firms.

3.3. Hypotheses development

An acquirer may have a different set of incentives for financing different types of acquisitions. The considerations of control, as discussed in Section 3.1, become important primarily in the case of outside-group acquisitions, as well as that of standalone acquisitions. This is because, if these investments are financed with stock, the control of the insiders will be diluted or at times even lost. Thus, the insiders of group-affiliated firms in the case of outside-group acquisitions, as well as those of standalone firms making acquisitions, have incentives to finance these investments with either internal cash reserves or debt to keep the control preserved with them. In the case of within-group acquisitions, on the other hand, the control of the insiders remains largely unaffected irrespective of whether the deal is financed with cash, debt, or equity.

Other than the considerations of control, within-group acquisitions are also likely to differ from standalone, as well as outside-group acquisitions, in terms of the extent of information asymmetry between acquirers and targets. Unlike standalone and outside-group acquisitions, there is little or no information asymmetry between acquirers and targets in case of within-group acquisitions. This has two important implications from the standpoint of financing of within-group acquisitions. First, the targets are better informed about the stock prices of the acquiring firms within their respective business groups, and they may not be averse to receiving the equity of acquiring firms. Second, since the acquirers too are equally informed about the stock prices of the target firms,

misevaluation of the targets is no more a reason for the acquiring firms to finance their within-group acquisitions with stock.[11] We, therefore, argue that the information asymmetry considerations should not influence the financing of within-group acquisitions.[12]

We conjecture that the insiders of group-affiliated acquirers have incentives to conserve cash for financing future investments where they stand a risk of diluting or even losing their control. Thus, they may not want to use cash for financing within-group acquisitions in which their control remains largely unaffected even if these acquisitions are financed with equity. 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 with outside-group or standalone acquisitions. Based on the above arguments, we propose the following hypotheses:

Hypothesis 1. When compared to outside-group acquisitions, group-affiliated acquirers have a greater propensity to finance within-group acquisitions with stock.

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

Financial constraints also play an important role in markets with business groups that can potentially affect the way firms finance investments. Standalone firms, in line with our discussion in Section 3.2, are financially more constrained relative to 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 despite not having sufficient cash or bank balance on its books. Due to lower financial constraints on account of the presence of internal capital markets and enhanced access to external capital markets (Gopalan et al., 2007, 2014; Khanna and Palepu, 2000; Masulis et al., 2011; Shin and Park, 1999), group-affiliated firms are likely to find it quite 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, the insiders of standalone firms could find it difficult to finance the same proportion of their acquisitions with either cash or debt due to greater financial constraints and may have to issue equity to the target shareholders.

Apart from facing lower financial constraints, we argue that insiders of group-affiliated firms may value corporate control more than those of standalone firms. Control may be especially important to the insiders of group-affiliated firms to facilitate the redistribution of resources within their groups (George and Kabir, 2008). The redistribution of resources, which can take several forms including intra-group loans (Buchuk et al., 2014; Gopalan et al., 2007), payment of dividends (Goldman and Viswanath, 2017), transfer pricing, or other financial transactions, may be necessary for several reasons, such as smoothing liquidity across firms (Khanna and Yafeh, 2005), providing support to financially weaker firms to avoid negative spillovers to rest of the group (Gopalan et al., 2007), and financing positive net present value projects within the group (Almeida et al., 2015; Gopalan et al., 2014). Insiders of group-affiliated firms may also use the control for their private benefits (Bae et al., 2002; Bertrand et al., 2002; Johnson et al., 2000). Irrespective of the form of redistribution of resources and whether it is efficient or opportunistic, the loss of control is likely to be more costly for the insiders of group-affiliated firms than those of standalone firms. Based on the arguments related to financial constraints and differential control preferences, we propose the following hypothesis:

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

We depict all the three hypotheses pictorially in Fig. 2.

4. Research design

To test how differently group-affiliated firms finance their within-group acquisitions compared to outside-group acquisitions (Hypothesis 1), we employ 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 Eq. (1), *FIN_EQUITY*, is an indicator variable to represent the mode of financing of an acquisition deal. This variable takes the value 1 if an acquirer finances the deal with equity, and 0 if it finances the deal with either its corporate cash reserves or debt. Our primary explanatory variable of interest in this equation, *WITHIN_GROUP*, is again an indicator variable that 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 Eq. (1), if an acquisition is not within the same group of the affiliated acquirer, it has to be outside its group. Thus, the indicator variable for outside-group acquisitions, *OUTSIDE_GROUP*, is perfectly collinear with *WITHIN_GROUP*. As such, we omit the indicator variable *OUTSIDE_GROUP* from our research design. The sign and the magnitude of the coefficient on *WITHIN_GROUP* appears relative to that on

[11] Hansen (1987) argues that an acquirer may prefer to finance investments with its stock in case where it is less informed about value of the target making the target shareholders share the misvaluation effects after its acquisition.

[12] We capture the role of information asymmetry in influencing the financing of corporate acquisitions using relative deal size and industry relatedness variables.

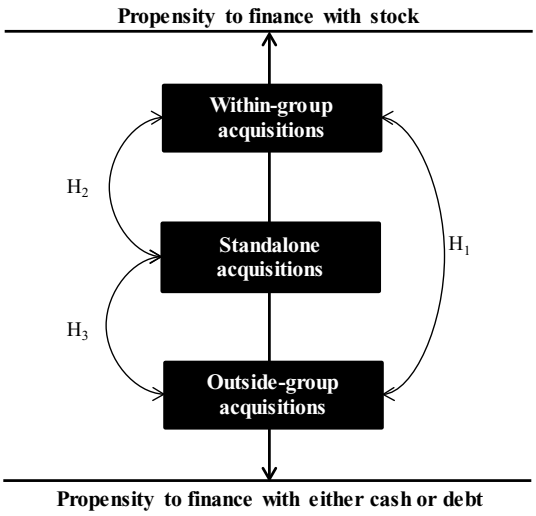

Fig. 2. The proposed order of financing investments in markets with business groups.
This figure provides the proposed order of financing different kinds of acquisitions with stock and either cash or debt. Standalone acquisitions refer to acquisitions made by standalone (non-affiliated) acquirers. Outside-group acquisitions refer to acquisitions made by group-affiliated firms of either standalone firms or firms from a different business group. Within-group acquisitions refer to 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, and depict how the three categories of acquisitions differ in terms of their mode of financing by acquirers.

OUTSIDE_GROUP. We expect a positive and significant coefficient on *WITHIN_GROUP* after controlling for variables that are likely to influence the method of payment in line with the prior literature.

Further, to examine how differently 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:

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

In Eq. (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 must be the one made by a standalone bidder. This implies that the indicator variable for standalone acquisitions, *STANDALONE*, is perfectly collinear with a linear combination of *WITHIN_GROUP* and *OUTSIDE_GROUP* indicator variables and it has, as such, been omitted from the research design. The sign and the magnitude of the coefficients on the indicator variables *WITHIN_GROUP* and *OUTSIDE_GROUP* appear relative to that on *STANDALONE*. 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. Thus, we expect the coefficient on *WITHIN_GROUP* to be positive and that on *OUTSIDE_GROUP* to be negative after controlling for the acquirer, target, and deal characteristics given in the prior literature. The discussion of the control variables is given in Internet Appendix IA.1.

Our research design is highly unlikely to suffer from the problem of simultaneity or reverse causality for two reasons. First, we employ the affiliation status of the acquiring and the target firms (in addition to the financial variables) prior to the acquisition announcement. In addition, it is just not possible for an acquiring firm to change its affiliation (from a standalone to a group-affiliated firm, from a group-affiliated to a standalone firm, or from one group-affiliated to another group-affiliated firm) in anticipation of the mode of financing of an acquisition deal. Therefore, we can safely attribute the method of financing of a deal to our main variables of interest after controlling for the variables given in the prior literature.

