

CORPORATE BLOCKHOLDERS AND LEVERAGE

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ABSTRACT

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This paper investigates the relationship between corporate block ownership and firm leverage. Corporate blockholders – nonfinancial firms who hold more than five percent equity in another industrial corporation – can affect a firm’s policies through their business relationships, monitoring, or through expropriation. By examining the evolution of corporate block ownership after block formation, I find that corporate block ownership is negatively related to firm leverage in fixed-effects and dynamic GMM regressions. In addition, corporate blockholders often obtain board seats, indicating that corporate investors are actively involved in governance activities. Furthermore, the negative relationship between corporate blocks and leverage becomes stronger when corporate blockholders have more board representation on the target firm, when the firm has higher agency costs, and when there is no product market relationship between corporate blockholders and the firm. Overall, my findings suggest that corporate blockholders play an important monitoring role in firm policies and can substitute for other monitoring mechanisms including leverage and institutional investors.

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PREFACE

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I. INTRODUCTION

A large proportion of prior literature on capital structure has focused on the relationship between leverage and different firm characteristics such as market-to-book, profitability, tangibility, and firm size as summarized in Frank and Goyal (2009). A separate strand of the literature looks at the relationship between various aspects of ownership structure and leverage. Early on, researchers such as Friend and Lang (1988), Berger, Ofek, and Yermack (1997) have looked at managerial ownership and its effect on ownership structure. More recent papers have started to look at the effect of block ownership on capital structure such as family ownership (Ellul, 2009; Chen, Dasgupta and Yu, 2014), and institutional ownership (Michaely, Popadak, and Vincent, 2017). However, the empirical evidence is mixed and the direction of blockholders' effect on leverage seems to vary with different types of blockholders. Ellul (2009) and Chen, et al. (2014) find a *positive* relationship between family stake and leverage; while, Michaely, et al. (2017) find a *negative* relationship between institutional holding and leverage. In fact, Cronqvist and Fahlenbrach (2009) find economically important blockholder fixed effects in financial policies, but they emphasize that different types of blockholders have heterogeneous incentives, skills, and investment styles, which causes the lack of blockholders' effect on firm policies in an aggregate sample.

Theoretical predictions regarding the direction of blockholders' influence on leverage are also not clear. On the one hand, block ownership and leverage can be negatively related. Shleifer and Vishny (1986) strongly advocate for the monitoring role of blockholders in disciplining managers' misbehaviors because they have sizable stakes in the firms. At the same time, Jensen (1986) suggests that debt can be an effective agency mechanism by committing firms' resources to fixed

payments. If debt and block ownership can both play a similar role in reducing agency problems but debt can be expensive due to bankruptcy costs, we can expect block ownership to substitute for debt. Or, in the context of Myers and Majluf (1984), blockholders can have advantages in gathering information (Lerner, Shane, and Tsai, 2003; Sias, 2004), and therefore, reduce the information asymmetry problem between the firm and these investors. If that is the case, the cost of external equity financing can be lowered and consequently firms can use more equity and less debt. In short, both agency and information asymmetry models predict a negative relationship between block ownership and leverage.

On the other hand, block ownership and leverage can be positively related. La Porta, Shleifer, and Vishny (2000) propose an “outcome model” in which effective governance facilitates firms to implement other governance mechanisms. As a result, by increasing investor protection, block investors enable outside shareholders to implement devices such as debt that limit management discretions. In addition, managers might seek to avoid debt in order to reduce the risk of bankruptcy and their own occupational risk (Friend and Lang, 1988; Berger, Ofek, and Yermack, 1997). However, if blockholders can reduce this managerial entrenchment problem, leverage would increase accordingly. These two arguments, the outcome model and managerial preference, both predict a positive relationship between block ownership and leverage.

I complement and extend this line of literature on the relationship between blockholders and leverage by looking at corporate blockholders, another important category of blockholders that has not received much attention. Corporate blockholders, defined as non-financial firms that hold more than five percent equity in another firm, are very common in the United States and around the

world. Fee, Hadlock, and Thomas (2006) and Barclay, Holderness, and Sheehan (2009) both report that more than 30% of their samples have at least one non-financial blockholder, while Liao (2014) finds that one in seven public firms around the world was a target of a corporate block partial acquisition. In this paper, I investigate whether and how corporate blockholders affect firm leverage.

