Journal of Contemporary Accounting & Economics 11 (2015) 121–137

Contents lists available at ScienceDirect

Journal of Contemporary Accounting & Economics

journal homepage: www.elsevier.com/locate/jcae

Financial decisions by business groups in India: Is it "fair and square"?

Debarati Basu [a], Kaustav Sen [b,*]

[a] Indian Institute of Management Calcutta, Diamond Harbour Road, Joka, Kolkata 700104, India
[b] Lubin School of Business, Pace University, One Pace Plaza, New York 10038, USA

ARTICLE INFO

Article history:
Received 25 August 2012
Received in revised form 28 January 2015
Accepted 29 January 2015
Available online 24 February 2015
JEL
G15
G34

Keywords:
Internal capital markets
Opportunism vs. efficiency
Business groups
Dividends
Cash flow rights

ABSTRACT

Using a large sample of business-group-affiliated firms in India, we investigate whether corporate financial decisions that create internal capital markets are influenced by the extent of insider ownership. We hypothesize that insiders want to control more capital, motivated either by opportunism or efficiency. We distinguish opportunism from efficiency based on whether sales decrease or increase in the year after financial decisions are taken. We find that as insider ownership increases, a firm (i) transfers less capital into the group when sales increase in the following year, (ii) pays out less dividends when sales decrease in the following year and (iii) receives less capital from the group if it is struggling. This indicates that insiders act in an efficient manner when transferring capital across firms within the group. However, when deciding whether to return capital to investors, they retain resources even when future performance does not improve and thus act opportunistically.

1. Introduction

Business groups represent loosely affiliated firms in different industries with common insider ownership. This organizational form continues to be a dominant force in many emerging and even some developed markets. Claessens et al. (2000) characterize business groups as 'heroes or villains' and Khanna and Yafeh (2007) refer to them as 'paragons or parasites', drawing attention to both the advantages and disadvantages of such affiliation. While the jury is still out on whether the former outweigh the latter, the economic importance of business groups remains undisputed.

In a study across forty-five countries, Masulis et al. (2011) conclude that internal capital market considerations drive the creation of business-group-like structures. Internal capital market arrangements allow allocation of capital among firms belonging to a business group without any additional screening by the external capital markets. Insiders have access to more information about a firm than external capital market participants and this information asymmetry allows scope for both efficient and opportunistic behavior. The focus of this paper is to understand how the extent of insider ownership influences the corporate financial decisions that create such an internal capital market. If insiders act in the best interests of all providers of capital, then all stakeholders benefit (Khanna and Tice, 2001), but if they act in their self-interest, then outside shareholders suffer (Lins and Servaes, 2002).

We are grateful to Sati Bandopadhyay, Abhiroop Mukherjee, Suresh Radhakrishnan, Gordon Richardson, Jayati Sarkar, Ananth Seetharaman, Ajay Shah, the participants at IGIDR Corporate Finance (2012), ISB Accounting (2012), JCAE (2013) and ICCGEM (2013) conferences and especially Sudipta Basu for their comments. All remaining errors are our own.
* Corresponding author. Lubin School of Business, Pace University, One Pace Plaza, New York 10038, USA. Tel.: +1 212 618 6413; fax: + 1 212 618 6605.
E-mail address: ksen@pace.edu (K. Sen).

http://dx.doi.org/10.1016/j.jcae.2015.02.001
1815-5669/

The implications of internal capital market practices for minority shareholders are mixed. In the wake of the 1997 emerging markets crisis, Johnson et al. (2000) find that firms may act opportunistically by diverting capital to other firms in the same group to benefit controlling shareholders, even in countries with strong investor protection rights. This can be achieved through misuse of financial slack, retention of capital for enhanced control or paying out dividends for private benefits (see Joh and Kim, 2013; Scharfstein and Stein, 2000). However, efficiency is achieved when groups engage in intra-group capital transfers to maintain reputation, either by investing in internal growth opportunities using proprietary information or by helping struggling firms avoid financial distress (see Andres, 2008; Gopalan, Nanda and Seru, 2014).

We examine intra-group capital transfers and dividend payouts to understand whether insider opportunism or efficiency drive these decisions. A business-group-affiliated firm can engage in four distinct financing transactions. In particular, it has two ways to distribute capital – either give it to the group or return it to all shareholders. Similarly, it has two ways to raise capital – from the group or from external sources. We study these actions to assess if capital is transferred out of (in to) firms where insider ownership is low (high). While these actions can be interpreted as expropriation, it may also imply better monitoring to deliver growth.[1] We tease out the alternate interpretations by examining whether growth is delivered in the future, subsequent to the capital transfer decisions. Sales growth is the primary measure, but we also analyze growth in profitability (return on assets), profits (operating and net profit) and Tobin's Q for robustness.

We test our hypotheses using a sample of Indian firms for two reasons. First, business groups have been around in India for a long time and still continue to play an important role in the country's economy. The top ten groups alone account for about 32 percent while business groups as a whole account for about 67 percent of the total Bombay Stock Exchange (BSE)[2] market capitalization. This, together with India being a large emerging economy, that by some estimates will eventually play a dominant role in the global economy, makes it an important setting to examine. Second, India has the largest number of business-group-affiliated firms for a single country (1821 during 1990–97, Table 1, Khanna and Yafeh, 2007). Thus, it allows for greater variation in the role played by business groups.

Our results indicate that business-group-affiliated firms distribute (receive) capital to (from) the group primarily to create value, not destroy it. In particular, a firm with higher insider ownership transfers lesser capital to the group only when the firm's future performance improves. However, a firm with declining performance pays out lower dividends as insider ownership increases although there is no efficient reason to retain funds in such firms.[3] Taken together, the evidence indicates that while intra-group capital transfers support the efficiency argument, dividend payout policies suggest opportunism. It is also possible that our results are driven by alternative explanations such as regulatory arbitrage and tax and dividend clienteles, for which we find some support.

Our paper makes several important contributions. First, none of the above papers explicitly examine how variation of insider ownership within a business group affects an affiliated firm's financial decisions. Moreover, by allowing for a non-linear effect of insider ownership on financial decisions, we are able to understand whether alignment as well as entrenchment exists in this context. Second, most papers focus either on dividend policies (e.g. La Porta et al., 2000 and Faccio et al., 2001) or on intra-group capital transfers (e.g. Gopalan et al., 2007). We examine both types of transactions within the same setting. Third, we separately examine the effect of ownership on firms receiving capital from and on firms contributing capital to internal capital markets. Our analysis allows a more comprehensive understanding of how internal capital markets function and suggests that business group insiders want outside investors to be like them – be invested for the long haul, and preferably across all group firms. They do not want outsiders to invest in one or a few group companies and ask for their money back at the first sign of weakness.

The rest of the paper is organized as follows. Section 2 provides an overview of business groups in India. Section 3 develops the hypotheses. Section 4 discusses the data, variables and methodology. Section 5 describes the sample and presents the results. Section 6 discusses the sensitivity analyses. Section 7 analyzes alternative theories that could explain our results. Section 8 concludes the paper.

2. Business groups in India

About 35 percent of the BSE A and B group companies (2697 companies) as on 1st September, 2011 are affiliated with business groups, and account for almost 60 percent of total assets. Historically, India has been characterized by concentrated ownership and the widespread use of business groups.[4] Table 1 provides a glimpse of the characteristics and extent

[1] With the exception of Claessens et al. (2000) and Khanna and Yafeh (2007), almost the entire literature on business groups assumes either expropriation or monitoring, but not both. We borrow from the earnings management literature the idea that efficiency and opportunism can co-exist (e.g. Bernard and Skinner, 1996; Christie and Zimmerman, 1994; Skinner, 1993). This is an important issue, especially since Ball (2013) notes that very often, "incorrect beliefs" by researchers lead them to draw fallacious conclusions.

[2] BSE, established in 1875, is India's oldest stock exchange and one of its leading exchange groups. It had a total market capitalization of approximately INR 74,153 billion (USD 1215 billion) as on 31st March, 2014.

[3] La Porta et al. (2000) propose two models for dividend payment behavior: (i) the outcome model where investors have strong legal protection: firms pay out lower dividends if they have high investment opportunities and (ii) the substitute model where investors have weak legal protection: firms pay out higher dividends even if they have high investment opportunities to maintain reputation. Our results reject what is expected for low growth firms in the outcome model, so we infer opportunism.

[4] Khanna and Palepu (2005) and Rajakumar and Henley (2007) provide a comprehensive round up on the existence of business groups in India.

Table 1
Business group statistics in India.

Panel A: Top 10 business groups by market capitalization on 31st March, 2014

Group	Founded	No. of firms	Listed firms (%)	Total assets	Profits	Mkt. cap. (2013)	Mkt. cap. (2014)	Mkt. cap. growth	Employees	Insider own. (%)	Key industries	Locations
Tata	1868	265	17.0	3025 (50.4)	215.6 (3.6)	5068.5 (84.5)	6695.2 (111.6)	32.1	396,203	53.3	Basic metals, information technology and telecom, power	Maharashtra
HDFC	1977	17	17.6	6016.8 (100.3)	117.4 (2)	2799.4 (46.7)	3228.4 (53.8)	15.3	71,415	41.3	Financial services	Maharashtra
Reliance [Mukesh Ambani]	1966	105	8.6	3189.2 (53.2)	210.3 (3.5)	2502.7 (41.7)	3009.9 (50.2)	20.3	23,629	45.4	Petroleum, pipelines	Maharashtra
Vedanta	1976	36	19.4	1371.8 (22.9)	235 (3.9)	1504.6 (25.1)	2059.9 (34.3)	36.9	5156	60.2	Basic metals, telecom, engineering	Tamil Nadu, Rajasthan
Birla Aditya	1857	98	20.4	1587 (26.5)	68.3 (1.1)	1441.1 (24)	1761.5 (29.4)	22.2	70,771	50.2	Basic metals, telecom	Gujarat, Maharashtra
Bharti Telecom	1976	36	11.1	1239.3 (20.7)	62.1 (1)	1445.2 (24.1)	1662.4 (27.7)	15.0	1256	74.0	Telecom, financial services	Delhi
State Bank of India	1806	20	25.0	18237.9 (304)	158.6 (2.6)	1498.6 (25)	1496.8 (24.9)	–0.1	264,061	76.2	Financial services	Maharashtra
I.C.I.C.I.	1955	52	15.4	5429.6 (90.5)	81.9 (1.4)	1215.8 (20.3)	1459.4 (24.3)	20.0	31,872	31.8	Financial services	Gujarat
WIPRO	1945	19	5.3	411.5 (6.9)	56.5 (0.9)	1076.7 (17.9)	1338.2 (22.3)	24.3	140,000	78.3	Information technology	Karnataka
Larsen & Toubro	1938	113	1.8	809 (13.5)	52.2 (0.9)	966.9 (16.1)	1306.1 (21.8)	35.1	50,592	82.5	Civil engineering	Maharashtra
Top 10 aggregate		**761**	**14.2**	**41317 (688.6)**	**1258 (21)**	**19,519.6 (325.3)**	**24,017.8 (400.3)**	**22.1**	**1,054,955**	**59.3**		

