Insider Ownership and Shareholder Value: Evidence from New Project Announcements *

Meghana Ayyagari[†] Radhakrishnan Gopalan[‡] Vijay Yerramilli[§]

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Abstract

Most firms outside the U.S. have one or more controlling shareholders that manage multiple firms within a business group structure with very little direct cash flow rights. We employ a novel dataset of new capital investment projects announced by publicly-listed Indian firms to estimate the value implications of such complex ownership structures. Focussing on the market's assessment of the *marginal value* of new projects enables us to overcome problems associated with employing average Tobin's q as a value measure. We find that the project announcement returns are significantly larger for projects of group firms with high insider holding as compared to projects of group firms with low insider holding. This effect is larger for projects that result in either the firm or the business group diversifying into a new industry, and for firms with high level of free cash flows. Overall, our results are consistent with business group insiders expropriating outside shareholders by selectively housing more (less) valuable projects in firms with high (low) insider holding.

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[†]School of Business and Elliott School of International Affairs, George Washington University; email: ayyagari@gwu.edu

[‡]Olin Business School, Washington University in St. Louis; email: gopalan@wustl.edu

[§]C. T. Bauer College of Business, University of Houston; email:vyerramilli@bauer.uh.edu

Introduction

Most firms outside the U.S. have one or more controlling shareholders ("insiders") that manage multiple firms within a business group structure (La Porta et al. (1999), Almeida and Wolfenzon (2006)). Despite having little direct cash flow rights, insiders in these groups enjoy almost absolute control over their firms through complex ownership structures such as cross-holdings and pyramiding. The predominant agency conflict in these firms is between the insiders and outside shareholders (Bertrand et al. (2002), Johnson et al. (2000)). This is especially so in emerging markets characterized by a weak regulatory environment and an absence of market discipline via the takeover market or activist shareholders. Understanding the costs and potential benefits of such complex ownership structures has been an area of significant research interest (see e.g, Claessens et al. (2000), Khanna and Palepu (2000), Morck et al. (1988)). With very few exceptions, most papers tackling this question relate measures of market valuation, such as average Tobin's q, to measures of ownership structure. This methodology is problematic both because of the noise in average Tobin's q as a measure of value (Erickson and Whited (2000)) and because of the inability to control for all the determinants of average Tobin's q. Given these issues, not surprisingly, the existing studies are inconclusive about how such complex ownership structures affect value.

In this paper, we employ a novel dataset of new capital investment projects announced by publicly listed Indian firms to estimate the value implications of complex ownership structures. Knowing the announcement date of the project enables us to estimate the stock market's response to the project announcement, which captures the market's assessment of the net present value (NPV) of the project. In our tests we relate this announcement return to the firms' ownership structure. The key distinction between our study and existing literature is that we focus on the *marginal value* of new projects at the time they are announced. Thus, our study is less subject to the problems associated with employing average Tobin's q as a value measure. Having said that, our study is subject to issues associated with conducting an event study in an emerging stock market. We discuss these in greater detail below.

India offers a number of advantages for our study. First is the availability of data. We have announcement returns for over 2,800 projects announced by publicly listed Indian firms.[1] The availability of information on projects of both group affiliated firms and standalone firms allows us to compare the value implications of the two ownership structures. The presence of diversification and non-diversification projects in our sample allows us to design novel tests to document the ways in which insiders expropriate outside shareholders.

[1]The paper closest in spirit to our paper is Bae et al. (2002) which relates merger announcement returns to the ownership structure of Korean firms. Due to the paucity of mergers in Korea (a feature shared by most Asian countries), their sample comprises only 107 mergers.

The second advantage of India is that it is a "typical" emerging market. India has a score of 0.58 in the index of self-dealing developed by Djankov et al. (2006) as compared to an average of 0.44 for their sample. India also ranks in the middle of their sample in terms of measures of stock market development. The index of ownership concentration in India is 0.40 as compared to the sample average of 0.47. Similar to most other emerging markets, India lacks an active market for takeovers and a paucity of active institutional investors. Analyzing insider expropriation in this environment is likely to provide general insights on how insiders may expropriate outside shareholders in other emerging economies.

Our data includes a sample of 2,826 projects announced by publicly listed Indian firms during the time period 1995-2010.[2] We obtain our project data from the CapEx database maintained by the Center for Monitoring Indian Economy (CMIE)[3] and firm ownership data from the Prowess database, which is also maintained by CMIE. Of the 2,826 projects in our sample, 76% are announced by firms affiliated with a business group, whereas the rest are announced by standalone firms.

We use two measures for announcement returns: *Excess return*, which is the difference between the return on the firm's stock and the return on the market; and *Abnormal return*, which is the difference between the return on the firm's stock and the expected return as per the Capital Asset Pricing Model (CAPM). We use the S&P Nifty index as our proxy for the market, and estimate the CAPM β of each stock using the daily stock and index returns over the preceding four quarters. To take into account possible information leakage before project announcement, we calculate announcement returns over three alternate event windows surrounding the project announcement date: ± 3 days, ± 5 days, and ± 10 days.

Although the average project announcement return is positive and significant, there is significant cross-sectional variation: for instance, the average *Abnormal return* for the ± 10 day window is 1.82% (non-annualized), but the twenty-fifth and seventy-fifth percentiles for this variable are -7.09% and 8.19% respectively, which indicates that these projects result in both substantial destruction and creation of shareholder value. Our tests are aimed at investigating the reasons behind this large cross-sectional variation.

We begin our empirical analysis by comparing the announcement returns of projects of group affiliated firms and standalone firms. Agency conflicts between insiders and outside shareholders are likely to be more severe within business groups because of greater divergence between insider control rights and cash flow rights (*Agency Cost Hypothesis*). The greater

[2]We exclude projects announced by central- and state- government owned firms from our sample because the objectives of these governments may be very different from that of a private owner. See Shleifer (1998).

[3]CapEx collects its data from company annual reports, media reports, and Government sources. Our inquiries reveal that any investment project that costs more than Rs. 100 million is likely to be included in the database.

divergence can result in insiders announcing value destroying projects in pursuit of private benefits such as consumption of perquisites and empire building. On the flip side, in emerging markets with underdeveloped external financial markets, group affiliation may benefit member firms by enabling easier access to internal capital, technology and managerial talent (Khanna and Palepu (2000), Choudhury and Siegel (2012)) (*Capital Access Hypothesis*). Consistent with both sets of forces at work, in our full sample, we do not find strong evidence that the stock market attaches a differential valuation to projects announced by group firms. If at all, there is some weak evidence for lower announcement returns for projects of group affiliated firms, which is consistent with the *Agency Cost Hypothesis*.

Group insider's incentives to expropriate outside shareholders may differ across member firms depending on the level of insider holding. Similar to the argument in Bertrand et al. (2002), the presence of multiple firms with different levels of insider shareholding may prompt the insiders to implement valuable (less valuable) projects in member firms with high (low) insider holding. When we differentiate between firms in which the insider has more than 50% ownership stake ("high-insider" firms) and firms in which the insider has less than 50% ownership ("low insider" firms), we find some interesting differences between projects announced by group and non-group firms.[4] While announcement returns do not vary with the level of insider holding for projects of non-group firms, the announcement returns are significantly higher for projects of high-insider group firms as compared to those of low-insider group firms. The *Abnormal return* (*Excess return*) for the 7-day window around project announcement is 0.922% (0.888%) greater for projects announced by high-insider group firms as compared to projects announced by low-insider group firms. Moreover, the median announcement return for projects of low-insider group firms is often negative. This is consistent with greater insider-outsider agency conflict within business groups.

The lower announcement returns for projects of group firms with low insider holding may arise either because the market expects greater tunneling from these firms or because insiders selectively house less valuable projects in these firms. While it is difficult to distinguish between these channels since both are consistent with the presence of agency costs, we undertake several tests to see if we can provide evidence on each of the channels separately. First, we differentiate between projects that represent a diversifying investment for a firm from projects that do not involve diversification which can help us isolate the second channel. To the extent that diversification projects enjoy lower operational synergies with existing firms, the group insider has greater flexibility in deciding the location of the project. On the other hand, we do not expect the insider's ability or incentives to tunnel to vary significantly

[4]Note that we use 50% insider holding as the cut-off because the median insider holding of our sample firms is 45.3%, very close to 50%

between diversification and non-diversification projects. When we differentiate between diversification and non-diversification projects, we find that the low announcement returns for projects of group firms with low-insider holding is confined to diversification projects. Moreover, the median announcement return for diversification projects announced by group firms with low-insider holding is negative. The 7-day *Abnormal return* for diversification projects announced by low-insider group firms is 1.5% lower than that for diversification projects announced by high-insider group firms. This is consistent with the group implementing less valuable projects selectively in firms with low insider holding.

We undertake several robustness tests to rule out alternate theories and explanations. First, our results are robust to alternate measures of announcement returns and to controlling for a variety of project and firm characteristics. Second, the use of announcement returns as an estimate of project NPV may be problematic for firms that frequently announce projects. The market may anticipate future projects for such firms and impound their value in the stock price even before the announcement date. While we control for the number of projects announced in the previous year in all our multivariate regressions, to specifically address this concern, we differentiate between firms based on their past project announcement activity and, not surprisingly, find that our results are stronger for firms that announce projects less frequently.

Third, the relationship between insider holding and announcement returns should be weaker for firms that commit to good corporate governance. Firms from emerging markets can commit to good governance by cross-listing their securities in the U.S. market through American Depository Receipts (ADRs) (Craig Doidge and Stulz (2009)). About 20% of the projects in our sample are announced by firms that have an ADR listed in an U.S. stock exchange. When we differentiate between projects announced by firms with and without a listed ADR we find that the positive correlation between insider holding and project announcement returns for group firms is present only in the subsample of firms that are not cross-listed on an U.S. stock exchange, and hence, not subject to U.S. securities regulation. This offers further support consistent with the *Agency cost* hypothesis.

Fourth, in India, insiders often enhance their control rights using affiliated shareholders who always vote with the insider (e.g., extended family, crossholdings by other firms controlled by the insiders). Hence, the shareholding of such affiliated shareholders is a measure of the divergence between the insiders' control and cash flow rights and thus a proxy for tunneling ability and incentive. Consistent with greater divergence resulting in higher agency costs we find that the positive association between insider holding and announcement returns for diversification projects of group firms is only present for firms with significant divergence between the insiders' control and cash flow rights.

Fifth, we try to address endogeneity concerns in two ways. Using a propensity score matching estimator we match group firms with high insider holding with group firms with low insider holding along observable dimensions such as size, age, and industry. The results show that conditional on observable firm characteristics, group firms with high insider holding have higher project announcement returns than those with low insider holding. In addition, we try to deal with unobservables using an instrumental-variables (IV) regression where we instrument for insider ownership using the firm's relative age within the group. Given that ownership diffuses over time, we expect older firms within the group to have lower levels of insider holding but there is no theoretical reason to expect that the relative age of the firm within the group be correlated with project profitability, thus satisfying the exclusion criterion. The results from our IV specification confirm the results of our OLS specification that announcement returns are higher for projects announced by high-insider group firms.

Business group insiders can also expropriate outside shareholders by not housing profitable projects in low-insider firms so as to avoid sharing the profits with outside shareholders. In our sample, we have several instances where a business group announces a new project which is in the same industry as (and hence, has some natural synergies with) an existing member firm, but is nonetheless housed in another member firm from a different industry. We find that the announcement of such projects is associated with a fall in the stock price of firms from the project's industry that do not get the project, which is consistent with the market perceiving the lost project opportunity as a loss of value for these firms' shareholders.

The ability of insiders to implement a value destroying project is enhanced if the firm has access to internal cash (Jensen (1986)). Consistent with this conjecture, we find that the relationship between insider holding and announcement returns is stronger among firms that generate higher free cash flows.

In our final set of tests, we analyze the subsequent operating performance of firms that announce a new project and find our results to be consistent with those from the announcement return tests. We find that although the return on assets (ROA) is higher on average for firms that announce a project in the previous year, that is not the case for low-insider firms that announce a diversifying project.

Overall, our results offer strong evidence consistent with group insiders using new projects to expropriate outside shareholders. We find that the market attaches lower valuation to projects announced by group firms with low insider holding, and that this effect is larger for diversification projects, and for projects announced by firms with high free cash flows. Moreover, the market seems to believe that projects announced by group firms with low insider holding destroy shareholder value, especially when they involve the firm or the group diversifying into a new industry. Overall, our evidence is consistent with business group

insiders selectively implementing more (less) valuable projects in firms in which they hold high (low) cash flow rights.

The rest of the paper proceeds as follows. We discuss the related literature in 1, outline the relevant theory and its key predictions in Section 2, describe our data and provide the summary statistics in Section 3, describe the empirical results in Section 4, and conclude the paper in Section 5.