5. Data and descriptive statistics

We obtain our initial sample from the Thomson Reuters' Thomson One database. It includes acquisitions announced by publicly listed Indian bidders over the period 1995–2016 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 et al., 2014; Bhaumik and Selarka, 2012). Our sample spans a period before, as well as after, the global financial crisis. We remove those deals for which the deal size is unavailable as this is one of the important factors in determining how a deal may be financed. We consider only those deals for which acquirers have paid shareholders of the target firms either completely with cash or completely

with stock.[13]

We combine the deal data from Thomson One with group-affiliation and firm financial data from the Prowess database maintained by the Centre for Monitoring Indian Economy (CMIE).[14] 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 (see, for examples, Khanna and Palepu (2000), Bertrand et al. (2002), and Gopalan et al. (2014)). Since data from Thomson One does not include firm identifier information for the acquirers and the targets for most of the deals in our sample, we use text-based, as well as hand-matching, of company names from the two databases. We also take into account the changes in company names to ensure that we do not miss those deals where the firms changed their names. We drop those deals where we could not match the acquirer names from the two databases.

We exclude the deals in which the acquirers are public sector undertakings as the government could aid in the financing of these deals even if the acquiring firms are unable to finance the deals on their own. As is standard in the literature, we exclude the deals undertaken by financial firms, as well as repurchase deals. We also drop the deals undertaken by group-affiliated acquirers where the affiliation of the target firms could not be ascertained. In the case where we find deals with the same acquirer and target names announced on the same day, we club all such deals together. We drop those deals in which the acquirers' financial data for any of the variables of interest is missing in CMIE Prowess. The final sample consists of 360 deals made by 235 unique acquirers. We provide the criteria for selecting our sample in Table 3.

Table 4 summarizes the distribution of acquisitions by year, type, and industry. Among 360 acquisitions, 149 (41.4%) are made by standalone firms (standalone acquisitions) and the remaining 211 (58.6%) by group-affiliated firms. Of 211 acquisitions made by group affiliates, in 93 (25.8% of the overall sample) cases both the acquirer and the target belong to the same business group (within-group acquisitions). In the remaining 118 (32.8% of the overall sample), the target is either a standalone firm or a firm affiliated with a group different from that of the acquirer (outside-group acquisitions). The acquisition activity is relatively scarce prior to 2005. Further, the activity is dominated by acquirers from materials and hi-tech industries, and these industries together constitute 43% of the sample acquisitions.

Panel A of Table 5 provides the descriptive statistics for our overall sample, while Panel B of Table 5 reports the descriptive statistics based on the classification of the acquisitions into three categories: standalone acquisitions, within-group acquisitions, and outside-group acquisitions. Twenty-eight percent of the sample acquisitions are financed with equity. The distribution of financing, however, varies across the three categories. While only 14% of outside-group acquisitions are financed with equity, 59% of within-group acquisitions are financed with equity. The financing of standalone acquisitions with equity stands at 19%, which lies in-between that of within-group and outside-group acquisitions. This is in line with our expectations. The differences in the mean as well as median values of 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 (median) ownership of the insiders in the acquiring firms is 50% (51%). The differences in the means and medians of equity ownership of the insiders between any two categories are not statistically significant, which is consistent with the study by Sarkar and Sarkar (2008).[15] This is not surprising considering that a vast majority of both group-affiliated and standalone firms in India are family firms (Bang et al., 2017). This also indicates that the ownership of insiders in the acquiring firms is unlikely to be a reason for differences in the pattern of financing among the three categories.

6. Empirical analyses

6.1. Comparison of acquirers on control considerations and financial constraints

We first compare acquirers in the three sets of acquisitions in our sample with one another depending on whether the financing of these acquisitions with stock can lead to dilution of the insiders' stake in acquiring firms. We call such acquisitions as *potentially control-diluting* acquisitions. The results given in Panel A of Table 6 indicate that while all (100%) of the outside-group, as well as standalone acquisitions, are potentially control diluting, a significantly lower percentage (26%) of within-group acquisitions have the

[13] There are very few deals by Indian acquirers during our sample period that are financed using a mix of cash and stock. Thus, we 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. Nonetheless, our robustness check reveals that our results remain robust to the inclusion of hybrid deals in the sample.

[14] Consistent with Sarkar et al. (2008), we recognize that financial data obtained from CMIE Prowess is sometimes different from that reported in the annual reports of firms. This is primarily because CMIE reclassifies certain items using notes or schedules accompanying the income statement, as well as the balance sheet items, to make the numbers of various firms comparable with one another. We cross-check our sample data from Prowess with that from Ace Equity, a database maintained by Accord Fintech. In the case of unavailability of certain records in Ace Equity, we compile the data from annual reports of firms. A careful scrutiny of the records reveals that data from Prowess does not differ too much with that from Ace Equity. Wherever the percentage difference between the numbers reported in Prowess and those in Ace Equity (expressed as a percentage of the numbers reported in the Ace Equity) exceeds 25%, we hand-collect this data from the annual reports of these firms and use the corrected data in our empirical analyses. However, we rely solely on the Prowess database for the group-affiliation data. Thus, we ensure that our results are largely free from the data credibility issues.

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

Table 3
Sample selection.

Step	Count
Number of deals announced and successfully completed by Indian public acquirers from 1995 to 2016 with known transaction values	1560
Less: deals with method of payment unknown or undisclosed or hybrid	(810)
Less: deals undertaken by acquirers that could not be found in CMIE Prowess	(13)
Less: deals undertaken by government acquirers	(19)
Less: deals undertaken by financial firms	(69)
Less: deals where the acquirer and target are the same (i.e., repurchase deals)	(68)
Less: deals where it cannot be ascertained whether the deal is within a business group or outside the group	(177)
Less: reduction in number of observations due to clubbing of deals with the same announcement dates, acquirers, and targets	(19)
Less: deals where data on any of the explanatory variables is missing	(25)
Final sample	360

This table details the step-by-step procedure to arrive at the final sample of 360 acquisitions. While the sample period starts from 1995 through 2016, there is no acquisition deal satisfying all of the sample selection steps from 1995 and 1996. Thus, the final sample pertains to acquisitions made by India's publicly listed firms from 1997 to 2016.

potential to do the same. Even though about 26% of the within-group acquisitions in our sample lead to the dilution of the insiders' stake in acquiring firms, the extent of dilution, on average, is less than 1 percentage point in these control-diluting cases. In contrast, standalone (outside-group) acquisitions lead to the dilution of the stake of acquiring firms' insiders by 7.2 (6.4) percentage points, which is significantly higher when compared to that of within-group acquisitions.

Further, when we classify an acquisition as *potentially control threatening* depending on whether its financing with stock can bring down the stake of the acquiring firm's insiders below any of the three critical thresholds – 25%, 50%, and 100% – relative to their stake prior to the acquisition, we observe that only about 1% of within-group acquisitions are potentially control threatening.[16] In contrast, 27% (28%) of standalone (outside-group) acquisitions are potentially control threatening. Both standalone and outside-group acquisitions are similar to each other in terms of dilution of or threat to control. Thus, the considerations of control are important primarily for standalone and outside-group acquisitions, but not for within-group acquisitions.

In addition, we check the extent of financial constraints faced by acquirers in our different sets of acquisitions. We employ the size-age index given by Hadlock and Pierce (2010) to measure the degree of financial constraints. We observe in Panel B of Table 6 that standalone acquirers are significantly more financially constrained relative to group-affiliated acquirers in within-group as well as outside-group acquisitions. Thus, even though standalone and outside-group acquisitions are quite similar in terms of control considerations, standalone acquirers are likely to find it difficult to finance their acquisitions with cash or debt to the same extent as acquirers in outside-group acquisitions.

6.2. Main results

Following the specifications of Eq. (1), Table 7 reports the multivariate results for a set of probit regression models with heteroskedasticity-robust standard errors clustered at the acquirer level for a subsample of 211 acquisitions, all made by group-affiliated acquirers. The results indicate how differently group-affiliated firms finance their within-group acquisitions compared to outside-group acquisitions. Consistent with Hypothesis 1, the results shown in Table 7 indicate that the coefficient on *WITHIN_GROUP* is significant at the 1% level in all the models, lending support to Hypothesis 1.[17] In particular, Models (3) and (4) indicate that within-group acquisitions, on average, have about 21 to 22 percentage points greater likelihood of being financed with equity than that of outside-group acquisitions, which is both statistically and economically significant.