Panel B: Statistics by market capitalization categories

Category	No. of groups	No. of firms	Total assets	Profits	Mkt. cap. (2013)	Mkt. cap. (2014)	Mkt. cap. growth	Insider own. (%)
Group market capitalization > 100 (1.7) billion	69	2514	1385.9 (32.1)	32.1 (601.8)	601.8 (743.9)	743.9 (27.4)	27.43	58.69
Group market capitalization > 1 (0.017) billion	309	4466	225.9 (3.7)	3.7 (78.8)	78.8 (84.9)	84.9 (57.7)	57.71	55.88
Group market capitalization < 1 (0.017) billion	194	1168	10.8 (–0.4)	–0.4 (1.1)	1.1 (1)	1 (–2)	–1.97	51.79
Grand Total	**572**	**8148**	**1622.7 (35.4)**	**35.4 (681.7)**	**681.7 (829.8)**	**829.8 (27.7)**	**27.72**	**55.46**

Notes: For Panel A, all amounts are expressed in billions of INR (USD). The total BSE market capitalization on 31st March, 2014 was approx. INR 74,153 billion (USD 1235 billion). The Top 10 groups above accounted for 32.38% of this total market capitalization. For Panel B, all amounts are expressed in billions of INR (USD). The categories have been created based on each group's market capitalization as on 31st March, 2014. The market capitalization of all business groups on 31st March, 2014 was approx. INR 49,789 billion (USD 829.8 billion), which is 67% of the total BSE market capitalization.

of the dominance of business groups in the Indian capital markets as on 31st March, 2014. Even by global standards, the largest groups in India have significant amount of financial capital and employ large number of employees. Panel A shows that the ten largest groups have 32 percent share of the Indian stock market, whereas Panel B indicates that the remaining 562 groups have another 35 percent share of the market. Thus, two-thirds of the entire Indian capital market is represented by business groups and they are present across all major sectors of the economy. The ten largest groups span energy and manufacturing, infrastructure development and services, with locations in regions of the country that offer access to growth opportunities.

Two of the oldest business houses, Tata and Birla, started operating in the middle 1800s, almost a century before India gained independence. These groups grew out of ethnic communities, located in the major port cities, who were engaged primarily in trading activities. India underwent major structural changes after it gained independence in 1947, with investments made by the government to develop a large public sector along the lines of a planned economy over the next forty years. The oldest business group listed in Panel A started out as Bank of Calcutta in 1806 and then became the Imperial Bank of India by merging with the Banks of Bombay and Madras. In 1955, the Government of India took ownership of it and renamed it State Bank of India.

As the Indian economy continued to develop, the business groups kept up with the changes and focused on sectors representing development. The 1960s witnessed the creation of groups like Reliance, which was aided by the policies of the License Raj[5] and focused on energy and chemicals. This was followed by economic reforms and liberalization which brought groups engaged in innovation and services, e.g. Wipro in information technology and Bharti in telecom, to the forefront. While most of the groups in Panel A have been founded by families, the notable exceptions are all in the financial services industry: State Bank of India, ICICI and HDFC were founded by institutions.

Business groups continue to dominate the Indian corporate environment and contribute toward its growth through the different economic regimes. Many of them diversified and transformed into conglomerates, with investments in a variety of sectors. The 2013 Forbes Asia's Fab 50[6] companies list includes 12 Indian companies of which 11 belong to business groups. Of the 10 brands identified by the 2013 Best Indian Brands study, conducted by Interbrand and The Economic Times, 9 belong to business groups. Certainly, this evidence suggests that the success and growth of Indian capital markets is largely due to the ubiquitous influence of business groups, indicating that business groups may be creating value for all investors alike.

However, business groups present problems as well. The Serious Fraud Investigation Office (SFIO)[7] has investigated multiple frauds committed by business groups. The notable ones are Kalyani Steel during 1990s, Daewoo India in 2004 and Mardia Chemicals in 2005, the last being for approximately USD 23 million. And of course, the massive accounting fraud at Satyam in 2008, where cash and bank loans were overstated by INR 53.6 billion (approximately USD 1.2 billion), rattled the global capital markets. Given the low levels of monitoring and enforcement in India, the evidence presented here may understate the extent of the problem.

Narayanaswamy et al. (2012) offer a variety of reasons why expectations of many corporate activities related to financial reporting and governance may be different in India than in developed countries, given the differences in institutional setup and business practices and the history of regulatory development. While such group ownership structures have come under severe criticism due to expropriation, inefficiency and unrelated diversification, they have also been a solution to poor institutional frameworks and deficient external factor markets. In summary, the legacy of business groups in India provides a rich setting to test alternative explanations to our hypotheses.

3. Literature review and hypotheses development

Many of the arguments about the benefits and costs of internal capital markets are made in the context of multidivisional diversified conglomerates. Williamson (1975), Myers and Majluf (1984) and Stein (1997) note that through internal capital markets, "headquarters" can allocate capital more efficiently than banks and other financial intermediaries, since internal capital markets reduce information asymmetries. Khanna and Tice (2001) argue that since managers have more job security when employed by a diversified firm or business group, they are more likely to take decisions that increase its value. However, Bhide (1990) and Glassman (1988) find that misallocation of capital can also occur due to biases, standards and stickiness in resource allocation rules (see also Berger and Ofek, 1996 and Rajan et al., 2000).

The benefits and costs of internal capital markets identified above are also valid in business group settings. Gopalan et al. (2014) find groups use dividends to reallocate resources from cash-rich firms and Gopalan et al. (2007) find propping is used to reduce bankruptcy costs. Khanna and Yafeh (2005) document that business groups engage in liquidity smoothing, and thus, risk sharing. However, Kali and Sarkar (2011) find business groups diversify to tunnel resources; Claessens et al. (2006) find capital is reallocated by business groups in emerging markets that have weak institutions and Lu and Yao (2006) find a group's control mechanism is used to benefit the dominant owner. Liebeskind (2000) concludes that internal capital

[5] The period 1947–90 is referred to as License Raj. During this period, India was plagued by extensive regulatory requirements and bureaucracy to obtain licenses for running businesses, causing low growth and investment.

[6] Refer to http://www.forbes.com/fab50/.

[7] The SFIO, created under the Ministry of Corporate Affairs of the Government of India in 2003, is a multi-disciplinary organization that detects and prosecutes white-collar crimes and frauds.

markets are beneficial only if firms are constrained for capital, not otherwise. Gonenc et al. (2007) find that business groups create internal capital markets to control large cash flows and that group affiliation improves accounting but not market measures of performance.

Insiders play an important role in the functioning of internal capital markets. They decide the inter-corporate fund transfers as well as the dividend payout policies for each firm within the group. Given the divergent conclusions in the literature, we hypothesize that insiders can either build reputation by being monitors on behalf of outside investors or act as self-serving agents when taking corporate financial decisions. In either of these scenarios, we expect firms with higher (lower) levels of insider ownership to retain more (less) capital in the firm.

We use three different corporate financial decisions to test our idea. The first relates to providing funds to internal capital markets. Each firm within a business group is perceived differently by the market, so the ability to raise capital varies. If the goal is to create a well-functioning internal capital market, then firms that are able to raise cheaper money from external sources should share it with the firms that cannot raise capital. If insiders are more focused on an individual firm than the group, we expect that firms with high insider ownership will contribute less to the group.

Hypothesis 1:. *After raising funds from external sources, firms with high insider ownership contribute less capital to the group.*

The second financial decision relates to a firm's dividend payout policies. La Porta et al. (2000) find that in the presence of strong investor protection rights, firms pay out lower dividends when they have high investment opportunities. Faccio et al. (2001) find that group-affiliated firms with high insider control pay higher dividends in Europe than in Asia and conclude that it is most likely because of better investor protection rights in Europe. Chen et al. (2009) find that despite weak legal and institutional pressure, firms in China with high insider ownership pay higher dividends for the purpose of tunneling. Given this body of evidence, from an internal capital perspective, we expect that insiders retain capital by paying lower dividends driven by either efficiency or opportunism.

Hypothesis 2:. *After receiving funds from the group, firms with high insider ownership pay out lower dividends.*

The third decision relates to receiving funds from the group. Many papers in this area argue that funds flow from a firm nearer to the base of the pyramid, where insiders have low control to a firm closer to the peak of the pyramid, where they have high control. This phenomenon is commonly referred to as "tunneling" (Johnson et al., 2000; Riyanto and Toolsema, 2008). Bertrand et al. (2002) and Bae et al. (2002) examine the extent of tunneling among group firms in India and Korea respectively and find that considerable diversion of funds takes place across group-affiliated firms.

Another form of intra-group transfer is "propping" (Friedman et al., 2003), where funds are transferred to financially distressed firms. This implicit insurance for distressed firms is an important consideration for outside investors. Using 644 financially distressed firms in five East Asian countries during the Asian financial crisis, Claessens et al. (2003) find that the probability of filing for bankruptcy is lower for group-affiliated firms. Bae et al. (2008) find that stock returns of non-announcing firms are sensitive to that of announcing firms for business groups in Korea, especially when the latter are cash rich, larger, better performers or have higher debt guarantee ratios. Gopalan et al. (2007) find business groups support financially weak group-affiliated firms in India. By examining related party transactions in China, Cheung et al. (2009) find that although both forms of transfers exist, tunneling is more significant.

We define *tunneling as movement of capital to low growth firms*, which suffer low market valuations and *propping as providing support to loss making or distressed firms* that are suffering from temporary shocks. We expect that if insiders act in their own self-interests, then business groups engage in tunneling or propping to benefit fundamentally weak firms where insider ownership is high. However, if these transfers are efficient, the firms that receive capital are fundamentally strong and deliver growth in the future.