1 Related Literature

Our paper contributes to the literature that examines the costs and benefits of the business group structure. The literature is vast and highlights both the costs (higher agency costs) and benefits (access to internal capital) of the group structure. We refer to Morck et al. (2005) for a survey of the literature. Similar to the papers that document the agency costs arising from the group structure, our paper identifies investment projects as a specific channel through which business group insiders expropriate outside shareholders. In this respect, our paper is closely related to Bae et al. (2002) who examine the announcement returns of acquisitions by Korean business groups (Chaebols). They find that while acquisitions by Chaebol-affiliated firms destroy value for outside shareholders, they appear to benefit controlling shareholders. Our paper differs from Bae et al. (2002) in the following important respects. First, we focus on market reaction to new project announcements instead of mergers. As noted earlier, mergers are rare in emerging markets, and merger announcement effects may be contaminated by merger arbitrage trading (Mitchell et al. (2004)). Focusing on project announcement effects avoids these problems, and also allows us to understand how insiders use day-to-day investment decisions, that unlike mergers do not require shareholder approval, to expropriate value from shareholders. Second, the presence of diversification and non-diversification projects in our sample allows us to design novel tests to highlight insider expropriation.

Our paper is also related to the studies on the value implications of the divergence between insider control and cash-flow rights. Consistent with our findings, this literature documents that the divergence is associated with lower firm valuations (Claessens et al. (2002)), lower stock returns during financial crises (Lemmon and Lins (2003)), poor quality accounting disclosures (Gopalan and Jayaraman (2012)), higher cost of debt financing (Lin et al. (2011), Aslan and Kumar (2009)), and greater external financial constraints (Lin et al. (2011)).

Our paper is also related to the literature that studies the structure and evolution of business groups in emerging markets. Almeida and Wolfenzon (2006) offer a theory of pyramidal

ownership groups in emerging markets and show how they evolve over time. Almeida et al. (2011) offer evidence about the growth of Korean Chaebols through acquisitions. Recently, Bena and Ortiz-Molina (2013) highlight the benefits of group affiliation in terms of better access to internal finance. In comparison, we study organic growth among Indian business groups through new projects. Our results highlight the ways in which insiders expropriate outside shareholders when announcing new projects.

Our paper also contributes to the literature on corporate diversification. With regard to U.S. firms, the literature largely finds diversification to be associated with lower value (Lang and Stulz (1994), Berger and Ofek (1995), Servaes (1996), Morck et al. (1990)) although the source of this value discount is open to debate (Maksimovic and Phillips (2007)). On the other hand, Khanna and Palepu (2000) find that Indian firms affiliated with highly diversified business groups have higher Tobin's q than comparable firms without group affiliations arising from their access to finance, technology and managerial talent.[5] Although we also employ data from India, our findings are in sharp contrast to those of Khanna and Palepu primarily because we focus on marginal valuation of new projects, whereas Khanna and Palepu focus on average Tobin's q of firms.

2 Theory and Hypotheses

In this section we outline the two hypothesis, *Agency cost hypothesis* and *Capital access hypothesis* that have predictions relevant for our setting.

2.1 Agency Cost Hypothesis

Outside the U.S., large publicly traded firms often have controlling shareholders as insiders (La Porta et al. (1999)). The predominant agency problem in these firms is the expropriation of minority shareholders by the insiders. The risk of expropriation is more severe within business groups, where a single insider or family exercises complete control over multiple traded firms and yet holds significant ownership stake in only a few of them, thus widening the control-ownership wedge. For example, the Tata group is one of the oldest business groups in India running a family of companies in several industries including cars, steel, software, consulting, tea, coffee, chemicals and hotels. As of the third quarter of 2011, its primary holding company, Tata Sons Ltd. has an ownership of only 25.89% in Tata Motors, one of the group's flagship companies. To the extent agency problems are greater among

[5]On a related note, Shin and Park (1999) find that the internal capital market in Korean chaebols reduces the financing constraint for chaebol firms.

group firms, we would expect their projects to be greeted by lower announcement returns as compared to the projects of stand-alone firms.

The presence of multiple firms with different levels of insider ownership provides group insiders with greater opportunity and incentives to transfer value across member firms (Bertrand et al. (2002)). Insiders can selectively implement value enhancing (destroying) projects in firms with high (low) insider holding. Even among standalone firms, an increase in insider ownership is likely to better align the interests of the insider and outside shareholders (Jensen and Meckling (1976)).[6] This would predict that project announcement returns should increase with the level of insider holding for both group and standalone firms.

Diversification into a new industry may provide an especially attractive opportunity for insiders to expropriate outside shareholders. To the extent that diversification projects enjoy lower operational synergies with existing firms, the group insider has greater flexibility in deciding the location of the project. Such projects may also provide a variety of private benefits to insiders such as an opportunity to diversify their wealth and human capital (Amihud and Lev (1981)), and to build business empires for their families to manage. Thus insiders may sometimes choose to implement even a value destroying diversification project especially if they can limit the costs to themselves. Hence we expect insiders to implement value enhancing (destroying) diversification projects in firms with high (low) insider holding.[7]

The insider's ability to expropriate outside shareholders in firms with low insider holding is enhanced if the firm has high free cash flows. The internal cash will enable the insider to implement value-destroying projects without accessing the external capital markets (Jensen (1986)). This would predict that the positive association between insider holding and announcement returns to be especially stronger among firms with high free cash flows.

2.2 Capital Access Hypothesis

In a country with underdeveloped financial markets, incumbent firms with their access to finance, managerial talent and technology may have a competitive advantage in implementing new projects. This is especially the case for business groups (Khanna and Palepu (2000),

[6]Demsetz (1983) and Fama and Jensen (1983) point out that there may be an offsetting entrenchment cost of significant insider ownership. As per this view, market discipline from the takeover market is more effective when insider ownership is low because the fear of a hostile takeover may discipline the insider. Therefore, an increase in insider ownership may actually lower firm value by blunting discipline from the takeover market. However, this is less likely to be relevant in emerging markets like India where there is an absence of an effective market for corporate control.

[7]See also Kali and Sarkar (2011). Note that announcement of a diversification project may indicate poor growth prospects in the firm's existing line of business. This may depress the announcement returns for diversification projects. Taking this into account, in our tests, we go beyond just comparing the announcement returns for diversification and non-diversification projects and estimate how the announcement returns for diversification projects vary with insider holding in the firm announcing the project.

Choudhury and Siegel (2012)) whose member firms have access to resources from other firms in the group (Gopalan et al. (2007)). This would predict a higher announcement return for projects of group affiliated firms. The access to capital and managerial talent should be especially valuable when the firm or the group is diversifying into a new industry. This would predict higher announcement returns for diversification projects as compared to non-diversification projects especially in the case of group firms. Finally, the benefit from access to internal capital will be greater if the firm has high free cash flows. The internal cash will enable the firm to implement capital intensive projects without accessing the external capital markets. This would predict higher returns for projects announced by firms with high free cash flows.

We now describe the data we use to test these predictions.

3 Data and Descriptive Statistics

3.1 Data

We use two main sources of data for our empirical analysis. We obtain data on new projects announced by private Indian firms from the CapEx database maintained by the Center for Monitoring Indian Economy (CMIE). CapEx is a unique database of new and ongoing projects in India and includes information on over 30,000 projects announced since 1995. Among other things, CapEx provides information on the project's announcement date, identity of the firm announcing the project, cost of the project, industry classification, and identity of the business group sponsoring the project. We match the project's industry definition provided in CapEx with the National Industrial Classification Codes 2004 (NIC-2004) published by the Indian Ministry of Statistics to obtain the industry codes. CapEx collects its information from multiple sources: company annual reports, media reports, and Government sources in case of projects that require Government approval. Our inquiries reveal that any investment project that costs more than Rs. 100 million is likely to be included in the database. The coverage of CapEx is likely to be especially good for projects of publicly listed firms because stock exchange listing requirements mandate firms to inform the exchanges whenever they implement a large capital expenditure project (see BSE (2012)). An investment project remains a part of the CapEx database from its first announcement date through to its commissioning.

Our second source of data is Prowess, another database from CMIE. Prowess provides annual financial information for both public and private Indian firms beginning in 1989.[8]

[8]As per Choudhury (1999), Prowess covers a firm if it meets any of the following criteria: (i) firm's

We merge the Capex and Prowess databases to obtain information on the firms sponsoring the projects. We collect the following information from Prowess: annual financial information, equity ownership of insiders, industry affiliation, and group affiliation. CMIE uses the firm's principal line of activity to identify its industry affiliation. CMIE's group classification is based on a continuous monitoring of company announcements and a qualitative understanding of groupwise behavior of individual firms, and is not solely based on equity ownership. Such broad-based classification, as against a narrow equity-centered classification, is intended to be more representative of group affiliation. This group classification is identical across CapEx and Prowess, and has been used in prior studies on Indian business groups (e.g., Khanna and Palepu (2000), Bertrand et al. (2002), and Gopalan et al. (2007)).

3.2 Descriptive Statistics

Table 1 provides the year-wise and industry-wise distribution of the projects in our sample. We have a total of 2,826 projects from 46 unique industries identified at the level of two-digit NIC code announced by 785 firms that trade on the NSE. As can be seen from Panel A, the number of projects announced each year varies over the sample period and is larger towards the end of our sample period as compared to the beginning of the sample period. This difference is driven in part by differences in investment prospects over the years as seen from the close positive association between GDP growth rate and the number of projects. The number of projects reach a low in 2001 when GDP growth dipped to 3.98%, and they hit a high in 2007 when GDP growth is 9.26%. We also find that the projects are well distributed throughout our sample period with no one year having more than 14% of the projects.

Panel B provides an industry-wise distribution of projects at the two-digit NIC industry level. To conserve space, we only report the statistics for the top 20 industries in terms of the number of projects reported. Although our sample comprises projects from 46 unique two-digit NIC industries, the top 20 industries account for 88.7% of all projects. A large fraction of these projects are in the manufacturing, utilities, and construction sectors. Among manufacturing industries, chemicals, basic metals, food products, and textiles top the list.

[Insert Table 1 here]

We provide summary statistics for the key variables we use in our analysis in Table 2. For easy reference, we provide detailed definitions of all the variables we employ in the Appendix.

turnover exceeds Rs. 25 million; (ii) firm's annual reports are available for at least two years prior to the date of updating; and (iii) the firm is listed on either the Bombay Stock Exchange (BSE) or the National Stock Exchange (NSE). As per Siegel and Choudhury (2011), Prowess includes all public firms listed on India's main exchanges and the vast universe of medium-sized and large privately held firms.

We measure project size using the stated cost of the project at the time of announcement. The average size of the projects in our sample is Rs. 771 million (the current exchange rate is about Rs. 53 to one dollar) while the median size is much smaller at Rs. 100 million. The difference between the mean and median indicates the presence of a few large projects in our sample. The projects are small relative to firm size. The average project costs 3.5% of the sponsoring firm's book value of total assets.

We measure group affiliation using the dummy variable *Group* which identifies projects announced by firms that are affiliated with a business group; thus, *Group*= 0 indicates that the project is announced by a standalone firm. The mean value of 0.761 for *Group* indicates that 76.1% of the projects in our sample are announced by firms affiliated with a business group. The dummy variable *Firm diversification* identifies projects that are not in the same two-digit NIC industry as the firm announcing the project. We find that 43.7% of the projects result in the firm diversifying into a new two-digit NIC industry. Even among firms affiliated with a business group, we find that 44% of the projects (not reported) involve the firm diversifying into a new two-digit NIC code industry. This is surprising given that one tends to think of business groups as incorporating independent firms to undertake projects in different industries. The project level data indicates that in addition, the individual firms within the group themselves are diversified and have operations in multiple industries. To identify diversification at the level of the business group announcing the project, we use the dummy variable *Group diversification* which takes a value one if none of the existing firms in the group are in the same two-digit NIC industry as the project, and the value zero otherwise. We find that among the projects announced by group affiliated firms, 35% involve the business group diversifying into a new two-digit NIC industry. The projects are from profitable industries as seen from the mean value of *Proj. Industry ROA* of .097 and the industries are growing fast as indicated by the average sales growth of .094.

Examining firm characteristics, we find that the average book value of total assets of the firms in our sample is Rs. 51,950 million. This again is skewed by a few very large firms because the median book value of total assets is only Rs. 9,203 million. Firms that announce projects are profitable as seen from the mean (median) value of *ROA* of 0.189 (0.168). Moreover, these are high growth firms as evidenced by the median sales growth of 15.7%. The average leverage of the firms in our sample is 0.344 which is comparable to other studies on Indian firms (Gopalan et al. (2007)). Firms in our sample on average announce one project a year as seen from the mean value of *Projects announced*$_{t-1}$ of .913. The dummy variable *Equity issue* identifies projects announced by firms that also did an equity issue during the year. We find that only 1.5% of the projects in our sample are announced by firms that also conduct an equity issue during the year.