Block ownership by corporations is potentially different from block ownership by financial institutions, families, or individuals in several ways. First, corporate blockholders can possess specific industry knowledge or operational and technical expertise that is superior to other shareholders including institutional investors. Barclay et al. (2009) argue that financial investors are unlikely to have the technical expertise to affect firms' operations, and they are unlikely to enjoy the private benefits (such as synergies in production) that are often a consideration for operating corporate blockholders. This information advantage can reduce the information asymmetry problem between corporate blockholders and firms (Lerner, Shane, and Tsai, 2003). Second, corporate block ownership can be beneficial in terms of business relationships, strategic alliances, joint ventures and financing services as described in Allen and Phillips (2000). Equity blocks in another firm also help to mitigate contractual limitations and strengthen business relationships (Fee et al., 2006). However, these strategic alliances might compromise corporate blockholders' incentives to monitor since such monitoring activities can jeopardize their business relationships (Brav, Jiang, Partnoy, and Thomas, 2008). Finally, corporate blockholders on average have a longer investment horizon than some institutional investors, so they might have different incentives and opinions on how to increase firms' value effectively. Harford, Kecskes,

and Mansi (2017) find that investors with long investment horizons have strong monitoring incentives, strengthen governance and restrain managerial misbehaviors.

By empirically investigating corporate block ownership in the period 1989 to 2009 after their block formation, I find a strong and negative association between firm leverage and corporate block ownership. After block formation, firms with corporate blocks have lower leverage than other firms in the same industry, even though pre-block sample firms have leverage levels similar to those of their peers. Moreover, even after 2 to 10 years post-block formation, corporate block ownership is still negatively related to leverage while controlling for other well-documented leverage determinants. A one standard deviation increase in corporate block ownership is associated with a 4.2% decrease in leverage. This negative relationship between corporate block ownership and leverage can be interpreted in several ways. First, corporate block ownership might cause a downward change in leverage. Second, low leverage firms might attract corporate block investors. Third, both corporate blocks and leverage may be correlated with some omitted variables.

In an attempt to distinguish among these alternative explanations, I perform several tests. First, I include firm-fixed effect in the model to reduce the concern of time-invariant omitted variables; and find that corporate blocks are still negatively related to leverage. Second, since both leverage and corporate ownership can be endogenously chosen, I use GMM dynamic panel estimators to address the econometric problems induced by unobserved firm specific effects and the joint endogeneity of the two interested variables (Blundell and Bond, 1998; Erickson and Whited, 2002). As discussed and used in Wintoki, Link, and Netter (2012), the dynamic system GMM

model can help us obtain efficient estimates while including both past leverage and fixed-effects to account for the dynamic aspects of the leverage/corporate block ownership relation and time-invariant unobservable heterogeneity, respectively. The association between corporate block ownership and leverage is still significantly negative after these specifications.

Third, if the negative relationship between debt and corporate blocks indicates block ownership by corporations might substitute for debt in the monitoring role as mentioned earlier, we can expect corporate blockholders to obtain board seats to exercise their power. Therefore, I collect data on board representation from firms' proxy statements to see whether these corporate blockholders do obtain board seats. In my sample, 61% of firms have directors designated by their corporate blockholders, and hold on average 25% board proportion, indicating that these operating investors are actively involved in governance activities. More importantly, the negative association between leverage and corporate block ownership becomes stronger when corporate blockholders assign directors and hold higher proportional representation on the target firms' boards, supporting the monitoring role of corporate blockholders. In addition, when examining four different measures of agency costs, the negative effect of corporate block ownership on leverage is stronger in high agency cost firms, suggesting that an agency mechanism drives the substitution between leverage and corporate block ownership.