Hypothesis 3:. *Firms that have incurred losses or exhibit slow growth receive more capital from the group when they have high insider ownership.*

4. Research design

4.1. Data

Our sample comprises all business-group-affiliated firms listed on the BSE A and B groups as on 1st September, 2011. We study a 10-year period, from financial year 2001–02 to 2010–11.[8] All required data are annual and have been extracted from the Centre for Monitoring the Indian Economy (CMIE) database Prowess. Prowess is the largest and most comprehensive database of financial information about Indian companies and has been used in previous studies like Khanna and Palepu (2000) and Gopalan et al. (2014). The principal sources of data for Prowess are the annual reports of individual companies.

[8] Corporate governance data became available from 2001 to 2002 following the K. M. Birla committee (SEBI, 1999) recommendation that all listed firms must file a Corporate Governance Report.

Table 2
Sample selection steps.

Step		Firm-years
1	BSE A & B listed firms as on September 1st, 2011 (2697 firms from Prowess)	26,970
2	Less: firm-years with missing age	(3156)
		23,814
3	Less: firm-years belonging to standalone firms	(15,098)
		8716
4	Less: firm-years belonging to business groups with less than two firms	(2333)
		6383
5	Less: observations with net sales <0, total assets <0 and |ROA| > 50%	(746)
		5637
6	Less: firm-years with no data for lead variables	(734)
	Final sample	***4903***
7	Less: Dividend > 0 (only for dividend based tests)	(1842)
	Final dividend sample	***3061***

Our final sample comprises 4903 firm-years across 10 years, 215 groups, 50 industries and 634 firms. The test based on dividends uses a smaller sample of 3061 firm-years across 10 years, 196 groups, 50 industries and 475 firms. The steps taken to arrive at this sub-sample have been described in Table 2.

4.2. Variables of interest

To test our hypotheses, we examine how variation of ownership level among firms belonging to a business group impacts the financial decisions mentioned in section 2. In order to capture this aspect of comparison across firms, we use business-group-mean-adjusted values of all variables except for indicator and industry-adjusted variables, where the adjustment is done by subtracting the (total-assets-weighted) mean value of the group. Let the unadjusted value of a particular variable z for firm k be denoted as $unadj\_z_k$. The mean value of z for group G is calculated as $unadj\_z_G = \sum_{k=1\ to\ n}(total\_asset_k * unadj\_z_k)/\sum_{k=1\ to\ n} total\_asset_k$, where group G has n number of firms. In our analysis, we use the adjusted value of z, which is calculated as $z_k = unadj\_z_k - unadj\_z_G$. In the sections below, we provide more details about the variables we use.

4.2.1. Primary variable

Our primary variable of interest is the level of insider ownership. In a review of the empirical literature on the divergence between cash flow and control rights, Eklund and Poulsen (2010) find that existence of large blockholders in a one share-one vote structure impacts firm value more negatively than the divergence of cash flow from control rights. Panel C of table 4 in Claessens et al. (2000) reveals that for six of the nine East Asian countries, the median value of cash-flow to voting rights equals one. Based on this evidence, we assume a one share-one vote structure and do not think that business groups are always organized as pyramids, where cash flow and control rights diverge. Hence, we focus on only cash flow rights of insiders.

4.2.2. Dependent and other key variables

The key variables for our analysis are described below.

- *Dividend: div* is the group-adjusted value of ($dividend\ paid_t/total\_asset_{t-1}$).
- *Loss:* an indicator variable which equals one if $net\ profit_t < 0$, zero otherwise.
- *Decline:* represents low growth and is the book-to-market ratio (*book value of debt + book value of equity)/(book value of debt + market value of equity*) for a firm at t-1.
- *Net investment from the group: netin* is the group-adjusted value of net investment from the group at t-1. This is defined as total investment (debt and equity) from all other group firms into firm k minus total investment made by firm k into all other group firms, divided by firm k's lagged total assets. If we denote investment from firm j to firm k (both in group G) at time t as $I_{j,k,t}$, then the total investment by G into k is $I_{G,k,t} = \sum_{j=1\ to\ n,\ j\neq k} I_{j,k,t}$ and similarly by k into the group is $I_{k,G,t} = \sum_{j=1\ to\ n,\ j\neq k} I_{k,j,t}$. Then net investment by the group to k at t is $NI_{G,k,t} = I_{G,k,t} - I_{k,G,t}$. We use the scaled value of this from a year ago, i.e., $netin = NI_{G,k,t-1}/total\_asset_{t-2}$.
- *Increase in capital received from the group: Δnetin* is the group-adjusted value of change in capital received by firm k from the group, and equals $(NI_{G,k,t} - NI_{G,k,t-1})/total\_asset_{t-1}$.
- *Increase in capital provided to the group: Δnetout* is the group-adjusted value of change in capital provided by firm k to the group and equals $(NI_{k,G,t} - NI_{k,G,t-1})/total\_asset_{t-1}$. Since $\Delta netout = -1 * \Delta netin$, we do not report the descriptive statistics, correlations and univariate test results for *Δnetout* separately.
- *External financing: f_extfin* is an indicator variable that equals one when a firm has raised more external finance relative to other firms in its group. External finance is defined as capital raised from outside the group divided by lagged total

Table 3
Definition of variables.

Variable	Description
own	percentage of shares held by non-institutional promoters, minus the weighted average value of this ownership percentage at the group level (SEBI describes a promoter as *'the person or persons who are in control of the company, directly or indirectly, whether as shareholder, director or otherwise; or person or persons named as promoters in any document of offer of securities to the public or existing shareholders or in the shareholding pattern, disclosed by the company under the provisions of the Listing Agreement'*. It includes Indian and foreign promoters and groups of like-minded individuals as promoters.)
own_sq	square of *own*
div	(dividend paid/lagged total assets), minus the weighted average of this ratio at the group level
netin	(investment received from group companies – investment made into group companies)/lagged total assets, minus the weighted average of this ratio at the group level at t-1
Δnetin	annual increase in net financing received by a firm from the group, minus the weighted average of the annual increase at the group level
Δnetout	annual increase in net investment made by a firm into the group, minus the weighted average of the annual increase at the group level; since Δnetout = −1*Δnetin, we do not report the descriptive statistics, correlations and univariate test results for *Δnetout* separately
extfin	(capital raised from outside the group/lagged total assets) at t-1, minus the weighted average value of this ratio at the group level
f_extfin	an indicator variable that takes the value 1 if *extfin* is greater than the group average, else 0
decline	(book value of debt + book value of equity)/(book value of debt + market value of equity) at t-1
loss	an indicator variable that takes the value 1 if net profit is negative, else 0
roa	(net profit/average total assets), minus weighted average value of the ratio at the group level
tobin	market-to-book ratio of equity, minus weighted average value of the ratio at the group level
tobin_lag	beginning of period *tobin*, i.e., at t-1
age	(financial year less year of incorporation), minus the weighted average age of all group firms
size	log of total assets, minus the weighted average size of all group firms
lev	(total debt/total assets), minus the weighted average of the ratio for all group firms
strat	log of the sum of energy and operating expenses, minus weighted average value of strat at the group level
h_sales	an indicator variable that takes the value 1 if $sales_{t+1} > sales_t$
interaction terms	interaction of variable *x* with variable *y* has been named *x*y*, where *x* is an ownership measure (*own* or *own_sq*) and *y* the key variable of the regression; for example, *own* interacted with *f_extfin* is represented as *own*f_extfin*

assets for a firm at t-1. If the group-adjusted value of this ratio is positive, then the indicator variable equals one, zero otherwise.

- *Change in sales: h_sales* represents future performance and is an indicator variable that equals one for firms that show an increase in sales from period t to t+1, i.e., if $(sales_{t+1} - sales_t) > 0$, zero otherwise.

4.2.3. Control variables

In addition to the variables stated above, our tests control for other firm characteristics identified in the literature as possible determinants of the dependent variables. We use the group-adjusted values of these variables.

- *ROA*: Return on Assets, i.e., $net\_income_t/[(total\_asset_t + total\_asset_{t-1})/2]$
- *Tobin*: Market-to-book ratio at t, i.e., $(book\ value\ of\ debt_t + market\ value\ of\ equity_t)/(book\ value\ of\ debt_t + book\ value\ of\ equity_t)$
- *Age:* number of years since incorporation
- *Size*: log of total assets
- *Lev:* leverage, i.e., $total\_debt_t/total\_asset_t$
- *Strat:* strategic activity costs measure the magnitude of a firm's operational activity (see Siegel and Choudhury, 2012), and equals $(financial\ operating\ expenses_t + non\text{-}financial\ operating\ expenses_t + energy\ expenses_t)$

We further interact every control variable with *own* and *own_sq* as we expect the effect of *own* and *own_sq* on the dependent variables to be moderated by each of the control variables (see Siregar and Utama, 2008). We also incorporate industry fixed effects in all our models. Table 3 displays the definitions of all the variables used in our study.

4.3. Empirical models

For each hypothesis, we initially run our regression on the full sample to assess whether the hypotheses holds. We then split the sample using *h_sales* and run the same regressions for each hypothesis. If the hypothesized insider behavior is confirmed when sales increase in the future, it indicates efficiency whereas if the behavior is observed when sales decrease, then it suggests opportunism.

4.3.1. Hypothesis 1

To test for the effect of insider ownership on a firm's capital contribution to the group, after it has raised capital from external markets, we use the following equation. We control for performance (ROA), age, size, leverage, growth and strategic

activity costs. The fourth and sixth explanatory terms on the right are the interactions of insider ownership and its square with capital raised from external markets.

$$\Delta netout = \alpha + \beta_1 * f\_extfin + \beta_2 * own + \beta_3 * own * f\_extfin + \beta_4 * own\_sq + \beta_5 * own\_sq * f\_extfin + controls + fixed\ effects \quad (1)$$

We expect a positive β_1, in line with the existence of internal capital markets since certain group firms raise capital from external sources and reallocate it to other group firms. However, we expect β_5 to be negative based on hypothesis 1 stated earlier. Given that we allow for a non-linear effect of ownership on this capital transfer decision, and that there is evidence of both alignment and entrenchment effects of insider ownership in the literature, we expect β_3 to be positive. Furthermore, if these results hold for the sample of firms that have increased sales in the future ($h\_sales = 1$), it will indicate that the insiders are acting in the best interests of the firm. However, if these expectations are true for firms where sales decline in the future, then it will indicate expropriation by insiders.