We use the aggregate shareholding of Indian promoters and associates in the firm as our measure of insider holding. We find that the mean (median) insider holding of firms in our sample is 45.1% (45.3%). In comparison, the mean (median) management ownership in the Morck et al. (1988) sample is 10.6% (3.4%). The higher insider-holding in our sample as compared to the Morck et al. (1988) sample is consistent with La Porta et al. (1999) who find greater concentration of corporate ownership in countries with poor shareholder protection, a description that fits India. In our empirical tests we employ a dummy variable *High insider* to identify firms in which insider holding exceeds 50%. The 50% cutoff divides our sample projects into two approximately equal halves given the median insider ownership in our sample of 45.3%.

The average foreign institutional ownership in our sample firms is 5.6% as seen from the mean value of *FII holding*. On the other hand, the average aggregate shareholding of domestic institutional investors, which include banks, insurance companies, mutual funds, and pension funds is 12.5%, as seen from the mean value of *Institutional holding*. Insiders in Indian firms exercise control in excess of their cash flow rights through friendly blockholders who are identified as "persons acting in concert" with the promoter. *PAC holding* identifies the aggregate shareholding of such shareholders and the average value in our sample is 2.3%. The dummy variable *Big wedge* identifies firms in which *PAC holding* is greater than 5%; we find that 8.6% of the projects in our sample are announced by firms with *PAC holding* greater than 5%. Over 20% of the projects in our sample are announced by firms that have an ADR listed in an U.S. stock exchange as seen from the mean value of *ADR*. We obtain information on ADR listing of our sample firms from the website of the Bank of New York.

We use two different measures of announcement returns: *Excess return* which is defined as the difference between the return on the firm's stock and the return on the market (i.e., $R_i - R_m$); and *Abnormal return* which is the difference between the return on the firm's stock and the expected return as per CAPM (i.e., $R_i - \hat{\beta} \times R_m$). We use the return on the National Stock Exchange's (NSE) S&P Nifty index to proxy for market return (R_m), and estimate the CAPM beta ($\hat{\beta}$) of each stock using the daily stock and index returns over the preceding four quarters. We obtain stock returns from the Prowess database and returns on the Nifty Index from NSE's web site (http://www.nseindia.com). To adequately capture information leakage before the project announcement, we calculate the announcement returns for three different event windows around the project's announcement date: the twenty-one day window ($[-10, 10]$), the eleven day window ($[-5, 5]$), and the seven day window ($[-3, 3]$), where date 0 denotes the project's announcement date.

An examination of the summary statistics on announcement returns reveals two important findings: First, the mean announcement return for the projects in our sample is positive

and economically significant for all three event windows. For example, the mean 7-day *Abnormal return* is 1.05% (all announcement returns are non-annualized). As the announcement return represents the stock market's perception of the project's marginal NPV, the positive announcement returns indicate that the market has a positive view of the average project. Note that the announcement returns are also skewed as the median 7-day *Abnormal return* is only .019%. We also find that there is significant cross-sectional variation in announcement returns, with evidence of both substantial shareholder value creation and shareholder value destruction. For example, whereas the seventy-fifth percentile for the 7-day *Abnormal return* is 4.79%, the twenty-fifth percentile is -3.98%. In our empirical tests, we explore the reasons for the cross-sectional variation in announcement returns.

Note that some of the announcement returns appear quite large in comparison to the size of the project. For example, given the median market capitalization of firms in our sample of Rs. 4,981 million, the seventy-fifth percentile for the 7-day *Abnormal return* implies a project NPV of Rs. 238.6 million, which is large in comparison to the seventy-fifth percentile project size of Rs. 350 million. We believe the disproportionate announcement returns indicate that the project announcement reveals information not only about the marginal value of the project but also about the value of the firm's assets in place. This is not necessarily a problem for our tests because our objective is to understand how the firm's ownership structure affects value. We employ project announcements as events when new information is revealed about the firm's marginal value. We now proceed to a discussion of our empirical results.

[Insert Table 2 here]

4 Empirical Results

4.1 Group affiliation, insider holding, and project announcement returns

Univariate analysis:

We begin our analysis with univariate tests aimed at understanding how announcement returns vary with group affiliation. In Panel A of Table 3 we divide our sample into projects announced by firms affiliated with business groups (*Group*= 1) and standalone non-group firms (*Group*= 0), and present a univariate comparison of the mean and median announcement returns between the two subsamples. We find that the mean announcement returns are positive and significant for all event windows for projects announced by both group and

non-group firms, and are larger in magnitude for projects announced by non-group firms. However, the difference in mean announcement returns between the two subsamples is statistically significant only for the 7-day *Abnormal return* and the 7-day *Excess return*. The median announcement returns exhibit a somewhat different pattern: most median announcement returns are not statistically significant and the difference in median announcement returns is statistically significant and higher for non-group projects only for the 7-day *Excess return*. Thus overall there is some weak evidence that announcement returns are smaller for projects announced by firms affiliated with a business group. This is weakly consistent with agency costs being higher in group affiliated firms. We do not find support for the prediction of the *Capital access* hypothesis of greater announcement returns for projects of group affiliated firms.

In our next set of tests we differentiate projects based on the level of insider holding and the group affiliation status of the firm announcing the project to specifically test the predictions of the *Agency cost* hypothesis. In Panel B, we divide our sample into projects announced by high insider holding firms (firms with *High insider*= 1) and low insider holding firms (firms with *High insider*= 0), and present a univariate comparison of the mean and median announcement returns between the two subsamples. We first present this comparison for the entire sample, and then separately for projects announced by group firms and for projects announced by non-group firms.

We find that the mean announcement returns are positive and significant for all event windows for projects announced by both low and high insider holding firms. We also find that the mean *Abnormal return* over all event windows is significantly smaller for projects of low insider holding firms as compared to for projects of high insider holding firms. This is consistent with the *Agency cost* hypothesis. When we distinguish between group projects and non-group projects, we find that the difference in mean announcement returns between projects announced by low and high insider holding firms is confined to projects announced by group affiliated firms. Among projects announced by non-group firms, the announcement returns do not vary significantly based on the level of insider holding.

Turning to medians, we find that while they are less likely to be statistically significant for both low- and high insider holding firms, the 7-day and 11-day *Abnormal return* and the 11-day *Excess return* are significantly smaller for projects announced by low insider holding firms as compared to projects announced by high insider holding firms. Moreover, these differences are confined to projects announced by firms belonging to business groups. In fact, the median project announced by group firms with low insider holding has a negative 7-day *Abnormal return* and a negative 7-day and 11-day *Excess return*.

Summarizing, the evidence in Table 3 shows that announcement returns are lower for

projects announced by group firms with low insider holding as compared to projects announced by group firms with high insider holding. We also find that project announcement returns are not related to insider holding for non-group firms. This is consistent with agency costs being higher among group firms as compared to non-group firms.

[Insert Table 3 here]

Multivariate analysis:

We now conduct multivariate tests to see if the results in Table 3 survive after we control for important project and firm characteristics. Specifically, we estimate the following cross-sectional OLS regression:

$$\mathrm{y}_{fp} = \beta_0 + \beta_1 X_p + \beta_3 X_f + \varepsilon_{pt}, \tag{1}$$

where subscripts 'p' and 'f' denote the project and the firm announcing the project, respectively. The dependent variable y_{fp} is either the *Abnormal return* or the *Excess return* for firm 'f' when it announces project 'p'. Our main independent variable of interest is an interaction term *Group* $\times$ *High insider*. We also include both *Group* and *High insider* as additional control variables.

The other control variables we include are the following. We control for the size of the project using *Project size*. *Ceteris paribus*, announcement returns should be lower for projects of firms that are more active in exploiting their investment opportunities. Larger firms are likely to have exploited more growth opportunities and their marginal projects should be less valuable. Taking this into account, we control for the size of the firm announcing the project in a non-parametric manner employing fixed effects for firm size deciles. We also control for the number of projects announced by the firm in the most recent year using *Projects announced*$_{t-1}$. Stock prices may respond less to project announcements for firms with an illiquid stock. Furthermore to the extent stock illiquidity reflects the opaqueness of the firm's operations, the projects of such firms may also be difficult to value and the market may respond less to such announcements. We control for this using the variable *Illiquidity* which is an inverse measure of the firm's stock liquidity as proposed by Lesmond et al. (1999).[9] We control for the presence of foreign institutional shareholders (*FII Holding*) because their presence may alleviate the agency conflicts between insiders and outside shareholders. Finally, we include the dummy variable *Equity issue* to control for firms that

[9]Lesmond et al. (1999) propose that the proportion of days with zero return during the year may be used as a measure for the stock's illiquidity, because zero return days represent days on which the stock was not traded.

issue equity in the year of project announcement. We include this to ensure that the project announcement return is not affected by stock price reaction to the equity issue.

Announcement returns may be affected by differences in profitability and growth prospects across industries and by the past performance of the firm announcing the project. While this would argue for controlling for both industry and firm performance, these two sets of variables are endogenous. To the extent the firm chooses the industry in which to implement a project, controlling for industry performance is likely to lead to "over controlling" and bias our estimates downward. For similar reasons including past firm performance as a control is also likely to bias our estimates downward. Hence in the specifications that we report here, we do not include these as controls. In unreported tests, we repeat our estimates after controlling for the median industry ROA (*Proj. Industry ROA*), the median industry sales growth (*Proj. Industry Sales growth*) along with *ROA*, *Leverage*, and *Sales growth* of the firm announcing the project and find our conclusions to be robust.

We present the results of our analysis in Table 4. In Panel A, we present the results of the baseline cross-sectional regression (1). In column (1), we control for firm size using the size-decile dummies, but do not control for any other project or firm characteristic. The negative and significant coefficient on *Group* in column (1) indicates that the 7-day *Abnormal return* is lower for projects announced by group firms as compared to projects announced by non-group firms. This is consistent with the univariate evidence. We also find that the coefficient on *High insider* is not significant, but the coefficient on the interaction term *High insider* $\times$ *Group* is significant. That is, among projects announced by group firms, the 7-day *Abnormal return* for projects of high-insider firms is 1.8% greater than that for projects of low-insider firms. In comparison, the univariate evidence indicates that the difference in announcement returns between projects of high- and low-insider group firms is only 0.922%. Thus controlling for firm size actually increases the correlation between insider holding and announcement returns for group firms.

In column (2), we repeat the regression after controlling for the full set of project and firm characteristics described above, and obtain very similar results as in column (1). In columns (3) and (4), we repeat our analysis with the 11-day and 21-day *Abnormal return*, respectively, as the dependent variable, and find that although the coefficients are of the same sign as in column (2), they are not statistically significant. In columns (5) through (7), we repeat our analysis using *Excess return* for different event windows as the dependent variable. The results are qualitatively similar to those in columns (2) through (4).

Examining the coefficients on control variables, we find that the coefficient on *Projects announced*$_{t-1}$ is negative in all the columns and significant in three. This is consistent with the market reacting less positively to announcements by firms that implement more projects

and hence are more active in exploiting their growth opportunities. Somewhat surprisingly, the coefficient on *FII Holding* is negative and significant in columns (4) and (7), but this may be because foreign institutional investors typically invest in the very large firms which are likely to have lower announcement returns. We also find that the coefficient on *Illiquidity* is negative and significant in columns (5)-(7) indicating that the market reacts less positively to project announcement of firms with more illiquid stock.

In Panel B, we present the results of additional tests aimed at understanding how our baseline results vary with important firm characteristics. One way firms from emerging markets can commit to good governance is by cross-listing their securities in the U.S. market through American Depository Receipts (ADRs) (Craig Doidge and Stulz (2009)). On the other hand, Siegel (2005) finds that unless firms have assets in the U.S., cross-listing by itself does not act as a sufficient deterrent to expropriation. To test if an ADR listing mitigates the agency conflict between insiders and outside shareholders, we repeat our tests in the subsample of firms with and without an ADR listing. Note that an alternative method to test if the relationship between insider holding and announcement returns is different for group firms with a listed ADR is to repeat the estimation of equation (1) after including a triple interaction term between *ADR*, *High insider* and *Group*. Instead of employing such a procedure, we repeat the estimation of equation (1) on two subsamples of firms with and without an ADR listing because our methodology is a more general way of estimating interaction effects and does not constrain the coefficients on the control variables to be the same for firms with and without an ADR listing.

In columns (1) and (2) of panel B, we estimate equation (1) with the 7-day *Abnormal return* as the dependent variable, separately on the subsample of firms without and with ADR listings, respectively. The control variables are exactly the same as in column (2) of panel A, although we do not report the coefficients on the control variables in order to conserve space.We find that the coefficient on *High insider*$\times$*Group* is statistically significant only for the subsample of firms without an ADR listing. This is consistent with firms with ADR listing having lower agency costs. We must, however, exercise caution while interpreting these differences, because the coefficient on *High insider*$\times$*Group* is actually larger in column (2), albeit estimated with noise. Furthermore in unreported tests we find that the coefficient on the interaction term is not significantly different across the two subsamples.