Finally, from investigating Factiva news, I find that many corporate blockholders announce their block formation along with some sorts of business arrangements and strategic alliances. Brav, Jiang, Partnoy, and Thomas (2008) argue that one of the reasons hedge funds are more effective in monitoring is that compared to mutual funds, hedge funds suffer fewer conflicts of interest

because they do not sell products to the firms whose shares they hold. A similar argument can be made in the case of corporate blockholders, corporate investors who have business ties with target firms suffer from conflicts of interest, and might not have enough incentives to intervene with target firms' managers since such actions might jeopardize their relationships. As a result, if corporate blockholders play a monitoring role and can substitute for leverage, we should see this association become weaker with business connections. On the contrary, if corporate blockholders get involved in firms for business and strategic reasons, and even get board seats just to observe their business projects or trade credits, there should be no differences or even stronger relationship between leverage and corporate blocks when there exists some business arrangements between the two parties. The interaction test among product market relationship, leverage, and corporate block ownership can help to distinguish between these two alternative explanations.

I collect data on product market relationships between firms and their corporate blockholders from Factiva news announcements on block establishment and proxy statements. I find that the negative association between corporate ownership and leverage intensifies when there is no product market relationship between corporate blockholders and target firms. This evidence is consistent with the story that the monitoring incentives are compromised when corporate blockholders get involved in target firms for strategic reasons.

I recognize that none of my tests is perfect in ruling out all alternative explanations, however, collectively, they make it much more difficult to find an explanation or omitted variable that can provide similar results across these different tests. Taken all together, the evidence on board representation, board proportion, agency costs, and the interaction among leverage, corporate

blocks, and product market relationship is consistent with the story of corporate blockholders being active monitors. In the sense that leverage and corporate blockholders can both be effective agency controls, but debt can be expensive due to bankruptcy costs, the negative relationship between leverage and corporate blocks documented in this paper indicates that corporate block ownership can substitute for leverage in the monitoring role.

My paper contributes to the literature on corporate blockholders and capital structure in several ways. First, my paper provides more information on this specific type of blockholder and documents the evolution of corporate blocks after their formation through a partial acquisition or through an equity carveout. Second, prior studies have emphasized the product market relationship and factors that drive corporate block acquisitions (Allen and Phillips, 2000; Fee, Hadlock and Thomas, 2006; Kang and Kim, 2008; Ouimet, 2013; Liao, 2014; Nain and Wang, 2017), but none of these studies look at their effect on firm leverage. Finally, the findings here provide evidence on the important role of a component in ownership structure, i.e. corporate blockholders, in shaping firms' capital structure and their interaction with the product market relationship. My results suggest that corporate block ownership is negatively related to leverage, and that the product market relationship between corporate blockholders and firms reduces the monitoring incentives.

The paper will proceed as follows. Section II provides background information on corporate blockholders and hypothesis development. Section III details the data collection process and descriptive statistics. Sections IV then goes into the analysis and Section V concludes.

II. BACKGROUND ON CORPORATE BLOCK OWNERSHIP AND HYPOTHESIS DEVELOPMENT

Corporate blockholders are defined as nonfinancial corporations that own at least five percent equity in another industrial firm. There are primarily two ways in which a corporate blockholder can be formed: equity carveouts and partial acquisitions. Equity carveout, also known as partial public offering, is defined as a restructuring event in which a company launches an IPO for its subsidiary but only sell to the public market a small ownership percentage. Due to the nature of the restructuring event, the new public subsidiary inherits a corporate block from their parent firm. Partial acquisition, also known as minority acquisition, is defined as a transaction where the acquirer purchases less than 50% equity in the target firm. The target firm in a partial acquisition still remains as a going concern after the transaction as opposed to getting folded into the acquirer as in a full acquisition.

For example, in 2000, in connection with a long-term distribution agreement for the installation of XM radios in General Motors vehicles, General Motors acquired a 20% stake in XM Satellite Radio through a partial acquisition and maintained this equity block until 2007 when XM was acquired by Sirius. Another example, Eli Lilly and Co. acquired an 11% stake in United Therapeutics Corp. in a private placement to exchange for a product licensing agreement in 2008. An example of a corporate block formed by an equity carveout is PepsiCo and Pepsi Bottling Group (PBG). In 1999, PepsiCo separated out its bottling business into an independent public company, but retained a 40% stake until 2009 when it reacquired PBG. Another example of carved-out block formation, Sunoco Inc. launched a partial IPO for Sunoco Logistics in 2002, but keep at least 32% ownership until 2011.