Next, following the specification in Eq. (2) and using our entire sample of 360 acquisitions, we examine how differently group-affiliated firms finance their acquisitions compared to standalone firms. In Table 8, we report the results of this sample for a set of probit regression models with heteroskedasticity-robust standard errors clustered at the acquirer level. Consistent with Hypothesis 2, we find the coefficient on *WITHIN_GROUP* to be positive and significant at the 1% level across Models (1)–(4) 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 5% level across Models (1)–(4) lending support to Hypothesis 3 that outside-group acquisitions are financed, to a lesser extent, with equity compared to standalone acquisitions.

In terms of economic significance, Models (3) and (4) in Table 8 reveal that within-group (outside-group) acquisitions, on average, have about 14 (10) percentage points greater (less) likelihood of being financed with equity when compared to acquisitions

[16] Our choice of the critical thresholds of 25%, 50%, and 75% for defining the threat to control is based on regulations related to seeking shareholders' approval for key corporate actions. Indian regulations require at least 50% (75%) favorable shareholder votes for passing ordinary (special) resolutions. As such, blockholders that have at least a 25% stake can potentially block all special resolutions from getting passed (Bhaumik and Selarka, 2012; Jetley and Mondal, 2015).

[17] Year fixed effects are based on the year of completion of the deals and industry fixed effects are based on the acquirer's industry at the one-digit SIC level in all of the estimation models. The results remain robust to the inclusion of year fixed effects based on the year of announcement of the deals. Further, the inclusion of fixed effects narrows down the number of acquisitions in the sample because the deals for which the year and the acquirer industry indicators completely determine the mode of financing are dropped by the estimation models.

Table 4
Acquisition activity.

Panel A: Distribution by year and acquisition type

	Overall		Standalone		Within-group		Outside-group	
	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
1997	2	0.6	0	0.0	2	2.2	0	0.0
1998	5	1.4	2	1.3	0	0.0	3	2.5
1999	6	1.7	0	0.0	1	1.1	5	4.2
2000	10	2.8	4	2.7	5	5.4	1	0.8
2001	8	2.2	1	0.7	3	3.2	4	3.4
2002	11	3.1	6	4.0	3	3.2	2	1.7
2003	12	3.3	6	4.0	1	1.1	5	4.2
2004	3	0.8	0	0.0	2	2.2	1	0.8
2005	18	5.0	6	4.0	7	7.5	5	4.2
2006	22	6.1	12	8.1	3	3.2	7	5.9
2007	33	9.2	17	11.4	5	5.4	11	9.3
2008	22	6.1	8	5.4	7	7.5	7	5.9
2009	28	7.8	13	8.7	13	14.0	2	1.7
2010	34	9.4	13	8.7	11	11.8	10	8.5
2011	22	6.1	6	4.0	5	5.4	11	9.3
2012	24	6.7	4	2.7	12	12.9	8	6.8
2013	20	5.6	10	6.7	3	3.2	7	5.9
2014	12	3.3	3	2.0	1	1.1	8	6.8
2015	42	11.7	26	17.4	6	6.5	10	8.5
2016	26	7.2	12	8.1	3	3.2	11	9.3
Total	360	100.0	149	100.0	93	100.0	118	100.0
Percentage	100.0		41.4		25.8		32.8	

Panel B: Distribution by acquirer industry

	Number	Percentage
Consumer Products and Services	30	8.3
Consumer Staples	43	11.9
Energy and Power	16	4.4
Healthcare	40	11.1
High Technology	70	19.4
Industrials	45	12.5
Materials	85	23.6
Media and Entertainment	14	3.9
Real Estate	9	2.5
Retail	2	0.6
Telecommunications	6	1.7
Total	360	100.0

This table lists the distribution of acquisitions from 1997 to 2016. Panel A reports the number, as well as the percentage, of acquisitions made by Indian acquirers across each year by three types: standalone, within-group, and outside-group acquisitions. Standalone acquisitions refer to acquisitions made by standalone (non-affiliated) acquirers. Outside-group acquisitions refer to acquisitions made by group-affiliated firms of either standalone firms or firms affiliated with different business groups. Within-group acquisitions refer to acquisitions made by group-affiliated firms of firms affiliated with the same business group. Panel B provides the distribution of acquisitions based on the broad industry classification of the acquiring firms.

by standalone firms. Consistent with the prior literature, we also find that the acquirers' propensity to finance deals with equity is greater in case of domestic deals, deals that are large relative to their size, deals involving public targets, and deals announced during the period of the global financial crisis.

In unreported results, we find that if we use a single indicator variable to denote the acquisitions made by group-affiliated acquirers instead of segregating them into within-group and outside-group acquisitions, we do not find this indicator variable to be significant. We could erroneously conclude that the acquisition financing choices of group-affiliated and standalone firms are not significantly different from each other. This is because the financing decisions of group-affiliated firms are very much dependent upon whether an affiliate makes an acquisition within or outside the group (as can be seen from Fig. 2). Thus, failure to distinguish between within-group and outside-group acquisitions may lead us to arrive at erroneous conclusions about the differences in the acquisitions financing choices of standalone and group-affiliated firms.

Table 5
Descriptive statistics

Panel A: Descriptive statistics for the overall sample

Variable	N	Mean	St Dev	Min	Q1	Median	Q3	Max
FIN_EQUITY	360	0.28	0.45	0	0	0	1	1
WITHIN_GROUP	360	0.26	0.44	0	0	0	1	1
OUTSIDE_GROUP	360	0.33	0.47	0	0	0	1	1
STANDALONE	360	0.41	0.49	0	0	0	1	1
CROSS_BORDER	360	0.23	0.42	0	0	0	0	1
REL_SIZE	360	0.37	1.00	0.00	0.01	0.06	0.25	10.95
IND_REL	360	0.38	0.48	0	0	0	1	1
CASH_TO_ASSETS	360	0.08	0.12	−0.05	0.01	0.03	0.11	0.72
DEBT_TO_ASSETS	360	0.21	0.17	0	0.05	0.18	0.34	0.73
TOTAL_ASSETS	360	9.41	1.98	1.74	8.13	9.40	10.72	14.74
INSIDER_OWN	360	0.50	0.20	0.08	0.33	0.51	0.66	0.94
INSIDER_OWN_SQ	360	0.29	0.20	0.01	0.11	0.26	0.43	0.89
MARKET_TO_BOOK	360	3.59	23.88	0.10	0.82	1.59	2.76	451.70
TARGET_PUBLIC	360	0.38	0.49	0	0	0	1	1
CRISIS_2001	360	0.02	0.15	0	0	0	0	1
CRISIS_2007_2009	360	0.23	0.42	0	0	0	0	1

Panel B: Descriptive statistics for various subgroups

	Standalone acquisitions (A) $N = 149$		Within-group acquisitions (B) $N = 93$		Outside-group acquisitions (C) $N = 118$		Test of difference (B - A)		Test of difference (C - A)		Test of difference (B - C)	
	Mean	Median	Mean	Median	Mean	Median	t-test	Wilcoxon z-test	t-test	Wilcoxon z-test	t-test	Wilcoxon z-test
FIN_EQUITY	0.19	0	0.59	1	0.14	0	***	***	NS	NS	***	***
CROSS_BORDER	0.37	0	0.00	0	0.24	0	***	***	**	**	***	***
REL_SIZE	0.37	0.11	0.37	0.05	0.36	0.04	NS	**	NS	**	NS	NS
IND_REL	0.37	0	0.29	0	0.45	0	NS	NS	NS	NS	**	**
CASH_TO_ASSETS	0.12	0.06	0.05	0.03	0.06	0.02	***	***	***	***	NS	NS
DEBT_TO_ASSETS	0.17	0.14	0.24	0.22	0.23	0.23	***	***	***	***	NS	NS
TOTAL_ASSETS	8.37	8.47	10.25	10.31	10.06	10.03	***	***	***	***	NS	NS
INSIDER_OWN	0.48	0.51	0.51	0.51	0.52	0.51	NS	NS	NS	NS	NS	NS
INSIDER_OWN_SQ	0.28	0.26	0.28	0.26	0.30	0.26	NS	NS	NS	NS	NS	NS
MARKET_TO_BOOK	2.65	1.78	1.86	1.18	6.15	1.61	*	*	NS	NS	NS	*
TARGET_PUBLIC	0.18	0	0.65	1	0.43	0	***	***	***	***	***	***
CRISIS_2001	0.01	0	0.03	0	0.03	0	NS	NS	NS	NS	NS	NS
CRISIS_2007_2009	0.26	0	0.27	0	0.17	0	NS	NS	*	*	*	*