Insiders in Indian firms exercise control in excess of their cash flow rights through friendly blockholders who are identified as "persons acting in concert" with the promoter. Therefore, the shareholding of such persons acting in concert is a measure of the wedge between the insiders' control rights and cash flow rights. If the agency conflicts between insiders and outsiders are more pronounced in firms with a big control-cash flow wedge, the project

announcement returns of such firms should be more sensitive to their group affiliation status and level of insider holding. To test this idea, we categorize firms in which persons acting in concert with the promoter own more than 5% of the shares as having a big control-cash flow wedge.[10] Then, in columns (3) and (4), we repeat our baseline regression separately on firms which do not have a big control-cash flow wedge and those that do, respectively. We find that although the coefficient on *High insider*×*Group* is much larger in the subsample of firms with a big wedge, due to smaller sample size we find that the coefficient is not statistically significant.

There is significant heterogeneity among our sample firms in the frequency with which they announce new projects. We expect the stock market to better anticipate the projects of firms that announce projects more frequently. To this extent the announcement itself is likely to be less of a surprise and the announcement return is likely to be a poor estimate of the marginal value of the project. On the other hand, the announcement return is likely to better capture the value of projects for firms that do not announce projects frequently. Hence, we expect the effect of group affiliation and insider holding to be stronger among firms that rarely announce projects.[11] To test this idea, we classify firms as more (less) active based on whether they announce (did not announce) a project in the most recent year. In columns (5) and (6), we repeat our baseline regression separately on the subsample of projects announced by less active firms and more active firms, respectively. As can be seen, the coefficient on *High insider*×*Group* is much larger and statistically significant only among projects announced by the less active firms. Further in unreported tests we find that the coefficient on the interaction term in column (5) is statistically different from that in column (6).

In unreported tests, we also distinguish between large and small projects, where a project is classified as large (small) if its estimated cost at announcement is higher than the sample median. We find that the coefficient on *High insider*×*Group* is statistically significant only among the subsample of large projects.

To deal with endogeneity concerns of firm ownership, we do two things. First, we use a propensity score matching estimator where, for the sample of group firms with high insider holding (treatment sample), we form a matched sample of firms with low insider holding (control group) on the basis of their propensity scores. The propensity score is obtained from a Probit regression of *High Insider* on observable firm characteristics, and the and the control group is formed using the closest covariate (nearest neighbor estimator) values. Thus,

[10]Persons acting in concert with the promoter are present in only 450 projects in our sample. Conditional on being present, the median shareholding of persons acting in concert with the promoter is 6.25%.

[11]Note that the value of the marginal project is also likely to be lower for firms that are more active in exploiting their investment opportunities.

conditional on these observable firm characteristics, the propensity score matching estimator provides an estimate of average treatment effects on the treated (ATT). The results of our estimation are presented in Panel C of Table 4. The dependent variable is *Abnormal Return [-3,3]*.

In columns (1) and (2), the propensity scores are obtained by matching firms on age, size decile, and 2-digit NIC industry. In column (1), we estimate the model on all projects, whereas in column (2), we confine the estimation to projects undertaken by group firms only. Testing the statistical significance of treatment effects and computing their standard errors is tricky because the estimated variance of the treatment effect should also include variance due to the estimation of the propensity score and the imputation of the common support. Hence, we report bootstrapped standard errors after 50 replications to reduce the bias in the estimates of the standard errors. As can be seen from column (1), we fail to find any evidence that announcement returns on high insider holding firms are significantly higher those for projects undertaken by low insider firms. However, as can be seen from column (2), announcement returns on projects undertaken by group firms with high insider holding are 0.9% higher than those on projects undertaken by group firms with low insider holding. In columns (3) and (4), we repeat the analysis from columns (1) and (2) after matching on a larger set of firm characteristics (age, size decile, 2-digit industry, leverage, ROA, and year of announcement), and find very similar results. These results are robust to the type of matching estimator used.

Second, endogeneity issues could result from omitted variables such as unobserved investment opportunities of the firm, which affects both insider holding and project announcement returns. To ensure that our results are indeed due to agency costs arising from the low insider holding in the firm, we replicate our baseline regression using an instrumental-variables (IV) specification, where we instrument for insider holding using the relative age of the firm within the group. Given that firm ownership typically diffuses over time, we expect older firms within the group to have lower levels of insider holding as compared to younger firms. The key identifying assumption is that, after controlling for all other project and firm characteristics that we employ in panel A, the relative age of the firm within the group should be uncorrelated with project profitability. We believe this to be reasonable.

The results of the IV specification are presented in Panel D of Table 4. Our instrument for *High insider* is *Old Within Group*, a dummy variable that identifies group firms whose age is higher than the median age of all firms within the group. Note that we can define *Old Within Group* only for firms affiliated with business groups. Thus, the IV regression is estimated only for projects announced by group firms. This is not a problem because, in any case, our objective is to show that the level of insider holding affects announcement returns

for projects announced by group firms. We include all the control variables from column (2) of panel A in the first and second stage regressions, but suppress these coefficients in order to conserve space.

The results of the first-stage regression are presented in column (1). The strong negative coefficient on *Old Within Group* confirms our conjecture that older firms within the group have lower insider holding. Moreover, the $F-$statistic for the excluded instrument in the first-stage regression is 35.48 which indicates that the instrument is strong.[12] More importantly, the positive and significant coefficient on *High insider* in column (2) is consistent with our OLS result, and indicates that among projects of group firms, the announcement returns are higher for projects announced by firms with high insider holding. The magnitude of the coefficient indicates that announcement returns for projects of group firms with high insider holding are 7.1% higher than that for group firms with low insider holding. Our IV estimates are thus much greater than the OLS estimates indicating that omitted variables problem is biasing our OLS estimates downward. This is reasonable because a firm with investment opportunities is more likely to have issued outside equity and thus is likely to have lower insider holding. The projects of such firms are also likely to be perceived to be profitable and hence have higher announcement returns.

[Insert Table 4 here]

4.2 Diversification, insider holding and project announcement returns

In this section, we examine how project announcement returns vary based on the project's diversification status and the level of insider holding in the firm announcing the project. We do these tests for two reasons. First, it is of independent interest to understand the effect of diversification on firm value. Second, and more interestingly, we use diversification projects to test novel predictions of the agency cost hypothesis. Since diversification projects enjoy lower operational synergies with existing firms, the group insider has greater flexibility in deciding the location of the project. Thus differentiating between diversification and non-diversification projects will help us understand if business group insiders selectively house less (more) valuable projects in firms with low (high) insider holding. We confine this analysis to group firms because it is only within business groups with multiple firms that the insider has the opportunity to strategically house diversification projects among the member firms.

[12] Following Staiger and Stock (1997), it is common to examine the power of instruments using $F-$statistics for the excluded instruments in the first-stage regression. With one exogenous instrument, the $F-$statistic for the excluded instrument must exceed 8.96 for the 2-SLS inference to be reliable (see Table 1 in Stock et al. (2002)).

Univariate analysis

In Table 5, we first divide our sample of projects announced by group firms into projects that involve the firm diversifying into a new two-digit NIC industry (*Firm diversification*= 1) and projects that are in the same two-digit NIC industry as the firm's principal line of activity (*Firm diversification*= 0), and then subdivide each subsample based on whether the firm announcing the project is a high-insider firm or a low-insider firm. We do this to examine if the difference in announcement returns between projects announced by low-insider and high-insider firms is different for diversification and non-diversification projects. The stark result from Panel A is that the difference in announcement returns between projects announced by low-insider and high-insider group firms is confined to diversification projects. Interestingly, the differences in mean announcement returns arise largely because mean announcement returns are positive and significant for diversification projects announced by high-insider firms, whereas they are insignificant for diversification projects announced by low-insider group firms. On the other hand, the differences in median announcement returns between low- and high-insider firms arise largely because the median announcement returns are negative and significant for diversification projects announced by low-insider firms. Thus more than 50% of the diversification projects announced by group firms with low-insider holding are perceived to destroy value by the market. This pattern is consistent with insiders selectively housing value creating (destroying) diversification projects in high (low) insider holding firms.

The fact that mean announcement returns are uniformly higher than the median announcement returns, especially for diversification projects of high-insider group firms indicates that groups implement some very valuable diversification projects with large and positive announcement returns in firms with high insider holding. In sharp contrast to diversification projects, we find that the announcement returns for non-diversification projects do not vary with the level of insider holding in the firm announcing the project.

[Insert Table 5 here]

Multivariate analysis

In Table 6, we estimate (1) to see if the results from Table 5 are robust to controlling for other project and firm characteristics. The key independent variables of interest are *High insider* and *Firm diversification* and the interaction term between the two. The project and firm level control variables are similar to those in Panel A of Table 4.

In Column (1), we estimate (1) after differentiating between diversification projects announced by high-insider and low-insider firms. We do this by including two interaction terms

Firm diversification × *High insider* and *Firm diversification* × *[1- High insider]*. Note that as in Table 5, the sample here is confined to projects announced by firms affiliated with a business group. We find that the coefficient on *Firm diversification* ×*High insider* is positive but insignificant, whereas the coefficient on *Firm diversification* × *[1- High insider]* is negative and significant. Thus, announcement returns are significantly lower for diversification projects announced by firms with low insider holding. In the row titled $\beta_1 - \beta_2$, we compare the coefficients on the two interaction terms and find that they are significantly different from each other. In columns (2) through (6) we repeat the tests with alternative measures of announcement returns and find that the coefficient on *Firm diversification* × *[1- High insider]* is negative and significant in all the columns and the coefficient on the two interaction terms are significantly different in three out of the five columns. This offers strong evidence in support of lower announcement returns for diversification projects announced by group firms with low insider holding. This is consistent with business group insiders exploiting the flexibility afforded by diversification projects to implement valuable (value destroying) projects in firms with high (low) insider holding.

In Panel B of Table 6, we present the results of additional tests aimed at understanding how the effect of insider holding and diversification status on announcement returns varies with the firm's cross-listing status, divergence between insiders' control and cash flow rights, and level of project announcement activity. The empirical specification is similar to that in Panel B of Table 4. In columns (1) and (2) we divide our sample into firms with and without an ADR and repeat our tests. Surprisingly we find that the coefficient on *Firm diversification* × *[1-High insider]* is negative and significant only among the subsample of firms with a listed ADR. From the row titled $\beta_1 - \beta_2$ we find that the coefficients on the two interaction terms are not significantly different in both columns (1) and (2). This does not offer support for ADR listing reducing insider-outsider agency conflicts among group affiliated Indian firms.

In columns (3) and (4) we repeat our tests in the subsample of firms with and without a big wedge between insider control and cashflow right and obtain interesting results. We find that the coefficient on *Firm diversification* × *High insider* is positive and significant for the subsample of firms where the wedge is high. This indicates that insiders selectively house valuable diversification projects in firms with high insider holding especially when the wedge is high. We also find that the coefficient on *Firm diversification* × [1-*High insider*] is negative and significant in both columns (3) and (4) and the coefficient on the two interaction terms are significantly different in column (4). These results clearly highlight that a greater wedge between insider control and cash flow rights arising from the presence of affiliated shareholders worsens agency conflicts. When the wedge is high, not only do group insiders

announce valuable diversification projects in firms with high insider holding but they also announce value destroying projects in firms with low insider holding.

Finally in columns (5) and (6) we repeat our tests in the subsample of firms that have high and low investment activity and find that the coefficient on *Firm diversification* × [1-*High insider*] is negative and significant in both subsamples. Summarizing our evidence from Panel B indicates that while ADR listing does not appear to have a significant effect on the tendency of insiders to opportunistically house diversification projects, we find that the presence of affiliated shareholders does have an effect. Insiders are more likely to house valuable (less valuable) diversification projects in high (low) insider holding firms especially in the presence of affiliated shareholders.

One particularly interesting class of diversification projects within business groups are those that represent diversification for the group firm announcing the project, but do not represent diversification for the business group as a whole. That is, the project is in the same industry as (and hence, has some natural synergies with) one of the firms within the business group, but is nonetheless housed in a member firm from a different industry. Among the 1,388 firm-diversification projects (i.e., *Firm diversification*= 1) announced by group firms, 370 fit this description; i.e., the project is announced by a firm from a different industry despite the presence of another member firm from the same industry as the project. If the decision about where to house the project was made with a view to expropriate outside shareholders, then we should expect the stock price of other member firms in the group, that are in the same industry as the new project, to react to the project's announcement. If the new project is expected to create (destroy) value, then the stock price of the member firms in the project's industry should decrease (increase) because of the lost opportunity to implement the project.