I recognize that corporate block formation is not random, which introduces potential endogeneity problems in the relationship between leverage and corporate blocks. Therefore, before going into the hypothesis development, the following subsection will provide some more background information on the motivation of how corporate blocks get established in the first place.

1. Motivations for Corporate Block Formation

A. Product Market Relationships and the Contracting Motive

In the context of product market relationships, equity investment can be considered a form of partial integration between two partner companies. Williamson (1979) and Grossman and Hart (1986) present theoretical arguments that equity stakes can be used to reduce transaction and contracting costs. Block ownership between corporations could also be useful in aligning the incentives of the firms involved in alliances or joint ventures, which encourages them to commit to product market relationships or other project-specific assets.

Empirically, Allen and Phillips (2000) and Fee, Hadlock and Thomas (2006) both find that block ownership by corporations has significant product market benefits since it provides greater incentives for both parties and allows firms to extend their product market without experiencing a huge cost of full acquisitions. In a similar note, Boone (2002) reports that in more than half of her equity carveout sample, parents maintain their holding longer than 4 years when they have product market relationship with the units. As an anecdotal evidence, while talking about the partial acquisition of an 18% stake between Delphi Automotive Systems and DuraSwitch in 2000, David Heilman, vice president of Delphi, said that "An equity stake in DuraSwitch adds a strategic switch

component to Delphi's technology portfolio, and will enable Delphi to pursue growth beyond the automotive market."

In my sample, 59% of firms with corporate blocks get their ownership stakes accompanied by some business arrangements, usually joint ventures or strategic alliances, with the target firms. For example, in 2010, Actavis, Inc. purchased 13% equity of Columbia Laboratories in pursuant to their purchase and collaboration agreement. In 2008, Eli Lilly and Co. acquired an 11% stake in United Therapeutics Corp. for commercial rights and supply agreements for certain drugs.

B. Financial Constraints and the Financing Motive

Prior research on equity carveouts and partial acquisitions both find that firms involved in these transactions are partly motivated by new financing. In equity carveouts, parent firms might want to raise financing for both parents and subsidiaries without sending negative signals to the market about the parent firms' stocks (Schipper and Smith, 1986; Nanda, 1991). According to Miles and Woolridge (1999), proceeds from the IPO in equity carveouts are often used for several purposes such as repaying loans to the parent firm, financing new investments in the subsidiary, or paying off the parent firm's debt.

In partial acquisitions, target firms that are facing high market frictions have incentives to seek financing from equity private placement investors (Hertzel and Smith, 1993) including their business partners. Petersen and Rajan (1997) and Lerner et al. (2003) argue that a trade partner or a firm in a related industry might possess substantial knowledge and experience that makes it a cheaper source of external financing than public investors. Indeed, Ouimet (2013) and Liao (2014)

find that a partial acquisition is more likely to occur when targets are financially constrained or can benefit from certification by an acquirer's equity investment.

C. Other Motives

Firms might also choose to perform an equity carveout to provide additional incentives for their managers as suggested by Schipper and Smith (1986). Divisional managers can become executives at the new publicly traded subsidiaries, and their compensation is tied to stock performance. Moreover, parent firms might want to increase public interest in their subsidiaries and reduce information asymmetry about the value of multi-segment firms without experiencing negative effects from the market as in the case of parents' seasoned equity offerings.

For partial acquisitions, acquirers might use this equity investment as the first step to a full scale acquisition that allows the acquirers to learn more about the targets and their synergies (Ouimet, 2013). This motivation is actually different from a traditional toehold since the motivation is based on learning, reducing information asymmetry, rather than taking advantage of the target's low share price before the rise in takeover announcements. In supporting this motivation, Higgins and Rodriquez (2006) report that acquirers who previously had strategic alliances with their target firms (where such alliances are often accompanied by equity stakes) realize higher returns at the announcement of majority acquisitions.