The table presents the summary statistics for the sample of acquisitions announced from 1997 to 2016 and successfully completed by publicly listed bidders for the complete sample, as well as segregated into various subgroups. Standalone acquisitions refer to acquisitions made by standalone (non-affiliated) acquirers. Outside-group acquisitions refer to acquisitions made by group-affiliated firms of either standalone firms or firms from a different business group. Within-group acquisitions refer to acquisitions made by group-affiliated firms of firms affiliated with the same business group. A two-sample *t*-test (Wilcoxon-Mann-Whitney rank sum test) was used to determine whether the difference in means (medians) of a variable between the two subgroups is significantly different from zero between the within-group and standalone acquisitions, between the outside-group and standalone acquisitions, and, finally, between the within-group and outside-group acquisitions. The definitions of variables are provided in the Appendix. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. 'NS' indicates not significant.

6.3. Sample selection bias

There are a large number of firms for which we do not observe any successful acquisition bids. This absence of bids can be either due to some firms not making any bid in order to avoid the threat to control or due to their not being able to bid successfully. If characteristics of these unobserved potential acquirers are different from that of the observed acquirers in our sample, it can bias our estimation results (Faccio and Masulis, 2005; Yang et al., 2019). To overcome the sample selection bias, we implement the Heckman's two-step procedure (Heckman, 1976, 1979). In the first step, we estimate the likelihood of a firm making an acquisition as a function of its characteristics, such as debt-to-assets, cash reserves-to-assets, the natural logarithm of the total assets, net working capital-to-assets, return on assets, and sales growth in addition to the firm's industry and the year under consideration.[18] We then compute the inverse Mills ratio for each observation and include it as an additional regressor in our estimation models given by Eqs. (1) and (2) in the second step. The inverse Mills ratio is not significant in Models (5) and (6) in either Table 7 or 8, and its inclusion keeps our

[18] The results of the first stage have not been tabulated, but these are available from the authors upon request.

Table 6
Comparison of acquirers on control considerations and financial constraints.

Panel A: Comparison of acquirers on control considerations

	Observations	Number [proportion] of potentially control diluting acquisitions	Number [proportion] of potentially control threatening acquisitions
Acquirers in standalone acquisitions (A)	149	149 [100.0%]	40 [26.8%]
Acquirers in within-group acquisitions (B)	93	24 [25.8%]	1 [1.1%]
Acquirers in outside-group acquisitions (C)	118	118 [100.0%]	33 [28.0%]
A - B test of difference of proportions		***	***
A - C test of difference of proportions		NS	NS
B - C test of difference of proportions		***	***

Panel B: Comparison of acquirers on financial constraints

	Observations	Mean of HP (size-age) index
Acquirers in standalone acquisitions (A)	149	−10.3
Acquirers in within-group acquisitions (B)	93	−13.9
Acquirers in outside-group acquisitions (C)	118	−13.3
A - B test of difference of means		***
A - C test of difference of means		***
B - C test of difference of means		NS

This table compares the acquirers in the three sets of acquisitions in our sample with one another on two different aspects – considerations of control and financial constraints. Standalone acquisitions refer to acquisitions made by standalone (non-affiliated) acquirers. Within-group acquisitions refer to acquisitions made by group-affiliated firms of firms affiliated with the same business group. Outside-group acquisitions refer to acquisitions made by group-affiliated firms of either standalone firms or firms affiliated with different business groups. Panel A reports the number and percentage of acquisitions (given in square brackets) that are potentially control diluting and also those that are potentially control threatening. An acquisition is potentially control diluting if its financing with stock can lead to the dilution of the stake of acquiring firm's insiders. Further, an acquisition has been classified as potentially control threatening if its financing with stock can bring down the stake of the acquiring firm's insiders below any of the three critical thresholds – 25%, 50%, and 100% – relative to their stake prior to the acquisition. Panel B reports the degree of financial constraints faced by acquirers based on the HP index, the size-age index given by Hadlock and Pierce (2010). HP index has been computed using the following equation: $HP\ index = -0.737 * size - 0.043 * size^2 - 0.040 * age$, where size refers to the natural logarithm of total assets (expressed in INR million) for the firm under consideration and age refers to the number of years since its incorporation. Higher values of this index indicate a greater degree of financial constraints. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. 'NS' indicates not significant.

results largely unaffected.[19] Thus, we can rule out selection bias in our sample.

6.4. Acquisition financing under control threat

If group-affiliated firms have higher private benefits of control (as we have argued in Section 3.3), then group-affiliated acquirers should exhibit a greater (lesser) propensity to finance their potentially control-threatening acquisitions with cash or debt (stock) relative to that of standalone acquirers. We define an indicator variable *CONTROL_THREAT* that takes the value 1 for a potentially control-threatening acquisition (as defined in Section 6.1), and 0 otherwise. Since the threat to control is almost absent in within-group acquisitions, we consider only the sample of outside-group (*OUTSIDE_GROUP* = 1) and standalone (*STANDALONE* = 1) acquisitions for this analysis and then model the probability of financing acquisitions with equity. We omit the indicator variable *STANDALONE* (being perfectly collinear with the indicator variable *OUTSIDE_GROUP*) from our research design, and the sign and magnitude of the coefficient on *OUTSIDE_GROUP* appears relative to that on *STANDALONE*.

The interaction term *CONTROL_THREAT* * *OUTSIDE_GROUP* in the results reported in Table 9 captures how differently group-affiliated acquirers finance their outside-group acquisitions when under control threat. A negative and significant coefficient on the interaction term indicates that group-affiliated acquirers have a lower (higher) tendency to finance the potentially control-threatening acquisitions with equity (cash or debt) or, alternatively, a higher tendency to preserve control compared to standalone firms. The results are consistent with the higher private benefits of control for the insiders of group-affiliated firms relative to that of standalone firms.

[19] The inclusion of the inverse Mills ratio brings down the number of acquisition deals used in the estimation models because the deals for which the inverse Mills ratio could not be computed due to missing variables are dropped.

Table 7
Determinants of the sources of financing acquisitions for group-affiliated firms.