To test this prediction, we estimate regression (1) with announcement return as the dependent variable. The sample for this regression includes all traded firms that belong to a business group which announces a new project during the year, regardless of whether the particular firm announces the project or not. Our main independent variables of interest are: *Not housed*, a dummy variable that identifies all firms in the business group other than the one that announces the project; and *Same industry*, a dummy variable that identifies if the firm is in the same industry as the project. Apart from the usual controls, we also include fixed effects for individual projects in these regressions. The results are presented in Panel C of Table 6.

The negative and significant coefficient on *Not housed* in Column (1) indicates that when a group firm announces a project, other traded firms within the group experience negative announcement returns. Note that this result can arise for a couple of different

reasons. Announcement of a new project elsewhere in the group may imply less financial and managerial resources for a member firm, and this could result in a negative stock price reaction. Alternatively, if the project is valuable, not getting a project may be perceived as a lost opportunity by the shareholders of the other member firms resulting in negative announcement returns.

To distinguish between these explanations, in Column (2), we differentiate the other traded firms into those that are in the same industry as the project and those that are not. We do this by replacing *Not housed* with two interaction terms, *Not housed* × *Same industry* and *Not housed* × *[1- Same industry]*. We expect the lost opportunity effect to be especially important for firms from the same industry as the project. As can be seen, the coefficient on *Not housed* × *Same industry* is negative and significant, whereas the coefficient on *Not housed* × *[1- Same industry]* is insignificant. This result is robust to alternate definitions of announcement returns, and from the row titled $\beta_1 - \beta_2$ we find that the coefficient on the two interaction terms are significantly different from each other in all the columns.[13] This offers strong evidence that the shareholders of group firms that do not get the project, perceive it as a valuable lost opportunity. This is further evidence that group insiders often announce projects in an opportunistic manner which results in transfer of value among the member firms in the group.

Recall that we can define diversification both at the level of the firm announcing the project (identified using the dummy variable *Firm diversification*) and at the level of the business group to which the firm belongs (identified using the dummy variable *Group diversification*). To conserve space, we only report the results of tests that employ *Firm diversification* variable. The results of tests with *Group diversification* are qualitatively similar, and are available upon request.

[Insert Table 6 here]

4.3 Free cash flows, insider holding, and announcement returns

Our evidence so far shows that business group insiders expropriate outside shareholders by implementing less valuable or even value destroying projects in firms with low insider holding. Insiders' ability to implement such projects should be greater if the firm has high free cash flows, because that would allow the insider to circumvent external capital markets. This is true both for group and non-group firms. In this section, we examine how the relationship

[13] In unreported tests, we do not find any evidence that the fall in stock price of the firm that does not announce the project varies with the extent of insider holding in the firm and the amount of free cash flows generated by the firm.

between project announcement returns and insider holding varies with the extent of free cash flows with the firm.

Univariate analysis

In Table 7, we classify projects into those announced by high FCF firms and low FCF firms, and then subdivide each subsample based on whether the firm announcing the project is a high-insider firm or a low-insider firm and present a univariate comparison of announcement returns between the subsamples. High FCF firms are those that are in the top quartile across all firms covered by Prowess during the year in terms of the ratio of FCF to total assets. The striking result from Table 7 is that the difference in announcement returns between projects announced by high-insider and low-insider firms is confined to firms with high free cash flows. While the mean announcement returns are uniformly positive for projects announced by firms with high free cash flows and high insider holding, they are less so for projects announced by firms with high free cash flows and low insider holding. Similarly we find that while the median announcement returns are less often significantly different from zero for both high- and low-insider firms with high free cash flows, they are significantly different from each other. This pattern is consistent with high free cash flows worsening the agency conflicts between insiders and outside shareholders. Among firms with low free cash flows, the mean announcement returns are positive and significant for both firms with high- and low insider holding and are not significantly different from each other.

[Insert Table 7 here]

Multivariate analysis

Next, we estimate the regression (1) to understand whether the univariate results in Table 7 are robust to the inclusion of additional controls. The main independent variables of interest in these regressions are *High FCF* and *High insider*. We differentiate between projects announced by high-FCF firms with high- and low insider holding by including two interaction terms *High FCF*×*High insider* and *High FCF* × *[1-High insider]*. The results in column (1) indicates that the coefficient on *High FCF firm* × *[1-High insider]*, is negative and significant. We also find from the row titled $\beta_1 - \beta_2$ that the coefficient on the two interaction terms is significantly different from each other. In Column (2) we repeat our tests after confining the sample to group firms and find that although the coefficient on *High FCF firm* × *High insider* is positive while that on *High FCF firm* × *[1-High insider]*, is negative, neither is significant and nor are they statistically significant from each other. In columns (3) -(7) we repeat our tests on our whole sample with alternative measures of announcement returns and

find that only the 7-day *Excess return* is significantly different between high- and low-insider firms with high free cash flows. Overall the evidence from Table 8 provides weak evidence that the positive association between insider holding and announcement returns is confined to firms with high free cash flows.

In Panel B of Table 8, we present the results of additional tests aimed at understanding how the impact of insider holding and firm FCF on announcement returns varies with the firm's cross-listing status, divergence between insiders' control and cash flow rights, and level of project announcement activity. The empirical specification is similar to that in Panel B of Table 4. In columns (1) and (2), we find that although the coefficient on the two interaction terms are insignificant in both columns, the row titled $\beta_1 - \beta_2$ indicates that the coefficient on *Firm diversification*×*High insider* is significantly bigger than that on *Firm diversification*×*[1-High insider]* only for the subset of firms with no ADR listing. This is consistent with there being greater agency conflicts in such firms. We also find that the difference in announcement returns between high and low insider firms with high free cash flows is presently only among firms with a small wedge between insider control and cash flow rights (column (3)), and among firms that are less active in announcing new projects (column (5)).

In Panel C of Table 8, we replicate our baseline regression result from Panel A using an IV regression specification, where we instrument for *High insider* using the dummy variable *Old Within Group* which identifies the relatively older firms within each business group. As we can define *Old Within Group* only for firms belonging to business groups, we confine these regressions to project announced by group firms. Also, instead of instrumenting for the interaction terms in Panel A, we estimate the IV regression separately for projects announced by high FCF firms (in columns (1) and (2)) and low FCF firms (in columns (3) and (4)). As can be seen from the output of the first-stage regressions in columns (1) and (3), *Old Within Group* is a strong instrument for *High insider* in both subsamples. More importantly, the second-stage regressions indicate that insider ownership affects announcement returns only for projects announced by high FCF firms (positive and significant coefficient on *High insider* in column (2)) and not for projects announced by low FCF firms (insignificant coefficient on *High insider* in column (4)). To summarize, the results in Table 8 provide some weak evidence that high free cash flows enhances the ability of insiders to expropriate outside shareholders by implementing negative NPV projects.

[Insert Table 8 here]

4.4 Future operating performance

Our analysis so far has focussed on stock market reaction to project announcements. In this section, we examine the effect of new projects on subsequent operating performance measured using the firm's annual return on assets (*ROA*), which we calculate as the ratio of profits before depreciation, interest and taxes (PBDIT) to total assets. An *important caveat* with this analysis is that we only know when the projects were announced, but do not have complete information on when the projects were actually completed. To this extent our estimates are likely to be noisy. We estimate panel regressions that are variants of the following form:

$$\text{ROA}_{ft} = \alpha + \beta X_{p,t-1} + \gamma X_{f,t-1} + \mu_f + \mu_t + \varepsilon_{ft}, \tag{2}$$

where the main independent variable is *Project* which takes a value one if the firm announced a project the previous year, and the value zero otherwise (for convenience, we omit the subscript $t-1$ on the regressors and simply note that all regressors are lagged variables). Our sample for these regressions includes a panel that spans the time period 1995–2010 and includes all firms that belong to a business group and announce at least one project during this time period. We control the regression for the following lagged firm characteristics: *Size* measured as the natural logarithm of the book value of total assets, *Leverage*, and *Sales growth*. We also include *High insider* as an additional control along with year fixed effects and firm fixed effects in these regressions. Standard errors are robust to heteroskedasticity and clustered at the firm level. The coefficient on *Project* will measure the within-firm increase in *ROA* in the year after the firm announces a project.

The results of our estimation are presented in Table 9. The positive and significant coefficient on *Project* in column (1) indicates that on average a firm experiences an increase in *ROA* in the year after it announces a project. The insignificant coefficient on *High insider* indicates that firms do not experience an increase in *ROA* in the year after their insider holding increases from below to above 50%. The coefficients on the other control variables indicate that *ROA* is higher for smaller firms (negative coefficient on *Size*), firms with higher leverage (positive coefficient on *Leverage*), and firms that are experiencing high sales growth (positive coefficient on *Sales growth*).

In Column (2), we differentiate between projects announced by high-insider and low-insider firms by replacing *Project* with two interaction terms, *Project*×*High insider* and *Project*×*[1-High insider]*. The positive and significant coefficient on both interaction terms indicates that both sets of firms experience an increase in *ROA* in the year after they announce a project. Although the coefficient on *Project*×*High insider* appears larger than that on *Project*×*[1-High insider]*, we do not find the difference to be statistically significant, as

can be seen from the insignificant coefficient in the row titled $\beta_1 - \beta_2$.

In Column (3), we differentiate projects based on their diversification status and find that subsequent *ROA* increases both for diversification project and non-diversification projects. Again, although the increase in *ROA* appears to be larger for non-diversification projects as compared to diversification projects, the difference is not statistically significant. In Column (4), we differentiate projects based on both insider holding and diversification status. The results indicate that *ROA* increases following all project announcements, except for diversification projects announced by firms with low insider holding (insignificant coefficient on *Firm diversification*×*[1-High insider]*). Moreover, as the significant coefficient in the row titled $\beta_1 - \beta_2$ indicates, the coefficient on *Firm diversification*×*[1-High insider]* is significantly larger than the coefficient on *Firm diversification*× *High insider*. This result is consistent with our analysis with announcement returns, and shows that insiders selectively implement less valuable diversification projects in firms with low insider holding.

[Insert Table 9 here]

5 Concluding remarks

Most firms outside the U.S. have one or more controlling shareholders that manage multiple firms within a business group structure with very little direct cash flow rights. The large literature that tries to understand the costs and potential benefits of such complex ownership structures typically relates measures of market valuation, such as average Tobin's q, to measures of ownership structure (see e.g, Claessens et al. (2000), Khanna and Palepu (2000), Morck et al. (1988)). This methodology is problematic both because of the noise in average Tobin's q as a measure of value (Erickson and Whited (2000)) and because of the inability to control for all the determinants of average Tobin's q. In this paper, we employ a novel dataset of new capital investment projects announced by publicly listed Indian firms and relate project announcement returns to the firm's ownership structure. Focussing on the market's assessment of the *marginal value* of new projects at the time they are announced enables us to avoid the problems associated with employing average Tobin's q as a value measure.

We find that while the average project announcement return is positive and significant, there is significant cross-sectional variation. The announcement returns are significantly larger for projects of group firms with high insider holding as compared to projects of group firms with low insider holding. Consistent with the agency cost hypothesis, we find that this effect is only present for firms that are not cross-listed on an U.S. stock exchange, and hence,

not subject to U.S. securities regulation. We find that our results are robust to including firm and project level controls, using matching estimators, and to instrumenting for the level of insider holding. Consistent with diversification projects offering greater flexibility for group insiders to expropriate outside shareholders, we find that the positive association between insider holding and announcement returns is only present for diversification projects. Furthermore the stock price of firms in the same industry as a project fall when the group announces the project in another member firm. There is also some evidence that the positive relationship between insider holding and announcement returns is stronger among firms that generate higher free cash flows. Our final tests on future operating performance show that subsequent *ROA* is lower when a business group implements a diversification project in a firm with low insider holding.

Overall, our results offer strong evidence consistent with group insiders using new projects to expropriate outside shareholders. Insiders opportunistically house more (less) valuable projects in firms in which they hold high (low) cash flow rights. Our paper adds to the literature that highlights the agency costs that arise from the complex ownership structure of business group firms.

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Appendix: Variable Definitions

Announcement Returns:

- *Excess return*: The difference between the return on a firm's stock and the return on the benchmark S&P Nifty index over the same period.
- *Excess return [-10,10]*: The *excess return* on the firm's stock over a period of 21 trading days surrounding the project's announcement.
- *Excess return [-5,5]*: The *excess return* on the firm's stock over a period of 11 trading days surrounding the project's announcement.
- *Excess return [-3,3]*: The *excess return* on the firm's stock over a period of 7 trading days surrounding the project's announcement.
- *Abnormal return*: The difference between the return on a firm's stock and the return predicted by a market model with the S&P Nifty as the benchmark market return. The market model is estimated using daily returns on the firm's stock and the S&P Nifty over the preceding four quarters.
- *Abnormal return [-10,10]*: The *abnormal return* on the firm's stock over a period of 21 trading days surrounding the project's announcement.
- *Abnormal return [-5,5]*: The *abnormal return* on the firm's stock over a period of 11 trading days surrounding the project's announcement.
- *Abnormal return [-3,3]*: The *abnormal return* on the firm's stock over a period of 7 trading days surrounding the project's announcement.