We also expect that firms that are (i) better performers (i.e. with higher ROA) generate more capital and thus contribute more to the group (Denis and Osobov, 2008), (ii) older have fewer investment opportunities and so contribute more to the group (Bulan and Subramanian, 2009), (iii) larger can raise capital more easily and hence contribute more to the group (Denis and Osobov, 2008), (iv) highly leveraged have restrictive debt covenants and so contribute less to the group (Smith and Warner, 1979), (v) displaying higher growth (i.e. higher Tobin's Q) have more investment opportunities and thus contribute less to the group (Ambarish et al., 1987), and (vi) incurring higher strategic activity costs have higher capital requirement and hence contribute less to the group (Siegel and Choudhury, 2012). We expect the interaction of these variables with insider ownership to be moderated in such a way that the ownership effect dominates, i.e., regardless of whether the control variable increases or decreases capital contribution to the group, at high levels of ownership, the interaction term (*own_sq*control variable*) will have a negative slope and at low to moderate levels of ownership, the interaction term (*own*control variable*) will have a zero or positive slope.

4.3.2. Hypothesis 2

We next examine the effect of insider ownership on the amount of dividends paid using the following equation. As above, we control for performance, age, size, growth, leverage and strategic activity costs. The fourth and sixth explanatory terms on the right are the interactions of insider ownership and its square with investments from the group.

$$\mathrm{div} = \alpha + \beta_1 * \mathrm{netin} + \beta_2 * \mathrm{own} + \beta_3 * \mathrm{own} * \mathrm{netin} + \beta_4 * \mathrm{own\_sq} + \beta_5 * \mathrm{own\_sq} * \mathrm{netin} + controls + fixed\ effects \quad (2)$$

Based on hypothesis 2, we expect β_5 to be negative, indicating that capital is retained at firms with high insider ownership. As discussed above, since we allow for a non-linear effect, we expect β_3 to be positive. Moreover, if these results hold for firms with $h\_sales = 1$, it will indicate efficiency. However, if these results hold for firms with $h\_sales = 0$, it will indicate that insiders expropriate, i.e., hoard resources for no fundamental reason. We expect the control variables and its interaction with ownership to have signs similar to that for equation 1.

4.3.3. Hypothesis 3

For the final hypothesis, we use the equation below to test whether firms that exhibit slow growth or have incurred a loss receive more capital from the group when they have high insider ownership. We control for age, leverage and strategic activity costs.

$$\begin{aligned}\Delta netin = {} & \alpha + \beta_1 * decline + \beta_2 * loss + \beta_3 * own + \beta_4 * own * decline + \beta_5 * own * loss \\ & + \beta_6 * own\_sq + \beta_7 * own\_sq * decline + \beta_8 * own\_sq * loss + controls + fixed\ effects\end{aligned} \quad (3)$$

Tunneling is the transfer of funds to firms that are declining due to low growth opportunities. The coefficients β_1, β_4 and β_7, i.e., low growth and low growth interacted with the high insider ownership variables capture where funds are tunneled. We expect β_1 to be positive when groups engage in tunneling. If tunneling is influenced by insider ownership, as stated in hypothesis 3, we expect β_7 to be positive and β_4 to be negative. Propping occurs when funds are transferred to firms incurring financial losses. The coefficients β_2 (*loss*), β_5 and β_8 (*loss* interacted with the high insider ownership variables) capture the existence of propping. We expect β_2 to be positive if propping occurs across all loss making firms. However, we expect β_8 to be positive when firms with higher insider ownership get more help, as stated in hypothesis 3. We expect β_5 to be negative since we allow a non-linear effect. As stated earlier, if these tunneling and propping results hold for firms that have $h\_sales = 1$, it will indicate that the insiders are acting in the best interests of the firm since they help fund growth. However, if these expectations are true for firms where $h\_sales = 0$, then it will indicate expropriation by insiders. We expect the control variables and its interaction with ownership to have signs opposite to that for equation 1.

Moreover, the footprint and visibility of a firm has been found to impact its tunneling and propping activities (see Gopalan et al., 2007) and size is used as a measure for reputation and visibility (e.g. see Udayasankar, 2008). So we further split the sample into two based on size, and test equation 3 separately for each sub-sample. Firms with size greater than the weighted average group mean are considered large firms, while the rest are considered small firms.

For all our tests, we use the Newey–West approach (Newey and West, 1987) to correct for standard errors and aggregate the (year wise) cross-sectional estimates using the Fama–MacBeth methodology (Fama and MacBeth, 1973). The mean

values of the estimated slopes across the ten years and the corresponding statistical significance are reported, which accounts for year fixed effects (Petersen, 2009). We also control for industry fixed effects.

We also examine the economic significance of the key terms in our equations to understand the real impact of insider ownership, in monetary units (millions of INR) and as a fraction of the value of the decision variable. The economic significance is calculated as the marginal change in the decision variable for a 1 percent change in ownership; arising from the terms related to ownership, ownership squared and the interaction of these terms with the conditioning variable in each of the equations above. We exclude the effects of the control variables. Further, we also calculate the inflexion point of the non-linear function to identify high levels of ownership, where the marginal effect is due to the squared term.

5. Results

5.1. Sample characteristics

Table 4a presents the descriptive statistics of the variables used in the study. We find that our insider ownership proxies are slightly skewed to the right, with median values of zero and mean values marginally positive. The mean value for *loss* is 0.13, which implies that 13 percent of the firm-years in our sample are loss-making. Similarly, the mean value for *f_extfin* is 0.309, which implies that 30.9 percent of the firms raise more external finance than the group mean of external finance raised. We also see that almost 74 percent show an increase in future sales (*h_sales*). Interestingly, the median value for *decline* is 1.02, indicating that more than half of the group-affiliated firms have book values higher than their corresponding market values. The negative median values for *size* and *strat* indicate that there are many small firms in a group, and most of them do not incur large operating or energy related costs.

Table 4b presents both the Pearson and the Spearman correlation coefficients. We find *Δnetin* and *f_extfin* are positively correlated with insider ownership, indicating that high insider owned firms receive more group capital and raise more external capital; *div* and insider ownership are negatively correlated indicating that high insider owned firms pay lesser dividends; *h_sales* and insider ownership are positively correlated indicating that high insider owned firms display improved future performance. Also, firms with higher insider ownership are younger, smaller, have lower leverage and lower strategic costs.

Next, we carry out univariate tests on our key variables, by ownership and future sales growth. We compare the mean values of all variables for firms above the median with those below the median. Table 5 presents these results. Panel A of Table 5 displays the differences by ownership. We find that within a business group, insiders own a higher share of firms that (a) are younger, smaller, more growth oriented and financially stronger and (b) receive more capital (both from external and group sources). Panel B of Table 5 displays the differences by *h_sales*. Firms with increasing sales are larger, more profitable, raise more external finance, show higher growth, incur more strategic activity costs and have higher insider ownership.

Although Table 4 indicates that there is 6–7 percent correlation between our proxy for efficiency (*h_sales*) and the experimental variables (*own* and *own_sq*), the differences observed from Table 5 clearly indicate that these two measures represent different firm characteristics. Based on univariate tests, our proxy for efficiency is identified with higher current profitability and more strategic costs but not larger group capital infusion or dividend payout, whereas higher insider owned firms clearly receive more group capital and pay lesser dividends in spite of lower strategic costs and without necessarily enjoying higher current profitability.

5.2. Regression results

Hypothesis 1 is tested using equation 1 and the results are presented in Table 6. For each of the samples we analyze (i.e., all firms, firms with increasing sales, and those with decreasing sales), we consider two models: model 1 excludes all ownership terms from equation 1 whereas model 2 includes these. For the full sample, model 1 indicates that after raising capital from external markets, all business-group-affiliated firms contribute to the group (β_1 is 0.028, significant at 5 percent); this confirms that external funds are used to support internal capital markets. Model 2 also confirms this result; additionally, it indicates that less (more) funds are contributed at higher (lower) levels of insider ownership (β_3 is 2.09 and β_5 is –2.43, both significant at the 5 percent level), confirming our first hypothesis. The adjusted R-squared increases from 9 percent in model 1 to 16.4 percent in model 2, indicating that insider ownership is an important determinant of the decision to retain or pass on funds.[9] The analysis of the subsamples shows that the results hold only for firms displaying sales growth: a 1 percent increase in ownership causes a reduction of INR 123.47 million in (year-over-year incremental) capital contribution to the group when insiders own more than 74.79 percent of the firm.[10] The incremental investment made by a firm to the group after raising external capital is on average INR 1526.97 million, which implies that a 1 percent increase in ownership

[9] Basu (2012) observes that academic research in accounting has moved away from "how much" to "whether" any additional insight is obtained from the analysis. We find that the adjusted R-squared for the full sample increases by 7–10 percent when ownership is included as an explanatory variable.

[10] The marginal contribution to the group for a 1% change in ownership (in INR) = $[\beta_2 + \beta_3{}^*f\_extfin_i + 2\beta_4{}^*own_i + 2\beta_5{}^*own_i{}^*f\_extfin_i]{}^*lagged\_total\_asset/100$ = [–0.84265]*14652.42/100 = –123.469 million INR. This expressed as a fraction of change in contribution to the group, for firms that have *f_extfin* = 1, i.e., raised external financing = –123.47/1526.97 = –8.09%. The inflexion point = weighted average ownership for the group – $0.5(\beta_2+\beta_3+\beta_7+\beta_{10}+\beta_{13}+\beta_{16}+\beta_{19}+\beta_{22})/(\beta_4+\beta_5+\beta_8+\beta_{11}+\beta_{14}+\beta_{17}+\beta_{20}+\beta_{23})$ = 0.490296–0.5*7.303729/(–14.1757) = 0.490296 + 0.257615 = 0.747911 = 74.79%. Average values of variables are used for all calculations.

Table 4
Sample descriptive statistics and correlation coefficients.