	FIN_EQUITY					
	(1)	(2)	(3)	(4)	(5)	(6)
WITHIN_GROUP	1.280***	1.273***	1.441***	1.389***	1.439***	1.383***
	(5.407)	(5.399)	(4.579)	(4.324)	(4.159)	(3.875)
	[0.275]	[0.272]	[0.223]	[0.211]	[0.247]	[0.229]
CROSS_BORDER	−1.707*	−1.697*	−3.926***	−4.017***		
	(−1.889)	(−1.858)	(−2.614)	(−2.600)		
REL_SIZE	1.629***	1.617***	2.060***	2.010***	2.950***	2.994***
	(4.677)	(4.842)	(4.379)	(4.347)	(4.738)	(4.317)
IND_REL	0.117	0.125	−0.088	−0.070	−0.239	−0.246
	(0.516)	(0.553)	(−0.336)	(−0.270)	(−0.882)	(−0.889)
CASH_TO_ASSETS	0.654	0.638	1.618	1.421	−1.772	−2.572
	(0.512)	(0.491)	(0.813)	(0.718)	(−0.823)	(−1.044)
DEBT_TO_ASSETS	0.192	0.133	0.399	0.352	1.697	1.860
	(0.264)	(0.180)	(0.444)	(0.378)	(1.302)	(1.348)
TOTAL_ASSETS	0.084	0.092	0.159	0.188	−0.024	0.004
	(0.945)	(1.071)	(1.288)	(1.561)	(−0.093)	(0.015)
INSIDER_OWN	−0.201	3.551	−0.226	4.731	−0.738	9.066*
	(−0.322)	(1.063)	(−0.311)	(1.074)	(−0.824)	(1.685)
INSIDER_OWN_SQ		−3.638		−4.793		−9.743*
		(−1.193)		(−1.223)		(−1.924)
MARKET_TO_BOOK	0.000	0.000	0.006*	0.006*	0.093	0.103
	(0.001)	(0.001)	(1.778)	(1.727)	(0.876)	(0.905)
TARGET_PUBLIC	0.709***	0.730***	0.741**	0.742**	0.520	0.437
	(2.732)	(2.778)	(2.264)	(2.278)	(1.413)	(1.169)
CRISIS_2001	−0.662	−0.676	−0.488	−0.498	−0.491	−0.534
	(−1.093)	(−1.158)	(−0.416)	(−0.418)	(−0.384)	(−0.403)
CRISIS_2007_2009	0.456*	0.484*	0.908	0.912	1.180*	1.355*
	(1.746)	(1.786)	(1.452)	(1.511)	(1.666)	(1.837)
INVERSE_MILLS_RATIO					−0.667	−0.741
					(−0.672)	(−0.735)
Constant	−2.775**	−3.712***	−3.427*	−4.967**	−0.035	−2.496
	(−2.377)	(−2.883)	(−1.937)	(−2.142)	(−0.008)	(−0.561)
Acquirer industry fixed effects	No	No	Yes	Yes	Yes	Yes
Year fixed effects	No	No	Yes	Yes	Yes	Yes
Observations	211	211	205	205	169	169
Pseudo R^2	0.399	0.403	0.565	0.570	0.535	0.548

This table reports the results for a set of probit regression models of the likelihood that a group-affiliated acquirer finances a deal with its equity. The dependent variable is *FIN_EQUITY*, which takes the value one if the acquirer finances the deal with equity, and zero if it finances the deal with either corporate cash reserves or debt. *INVERSE_MILLS_RATIO* represents the inverse Mills ratio computed using a probit model that predicts the likelihood of a firm making a bid, and it takes care of the selection bias. The *z*-statistics are provided in parentheses and are based on standard errors robust to heteroskedasticity and clustering at the acquirer level. The average marginal effects for our main variable of interest (*WITHIN_GROUP*) are reported in square brackets. The definitions of the variables are provided in the Appendix. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively

7. Additional analyses

7.1. Alternative explanations

In addition to the control considerations becoming unimportant, the greater financing of within-group acquisitions with stock can potentially be driven by at least two alternative explanations – propping and tunneling.[20] Below we discuss each of these alternative explanations along with the necessary empirical tests.

7.1.1. Propping

Insiders of group-affiliated firms prop up or support the member firms in financial trouble for protecting their reputation and for tunneling them in the future (Bae et al., 2008; Friedman et al., 2003; Gopalan et al., 2007). One of the ways to rescue troubled firms from defaulting on their obligations is by making successful member firms acquire them (Bae et al., 2002).[21] It is quite possible that within-group rescue acquisitions are financed with stock for conserving cash that can subsequently be used to retire debt of troubled targets once the acquisition is complete. If rescue acquisitions are financed more with stock, it could be the case that rescue

[20] We thank an anonymous reviewer for suggesting us these possibilities.
[21] We term the acquisitions of within-group troubled targets as rescue acquisitions.

Table 8
Determinants of the sources of financing acquisitions for all firms.

	FIN_EQUITY					
	(1)	(2)	(3)	(4)	(5)	(6)
WITHIN_GROUP	0.685***	0.665***	0.804***	0.817***	0.653**	0.650**
	(2.696)	(2.627)	(2.599)	(2.579)	(2.083)	(2.038)
	[0.144]	[0.140]	[0.139]	[0.141]	[0.115]	[0.114]
OUTSIDE_GROUP	−0.530**	−0.541**	−0.588**	−0.587**	−0.796***	−0.797***
	(−2.025)	(−2.090)	(−2.059)	(−2.048)	(−2.741)	(−2.747)
	[−0.111]	[−0.114]	[−0.102]	[−0.101]	[−0.140]	[−0.140]
CROSS_BORDER	−1.713***	−1.699***	−2.145***	−2.153***	−2.561***	−2.557***
	(−3.218)	(−3.164)	(−3.592)	(−3.656)	(−3.498)	(−3.550)
REL_SIZE	0.908***	0.923***	1.230***	1.229***	1.295***	1.294***
	(4.414)	(4.320)	(5.270)	(5.285)	(5.183)	(5.211)
IND_REL	0.320*	0.305*	0.221	0.227	0.204	0.203
	(1.821)	(1.738)	(1.121)	(1.148)	(1.013)	(1.003)
CASH_TO_ASSETS	−0.274	−0.287	0.365	0.387	−0.622	−0.627
	(−0.302)	(−0.316)	(0.385)	(0.405)	(−0.658)	(−0.657)
DEBT_TO_ASSETS	−0.086	−0.109	0.058	0.058	0.563	0.569
	(−0.155)	(−0.197)	(0.092)	(0.091)	(0.754)	(0.760)
TOTAL_ASSETS	0.014	0.016	−0.003	−0.006	−0.124	−0.124
	(0.241)	(0.275)	(−0.039)	(−0.078)	(−0.641)	(−0.642)
INSIDER_OWN	0.157	2.119	0.005	−0.869	0.283	0.561
	(0.320)	(0.875)	(0.011)	(−0.329)	(0.575)	(0.209)
INSIDER_OWN_SQ		−1.938		0.860		−0.272
		(−0.849)		(0.342)		(−0.105)
MARKET_TO_BOOK	−0.019	−0.016	−0.032	−0.033	−0.027	−0.027
	(−0.721)	(−0.610)	(−1.049)	(−1.113)	(−0.903)	(−0.888)
TARGET_PUBLIC	0.691***	0.694***	0.671***	0.669***	0.623***	0.623***
	(3.518)	(3.537)	(2.863)	(2.852)	(2.578)	(2.579)
CRISIS_2001	−0.881	−0.892*	−1.712*	−1.703*	−1.820*	−1.823*
	(−1.606)	(−1.656)	(−1.781)	(−1.783)	(−1.840)	(−1.843)
CRISIS_2007_2009	0.737***	0.741***	1.532***	1.532***	1.539***	1.540***
	(3.565)	(3.578)	(2.815)	(2.813)	(2.648)	(2.651)
INVERSE_MILLS_RATIO					−0.596	−0.600
					(−0.883)	(−0.880)
Constant	−1.500**	−1.934**	−0.937	−0.699	1.776	1.720
	(−2.441)	(−2.534)	(−0.989)	(−0.576)	(0.518)	(0.505)
Acquirer industry fixed effects	No	No	Yes	Yes	Yes	Yes
Year fixed effects	No	No	Yes	Yes	Yes	Yes
Observations	360	360	358	358	336	336
Pseudo R^2	0.370	0.372	0.470	0.470	0.455	0.455

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 the value one if the acquirer finances the deal with equity, and zero if it finances the deal with either corporate cash reserves or debt. *INVERSE_MILLS_RATIO* represents the inverse Mills ratio computed using a probit model that predicts the likelihood of a firm making a bid, and it takes care of the selection bias. The *z*-statistics are provided in parentheses and are based on standard errors robust to heteroskedasticity and clustering at the acquirer level. The average marginal effects for our variables of interest (*WITHIN_GROUP* and *OUTSIDE_GROUP*) are reported in square brackets. The definitions of the variables are provided in the Appendix. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

acquisitions at least partly drive the stock-financing of within-group acquisitions, and it is not just due to control considerations becoming unimportant as we predict while formulating our hypotheses.