Project Characteristics:

- *Project Cost*: The stated cost of the project in Rs. Million.
- *Project Size*: The natural logarithm of (1 + Project Cost).
- *Group*: A dummy variable that identifies if the firm announcing the project belongs to a private Indian business group.
- *Firm diversification*: A dummy variable that identifies if the project is not in the same 2-digit industry as the firm announcing the project.

- *Group diversification*: A dummy variable that identifies that the business group to which the firm announcing the project belongs did not have a firm in the same 2-digit industry as the project in the previous year. This variable is coded as missing for projects announced by firms that do not belong to a business group.

- *Proj. Industry ROA*: The median *ROA* of all firms in the 2-digit industry as the project.

- *Proj. Industry Sales growth*: The median *Sales growth* of all firms in the 2-digit industry as the project.

Firm Characteristics:

- *Total Assets*: The book value of total assets of the firm.

- *Size*: The natural logarithm of (1 + Total Assets).

- *ROA*: The ratio of operating profits (PBITDA) to total assets.

- *Leverage*: The ratio of total debt to total assets.

- *Sales growth*: The year-on-year growth in total sales.

- *FCF/Assets*: The ratio of free cash flow (FCF) to assets, where FCF is obtained by subtracting the firm's net spending on fixed assets from its net cash flow from operating activities.

- *High FCF Firm*: A dummy variable that identifies firms which are in the top quartile across all firms during the year in terms of their *FCF/Assets* ratio.

- *Equity issue*: A dummy variable that identifies if the firm issued any equity during the year.

- *Insider Holding*: The fraction of shares held by the Indian promoters.

- *High insider*: A dummy variable that identifies firms in which *Insider Holding*> 0.5.

- *FII Holding*: The fraction of shares held by foreign institutional investors (FIIs).

- *Institutional Holding*: The fraction of shares held by all institutional investors.

- *PAC Holding*: The fraction of shares held by "persons acting in concert" (PAC) with the promoters of the firm.

- *Big Wedge*: A dummy variable that identifies firms in which *PAC Holding*$> 5\%$.

- *ADR*: A dummy variable that identifies firms that have American Depository Receipts (ADRs) listed on US exchanges.

- *Projects Announced*$_{t-1}$: The number of projects announced by the firm in the previous year.

Table 1. Descriptive statistics

Panel A provides an year-wise distribution of projects in our sample over the time period 1995–2010, whereas Panel B provides an industry-wise distribution at the 2-digit NIC level for the top 20 industries in terms of the number of projects.

Panel A: Year-wise distribution of projects

Year	No. of Projects	GDP growth (%)	No. of Industries	Percentage of Total
1995	145	6.66	20	5.13%
1996	146	7.57	24	5.17%
1997	93	7.55	20	3.29%
1998	65	4.05	20	2.30%
1999	73	6.18	21	2.58%
2000	87	8.46	27	3.08%
2001	78	3.98	23	2.76%
2002	98	4.94	23	3.47%
2003	140	3.91	30	4.95%
2004	160	7.94	27	5.66%
2005	258	7.85	29	9.13%
2006	361	9.28	36	12.77%
2007	378	9.26	37	13.38%
2008	260	9.80	34	9.20%
2009	220	3.89	33	7.78%
2010	264	8.24	37	9.34%
All Years	2,826		46	100.00%

Panel B: Industry-wise distribution of projects

2-dig NIC	Industry	No. of Projects	% of Total
24	Manufacture of chemicals and chemical products	411	14.54%
40	Electricity, gas, steam and hot water supply	328	11.61%
26	Manufacture of other non-metallic mineral products	251	8.88%
27	Manufacture of basic metals	208	7.36%
17	Manufacture of textiles	166	5.87%
15	Manufacture of food products and beverages	162	5.73%
45	Construction	121	4.28%
34	Manufacture of motor vehicles, trailers and semi-trailers	105	3.72%
70	Real estate activities	97	3.43%
29	Manufacture of machinery and equipment n.e.c.	95	3.36%
55	Hotels and restaurants	93	3.29%
25	Manufacture of rubber and plastics products	83	2.94%
31	Manufacture of electrical machinery and apparatus n.e.c.	79	2.80%
72	Computer and related activities	76	2.69%
35	Manufacture of other transport equipment	45	1.59%
32	Manufacture of radio, television and communication equipment	45	1.59%
21	Manufacture of paper and paper products	39	1.38%
85	Health and social work	36	1.27%
52	Retail trade, except of motor vehicles and motorcycles	36	1.27%
13	Mining of metal ores	31	1.10%
Total		2,507	88.71%

Table 2. Descriptive statistics – Key variables

This table provides the descriptive statistics for our key variables. The definitions of all variables are listed in the Appendix.

	Mean	Median	Std. Dev.	p25	p75	N
Project Characteristics:						
Project Cost (Rs. Mn)	771	100	2913	32	350	2,826
Project Cost/Assets	0.035	0.011	0.120	0.004	0.029	2,820
Group	0.761	1.000	0.427	1.000	1.000	2,826
Firm diversification	0.437	0.000	0.496	0.000	1.000	2,824
Group diversification	0.350	0.000	0.477	0.000	1.000	2,150
Proj. Industry ROA	0.097	0.098	0.036	0.079	0.114	2,681
Proj. Industry Sales growth	0.094	0.071	0.191	0.020	0.129	2,681
Firm Characteristics:						
Total Assets (Rs. Mn)	54,950	9,203	224,140	3,506	29,440	2,820
ROA	0.189	0.168	0.124	0.120	0.230	2,672
Sales growth	0.250	0.157	0.685	0.015	0.317	2,665
Leverage	0.344	0.353	0.165	0.236	0.462	2,769
Projects Implemented$_{t-1}$	0.913	0.000	1.735	0.000	1.000	2,826
Equity issue	0.015	0.000	0.121	0.000	0.000	2,826
Insider Holding	0.451	0.453	0.197	0.327	0.591	2,766
High insider	0.406	0.000	0.491	0.000	1.000	2,766
FII Holding	0.056	0.005	0.087	0.000	0.083	2,767
Inst. Holding	0.125	0.075	0.141	0.000	0.216	2,767
PAC Holding	0.023	0	0.084	0	0	2,766
Big Wedge	0.086	0	0.281	0	0	2,766
ADR	0.208	0	0.406	0	0	2,826
Announcement Returns:						
Abnormal Return [-3,3]	1.052%	0.019%	8.511%	-3.978%	4.787%	2,547
Abnormal Return [-5,5]	1.172%	0.018%	10.592%	-5.143%	5.835%	2,547
Abnormal Return [-10,10]	1.822%	0.291%	14.752%	-7.088%	8.194%	2,547
Excess Return [-3,3]	0.719%	0	8.272%	-4.266%	4.357%	2,826
Excess Return [-5,5]	0.851%	-0.051%	10.323%	-5.034%	5.355%	2,826
Excess Return [-10,10]	1.488%	0	14.207%	-6.957%	7.575%	2,826

Table 3. Group affiliation, insider holding, and announcement returns (univariate analysis)

This table reports the results of univariate tests aimed at understanding how project announcement returns vary with insider holding in the firm announcing the project, and whether the firm belongs to an Indian Business Group. In Panel A, we provide a univariate comparison of announcement returns for projects announced by firms that belong to a business group (*Group*= 1) and those that do not (*Group*= 0). In Panel B, we provide a univariate comparison of announcement returns for projects announced by high-insider firms (*High insider*= 1) and low-insider firms (*High insider*= 0); we do this first for all projects together, and then separately for projects announced by group firms and projects announced by non-group firms. Statistical significance at the 1%, 5% and 10% levels is denoted by ***, **, and *, respectively.

Panel A: Group firms vs. non-group firms

	Comparison of means			Comparison of medians		
	Non-Group	Group	Difference	Non-Group	Group	Difference
All Projects:						
Abnormal return [-3,3]	1.546%***	0.906%***	0.640%*	0.296%**	-0.115%*	0.412%
Abnormal return [-5,5]	1.446%***	1.090%***	0.355%	-0.118%	0.044%*	-0.162%
Abnormal return [-10,10]	2.345%***	1.667%***	0.678%	-0.322%	0.386%**	-0.708%
Excess return [-3,3]	1.254%***	0.551%***	0.704%**	0.000%	-0.190%	0.190%*
Excess return [-5,5]	1.152%***	0.756%***	0.396%	0.000%	-0.230%	0.230%
Excess return [-10,10]	2.082%***	1.301%***	0.781%	0.000%	0.000%	0.000%

Panel B: High insider vs. low insider firms

	Comparison of means			Comparison of medians		
	Low insider	High insider	Difference	Low insider	High insider	Difference
All Projects:						
Abnormal return [-3,3]	0.837%***	1.352%***	-0.516%*	-0.301%	0.440%*	-0.741%*
Abnormal return [-5,5]	0.904%***	1.541%***	-0.637%*	-0.296%	0.404%	-0.700%**
Abnormal return [-10,10]	1.495%***	2.299%***	-0.804%*	0.126%	0.575%*	-0.449%
Excess return [-3,3]	0.606%***	0.914%***	-0.308%	-0.165%	0	-0.165%
Excess return [-5,5]	0.709%***	1.102%***	-0.394%	-0.422%**	0	-0.422%*
Excess return [-10,10]	1.309%***	1.827%***	-0.518%	0	0	0.000%
Projects announced by group firms:						
Abnormal return [-3,3]	0.568%**	1.490%***	-0.922%***	-0.387%*	0.501%	-0.888%**
Abnormal return [-5,5]	0.777%***	1.658%***	-0.882%**	-0.225%	0.467%	-0.692%**
Abnormal return [-10,10]	1.299%***	2.294%***	-0.996%*	0.176%	0.942%**	-0.767%*
Excess return [-3,3]	0.340%	0.978%***	-0.638%**	-0.363%**	0	-0.363%*
Excess return [-5,5]	0.592%**	1.166%***	-0.574%*	-0.425%*	0	-0.425%*
Excess return [-10,10]	1.113%***	1.736%***	-0.623%	-0.018%	0.087%	-0.104%
Projects announced by non-group firms:						
Abnormal return [-3,3]	1.909%***	0.978%*	0.930%	0.132%	0.261%	-0.129%
Abnormal return [-5,5]	1.411%*	1.222%*	0.189%	-0.468%	0.211%	-0.679%
Abnormal return [-10,10]	2.279%**	2.312%**	-0.033%	-0.225%	-0.570%	0.345%
Excess return [-3,3]	1.640%***	0.755%	0.884%	0.033%	0	0.033%
Excess return [-5,5]	1.163%*	0.944%	0.219%	-0.035%	0	-0.035%
Excess return [-10,10]	2.071%**	2.053%**	0.018%	0	0	0.000%

Table 4. Group affiliation, insider holding, and announcement returns (multivariate analysis)

In this table, we report the results of regressions investigating how project announcement returns vary with insider holding in the firm announcing the project, and whether the firm belongs to an Indian Business Group. We estimate following cross-sectional OLS regressions:

$$y_{fp} = \alpha + \beta X_p + \gamma X_f + \varepsilon_{pt},$$

The dependent variable y_{fp} is either the *Abnormal return* or the *Excess return* for firm 'f' when it announces project 'p'. Our main independent variable of interest is an interaction term *Group* × *High insider*. We also include both *Group* and *High insider* as additional control variables. The sample for this regression only includes projects announced by firms that are listed on the NSE. All variables are defined in the Appendix. We include firm size decile fixed effects in all specifications. Standard errors reported in parentheses are robust to heteroskedasticity.

In Panel A, we report the results of our baseline cross-sectional regressions. The dependent variables are *Abnormal returns* over different event windows in columns (1) through (4), and *Excess returns* over different event windows in columns (5) through (7).

In Panel B, we examine how the baseline results in Panel A vary with important firm characteristics. The dependent variable in this panel is *Abnormal return [-3,3]*. We include all the control variables from Panel A in all the columns in Panel B, but do not report these coefficients in order to conserve space.

In Panel C, we report the results of a propensity score matched estimator. The dependent variable in this panel is *Abnormal return [-3,3]*. In columns (1) and (2), we obtain the propensity score using a probit regression of *High Insider* on age, size decile, and 2-digit industry. In column (3) and (4), we obtain the propensity score using a probit regression of *High Insider* on age, size decile, 2-digit industry, leverage, ROA, and year of announcement. The sample in columns (1) and (3) includes all projects, whereas the sample in columns (2) and (4) only includes projects undertaken by group firms. In all columns, the control group is formed using the closest covariate (nearest neighbor estimator) values. We report bootstrapped standard errors after 50 replications to reduce the bias in the estimates of the standard errors.