2. Corporate Block Ownership and Capital Structure

Prior literature in capital structures has emphasized the role of main market frictions such as agency and information asymmetry on leverage decisions. Corporate blockholders have several

characteristics that can affect the severity of these market frictions. More specifically, with their large ownership positions, corporate blockholders can alleviate agency problems as suggested by Jensen and Meckling (1976). However, the business relationships between some corporate blockholders and target firms might reduce their monitoring incentives (Brav, et al., 2008). In addition, corporate blockholders are corporations themselves, so they can have superior industrial and operational information, which reduces information asymmetry between them and the firms (Lerner, et al., 2003).

As mentioned above, there are several reasons why corporate blockholders might influence capital structure decisions, however existing theories seem to have ambiguous predictions regarding the direction of this relationship between corporate block ownership and leverage.

On the one hand, corporate blocks and leverage can be negatively correlated. According to Jensen (1986), shareholders can commit firms' free cash flows to fixed payments and restrict managers' overinvestment, therefore debt can be an effective agency mechanism. However, debt can be costly because of bankruptcy costs. At the same time, corporate blockholders with their sizable stake have enough incentives and power to be effective monitors. Indeed, Wruck (1989) and Hertzels and Smith (1993) find that private placement discounts in partial acquisitions reflect compensation to partial acquirers for anticipated monitoring costs and that positive abnormal returns reflect the expected benefit of increased monitoring. Following this line of argument under agency models, I conjecture that, since corporate blocks and leverage can be substitutes as monitoring devices, there exists a negative association between corporate block ownership and leverage.

In addition, in regards to the information asymmetry problem mentioned in Myers and Majluf (1984), corporate blockholders with their superior industrial knowledge (Lerner, et al., 2003; Sias, 2004) can reduce information asymmetry problem between the firm and these investors. Consequently, the cost of external equity financing becomes lowered and therefore firms can use more equity and less debt. In short, the information asymmetry argument also predicts a negative relationship between corporate block ownership and leverage.

On the other hand, corporate blocks and leverage can be positively related. La Porta et al. (2000) propose an outcome model in which firms with effective governance system enable shareholders to implement other mechanisms to limit managers' discretion including dividends and other fixed payments (such as interests), or in other words, a change in leverage is an outcome of an effective monitoring system. In the sense that corporate blockholders can mitigate agency costs and promote good governance, corporate blocks and debt can be positively related.

Furthermore, managers might want to seek lower debt ratios to reduce the risk of bankruptcy and job loss because their personal wealth is tied to the firm. Friend and Lang (1988) find a negative relationship between managerial ownership and leverage because of managerial self-interest, and suggest that only the presence of non-managerial large stakeholders would resolve this problem. On a similar note, Berger, Ofek, and Yermack (1997) find that entrenched CEOs seek to avoid debt, and that leverage increases in response to entrenchment-reducing shocks such as the addition of major stockholders. Therefore, as corporate blockholders get involved and limit managers' misbehaviors, leverage would increase accordingly. In short, both the outcome model and

managerial preference argument predict a positive association between leverage and corporate block ownership.

In summary, it is still an empirical question whether corporate blockholders are associated with firm leverage and what is the direction and interpretation of such association if it exists. The next section will describe the data sample selection to examine these research questions.

III. SAMPLE SELECTION AND SUMMARY STATISTICS

1. Sample Selection

My initial sample starts with SDC Platinum for the period 1989 to 2009 since ownership data are not consistently available prior to 1989. The sample of U.S. equity carveouts is from the SDC Global New Issues Database with flag spinoff/carveout. I verify each transaction to make sure that it is an equity carveout (not a spinoff) where parent firms retain a block ownership in the new public firms after the IPOs; this yields 411 carveouts for public parents and public units. The U.S. partial acquisition sample is from SDC Mergers and Acquisitions, this gives 493 partial acquisitions for public targets and public acquirers. This small number of U.S. domestic partial acquisitions is due to the fact that most partial acquisitions are cross-border deals. According to Liao (2014) who studies minority acquisitions around the world, only 15% of partial acquisitions are U.S. domestic deals, the rest 29% are cross-border, and 55% are domestic deals in non-US countries.