Following Bae et al. (2002), we classify a target as financially troubled if either its net income or book value of equity at the end of the financial year immediately preceding the acquisition announcement is negative. Out of the 93 cases of within-group acquisitions in our sample, the data on both net income and book value are available for 75 cases, and for another 2 cases only the data on the book value of equity are available. Using this data for 77 within-group acquisitions, we find that 24 (31%) targets are in financial trouble in the case of within-group acquisitions. Further, we find that out of these 24 rescue acquisitions, only 13 (54%) are financed with stock. The incidence of stock-financing of within-group rescue acquisitions is not significantly different from that of other within-group acquisitions which stands at 60%. Furthermore, we run our regression models after excluding these 24 within-group rescue acquisitions, and we continue to find that within-group acquisitions are financed significantly higher with stock compared to both outside-group as well as standalone acquisitions (the results are available in Internet Appendix IA.2). Thus, we can rule out the possibility that rescue acquisitions partly drive the greater stock-financing of within-group acquisitions.

7.1.2. Tunneling

In addition to propping-up, another motive of a within-group acquisition could be to tunnel resources from one firm to another within the same group and benefit the controlling shareholders of the group firms at the expense of their minority shareholders (Bae

Table 9
Acquisition financing under control threat.

	FIN_EQUITY
OUTSIDE_GROUP	−0.519
	(−1.148)
CONTROL_THREAT	0.775
	(1.530)
*CONTROL_THREAT * OUTSIDE_GROUP*	−1.386**
	(−2.433)
CROSS_BORDER	−4.290***
	(−4.284)
REL_SIZE	1.683***
	(4.263)
IND_REL	0.982***
	(2.823)
CASH_TO_ASSETS	0.225
	(0.164)
DEBT_TO_ASSETS	1.055
	(0.864)
TOTAL_ASSETS	−0.393
	(−1.052)
INSIDER_OWN	3.079
	(0.606)
INSIDER_OWN_SQ	−1.981
	(−0.407)
MARKET_TO_BOOK	−0.146***
	(−3.904)
TARGET_PUBLIC	0.180
	(0.414)
CRISIS_2007_2009	1.121
	(1.156)
INVERSE_MILLS_RATIO	−1.411
	(−1.084)
Constant	3.762
	(0.619)
Acquirer industry fixed effects	Yes
Year fixed effects	Yes
Observations	208
Pseudo R^2	0.577

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 using the sample of outside-group and standalone acquisitions. The dependent variable is *FIN_EQUITY*, which takes the value one if the acquirer finances the deal with equity, and zero if it finances the deal with either corporate cash reserves or debt. *CONTROL_THREAT* is an indicator variable that takes the value 1 if the financing of an acquisition with stock can bring down the stake of the acquiring firm's insiders below any of the three critical thresholds – 25%, 50%, and 100% – relative to their stake prior to the acquisition, and zero otherwise. The coefficient on *OUTSIDE_GROUP* varibable appears relative to that on *STANDALONE*. *INVERSE_MILLS_RATIO* represents the inverse Mills ratio computed using a probit model that predicts the likelihood of a firm making a bid, and it takes care of the selection bias. The *z*-statistics are provided in parentheses and are based on standard errors robust to heteroskedasticity and clustering at the acquirer level. The definitions of the variables are provided in the Appendix. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

et al., 2002). Further, if within-group acquisitions are used as a means to tunnel resources, it can happen in cash- or debt-financed acquisitions, as well as in stock-financed acquisitions. However, when the medium of financing is stock, acquirers can overpay (underpay) the target shareholders using their undervalued (overvalued) stock and thus increase the extent of tunneling more than it is possible in a cash- or debt-financed acquisition. For instance, Jeong and Bae (2013) document that group-affiliated acquirers in Korea manage their earnings downward to tunnel cash-flows to member target firms in stock-financed acquisitions.

If business groups in India plan within-group acquisitions primarily to tunnel resources, it is possible that much of the tunneling occurs through stock-financed acquisitions, and it could partly drive our results on the greater extent of stock-financing of within-group acquisitions. In a within-group acquisition, tunneling can take place either from an acquirer to a target or from a target to an acquirer. We check for these possibilities by observing the stock market reactions to the announcements of acquisitions. If within-group acquisitions are motivated by tunneling from an acquirer (target) to a target (acquirer), we should observe significantly lower

Table 10
Stock market reactions (clubbed by sub-groups) for acquirers and targets around the acquisition announcement dates.

Panel A: Stock market reactions for acquirers

	Observations	Mean CAR	Median CAR
Acquirers in standalone acquisitions (A)	132	1.59%	0.68%
Acquirers in within-group acquisitions (B)	84	0.86%	0.66%
Acquirers in outside-group acquisitions (C)	104	1.25%	1.28%
B - A test of difference of means/medians		NS	NS
B - C test of difference of means/medians		NS	NS

Panel B: Stock market reactions for targets

	Observations	Mean CAR	Median CAR
Targets in standalone acquisitions (A)	18	9.26%	7.51%
Targets in within-group acquisitions (B)	53	5.99%	7.02%
Targets in outside-group acquisitions (C)	35	9.61%	11.45%
B - A test of difference of means/medians		NS	NS
B - C test of difference of means/medians		NS	NS

This table reports the 5-day cumulative abnormal returns (in percentage) centered at the acquisition announcement dates for acquirers in Panel A and for targets in Panel B for the three sets of acquisitions in our sample. Standalone acquisitions refer to acquisitions made by standalone (non-affiliated) acquirers. Within-group acquisitions refer to acquisitions made by group-affiliated firms of firms affiliated with the same business group. Outside-group acquisitions refer to acquisitions made by group-affiliated firms of either standalone firms or firms affiliated with different business groups. The cumulative abnormal returns for acquirer i have been computed using the following equation: $CAR_i(-2,+2) = \sum_{t=-2}^{+2}(R_{it} - (\alpha_i + \beta_i R_{mt}))$ where R_{mt} represents the return on the value-weighted Nifty 100 index, R_{it} denotes the observed return of the acquiring firm under consideration, and α_i and β_i are parameters of the market model estimated using a 200-trading-day estimation window ending 31 trading days prior to the acquisition announcement date for acquirer i. 'NS' indicates not significant.

(higher) abnormal returns for acquirers and higher (lower) abnormal returns for targets around the acquisition announcements in the case of within-group acquisitions compared to both standalone and outside-group acquisitions.

Conditional on data available for computing abnormal returns, we are left with 320 acquisitions for further analysis. Table 10 reports the cumulative abnormal returns (*CAR*) separately for acquirers and targets in the three sets of acquisitions. We observe in Panel A that acquirers' abnormal returns in within-group acquisitions are neither significantly different from that of standalone acquisitions nor from that of outside-group acquisitions. We find similar results as shown in Panel B with regard to listed targets' abnormal returns as well.[22]

Further, we also conduct a multivariate regression analysis to examine if the acquirers in within-group acquisitions in our sample earn significantly different abnormal returns than that in standalone acquisitions after controlling for relevant factors from prior literature. The results shown in Table 11 indicate that the coefficient on *WITHIN_GROUP* is not significant, implying that the acquirers in within-group acquisitions do not have a significantly different market reaction from that of acquirers in standalone acquisitions. In unreported results, we take a subsample of acquisitions made by group-affiliated firms and repeat the multivariate regression analysis for this subsample.[23] We do not find a significant difference in stock market reactions between the acquirers in within-group and those in outside-group acquisitions. The above results allow us to infer that there is no significant tunneling taking place either from acquirers to targets or from targets to acquirers in the case of within-group acquisitions in India. Thus, we rule out tunneling as an alternative explanation to significantly higher stock-financing of within-group acquisitions compared to the other two sub-groups.

7.2. Robustness checks

In this section, we test the robustness of our main findings and report the results based on Eq. (2) (Hypotheses 2 and 3) briefly in Table 12.[24]

7.2.1. Method of payment versus method of financing

Martynova and Renneboog (2009) highlight that the method of payment in an acquisition deal may be different from the method of financing it. In an acquisition deal, when an acquirer pays a target with its equity, the method of financing the deal is same as the method of payment (i.e., equity). However, when an acquirer pays the target with cash, the deal may be financed with the acquirer's

[22] The sample size for examining the abnormal stock returns to target firms around the acquisition announcement dates is limited to 106 targets that are listed and have sufficient stock price data available to compute abnormal returns.