In Panel D, we report the results of instrumental-variables regression where we instrument for *High insider* using *Old Within Group*, a dummy variable that identifies if the firm is older than the median firm within the group. The dependent variable in this panel is *Abnormal return [-3,3]*. The regression is estimated using the two-staged least squares (2SLS) estimator, and is confined only to projects announced by group firms. The results of the first- and second- stage regressions are reported in columns (1) and (2), respectively. We include all the control variables from Panel A in both the first- and second- stage regressions, but do not report these coefficients in order to conserve space.

Panel A: Results of baseline specification

	Abnormal return				Excess return		
	[-3,3]	[-3,3]	[-5,5]	-[10,10]	[-3,3]	[-5,5]	-[10,10]
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
High insider	-0.009	-0.008	-0.001	-0.000	-0.009	-0.002	-0.002
	(0.008)	(0.008)	(0.010)	(0.014)	(0.008)	(0.010)	(0.014)
Group	-0.011*	-0.012*	-0.005	-0.010	-0.013**	-0.006	-0.012
	(0.007)	(0.007)	(0.008)	(0.011)	(0.006)	(0.008)	(0.010)
Group× High insider	0.018**	0.017*	0.009	0.007	0.016*	0.008	0.005
	(0.009)	(0.009)	(0.011)	(0.016)	(0.009)	(0.011)	(0.015)
Project Size		-0.000	0.000	0.001	0.000	0.001	0.001
		(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.002)
Projects Announced$_{t-1}$		-0.001	-0.002	-0.004**	-0.001	-0.002*	-0.003**
		(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.002)
Equity issue		0.009	-0.011	0.014	0.005	-0.022	-0.004
		(0.025)	(0.032)	(0.046)	(0.022)	(0.030)	(0.043)
FII Holding		0.007	-0.022	-0.089***	0.004	-0.026	-0.100***
		(0.018)	(0.022)	(0.030)	(0.017)	(0.022)	(0.030)
Illiquidity		0.024	0.004	-0.021	-0.022*	-0.037**	-0.039**
		(0.016)	(0.020)	(0.026)	(0.012)	(0.016)	(0.019)
Constant	-0.005	-0.015	-0.041*	-0.013	-0.001	-0.029	-0.003
	(0.026)	(0.027)	(0.024)	(0.026)	(0.025)	(0.022)	(0.028)
Observations	2507	2507	2507	2507	2631	2631	2631
R^2	0.006	0.008	0.006	0.008	0.007	0.008	0.008
Size decile FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Panel B: Additional robustness tests

Dependent variable= Abnormal Return [-3,3]						
	ADR Listing		Ownership Wedge		Past Inv. Activity	
	No	Yes	Small	Big	Low	High
	(1)	(2)	(3)	(4)	(5)	(6)
High insider	-0.007	-0.036	-0.005	-0.077*	-0.018*	0.004
	(0.008)	(0.027)	(0.008)	(0.040)	(0.011)	(0.012)
Group	-0.012	-0.012	-0.008	-0.039	-0.008	-0.014
	(0.007)	(0.018)	(0.007)	(0.024)	(0.009)	(0.010)
Group× High insider	0.018*	0.031	0.013	0.063	0.025**	0.007
	(0.010)	(0.027)	(0.009)	(0.046)	(0.012)	(0.013)
Constant	-0.010	-0.001	0.010	0.043	-0.014	0.044***
	(0.027)	(0.019)	(0.029)	(0.057)	(0.028)	(0.015)
Observations	1954	553	2302	205	1413	1094
R^2	0.008	0.047	0.006	0.096	0.006	0.026
Size decile FE	Yes	Yes	Yes	Yes	Yes	Yes
All controls	Yes	Yes	Yes	Yes	Yes	Yes

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Panel C: Propensity Score Matching Estimator

	Abnormal Return [-3,3]		Abnormal Return [-3,3]	
	(1)	(2)	(3)	(4)
High Insider	0.004	0.009**	0.003	0.008**
	(0.004)	(0.004)	(0.004)	(0.004)
Constant	0.009***	0.006**	0.010***	0.007***
	(0.002)	(0.002)	(0.002)	(0.002)
Observations	2450	1844	2403	1804
R^2	0.001	0.003	0.000	0.002
Sample	All	Group	All	Group
Matched Characteristics	Age, Size Decile, Ind.		Age, Size Decile, Ind., Leverage, ROA, Year	

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Panel D: Instrumental-variables regression

	(1)	(2)
	High insider	Abnormal Return [-3,3]
Old Within Group	-0.147***	
	(0.024)	
High insider		0.071**
		(0.029)
Constant	0.736***	-0.071*
	(0.224)	(0.042)
Observations	1934	1934
F-stat (p-value) of instrument	35.48 (0.000)	
Size decile FE	Yes	Yes
All controls	Yes	Yes

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 5. Firm diversification, insider holding, and announcement returns (univariate analysis)

In this table, we provide a univariate comparison of announcement returns for projects announced by high-insider firms (*High insider*= 1) and low-insider firms (*High insider*= 0) separately for projects that are in a different 2-digit industry as the firm (*Firm diversification*= 1) and projects that are in the same 2-digit industry as the firm (*Firm diversification*= 0). We confine the sample to projects announced by firms belonging to business groups. Statistical significance at the 1%, 5% and 10% levels is denoted by ***, **, and *, respectively.

	Comparison of means			Comparison of medians		
	Low insider	High insider	Difference	Low insider	High insider	Difference
Firm diversification projects:						
Abnormal return [-3,3]	-0.177%	1.552%***	-1.730%***	-0.983%**	0.382%**	-1.365%***
Abnormal return [-5,5]	-0.070%	1.920%***	-1.990%***	-0.943%**	0.704%*	-1.647%***
Abnormal return [-10,10]	0.318%	2.396%***	-2.079%**	-0.606%	0.632%	-1.238%*
Excess return [-3,3]	-0.342%	1.172%***	-1.514%***	-0.911%**	0.016%	-0.927%***
Excess return [-5,5]	-0.311%	1.610%***	-1.921%***	-0.692%**	0.000%	-0.692%***
Excess return [-10,10]	0.176%	1.890%**	-1.715%**	-0.609%	0.000%	-0.609%
Firm non-diversification projects:						
Excess return [-3,3]	0.890%***	0.832%**	0.059%	-0.173%	-0.188%	0.015%
Excess return [-5,5]	1.320%***	0.832%**	0.488%	-0.123%	-0.068%	-0.054%
Excess return [-10,10]	1.869%***	1.620%***	0.249%	0.321%**	0.200%*	0.121%
Abnormal return [-3,3]	1.161%***	1.445%***	-0.284%	0.008%*	0.569%**	-0.560%
Abnormal return [-5,5]	1.450%***	1.467%***	-0.017%	0.225%**	0.336%**	-0.111%
Abnormal return [-10,10]	2.079%***	2.220%***	-0.141%	0.722%**	1.065%***	-0.343%

Table 6. Firm diversification, insider holding, and announcement returns (multivariate analysis)

In this table, we report the results of regressions investigating how project announcement returns vary with insider holding in the firm announcing the project, and whether the project results in the firm diversifying into a new two-digit NIC industry. We estimate following cross-sectional OLS regressions:

$$y_{fp} = \alpha + \beta X_p + \gamma X_f + \varepsilon_{pt},$$

The dependent variable y_{fp} is either the *Abnormal return* or the *Excess return* for firm 'f' when it announces project 'p'. Our main independent variables of interest are the interaction terms *Firm diversification*×*High insider* and *Firm diversification*×[1-*High insider*]; we also control for *High insider*. The sample for this regression only includes projects announced by firms that belong to Indian business groups (*Group*= 1) and are listed on the NSE. All variables are defined in the Appendix. We include firm size decile fixed effects in all specifications. Standard errors reported in parentheses are robust to heteroskedasticity.

In Panel A, we report the results of our baseline cross-sectional regressions. The dependent variables are *Abnormal returns* over different event windows in columns (1) through (3), and *Excess returns* over different event windows in columns (4) through (6).

In Panel B, we examine how the baseline results in Panel A vary with important firm characteristics. The dependent variable in this panel is *Abnormal return [-3,3]*. We include all the control variables from Panel A in all the columns in Panel B, but do not report these coefficients in order to conserve space.

In Panel C, we report results of regressions investigating how announcement returns vary across all the firms in the group when one of the group firms announces a project. The sample for this regression includes all traded firms that belong to a business group which announces a new project during the year, regardless of whether the particular firm announces the project or not. Our main independent variables of interest are: *Not housed*, a dummy variable that identifies all firms in the business group other than the one that announces the project; and *Same industry*, a dummy variable that identifies if the firm is in the same industry as the project. Apart from all the control variables in Panel A, we also include fixed effects for individual projects in these regressions.

Panel A: Results of baseline regressions

	Abnormal return			Excess return		
	[-3,3]	[-5,5]	-[10,10]	[-3,3]	[-5,5]	-[10,10]
	(1)	(2)	(3)	(4)	(5)	(6)
High insider	0.003	-0.001	-0.000	0.001	-0.004	-0.003
	(0.005)	(0.006)	(0.009)	(0.005)	(0.006)	(0.008)
β_1: Firm diversification× High insider	0.002	0.005	0.003	0.003	0.009	0.005
	(0.006)	(0.008)	(0.011)	(0.006)	(0.007)	(0.010)
β_2: Firm diversification× [1-High insider]	-0.013***	-0.015**	-0.016**	-0.011**	-0.015**	-0.014*
	(0.005)	(0.006)	(0.008)	(0.005)	(0.006)	(0.008)
Project Size	0.000	0.001	0.001	0.001	0.001	0.001
	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.002)
Projects announced$_{t-1}$	-0.003***	-0.002*	-0.005***	-0.002**	-0.002**	-0.005***
	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.002)
Equity issue	0.022	0.020	0.063	0.019	0.012	0.041
	(0.033)	(0.041)	(0.058)	(0.029)	(0.037)	(0.054)
FII Holding	0.019	-0.012	-0.054	0.019	-0.014	-0.059*
	(0.020)	(0.024)	(0.033)	(0.019)	(0.024)	(0.032)
Illiquidity	0.012	-0.013	-0.044	-0.028**	-0.047***	-0.052**
	(0.018)	(0.023)	(0.028)	(0.014)	(0.017)	(0.020)
Constant	0.036*	0.046*	0.027	-0.010	-0.016	-0.009
	(0.019)	(0.025)	(0.031)	(0.046)	(0.051)	(0.051)
$\beta_1 - \beta_2$	0.015*	0.020**	0.019	0.015**	0.024**	0.019
	(0.008)	(0.010)	(0.013)	(0.007)	(0.009)	(0.013)
Observations	1934	1934	1934	2035	2035	2035
R^2	0.014	0.011	0.012	0.012	0.013	0.010
Size decile FE	Yes	Yes	Yes	Yes	Yes	Yes

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Panel B: Additional robustness tests

Dependent variable= Abnormal Return [-3,3]						
	ADR Listing		Ownership Wedge		Past Inv. Activity	
	No	Yes	Small	Big	Low	High
	(1)	(2)	(3)	(4)	(5)	(6)
High insider	0.005	-0.008	0.003	-0.061*	0.004	0.000
	(0.006)	(0.010)	(0.005)	(0.031)	(0.007)	(0.008)
β_1: Firm diversification× High insider	0.004	-0.008	0.001	0.054*	-0.006	0.011
	(0.007)	(0.011)	(0.006)	(0.029)	(0.008)	(0.009)
β_2: Firm diversification× [1-High insider]	-0.010	-0.016**	-0.010**	-0.037**	-0.014*	-0.010*
	(0.007)	(0.006)	(0.005)	(0.014)	(0.007)	(0.006)
Constant	0.035*	0.005	0.041**	-0.025	-0.023	0.057**
	(0.019)	(0.010)	(0.020)	(0.023)	(0.052)	(0.023)
$\beta_1 - \beta_2$	0.014	0.008	0.011	0.090***	0.008	0.021*
	(0.009)	(0.012)	(0.008)	(0.033)	(0.011)	(0.011)
Observations	1419	515	1767	167	1081	853
R^2	0.016	0.029	0.014	0.110	0.012	0.038
Size decile FE	Yes	Yes	Yes	Yes	Yes	Yes
All controls	Yes	Yes	Yes	Yes	Yes	Yes

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Panel C: Announcement returns of all group firms