Following prior literature, I exclude any transactions involving financial and utilities firms. I also exclude carveouts in which parents retain more than 95% or below 5% ownership and transactions where partial acquirers sell blocks within one year, or if any of parent/unit, acquirer/target firms have less than 2 years of financial data in Compustat, reducing the sample to 183 carveouts and 156 partial acquisitions. Since SDC only provides the initial level of ownership at the time of the events, I hand-collect subsequent ownership data for following 1 to 10 years from 10-K annual reports, proxy statements¹, and Thomson One² databases. Total institutional ownership and ownership concentration are from Thomson Reuters Institutional (13F) Holdings. Due to the limited availability of ownership data, my final sample consists of 129 carveouts and 111 partial acquisitions for a panel data of 1,311 firm-year observations.

2. Summary Statistics

Table 1 reports the distribution of equity carveouts and partial acquisitions occurring in each year during the sample period 1989-2009. These events seem to be more popular in the earlier period before 2000 or it might be that the trend has moved toward more private parents and foreign acquirers as indicated in prior literature and therefore, not many U.S. public firms are left in my sample.

Table 2 presents the summary statistics for corporate block ownership in the sample. Panel A presents the ownership structure of firms in the full corporate block sample. The size of an average corporate block is quite large, about 32% (21% median), so we can expect them to have enough

¹ SEC provides annual reports and proxy statements from 1996.

² Thomson One provides scanned images of annual reports and proxy statements before 1996.

incentives and power to influence firm policies. Panel B and C in Table 2 provide the details on ownership structures in firms that are involved in equity carveouts and partial acquisitions. On average, parent firms retain 48% ownership in the carved-out units, while partial acquirers hold about 17% ownership in the partial targets. In addition, as shown in Table 2, Panel D, both parent firms and partial acquirers maintain their blocks for more than 4 years on average, suggesting that corporate blockholders do keep a long-term relationship with their target firms. This is one of the reasons why we might expect to see a monitoring effect from corporate blockholders since investors with long investment horizons have more incentives to strengthen corporate governance and restrain managerial misbehaviors (Harford et al., 2017).

Table 2, panel E shows the summary statistics for board representation and product market relationship in the corporate block sample. If corporate blockholders are actively involved in target firms' governance, one way they can exercise their rights is through obtaining board seats. Therefore, I hand-collect information on board of directors in the target firms from their proxy statements. Board representation by corporate blockholders is defined when directors are nominated by corporate blockholders or directors are serving on the boards of both targets and acquirers. In the full corporate block sample, 61% of target firm have board representation from their corporate blockholders. This number is very close to the statistics reported by Barclay et al. (2009): 69% of their sample of operating blockholders have board representation. More specifically, since carved-out firms originated from the parent firms, the board of directors in these new public subsidiaries are appointed by parent firms, in 86% of carved-out firms. In partial acquisitions, 35% of target firms also get directors designated by their partial acquirers. From their

proxy statements, some firms stated that corporate blockholders only assign an observer to sit on the board, but do not assign a director.

Table 2, panel E also reports the board proportion held by corporate blockholders. Board proportion is calculated as the number of directors designated by corporate blockholders divided by the total number of directors on target firms' boards. On average, corporate blockholders hold 25% board proportion (17% median), suggesting that they have enough power to influence firm policies if they want to.

Moreover, since product market is one of the major reasons why corporate investors establish their blocks as mentioned in Section II, I hand-collect the product market relationship from Factiva news and proxy statements. I perform a Factiva news search and define a corporate blockholder to have a business relationship, a strategic alliance, or a product agreement with the target firm if they mention it in their proxy statements under section "Certain Relationships and Related Transaction"; or if they specify it in their transaction announcements. For example, according to PR Newswire, on August 12th, 2002, "Zomax Inc. (Nasdaq:ZOMX), an international outsourcing provider of process management services, and Intraware, Inc. (Nasdaq:ITRA), a leading provider of global electronic software delivery and management (ESDM) solutions, jointly announced that they have entered into a strategic alliance in which Zomax will market and resell Intraware's flagship SubscribeNet ESDM service to its global customer base. Zomax has also invested \$5 million dollars in a private equity placement for an ownership stake of approximately 12%." In my sample, as shown in Table 2, Panel E, 59% of firms have some sorts of business relationships with their corporate blockholders.