[23] The results are available from the authors upon request.

[24] The results of robustness checks continue to hold for Equation (1) (hypothesis 1) as well and are available in Internet Appendix IA.3.

Table 11
Multivariate analysis of market reactions to bidders' stocks for acquisition announcements for the entire sample.

	CAR (−2, +2)			
	(1)	(2)	(3)	(4)
WITHIN_GROUP	2.134	2.151	2.320	2.185
	(1.579)	(1.620)	(1.543)	(1.485)
OUTSIDE_GROUP	1.410	1.416	1.309	1.225
	(1.163)	(1.157)	(1.008)	(0.948)
CROSS_BORDER	2.885**	2.852**	2.915**	2.820**
	(2.483)	(2.384)	(2.383)	(2.184)
REL_SIZE	1.310*	1.225*	1.291*	1.205*
	(1.851)	(1.803)	(1.799)	(1.761)
IND_REL	0.744	0.612	1.116	0.985
	(0.764)	(0.638)	(1.122)	(0.995)
CASH_TO_ASSETS	6.139	6.228	7.188	6.859
	(1.483)	(1.468)	(1.636)	(1.531)
DEBT_TO_ASSETS	4.307	3.888	4.322	3.758
	(1.286)	(1.208)	(1.244)	(1.130)
TOTAL_ASSETS	−0.502*	−0.365	−0.586	−0.390
	(−1.669)	(−1.169)	(−1.648)	(−1.086)
INSIDER_OWN	−22.313*	−17.726	−16.996	−12.750
	(−1.777)	(−1.415)	(−1.348)	(−1.010)
INSIDER_OWN_SQ	23.078*	18.561	17.804	13.370
	(1.851)	(1.510)	(1.394)	(1.049)
MARKET_TO_BOOK	−0.430***	−0.446***	−0.447***	−0.449***
	(−3.047)	(−3.318)	(−3.359)	(−3.561)
TARGET_PUBLIC	−1.528	−1.264	−1.412	−1.371
	(−1.541)	(−1.324)	(−1.405)	(−1.330)
Constant	8.339*	3.222	7.692	2.137
	(1.780)	(0.621)	(1.218)	(0.321)
Acquirer industry fixed effects	No	Yes	No	Yes
Year fixed effects	No	No	Yes	Yes
Observations	320	320	320	320
R^2	0.103	0.128	0.137	0.161

This table reports the results for a set of OLS regression models of the determinants of stock market reactions for bidders around the acquisition announcements. The dependent variable is the 5-day cumulative abnormal returns centered at the acquisition announcement date and computed using the following equation: $CAR_i(-2,+2) = \sum_{t=-2}^{+2} (R_{it} - (\alpha_i + \beta_i R_{mt}))$, where R_{mt} represents the return on the value-weighted Nifty 100 index, R_{it} denotes the observed return of the acquiring firm i, and α_i and β_i are parameters of the market model estimated using a 200-trading-day estimation window ending 31 trading days prior to the acquisition announcement date for acquirer i. The coefficients on *WITHIN_GROUP* and *OUTSIDE_GROUP* varibables appear relative to that on *STANDALONE*. The *t*-statistics are provided in parentheses and are based on standard errors robust to heteroskedasticity and clustering at the acquirer level. The definitions of the variables are provided in the Appendix. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

internal cash reserves, a debt issue, an equity issue, or a mix of the three. Martynova and Renneboog (2009) find that approximately 11% of the all-cash deals in their sample of European acquirers are at least partially financed with equity. If this holds true for our sample, it can potentially induce some inaccuracies in the results. We explore whether any of the acquiring firms paying the target shareholders with cash in our sample has issued equity between the dates of the announcement and completion of the deals. We use the Prime database, which has also been employed extensively in the prior literature (see, for example, Bubna and Prabhala, 2011), to collect the data on follow-on public offerings and rights issues for the Indian firms in our sample. We do not find any acquiring firm in our sample raising money through either of these two routes between the dates of announcement and completion of the deal.[25] Thus, we can rule out potential inaccuracies for using the method of payment and the method of financing interchangeably for our sample acquisitions.

7.2.2. Including hybrid deals

Restricting the sample to cash-only and stock-only modes of payment can potentially be costly if there are a large number of hybrid deals (i.e., deals financed with a mix of cash and debt). In our sample, however, we have only 8 hybrid deals. Out of the 8 hybrid deals, 2 deals have been financed in equal proportions with cash and stock, and therefore we exclude them from our analysis. Conditional on the data available for regression analysis, we are left with only 5 hybrid deals for inclusion in our sample for further robustness checks. We check the robustness of our results after including these hybrid deals in our sample and clubbing them with either cash-only or stock-only deals depending on whether majority of the payment to the target shareholders has been made with

[25] There is only one acquiring firm that has issued equity about one month prior to the acquisition announcement date. Our results are robust to the exclusion of this acquisition deal. All of the other deals in our sample have acquisition announcement dates at least three months away from the equity issue closing date and acquisition completion dates at least three months prior to the equity issue opening date.

Table 12
Robustness checks (for hypotheses 2 and 3).

	FIN_EQUITY	
	(1)	(2)
Panel A: Including hybrid deals		
WITHIN_GROUP	0.872***	0.760**
	(2.871)	(2.449)
OUTSIDE_GROUP	−0.490*	−0.635**
	(−1.849)	(−2.336)
Panel B: Excluding cross-border acquisitions		
WITHIN_GROUP	0.672**	0.658*
	(1.987)	(1.929)
OUTSIDE_GROUP	−0.815**	−0.807**
	(−2.340)	(−2.341)
Panel C: Controlling for target industry fixed effects		
WITHIN_GROUP	0.879***	0.680**
	(2.682)	(2.108)
OUTSIDE_GROUP	−0.567*	−0.818***
	(−1.938)	(−2.768)
Panel D: Defining industrial relatedness based on the matching of the first 3 digits of the SIC codes		
WITHIN_GROUP	0.820***	0.649**
	(2.619)	(2.066)
OUTSIDE_GROUP	−0.580**	−0.795***
	(−2.023)	(−2.754)
Panel E: Defining industrial relatedness based on the matching of the first 2 digits of the SIC codes		
WITHIN_GROUP	0.797**	0.631**
	(2.575)	(2.026)
OUTSIDE_GROUP	−0.580**	−0.795***
	(−2.028)	(−2.745)
Panel F: Defining industrial relatedness based on the matching of the first digit of the SIC codes		
WITHIN_GROUP	0.800**	0.632**
	(2.572)	(2.020)
OUTSIDE_GROUP	−0.587**	−0.798***
	(−2.080)	(−2.784)
Panel G: Employing sales growth instead of market-to-book as a proxy for growth opportunities		
WITHIN_GROUP	0.681**	0.656**
	(2.140)	(2.021)
OUTSIDE_GROUP	−0.647**	−0.692**
	(−2.143)	(−2.318)
Panel H: Controlling for the cube of insider ownership		
WITHIN_GROUP	0.810**	0.645**
	(2.554)	(2.012)
OUTSIDE_GROUP	−0.599**	−0.819***
	(−2.071)	(−2.772)
Panel I: Dropping acquisitions prior to the financial year 2001		
WITHIN_GROUP	0.929***	0.758**
	(2.868)	(2.272)
OUTSIDE_GROUP	−0.543*	−0.789***
	(−1.822)	(−2.624)

This table reports the key results of various robustness checks using a set of probit regression models that predict the likelihood that an acquiring firm finances a deal with its equity. The dependent variable is *FIN_EQUITY*, which takes a value of one if an acquirer finances the deal with equity, and zero if it finances the deal with either corporate cash reserves or debt. Only the coefficients for the main variables of interest, *WITHIN_GROUP* and *OUTSIDE_GROUP*, have been reported for the sake of brevity. The coefficients on *WITHIN_GROUP* and *OUTSIDE_GROUP* varibables appear relative to that on *STANDALONE*. Both Model (1) and Model (2) include all the control variables, as well as acquirer industry and year fixed effects. Model (2) additionally controls for *INVERSE_MILLS_RATIO* (computed using a probit model that predicts the likelihood of a firm making a bid) for taking care of the selection bias. The *z*-statistics are provided in parentheses and are based on standard errors robust to heteroskedasticity and clustering at the acquirer level. The definitions of the variables are provided in the Appendix. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

cash or stock, respectively. Not unexpectedly, our results (Panel A of Table 12) continue to hold after including the hybrid deals in our sample.