Panel A: Sample descriptive statistics

Variable	N	Minimum	Lower quartile	Mean	Median	Upper quartile	Maximum	Std dev
own	4546	–0.347	–0.044	0.014	0.000	0.065	0.385	0.121
own_sq	4546	–0.343	–0.044	0.014	0.000	0.059	0.420	0.124
netin	4007	–9.053	–0.735	1.651	0.000	1.707	40.100	6.574
Δnetin	4276	–3.983	–0.055	0.024	0.000	0.033	5.243	0.922
div	3063	–0.064	–0.003	0.000	0.000	0.002	0.061	0.014
f_extfin	4903	0.000	0.000	0.309	0.000	1.000	1.000	0.462
decline	4479	0.020	0.700	1.080	1.020	1.260	20.600	0.930
loss	4903	0.000	0.000	0.130	0.000	0.000	1.000	0.330
age	4903	–56.670	–11.810	–3.920	–0.400	3.600	49.510	17.950
size	4903	–5.776	–1.593	–0.913	–0.305	0.177	0.621	1.458
lev	4188	–0.383	–0.073	–0.015	0.000	0.036	0.438	0.131
roa	4903	–0.285	–0.041	–0.010	0.000	0.022	0.227	0.079
tobin_lag	4479	–2.671	–0.201	–0.056	–0.002	0.085	3.385	0.694
strat	4902	–10.448	–1.617	–0.923	–0.205	0.187	3.906	1.736
h_sales	4903	0.000	0.000	0.738	1.000	1.000	1.000	0.440

Panel B: Pearson's (below the diagonal) and Spearman's (above the diagonal) correlation coefficients

	own	own_sq	f_extfin	div	netin	Δnetin	decline	loss	roa	age	size	lev	tobin_lag	strat	h_sales
own	1	0.99***	0.03**	–0.05***	0.26***	0.07***	–0.03**	–0.04**	0.02	–0.11***	–0.16***	–0.05***	–0.07***	–0.15***	0.06***
own_sq	0.98***	1	0.03*	–0.05***	0.26***	0.07***	–0.03*	–0.04**	0.02	–0.11***	–0.14***	–0.05***	–0.06***	–0.13***	0.06***
f_extfin	0.03*	0.02	1	–0.02	0.09***	0.04**	–0.07***	–0.02	0	0	0.02	0.05***	0.01	0.01	0.04***
div	–0.02	–0.02	–0.02	1	0.16***	0.04*	–0.1***	–0.1***	0.45***	–0.08***	–0.01	–0.22***	0.29***	0.04**	0.02
netin	0.19***	0.19***	0.08***	0.12***	1	0.01	–0.03*	0.07***	–0.08***	–0.31***	–0.4***	–0.01	–0.05***	–0.37***	–0.02
Δnetin	0.15***	0.16***	–0.01	–0.01	0.03	1	0.03	0.01	0.04**	0.01	0.01	0.04***	–0.01	0.01	0.02
decline	–0.05***	–0.04***	–0.07***	–0.1***	–0.07***	–0.01	1	0.02	–0.11***	0.02	–0.02	–0.09***	–0.42***	–0.05***	–0.06***
loss	–0.05***	–0.04***	–0.02	–0.04**	0.12***	0.01	0.03*	1	–0.37***	–0.04***	–0.09***	0.08***	0.06***	–0.11***	–0.19***
roa	0.02	0.02	–0.01	0.46***	–0.12***	0.01	–0.06***	–0.43***	1	0.07***	0.2***	–0.11***	0.25***	0.26***	0.08***
age	–0.14***	–0.14***	0.01	–0.05***	–0.28***	–0.03**	0.02	–0.05***	0.09***	1	0.35***	0.01	0.05***	0.35***	0.02
size	–0.17***	–0.16***	0.02	–0.01	–0.45***	–0.03*	0.02	–0.09***	0.21***	0.31***	1	0.17***	0.19***	0.86***	0.06***
lev	–0.06***	–0.05***	0.05***	–0.19***	0.01	0.02	–0.07***	0.11***	–0.15***	–0.01	0.18***	1	0.12***	0.06***	–0.01
tobin_lag	–0.02	0	0.01	0.43***	0.12***	0.01	–0.19***	0.05***	0.24***	0.01	0.06***	0.01	1	0.19***	0
strat	–0.14***	–0.14***	0.03**	0.03	–0.43***	–0.03**	–0.03*	–0.12***	0.25***	0.28***	0.86***	0.06***	0.06***	1	0.07***
h_sales	0.07***	0.07***	0.04***	–0.01	–0.05***	0.01	–0.09***	–0.19***	0.07***	0.02	0.06***	–0.02	–0.02	0.08***	1

Note: ***, **, * indicate that the coefficient is significant at the 1 percent, 5 percent, and 10 percent level, respectively.

Table 5
Univariate tests.

Panel A: Split by ownership				
Variable	High ownership	Low ownership	Difference	t Stat
netin	2.71	0.72	2.00***	9.54
Δnetin	0.11	–0.05	0.16***	5.51
div	0.00	0.00	–0.00***	3.27
f_extfin	0.34	0.28	0.06***	4.80
decline	1.03	1.12	–0.09***	3.31
loss	0.11	0.14	–0.03***	3.45
age	–5.49	–2.66	–2.84***	5.37
size	–1.13	–0.74	–0.39***	9.37
lev	–0.02	–0.01	–0.01	1.29
roa	–0.01	–0.01	–0.00	0.63
tobin_lag	–0.06	–0.05	–0.01	0.61
strat	–1.12	–0.76	–0.36***	7.19
h_sales	0.76	0.72	0.04***	3.04
Panel B: Split by change in future sales				
Variable	Sales increase	Sales decrease	Difference	t stat
own	0.02	0.00	0.02***	4.90
netin	1.47	2.19	–0.72***	2.66
Δnetin	0.03	0.00	0.03	0.86
div	0.00	0.00	–0.00	0.64
f_extfin	0.32	0.28	0.04***	2.69
decline	1.03	1.22	–0.20***	4.42
loss	0.09	0.23	–0.14***	11.35
age	–3.72	–4.49	0.77	1.28
size	–0.86	–1.06	0.20***	4.00
lev	–0.02	–0.02	0.00	0.00
roa	–0.01	–0.02	0.01***	4.30
tobin_lag	–0.06	–0.03	–0.03	1.29
strat	–0.84	–1.17	0.33***	5.52

Notes: For Panel A, the high ownership group has *own* > 0, i.e., *unadj_own* > weighted average *unadj_own* for the group. The means of the samples are then compared using t-tests. ***, ** and * indicate that the coefficient is significant at the 1 percent, 5 percent, and 10 percent level, respectively. For Panel B, the sales increase group has $sales_{t+1} > sales_t$. The means of the samples are then compared using t-tests. *** indicates that the coefficient is significant at the 1 percent level.

causes a reduction of 8.09 percent of the contribution by the firm to its group. From this we conclude that insiders indeed retain capital where their ownership is high; however, this is efficient behavior, as it helps increase future sales.

Table 7 presents the results of testing hypothesis 2 using equation 2. For the full sample, model 1 indicates that more dividends are paid by firms that borrow from the group; additionally, dividends are higher for profitable, high-value and younger firms. Model 2 indicates that β_3 and β_5 are not different from zero, implying no support for hypothesis 2. However, the results indicate that higher profitability (ROA) firms pay out higher dividends, but this dividend payout increases at a diminishing rate with increase in insider ownership. The results for the sample of firms with *h_sales = 1* is identical to the full sample. However, for firms with decreasing sales, β_3 is 0.047 and β_5 is –0.060, both significant at the 1 percent level, confirming hypothesis 2. This implies a 1 percent increase in ownership causes a reduction of INR 4.00 million in dividend payout when insiders own greater than 82.93 percent of the firm. The average dividend paid by a firm after receiving capital from the group is INR 164.44 million, implying a 1 percent increase in ownership causes a dividend reduction of 2.44 percent. In summary, we find that insiders prefer to retain funds received from the group rather than distribute it as dividends even when there is no future growth; this indicates opportunistic behavior by insiders.[11]

We test our third hypothesis separately for small and large firms using equation 3, as mentioned in section 4.3.3. For small firms in Table 8 Panel A, we see that neither model 1 nor model 2 provide any evidence that firms in *decline* or incurring a *loss* receive capital from the group. Contrary to our expectations, for firms that grow in the future, β_4 is 4.204 and β_7 is –4.002, both marginally significant at 10 percent. However, β_3 is –5.843 and β_6 is 6.453, both significant at 5

[11] Although the extant literature documents that dividends are sticky, in equation 2, we do not control for lagged dividends because it controls for the effect of dividends being reinvested by the owners into other group affiliated firms (Gopalan et al., 2014). In unreported tests, we find that using change in dividends as the dependent variable in equation 2 for the set of firms showing a decline in future sales, the coefficient for *own* is 0.155***, t = 4.3 and for *own_sq* is –0.207***, t = –6.0, but the interaction terms of *own* and *own_sq* with *netin* are insignificant. This indicates that qualitatively our results are unchanged; i.e. for poorly performing firms, more capital is retained as insider ownership increases.

Table 6
Results for Equation (1) relating to hypothesis 1.

Model: $\Delta netout = \alpha + \beta_1 * f\_extfin + \beta_2 * own + \beta_3 * own * f\_extfin + \beta_4 * own\_sq + \beta_5 * own\_sq * f\_extfin + \beta_6 * roa + \beta_7 * own * roa + \beta_8 * own\_sq * roa + \beta_9 * age + \beta_{10} * own * age + \beta_{11} * own\_sq * age + \beta_{12} * size + \beta_{13} * own * size + \beta_{14} * own\_sq * size + \beta_{15} * lev + \beta_{16} * own * lev + \beta_{17} * own\_sq * lev + \beta_{18} * lag\_tobin + \beta_{19} * own * lag\_tobin + \beta_{20} * own\_sq * lag\_tobin + \beta_{21} * strat + \beta_{22} * own * strat + \beta_{23} * own\_sq * strat + fixed\ effects$