	Abnormal return				Excess return		
	[-3,3]	[-3,3]	[-5,5]	-[10,10]	[-3,3]	[-5,5]	-[10,10]
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Not Housed	-0.005*						
	(0.002)						
β_1: Not housed× Same industry		-0.014***	-0.012***	-0.018***	-0.013***	-0.012***	-0.017***
		(0.004)	(0.005)	(0.006)	(0.004)	(0.005)	(0.006)
β_2: Not housed × [1-Same industry]		0.001	0.000	0.002	-0.000	-0.002	0.001
		(0.004)	(0.004)	(0.006)	(0.003)	(0.004)	(0.006)
Same Ind.		0.008*	0.007	0.009	0.006	0.006	0.011
		(0.005)	(0.006)	(0.008)	(0.005)	(0.006)	(0.008)
Project Size	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(.)	(.)	(.)	(.)	(.)	(.)	(.)
Projects announced$_{t-1}$	-0.001**	-0.001**	-0.001**	-0.003***	-0.001**	-0.001*	-0.002**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
FII Holding	-0.000	-0.000	-0.000*	-0.000**	-0.000	-0.000	-0.000**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Illiquidity	-0.019**	-0.019*	-0.026**	-0.032**	-0.019***	-0.032***	-0.030***
	(0.010)	(0.010)	(0.012)	(0.015)	(0.007)	(0.009)	(0.011)
Constant	-0.059	-0.057	0.069	-0.121	0.000	0.147***	-0.081***
	(0.144)	(0.145)	(0.139)	(0.110)	(0.045)	(0.023)	(0.018)
$\beta_1 - \beta_2$		-0.015***	-0.013**	-0.020**	-0.013**	-0.011*	-0.018**
		(0.005)	(0.006)	(0.009)	(0.005)	(0.006)	(0.008)
Observations	11667	11667	11667	11667	12142	12142	12142
R^2	0.404	0.404	0.413	0.427	0.402	0.407	0.413
Size Decile FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Project FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 7. Firm free cash flows, insider holding and announcement returns (univariate analysis)

In this table, we provide a univariate comparison of announcement returns for projects announced by high-insider firms (*High insider*= 1) and low-insider firms (*High insider*= 0) separately for projects announced by firms with high level of free cash flows (*High FCF*= 1) and projects announced by firms with low level of free cash flow (*High FCF*= 0). All variables are defined in the Appendix. Statistical significance at the 1%, 5% and 10% levels is denoted by ***, **, and *, respectively.

	Comparison of means			Comparison of medians		
	Low insider	High insider	Difference	Low insider	High insider	Difference
Projects announced by High FCF firms:						
Abnormal return [-3,3]	0.183%	1.831%***	-1.648%***	-0.604%**	0.740%	-1.344%***
Abnormal return [-5,5]	0.491%	2.144%***	-1.653%**	-0.323%	0.787%*	-1.109%***
Abnormal return [-10,10]	1.129%*	3.222%***	-2.093%**	-0.532%	1.169%*	-1.701%**
Excess return [-3,3]	0.147%	1.503%***	-1.356%***	-0.484%	0.127%	-0.611%**
Excess return [-5,5]	0.468%	1.663%***	-1.195%**	-0.449%	0.241%	-0.690%**
Excess return [-10,10]	1.147%*	2.726%***	-1.580%**	-0.443%	0.166%	-0.609%*
Projects announced by Low FCF firms:						
Abnormal return [-3,3]	0.934%***	1.004%***	-0.070%	-0.135%	0.064%	-0.198%
Abnormal return [-5,5]	0.900%**	1.267%***	-0.367%	-0.317%	0.098%	-0.415%
Abnormal return [-10,10]	1.280%**	1.495%**	-0.216%	0.273%	0.009%	0.264%
Excess return [-3,3]	0.746%***	0.598%*	0.148%	-0.271%	0.000%	-0.271%
Excess return [-5,5]	0.727%**	0.851%**	-0.124%	-0.526%	0.000%	-0.526%
Excess return [-10,10]	1.209%**	1.046%*	0.162%	0.075%	0.000%	0.075%

Table 8. Firm free cash flows, insider holding and announcement returns (multivariate analysis)

In this table, we report the results of regressions investigating how project announcement returns vary with insider holding and the level of free cash flows in the firm announcing the project. We estimate following cross-sectional OLS regressions:

$$y_{fp} = \alpha + \beta X_p + \gamma X_f + \varepsilon_{pt},$$

The dependent variable y_{fp} is either the *Abnormal return* or the *Excess return* for firm 'f' when it announces project 'p'. Our main independent variables of interest are the interaction terms *High FCF*×*High insider* and *High FCF*×[1-*High insider*]; we also control for *High insider*. The sample for this regression only includes projects announced by firms that are listed on the NSE. All variables are defined in the Appendix. We include firm size decile fixed effects in all specifications. Standard errors reported in parentheses are robust to heteroskedasticity.

In Panel A, we report the results of our baseline cross-sectional regressions. The dependent variables are *Abnormal returns* over different event windows in columns (1) through (4), and *Excess returns* over different event windows in columns (5) through (7).

In Panel B, we examine how the baseline results in Panel A vary with important firm characteristics. The dependent variable in this panel is *Abnormal return [-3,3]*. We include all the control variables from Panel A in all the columns in Panel B, but do not report these coefficients in order to conserve space.

In Panel C, we report the results of instrumental-variables (IV) regression where we instrument for *High insider* using *Old Within Group*, a dummy variable that identifies if the firm is older than the median firm within the group. The dependent variable in this panel is *Abnormal return [-3,3]*. The regression is estimated using the two-staged least squares (2SLS) estimator, and is confined only to projects announced by group firms. We estimate the IV regression separately for projects under by firms with *High FCF*= 1 (in columns (1) and (2)) and for projects announced by firms with *High FCF*= 0 (in columns (3) and (4)). The results of the first-stage regressions are reported in columns (1) and (3), and the second-stage results are reported in columns (2) and (4). We include all the control variables from Panel A in both the first- and second- stage regressions, but do not report these coefficients in order to conserve space.

Panel A: Results of the baseline regressions

	Abnormal return				Excess return		
	[-3,3]	[-3,3]	[-5,5]	-[10,10]	[-3,3]	[-5,5]	-[10,10]
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
High insider	0.001	0.007	0.002	-0.000	-0.000	0.001	-0.004
	(0.005)	(0.005)	(0.006)	(0.008)	(0.005)	(0.006)	(0.008)
β_1: High FCF× High insider	0.008	0.007	0.008	0.014	0.009	0.008	0.014
	(0.006)	(0.007)	(0.007)	(0.010)	(0.006)	(0.007)	(0.010)
β_2: High FCF× [1-High insider]	-0.008*	-0.002	-0.005	-0.003	-0.006	-0.002	-0.001
	(0.005)	(0.005)	(0.006)	(0.008)	(0.005)	(0.006)	(0.008)
Project Size	-0.001	-0.000	-0.001	-0.001	-0.001	-0.000	0.000
	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.002)
Projects announced$_{t-1}$	-0.001	-0.002**	-0.001	-0.003*	-0.001	-0.001	-0.003
	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.002)
Equity issue	0.004	0.018	-0.022	0.006	0.001	-0.032	-0.008
	(0.028)	(0.037)	(0.035)	(0.049)	(0.027)	(0.035)	(0.049)
FII Holding	0.001	0.011	-0.032	-0.102***	0.001	-0.033	-0.118***
	(0.018)	(0.020)	(0.023)	(0.032)	(0.018)	(0.023)	(0.031)
Illiquidity	0.017	0.005	-0.005	-0.024	-0.008	-0.030*	-0.027
	(0.016)	(0.017)	(0.020)	(0.027)	(0.014)	(0.017)	(0.023)
Constant	0.029*	-0.068	0.036	0.030	0.024	0.027	0.021
	(0.017)	(0.081)	(0.022)	(0.024)	(0.017)	(0.022)	(0.024)
$\beta_1 - \beta_2$	0.016**	0.008	0.013	0.017	0.014**	0.010	0.015
	(0.007)	(0.008)	(0.009)	(0.013)	(0.007)	(0.009)	(0.013)
Observations	2208	1750	2208	2208	2232	2232	2232
R^2	0.008	0.013	0.008	0.009	0.005	0.007	0.009
Size Decile FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Panel B: Additional robustness tests

Dependent variable= Abnormal Return [-3,3]						
	ADR Listing		Ownership Wedge		Past Inv. Activity	
	No	Yes	Small	Big	Low	High
	(1)	(2)	(3)	(4)	(5)	(6)
High insider	-0.001	-0.003	0.000	-0.038	-0.005	0.006
	(0.006)	(0.008)	(0.005)	(0.034)	(0.006)	(0.007)
β_1: High FCF× High insider	0.009	-0.011	0.008	0.007	0.007	0.009
	(0.006)	(0.011)	(0.006)	(0.041)	(0.008)	(0.009)
β_2: High FCF× [1-High insider]	-0.010	-0.005	-0.006	-0.014	-0.013*	-0.002
	(0.006)	(0.006)	(0.005)	(0.014)	(0.007)	(0.006)
Constant	-0.039	-0.016*	0.029	-0.099	0.038**	0.032*
	(0.043)	(0.009)	(0.019)	(0.063)	(0.019)	(0.017)
$\beta_1 - \beta_2$	0.019**	-0.006	0.014*	0.021	0.019*	0.011
	(0.009)	(0.013)	(0.008)	(0.042)	(0.010)	(0.010)
Observations	1678	530	2027	181	1213	995
R^2	0.010	0.050	0.007	0.061	0.008	0.023
Size decile FE	Yes	Yes	Yes	Yes	Yes	Yes
All controls	Yes	Yes	Yes	Yes	Yes	Yes

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Panel C: Instrumental-variables regressions

	High FCF firms		Low FCF firms	
	High insider	Abnormal Return [-3,3]	High insider	Abnormal Return [-3,3]
	(1)	(2)	(3)	(4)
Old Within Group	-0.162***		-0.160***	
	(0.044)		(0.031)	
High insider		0.091*		0.047
		(0.048)		(0.032)
Constant	1.009***	-0.039	-0.014	-0.181***
	(0.049)	(0.051)	(0.030)	(0.005)
Observations	722	722	1028	1028
Size decile FE	Yes	Yes	Yes	Yes
All controls	Yes	Yes	Yes	Yes
F-stat (p-val) of instrument	13.22 (0.0003)		26.96 (0.000)	

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 9. Future operating performance

This table reports the results of regressions investigating how projects affect the subsequent operating performance of the firm announcing the project. We estimate panel regressions that are variants of the following form:

$$\text{ROA}_{ft} = \alpha + \beta X_{p,t-1} + \gamma X_{f,t-1} + \mu_f + \mu_t + \varepsilon_{ft},$$

We estimate the regression on a panel that spans the time period 1995–2010 and includes all firms that belong to a business group and announce at least one project during this time period.

All the independent variables are lagged; we omit the subscript 't-1' for convenience. *Project* is a dummy variable that identifies firms which announced at least one project in the previous year. *Firm diversification* is a dummy variable that identifies firms which announce project(s) during the previous year, at least one of which is in a different 2-digit industry from the firm. *Firm Non-diversification* is a dummy variable that identifies firms which announce project(s) during the year, all of which are in the same 2-digit industry as the firm. We include year fixed effects and firm fixed effects in all specifications. Standard errors are robust to heteroskedasticity and clustered at the firm level.

	ROA			
	(1)	(2)	(3)	(4)
High insider	-0.001	-0.002	-0.001	-0.002
	(0.007)	(0.007)	(0.007)	(0.007)
Project	0.010***			
	(0.003)			
β_1: Project× High insider		0.013***		
		(0.005)		
β_2: Project×[1-High insider]		0.008**		
		(0.004)		
β_1: Firm Diversification			0.007*	
			(0.004)	
β_2: Firm Non-Diversification			0.013***	
			(0.004)	
β_1: Firm Diversification× High insider				0.016**
				(0.006)
β_2: Firm Diversification×[1-High insider]				0.002
				(0.005)
Firm Non-Diversification× High insider				0.012**
				(0.005)
Firm Non-Diversification×[1-High insider]				0.013***
				(0.005)
Size	-0.052***	-0.052***	-0.052***	-0.052***
	(0.008)	(0.008)	(0.008)	(0.008)
Leverage	0.022*	0.022*	0.022*	0.022*
	(0.012)	(0.012)	(0.012)	(0.012)
Sales Growth	0.011***	0.011***	0.011***	0.011***
	(0.004)	(0.004)	(0.004)	(0.004)
Constant	0.571***	0.571***	0.570***	0.572***
	(0.073)	(0.073)	(0.073)	(0.073)
$\beta_1 - \beta_2$		0.005	-0.005	0.013*
		(0.006)	(0.004)	(0.008)
Observations	7580	7580	7580	7580
R^2	0.382	0.382	0.382	0.382

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$