7.2.3. Excluding cross-border deals

None of the within-group acquisitions in our sample is a cross-border deal. Since cross-border deals tend to be financed less with

equity (Huang et al., 2016; Martynova and Renneboog, 2009), it is possible that the greater stock financing of within-group acquisitions is driven by the fact that these deals are all domestic. As a robustness check, we repeat our tests with only domestic deals. Our results (Panel B of Table 12), however, continue to support our hypotheses for the subsample of domestic deals.

7.2.4. Controlling for target industry fixed effects

We also check if our results are robust to including target industry fixed effects at the one-digit SIC level. We continue to find support for our hypotheses (Panel C of Table 12). However, the inclusion of target industry fixed effects reduces the number of observations for the empirical analysis as those deals are dropped from the sample for which the indicator variables corresponding to target industries completely determine the mode of financing acquisitions.

7.2.5. Using alternative definitions of industrial relatedness

In our empirical analysis, we classify an acquisition into a related industry only if the acquiring and the 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 examine whether our results are affected by using them as one of our control variables one by one. Our results (Panels D, E, and F of Table 12) remain robust to using any of the three alternative industrial classifications.

7.2.6. Employing alternative proxy for growth opportunities

In our estimation models, we use market-to-book as a proxy for an acquirer's growth opportunities. Our results (Panel G of Table 12) continue to hold using an acquirer's sales growth (compounded annual growth rate in sales over a three-year fiscal period immediately preceding the acquisition announcement) as an alternative proxy for its growth opportunities.[26]

7.2.7. Insider ownership

Some studies find that the relation between insider ownership and the mode of financing acquisitions is non-linear and that it may hold only over an intermediate range of insider holdings (Faccio and Masulis, 2005; Ghosh and Ruland, 1998; Martin, 1996). To control for the possible linear, as well as non-linear, relation between insider ownership and the mode of financing acquisitions, we have considered only the level and square terms of the proportion of shareholding by insiders (individuals, as well as corporate bodies, acting as promoters) in acquiring firms in our main analysis. Following Faccio and Masulis (2005), we include the cube of insider ownership, as well in our estimation models, and still find our main predictions to hold (Panel H of Table 12). Finally, the coverage of promoter or insider ownership data for Indian firms in CMIE Prowess starts from 2001 onward. Similar to Banerjee et al. (2014), we have used the ownership data of the earliest available date (i.e., the first quarter of 2001) for 23 acquisitions announced prior to the first quarter of 2001 for our empirical analysis. Our results (Panel I of Table 12) remain largely unaffected after exclusion of 23 acquisitions announced prior to 2001.

8. Discussion and conclusion

In this paper, we propose and test a new order of financing investments made by firms in markets with business groups. Based on the considerations of control, as well as financial constraints, we demonstrate 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. Consistent with greater private benefits of control for the insiders of group-affiliated firms, as well as lower financial constraints faced by these firms, we also find that group-affiliated firms have a lower tendency to finance their control-threatening acquisitions with equity relative to that of standalone firms. Our results are robust to a series of empirical checks, alternative explanations of tunneling and propping up in business groups, and sample selection bias.

While our study has been carried out in the context of India and the findings of this study are likely to extend to other markets with business groups directly, we contend that some of the conclusions derived from this study may apply to markets devoid of business groups as well. In particular, firms whose insiders value control more, as well as firms that are financially less constrained due to their greater reputation in the capital markets, the existence of debt guarantees, or access to alternative financing channels, have a greater tendency to avoid issuing equity to finance investments when their insiders are likely to suffer a dilution in their stakes.

This study suffers from a few limitations. First, the sample of acquisitions in this study is small compared to those in studies based on several developed countries, which is primarily due to relatively low acquisition activity in India compared to these countries.[27] In addition, our sample understates the number of acquisitions made by group-affiliated firms because we exclude from our sample the acquisition deals completed by group-affiliates for which we are unable to ascertain affiliation of the target firms.

Further, we recognize that corporate control may be even more valuable to the insiders of firms in countries with weak creditor

[26] The use of sale growth, however, reduces our sample size as we have to drop deals for which we do not have the sales growth data for the acquirers.

[27] Almost all of the studies based on acquisitions by Indian firms have their deal samples limited to a few hundred at most. See Banerjee et al. (2014), Bhaumik and Selarka (2012), Col and Sen (2017), and Gubbi et al. (2010) for examples.

rights, as well as weak investor protection. The bankruptcy regime in India during the period of our study has been relatively weak and gave undue advantage to management over creditors (Gopalan et al., 2016, 2007; Narayanaswamy et al., 2012). It is possible that the insiders of Indian firms value control more than those in countries with stronger creditor rights and vigorously enforced regulations. Since the private benefits of control are possibly higher for the insiders of group-affiliated firms than those of standalone firms, it is quite possible that the weaker bankruptcy law, as well as weakly enforced investor protection regulations in India, make the value of control even greater for group-affiliated firms than for standalone firms. More research into investment financing patterns should be carried out in countries with stronger creditor rights and strongly enforced regulations.

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Appendix: The table of definitions and sources of data

Variable	Definition	Source
CASH_TO_ASSETS	Ratio of cash and cash equivalents to total assets of the acquirer at the end of the financial year immediately preceding the acquisition announcement.	CMIE Prowess
CONTROL_THREAT	Equal to one if the financing of an acquisition with stock can bring down the stake of the acquiring firm's insiders below any of the three critical thresholds – 25%, 50%, and 100% – relative to their stake prior to the acquisition, and zero otherwise	CMIE Prowess, Thomson One
CRISIS_2001	Equal to one if the acquisition is announced during the year 2001, and zero otherwise	Thomson One
CRISIS_2007_2009	Equal to one if the acquisition is announced during the years 2007, 2008, or 2009, and zero otherwise	Thomson One
CROSS_BORDER	Equal to one if the target is not based in India, and zero otherwise.	Thomson One
DEBT_TO_ASSETS	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 one if the acquirer pays the target shareholders with equity, and zero otherwise.	Thomson One
IND_REL	Equal to one if the acquirer and the target share the same four-digit SIC code, and zero otherwise.	Thomson One
INSIDER_OWN	Proportion of the total shares held by the promoter group (including individuals, as well as corporate bodies acting as promoters) 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 (including individuals, as well as corporate bodies acting as promoters) of the acquirer at the end of the quarter immediately preceding the acquisition announcement.	CMIE Prowess
MARKET_TO_BOOK	Sum of the acquirer's market value of equity and the book value of debt divided by the book value of its total assets at the end of the financial year immediately preceding the acquisition announcement.	CMIE Prowess
OUTSIDE_GROUP	Equal to one if the acquirer is a group-affiliated firm and it acquires either a standalone firm or a firm affiliated with a different business group, and zero otherwise.	CMIE Prowess
REL_SIZE	Size of the deal relative to size of the acquirer, arrived at by dividing the deal size (converted to Indian Rupees using the USD-to-Rupee Exchange Rate) with the total assets of the acquirer at the end of the financial year immediately preceding the acquisition announcement.	Thomson One, RBI, CMIE Prowess
STANDALONE	Equal to one if the acquisition is made by a standalone firm (not affiliated with any business group), and zero otherwise.	CMIE Prowess
TARGET_PUBLIC	Equal to one if the target is a publicly listed firm, and zero otherwise.	Thomson One
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
WITHIN_GROUP	Equal to one if the acquirer is a group-affiliated firm and it acquires another firm affiliated with the same group, and zero otherwise.	CMIE Prowess

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.jcorpfin.2019.04.007.

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