Variable	Full sample	Full sample		High sales		Low sales	
	Predicted	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Intercept		0.205***	0.142***	0.165***	0.145**	0.427***	0.478**
		[4.82]	[3.65]	[4.32]	[2.37]	[5.82]	[3.28]
f_extfin	+	0.028**	0.044**	0.057***	0.069***	–0.079***	–0.074
		[2.92]	[2.99]	[3.54]	[4.32]	[–4.13]	[–1.62]
own	+		–1.026**		–1.960***		0.919
			[–2.45]		[–4.20]		[0.55]
own_f_extfin	+		2.092**		3.621**		2.939
			[2.53]		[3.00]		[1.57]
own_sq	–		–0.145		0.695		–0.811
			[–0.22]		[1.04]		[–0.48]
ownsq_f_extfin	–		–2.426**		–3.531**		–2.741
			[–3.01]		[–2.91]		[–1.51]
roa	+	–0.257	–0.009	–0.388	–0.163	–0.458**	0.008
		[–0.98]	[–0.05]	[–1.48]	[–0.89]	[–2.88]	[0.05]
own_roa	+		6.477		0.468		–5.758
			[1.63]		[0.06]		[–0.16]
ownsq_roa	–		–4.888		–1.293		21.931
			[–0.78]		[–0.12]		[0.56]
age	+	0.000	–0.001	0.001	0.000	–0.002	–0.004**
		[0.27]	[–0.95]	[0.62]	[0.07]	[–1.74]	[–2.81]
own_age	+		0.043		–0.016		0.087
			[1.70]		[–0.34]		[0.97]
ownsq_age	–		–0.038		0.013		–0.054
			[–1.24]		[0.26]		[–0.60]
size	+	–0.024	–0.016	–0.027	–0.008	–0.043	–0.112
		[–0.88]	[–0.81]	[–1.08]	[–0.45]	[–0.66]	[–1.30]
own_size	+		–1.515		–4.746**		–4.657
			[–0.97]		[–3.12]		[–0.86]
ownsq_size	–		1.019		4.336**		3.108
			[0.73]		[3.21]		[0.67]
lev	–	–0.171	–0.033	–0.189	–0.063	0.029	0.421**
		[–1.60]	[–0.43]	[–1.21]	[–0.41]	[0.21]	[2.40]
own_lev	+		1.992		4.777		35.419
			[0.56]		[0.97]		[1.57]
ownsq_lev	–		–5.442		–9.353		–27.708
			[–1.41]		[–1.78]		[–1.29]
tobin_lag	–	0.057	0.027	0.055	0.047	0.060*	–0.005
		[1.35]	[1.00]	[1.28]	[1.05]	[2.22]	[-0.11]
own_tobin_lag	+		0.467		0.748**		–10.551
			[1.17]		[2.84]		[–0.95]
ownsq_tobin_lag	–		–0.317		–0.818		10.772
			[–0.63]		[–1.54]		[0.93]
strat	–	0.063**	0.044	0.070**	0.053**	0.066	0.120
		[2.47]	[1.81]	[2.63]	[2.72]	[1.48]	[1.79]
own_strat	+		0.982		4.413***		2.801
			[0.72]		[3.48]		[0.87]
ownsq_strat	–		–0.731		–4.224***		–1.401
			[–0.68]		[–4.24]		[–0.55]
Adj. RSq		0.090	0.164	0.146	0.255	0.175	0.167
Obs		3504	3470	2656	2635	848	835

Notes: The results in this table examine whether insider ownership has an effect on the intra-group transfer of capital raised from sources outside the group; the values of β_3 and β_5 indicate the role of insider ownership in modifying this relationship. Newey–West t-statistic presented below the coefficients; ***, ** and * indicate that the coefficient is significant at the 1 percent, 5 percent, and 10 percent level, respectively. The slopes and adjusted R-squares reported above are the average of the annual cross-sectional regressions (Fama–MacBeth); the total observations across all cross-sections are also reported.

percent. This implies a 1 percent increase in ownership causes a reduction of INR 97.50 million in (year-over-year incremental) capital infusion when insiders own more than 45.26 percent of the firm. The incremental capital received by a weak firm on average is INR 870.88 million, implying a 1 percent increase in ownership reduces the amount received by a firm by 11.20 percent.[12]

[12] Calculations are similar to that in footnote 10.

Table 7
Results for equation (2) relating to hypothesis 2.

Model: $div = \alpha + \beta_1 * netin + \beta_2 * own + \beta_3 * own * netin + \beta_4 * own\_sq + \beta_5 * own\_sq * netin + \beta_6 * roa + \beta_7 * own * roa + \beta_8 * own\_sq * roa + \beta_9 * age + \beta_{10} * own * age + \beta_{11} * own\_sq * age + \beta_{12} * size + \beta_{13} * own * size + \beta_{14} * own\_sq * size + \beta_{15} * lev + \beta_{16} * own * lev + \beta_{17} * own\_sq * lev + \beta_{18} * lag\_tobin + \beta_{19} * own * lag\_tobin + \beta_{20} * own\_sq * lag\_tobin + \beta_{21} * strat + \beta_{22} * own * strat + \beta_{23} * own\_sq * strat + fixed\ effects$

	Full sample	Full sample		High sales		Low sales	
Variable	Predicted	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Intercept		–0.000	0.001	–0.001	–0.001	0.004	0.001
		[–0.17]	[0.32]	[–0.40]	[–0.98]	[1.76]	[0.31]
netin	?	0.000*	0.000***	0.000	0.000***	0.001**	0.001*
		[2.08]	[6.23]	[0.24]	[4.93]	[3.09]	[2.31]
own	+		–0.009		–0.005		–0.058
			[–0.57]		[–0.41]		[–0.71]
own_netin	+		0.004		0.005		0.047***
			[0.56]		[0.56]		[6.66]
own_sq	–		0.009		0.004		–0.033
			[0.73]		[0.38]		[–0.42]
ownsq_netin	–		–0.006		–0.007		–0.060***
			[–0.81]		[–0.88]		[–4.81]
Roa	+	0.061***	0.055***	0.068***	0.064***	0.027*	0.008
		[14.49]	[16.52]	[12.36]	[13.70]	[2.22]	[0.39]
own_roa	+		–0.397***		–0.638***		–2.853
			[–5.28]		[–4.10]		[–1.30]
ownsq_roa	–		0.480***		0.671***		3.132
			[6.21]		[5.02]		[1.42]
age	+	–0.000**	–0.000*	–0.000	–0.000*	–0.000***	–0.000**
		[–2.43]	[–2.13]	[–1.71]	[–1.91]	[–7.01]	[–2.56]
own_age	+		0.000		0.000		0.010
			[0.64]		[0.38]		[1.50]
ownsq_age	–		–0.000		–0.000		–0.012
			[–0.57]		[–0.36]		[–1.68]
size	+	0.000	–0.000	0.000	–0.001	0.000	0.008**
		[0.21]	[–1.17]	[0.13]	[–0.79]	[0.04]	[3.01]
own_size	+		–0.002		0.020		–1.162***
			[–0.04]		[0.30]		[–4.21]
ownsq_size	–		0.009		–0.006		1.052***
			[0.19]		[–0.09]		[4.09]
Lev	–	–0.015***	–0.014***	–0.012***	–0.011***	–0.021***	–0.052***
		[–7.25]	[–10.33]	[–4.24]	[–7.34]	[–6.21]	[–4.81]
own_lev	+		–0.057		–0.315**		3.867*
			[–0.44]		[–2.64]		[2.29]
ownsq_lev	–		0.016		0.235*		–3.014*
			[0.11]		[1.90]		[–2.17]
tobin_lag	–	0.011***	0.012***	0.011***	0.011***	0.008**	0.016
		[6.02]	[5.47]	[7.13]	[7.11]	[3.40]	[1.66]
own _tobin_lag	+		–0.035		–0.030		–2.303
			[–1.10]		[–0.82]		[–1.02]
ownsq _tobin_lag	–		0.036		0.038		2.079
			[0.94]		[0.94]		[1.01]
strat	–	–0.000	0.000	–0.001	–0.000	0.000	–0.005*
		[–1.04]	[0.25]	[–0.88]	[–0.11]	[0.25]	[–2.02]
own_strat	+		0.008		0.003		0.908**
			[0.19]		[0.05]		[3.50]
ownsq_strat	–		–0.011		–0.014		–0.827***
			[–0.29]		[–0.26]		[–3.51]
Adj. RSq		0.472	0.534	0.489	0.568	0.510	0.781
obs		2227	2208	1786	1771	441	437

Notes: The results in this table examine whether insider ownership influences the decision to pay dividends after receiving funds from the group; the values of β_3 and β_5 indicate the role of insider ownership in modifying this relationship. Newey–West t-statistic presented below the coefficients; ***, ** and * indicate that the coefficient is significant at the 1 percent, 5 percent, and 10 percent level, respectively. The slopes and adjusted R-squares reported above are the average of the annual cross-sectional regressions (Fama–MacBeth); the total observations across all cross-sections are also reported.

From Table 8 Panel B we see that large firms that are in *decline* receive no capital from the group while firms incurring a *loss* receive money from the group (model 1). Thus, business groups provide mutual insurance to affiliated firms when reputation risk is higher, i.e. for large firms. However, model 2 indicates that there is no evidence of either tunneling or propping. For firms with sales growth, β_5 is 50.00 and β_8 is –41.95, both significant at the 5 percent level, indicating reduced use of propping as insider ownership increases, contrary to our expectations in hypothesis 3. These results imply a 1 percent increase in ownership causes a reduction of INR 603.98 million in (year-over-year incremental) capital infusion when

Table 8
Results for equation (3) relating to hypothesis 3.

Model: $\Delta netin = \alpha + \beta_1 * decline + \beta_2 * loss + \beta_3 * own + \beta_4 * own * decline + \beta_5 * own * loss + \beta_6 * own\_sq + \beta_7 * own\_sq * decline + \beta_8 * own\_sq * loss + \beta_9 * roa + \beta_{10} * own * roa + \beta_{11} * own\_sq * roa + \beta_{12} * age + \beta_{13} * own * age + \beta_{14} * own\_sq * age + \beta_{15} * size + \beta_{16} * own * size + \beta_{17} * own\_sq * size + \beta_{18} * lev + \beta_{19} * own * lev + \beta_{20} * own\_sq * lev + \beta_{21} * lag\_tobin + \beta_{22} * own * lag\_tobin + \beta_{23} * own\_sq * lag\_tobin + \beta_{24} * strat + \beta_{25} * own * strat + \beta_{26} * own\_sq * strat + fixed\ effects$

Panel A: Small firms

Variable	Full sample	Full sample		High sales		Low sales	
	Predicted	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Intercept		–0.214**	–0.163**	–0.158	–0.100*	–0.483	–0.128
		[–3.04]	[–2.55]	[–1.85]	[–1.90]	[–1.56]	[–0.27]
decline	+	0.007	0.036	–0.005	–0.009	0.076	–0.267
		[0.13]	[0.83]	[–0.07]	[–0.21]	[0.77]	[–0.68]
loss	+	0.017	–0.022	0.113	0.121	–0.083	–0.086
		[0.13]	[–0.24]	[0.80]	[1.34]	[–1.23]	[–0.86]
own	–		–1.951		–5.843**		7.465
			[–0.90]		[–2.34]		[1.24]
own_decline	–		1.058		4.204*		–1.046
			[0.49]		[1.91]		[–0.11]
own_loss	–		4.859		–2.172		97.020
			[1.00]		[–0.34]		[1.09]
own_sq	+		2.318		6.453**		–9.474*
			[1.04]		[2.84]		[–1.92]
ownsq_decline	+		–0.825		–4.002*		2.886
			[–0.40]		[–2.19]		[0.35]
ownsq_loss	+		–3.123		5.137		–116.57
			[–0.59]		[0.75]		[–1.06]
age	–	–0.000	0.001	0.000	–0.000	0.001	0.000
		[–0.16]	[0.35]	[0.01]	[–0.02]	[0.53]	[0.08]
own_age	–		–0.029		0.006		0.072
			[–0.77]		[0.12]		[0.57]
ownsq_age	+		0.019		0.006		–0.089
			[0.46]		[0.10]		[–0.71]
lev	+	0.155	0.125	0.084	–0.017	–0.108	–1.094*
		[1.50]	[1.44]	[0.72]	[–0.20]	[–0.53]	[–2.24]
own_lev	–		–4.040		–2.146		–3.625
			[–0.72]		[–0.22]		[–0.11]
ownsq_lev	+		6.737		5.380		1.104
			[1.15]		[0.56]		[0.04]
Strat	+	–0.049**	–0.036	–0.041	–0.034	–0.019	–0.033
		[–2.78]	[–1.57]	[–1.61]	[–1.37]	[–0.44]	[–0.86]
own_strat	–		0.810		0.392		4.650
			[1.51]		[0.73]		[1.45]
ownsq_strat	+		–0.770		–0.223		–4.133
			[–1.52]		[–0.38]		[–1.57]
Adj. RSq		0.108	0.185	0.188	0.309	0.168	0.126
Obs		2080	2054	1546	1531	534	523

Panel B: Large firms

Variable	Full sample	Full sample		High sales		Low sales	
	Predicted	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Intercept		–0.046	–0.008	–0.114*	–0.134***	–0.042	–1.361
		[–1.04]	[–0.16]	[–2.22]	[–3.90]	[–0.57]	[–1.17]
decline	+	0.020	–0.019	0.051***	0.068*	0.018	0.701
		[1.02]	[–0.43]	[4.83]	[2.02]	[0.35]	[0.97]
loss	+	0.196**	0.155	0.248**	0.023	–0.035	–1.787
		[2.40]	[1.45]	[2.42]	[0.73]	[–0.29]	[–1.35]
own	–		–2.245		–4.875		–577.14
			[–0.38]		[–0.38]		[–1.57]
own_decline	–		–0.047		–0.338		406.113
			[–0.01]		[–0.04]		[1.31]
own_loss	–		14.136		50.004**		–907.77
			[1.61]		[2.72]		[–1.69]
own_sq	+		4.509		7.007		380.799
			[0.67]		[0.50]		[1.06]
ownsq_decline	+		–0.113		–0.681		–244.46
			[–0.02]		[–0.08]		[–0.73]

(*continued on next page*)

Table 8 (*continued*)

Panel B: Large firms							
Variable	Full sample	Full sample		High sales		Low sales	
	Predicted	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
ownsq_loss	+		–12.134		–41.947**		953.161
			[–1.82]		[–2.65]		[1.73]
age	–	0.000	0.000	–0.001	–0.001	0.011**	0.037*
		[0.20]	[–0.14]	[–0.55]	[–0.53]	[2.47]	[2.14]
own_age	–		0.200		0.254		48.691
			[1.18]		[0.83]		[1.34]
ownsq_age	+		–0.211		–0.265		–46.860
			[–1.18]		[–0.86]		[–1.33]
lev	+	0.353	0.437	0.391	0.364	0.528	9.267
		[1.01]	[1.50]	[0.78]	[1.15]	[0.69]	[1.30]
own_lev	–		–34.330**		–26.637		90.902
			[–2.65]		[–1.31]		[0.06]
ownsq_lev	+		27.582**		16.908		906.745
			[2.67]		[0.96]		[0.42]
strat	+	–0.114***	–0.099**	–0.086**	–0.109**	–0.011	–0.211*
		[–5.14]	[–3.18]	[–3.31]	[–2.96]	[–0.10]	[–1.92]
own_strat	–		–5.915*		–0.995		316.563
			[–2.18]		[–0.84]		[1.43]
ownsq_strat	+		4.222		0.506		–292.42
			[1.57]		[0.33]		[–1.49]
Adj. RSq		0.019	0.115	–0.021	0.124	0.094	0.523
obs		1424	1416	1110	1104	314	312

Notes: For Panel A, the sample for this table consists of small firms, which have size < = 0, i.e., unadj_size < = weighted average unadj_size for the group. The results in this table examine whether insider ownership has an effect on (a) slow growing firms receiving investments from the group and (b) firms incurring losses receiving investments from the group; the values of β_4 and β_7 indicate the role of insider ownership in modifying relationship (a) and β_5 and β_8 indicate their role in modifying relationship (b). Newey–West t-statistic presented below the coefficients; ***, ** and * indicate that the coefficient is significant at the 1 percent, 5 percent, and 10 percent level, respectively. The slopes and adjusted R-squares reported above are the average of the annual cross-sectional regressions (Fama–MacBeth); the total observations across all cross-sections are also reported. For Panel B, the sample for this table consists of large firms, which have size > 0, i.e., unadj_size > weighted average unadj_size for the group. The results in this table examine whether insider ownership has an effect on (a) slow growing firms receiving investments from the group and (b) firms incurring losses receiving investments from the group; the values of β_4 and β_7 indicate the role of insider ownership in modifying relationship (a) and β_5 and β_8 indicate their role in modifying relationship (b). Newey–West t-statistic presented below the coefficients; ***, ** and * indicate that the coefficient is significant at the 1 percent, 5 percent, and 10 percent level, respectively. The slopes and adjusted R-squares reported above are the average of the annual cross-sectional regressions (Fama–MacBeth); the total observations across all cross-sections are also reported.

insiders own greater than 59.28 percent of the firm. The incremental capital received by a weak firm is on average INR 1363.35 million, implying a 1 percent increase in ownership causes a capital reduction of 44.30 percent.[13]

These results indicate that lower amounts of capital are supplied by the group to weak firms as insider ownership increases. While we cannot confirm hypothesis 3, we conclude insiders are not opportunistic when taking intra-group capital transfer decisions. We find that as insider ownership increases, higher amounts of capital are supplied by the group to large firms which have higher sales in the future but are not weak, confirming that insiders allocate capital for efficient reasons, i.e., to increase future sales. We also note that reduction in capital allocated is associated with *decline* for small firms, but with *loss* for large firms. The marginal value of this reduction is much larger for large firms than it is for small firms (INR 603.98 million or 44.30% vs. INR 97.50 million or 11.20%, as stated earlier) because few large firms incur a *loss* whereas the average small firm appears to be in *decline*.[14] We conclude insiders are much more sensitive to maintaining reputation at large firms, leading us to conclude that insiders do not want to expropriate the wealth of minority shareholders.

6. Robustness

We first examine if using group-mean adjusted measures brings out a unique perspective. As explained in section 4.2, all variables, excluding indicator and industry variables, are group-mean adjusted in order to capture its value for a firm relative to its value for the group, an essential part of intra-group capital transfer decisions. So we do not expect our results to be confirmed using alternate measures of our variables. We find the results do not hold when we use unadjusted instead of group-mean adjusted ownership, as expected.

[13] Calculations are similar to that in footnote 10.

[14] The economic value of the linear interaction terms (of *decline* or *loss* with ownership) for small firms is greater than its value for large firms even though the slope coefficients are 4.204(β_4) vs. 50.0035(β_5) because the average value of *decline* for small firms is 1.0725, whereas the average incidence of *loss* at large firms is only 5.9%. The corresponding values of these interaction terms are 4.509(β_4*$decline$) and 2.989(β_5*$loss$).

Next, we check whether our approach to distinguish efficiency from opportunism is robust to alternate measures of future growth. In particular, we replace sales with ROA, operating profits, net income and Tobin's Q to split the sample and find that insiders always behave efficiently when transferring funds among group firms but insiders sometimes behave opportunistically when paying dividends. From this evidence, we conclude that our results are robust to alternate ways of separating opportunism from efficiency.

7. Alternative explanations

It is also possible that there are alternative explanations for our results. Specifically, we test if the level of ownership has an impact on other proxies for theories that may provide insights different from ours. The first theory, regulatory arbitrage, suggests that flow of funds could mitigate regulatory costs and thus be efficient. To benefit from regulatory arbitrage, a group would have to expand into more diverse industries. Our univariate tests reveal that the Herfindahl–Hirschman Index (HHI) is significantly different from zero which indicates that on an average, groups in our sample are well diversified. So it is possible that our results can also be explained by regulatory arbitrage.

Dividend policies of firms can also be driven by the presence of tax clienteles. It is possible that firms with higher insider ownership distribute lower dividends as insiders have higher marginal tax rates. One way to assess the efficacy of this argument is to examine if the negative relation between insider ownership and dividend payout is affected by the change in tax rates over time. In unreported results, we find that while the correlation between insider ownership and dividend payouts becomes more negative as taxes increase with the passage of time, it lacks statistical significance. This suggests that there is directional evidence of the tax clientele effect, but the results lack power.

We also rule out a mechanical relation driving our results that firms with high insider ownership are also firms with low institutional ownership, which in turn demand lower dividends. We find that while this mechanically inverse relation is indeed true when unadjusted measures are considered, but when group-adjusted deviation measures are used as in our analysis, institutional ownership is positively correlated with insider ownership.

Finally, it is possible that the increase in sales is not due to efficiency, but due to accounting manipulation or low quality revenues. In unreported results, we find that sales increases are not due to accrual or real activity management. Changes in current and total accruals (both scaled by sales) are either significantly lower or similar for the sample that shows sales growth. The change in accounts receivable turnover is also similar across the two samples. Finally, discretionary accruals and discretionary production costs are significantly lower, and changes in discretionary cash-flows and discretionary expenses are significantly higher for firms showing future growth.[15]

8. Conclusion

In this paper, we examine the inter-corporate behavior of firms belonging to a business group for a sample of 4903 Indian firms-years, over ten years and across 215 business groups. We investigate how insider ownership influences important corporate finance decisions that promote internal capital markets. In particular, we study decisions related to transferring external capital raised, distributing dividends and investing in other financially weaker group firms. Our basic hypothesis is that insiders want to retain and thus control as much capital as possible. By examining if sales decrease or increase in the year following the capital transfer decision, we infer whether the decision is motivated by opportunistic or efficient reasons.

We find that financial decisions taken by insiders at business groups are a mixed bag: sometimes they are efficient, and at other times opportunistic. When it comes to sharing capital with or receiving capital from other group firms, the decisions appear efficient. However, when it comes to sharing capital with outside investors, the decisions appear opportunistic. We look at both internal and external capital market transactions within a unified framework and provide evidence that business group insiders want to retain capital within the group.

As mentioned earlier, one unique insight our study offers is that if an investor exactly mimics the investment pattern of insiders across various group companies, there is perfect alignment of interests between the investor and insiders. However, if the outsider invests in one or a few of these firms, then there may be reasons to be concerned. This raises some interesting questions for future research. For example, do business group insiders try to maximize individual firm value, or that of the group as a whole? And which corporate structure, a conglomerate with a single stock having ownership across all businesses or a business group with multiple stocks having ownership in individual businesses, is beneficial from the perspective of an outside investor?

References

Ambarish, R., John, K., Williams, J., 1987. Efficient signalling with dividends and investments. J.Finance 42, 321–343.
Andres, C., 2008. Large shareholders and firm performance – an empirical examination of founding-family ownership. J. Corp. Finance 14 (4), 431–445.

[15] We find that firms with higher insider ownership have higher discretionary accruals, but lower current and total accruals scaled by sales. Sarkar et al. (2008) find firms with insiders on the board of directors have higher discretionary accruals.

Bae, G.-S., Cheon, Y.-S., Kang, J.-K., 2008. Intragroup propping: evidence from the stock-price effects of earnings announcements by Korean business groups. Rev. Financ. Stud. 21 (5), 2015–2060.
Bae, K.-H., Kang, J.-K., Kim, J.-M., 2002. Tunneling or value added? Evidence from mergers by Korean business groups. J. Finance 57, 2695–2740.
Ball, R., 2013. Accounting informs investors and earnings management is rife: two questionable beliefs. Account. Horiz. 27 (4), 847–853.
Basu, S., 2012. How can accounting researchers become more innovative? Account. Horiz. 26 (4), 851–870.
Berger, P., Ofek, E., 1996. Bustup takeovers of value-destroying diversified Firms. J. Finance 51, 1175–1200.
Bernard, V.L., Skinner, D.J., 1996. What motivates managers' choice of discretionary accruals? J. Account. Econ. 22, 313–325.
Bertrand, M., Mehta, P., Mullainathan, S., 2002. Ferreting out tunneling: an application to Indian business groups. Q. J. Econ. 117, 121–148.
Bhide, A., 1990. Reversing corporate diversification. J. Appl. Corp. Finance 3, 70–81.
Bulan, L.T., Subramanian, N., 2009. The firm life cycle theory of dividends. In: Baker, H.K. (Ed.), Dividends and Dividend Policy. John Wiley & Sons Inc, Hoboken, NJ, USA, pp. 201–214, doi:10.1002/9781118258408.ch12.
Chen, D., Jian, M., Xu, M., 2009. Dividends for tunneling in a regulated economy: the case of China. Pac.-Basin Financ. J. 17, 209–223.
Cheung, Y.L., Jing, L.H., Lu, T., Rau, P.R., Stouraitis, A., 2009. Tunneling and propping up: an analysis of related party transactions by Chinese listed companies. Pac.-Basin Financ. J. 17 (3), 372–393.
Christie, A.A., Zimmerman, J.L., 1994. Efficient and opportunistic choices of accounting procedures: corporate control contests. Account. Rev. 69 (4), 539–566.
Claessens, S., Djankov, S., Lang, L., 2000. The separation of ownership and control in East Asian Corporations. J. Financ. Econ. 58, 81–112.
Claessens, S., Djankov, S., Klapper, L., 2003. Resolution of corporate distress in East Asia. J. Empir. Financ. 10 (1–2), 199–216.
Claessens, S., Fan, J., Lang, L.H.P., 2006. The benefits and costs of group affiliation: evidence from East Asia. Emerg. Mark. Rev. 7 (1), 1–26.
Denis, D.J., Osobov, I., 2008. Why do firms pay dividends? International evidence on the determinants of dividend policy. J. Financ. Econ. 89 (1), 62–82.
Eklund, J.E., Poulsen, T., 2010. One share-one vote: new empirical evidence. CESIS Electronic Working Paper Series, No. 238.
Faccio, M., Lang, L., Young, L., 2001. Dividends and expropriation. Am. Econ. Rev. 91 (1), 54–78.
Fama, E.F., MacBeth, J.D., 1973. Risk, return, and equilibrium: empirical tests. J. Polit. Econ. 81 (3), 607–636.
Friedman, E., Johnson, S., Mitton, T., 2003. Propping and tunneling. J. Comp. Econ. 31, 732–750.
Glassman, D., 1988. Spin-offs and spin-outs: using "securitization" to beat the bureaucracy. J. Appl. Corp. Finance 1, 82–89.
Gonenc, H., Kan, O.B., Karadagli, E.C., 2007. Business groups and internal capital markets. Emerg. Mark. Financ. Tr. 43 (2), 63–81.
Gopalan, R., Nanda, V., Seru, A., 2007. Affiliated firms and financial support: evidence from Indian business groups. J. Financ. Econ. 86 (3), 759–795.
Gopalan, R., Nanda, V., Seru, A., 2014. Internal capital market and dividend policies: evidence from business groups. Rev. Financ. Stud. 27 (4), pp. 1102–1142, doi:10.1093/rfs/hhu004.
Joh, S.W., Kim, M.A., 2013. The drivers and the stock market assessment of internal capital market: evidence from business groups in Korea. Asia-Pacific J. Financ. St. 42, 287–313.
Johnson, S., La Porta, R., Lopez-de-Silanes, F., Shleifer, A., 2000. Tunneling. Am. Econ. Rev. Papers Proc. 90, 22–27.
Kali, R., Sarkar, J., 2011. Diversification and tunneling: evidence from Indian business groups. J. Comp. Econ. 39 (3), 349–367.
Khanna, N., Tice, S., 2001. The bright side of internal capital markets. J. Finance 56, 1489–1528.
Khanna, T., Palepu, K., 2000. Is group affiliation profitable in emerging markets? An analysis of diversified Indian business groups. J. Finance 55 (2), 867–891.
Khanna, T., Palepu, K., 2005. The evolution of concentrated ownership in India: broad patterns and a history of the Indian software industry. In: Morck, R. (Ed.), A History of Corporate Governance Around the World: Family Business Groups to Professional Managers. University of Chicago Press, Chicago, pp. 283–324.
Khanna, T., Yafeh, Y., 2005. Business groups and risk sharing around the world. J. Bus. 78 (1), 301–340.
Khanna, T., Yafeh, Y., 2007. Business groups in emerging markets: paragons or parasites? J. Econ. Lit. 45 (2), 331–372.
La Porta, R., Lopez-De-Silanes, F., Shleifer, A., Vishny, R.W., 2000. Agency problems and dividend policies around the world. J. Finance 60 (1), 1–33.
Liebeskind, J.P., 2000. Internal capital markets: benefits, costs and organizational arrangements. Organ. Sci. 11, 58–76.
Lins, K., Servaes, H., 2002. Is corporate diversification beneficial in emerging markets? Financ. Manage. 31, 5–31.
Lu, Y., Yao, J., 2006. Impact of state ownership and control mechanisms on the performance of group affiliated companies in China. Asia Pac. J. Manage. 23, 485–503.
Masulis, R., Pham, P., Zein, J., 2011. Family business groups around the world: costs and benefits of pyramids. Rev. Financ. Stud. 24 (11), 3556–3600.
Myers, S.C., Majluf, N.S., 1984. Corporate financing and investment decisions when firms have information that investors do not have. J. Financ. Econ. 13, 187–222.
Narayanaswamy, R., Raghunandan, K., Rama, D.V., 2012. Corporate governance in the Indian context. Account. Horiz. 26 (3), 583–599.
Newey, W.K., West, K.D., 1987. A simple, positive semi-definite, heteroskedasticity and autocorrelation consistent covariance matrix. Econometrica 55 (3), 703–708.
Petersen, M.A., 2009. Estimating standard errors in finance panel data sets: comparing approaches. Rev. Financ. Stud. 22, 435–480.
Rajakumar, J.D., Henley, J.S., 2007. Growth and persistence of large business groups in India. J. Comp. Int. Manage. 10 (1), 3–22.
Rajan, R., Servaes, H., Zingales, L., 2000. The cost of diversity: the diversification discount and inefficient investment. J. Finance 55, 35–80.
Riyanto, Y.E., Toolsema, L.A., 2008. Tunneling and propping: a justification for pyramidal ownership. J. Bank. Financ. (Elsevier) 32 (10), 2178–2187.
Sarkar, J., Sarkar, S., Sen, K., 2008. Board of directors and opportunistic earnings management: evidence from India. J. Account. Audit. Finance 23 (4), 517–551.
Scharfstein, D.S., Stein, J.C., 2000. The dark side of internal capital markets: divisional rent-seeking and inefficient investment. J. Finance 55 (6), 2537–2564.
Securities and Exchange Board of India (SEBI), 1999. Report of the Kumar Mangalam Birla Committee on corporate governance. Available from: <http://www.sebi.gov.in/commreport/corpgov.html> (accessed 14.11.23.).
Siegel, J., Choudhury, P., 2012. A reexamination of tunneling and business groups: new data and new methods. Rev. Financ. Stud. 25 (6), 1763–1798.
Siregar, S.V., Utama, S., 2008. Type of earnings management and the effect of ownership structure, firm size, and corporate-governance practices: evidence from Indonesia. Int. J. Account. 43, 1–27.
Skinner, D.J., 1993. The investment opportunity set and accounting procedure choice. J. Account. Econ. 16, 407–445.
Smith, C.W., Jr., Warner, J.B., 1979. On financial contracting: an analysis of bond covenants. J. Financ. Econ. 7 (2), 117–161.
Stein, J., 1997. Internal capital markets and the competition for corporate resources. J. Finance 52, 111–133.
Udayasankar, K., 2008. Corporate social responsibility and firm size. J. Bus. Ethics 83 (2), 167–175.
Williamson, O., 1975. Markets and Hierarchies: Analysis and Antitrust Implications. Free Press, New York.