Table 3 shows the evolution of corporate block ownership following the events. By collecting ownership data from proxy statements, I track the ownership position of corporate blockholders for the following 1 to 10 years after their block formation and see how their stakes change over time. The number of firm observations in each year after the block formation varies over time due to the limited ownership data in the early period and mergers, acquisitions or bankruptcies. As documented in Table 3, corporate blockholders seem to reduce their block ownership over time, slowly during the first 5 years, then eventually reduce blocks to zero. One reason stated in the proxy statements for the maintenance of these blocks in the first few years is the product market relationship. For example, Vermillion Inc. and Quest Diagnostics entered into a strategic alliance agreement in July 2005 accompanied by 20% equity investment to develop and commercialize three diagnostic tests. The original term for their business relationship was for three years, then they extended the agreement and finally terminated it in August 2013. Quest Diagnostics maintained around 20% ownership during the 8-year term of their agreement and then ceased their ownership in Vermillion to zero in 2013.

Table 4 summarizes firm characteristics of firms with corporate blocks in my sample. Book leverage is measured as debt in current liabilities (*DLC*) plus total long-term debt (*DLTT*) divided by total assets (*AT*). Following Denis and McKeon (2012), I calculate Market leverage as:

$$\text{Market Leverage}_{it} = \frac{DLTT + DLC}{DLTT + DLC + (PRCC * CSHO)}$$

where *DLTT* is the amount of long-term debt, *DLC* is debt in current liabilities, including the portion of long-term debt due within one year, *PRCC* is the year-end common share price, and *CSHO* is the year-end number of common shares outstanding. I use both book and market leverage in my analysis, but the results are similar, so I only analyze the results with market leverage.

Market-to-Book is computed as:

$$M/B_{it} = \frac{AT_{it} - SEQ_{it} - TXDITC_{it} + (PRCC_{it} * CSHO_{it}) + PSTKL_{it}}{AT_{it}}$$

where AT is total assets, SEQ is book equity, $TXDITC$ is deferred tax, $PRCC$ is the year-end common share price, $CSHO$ is the year-end number of common shares outstanding, and $PSTKL$ is liquidation value of preferred stock.

Profitability is operating income before depreciation (*OIBDP*) over total assets, *tangibility* is fixed assets (*PPENT*) over total assets, and firm size is the natural log of total assets. Other financial ratios are scaled by total assets. All variables are winsorized at 1% and 99%, and are summarized in Appendix A.

As shown in Table 4, Panel A and B, on average, firms with corporate blocks have a leverage ratio (both book leverage and market leverage) that is significantly lower than other firms in the same industry (t-test p-value is less than 0.001). Furthermore, these firms seem to be smaller, hold more cash, and higher R&D than other firms in their industries, somewhat consistent with these firms being financially constrained and financing motivated for having corporate blocks as mentioned in Section II.

Panel C, Table 4 provides firm characteristics before corporate block formation. Note that since equity carveouts create new public firms at the time of the events, this table only includes financial information about pre-block formation of firms with blocks formed via partial acquisitions. Partial targets also seem to be financially constrained with smaller firm size, lower tangibility and high

R&D, which is consistent with existing evidence that firms which are in need of financing are more likely to be involved in partial acquisitions (Ouimet, 2013; Liao, 2014). More importantly, book leverage and market leverage of firms before block formation are not much different from their peers.

Moreover, firms often carveout subsidiaries that are unrelated to their core businesses in an attempt for restructuring; in fact, in my sample, only 34% of subsidiaries are in the same 2-digit SIC code industry with their parents. On the other hand, partial acquirers often hold equity blocks in related-industry targets (58% in my sample), again might be due to their business alliances and joint ventures.

IV. EMPIRICAL ANALYSES

1. Corporate Blockholders and Leverage

I first start with a cross-sectional analysis to see if there is any difference between leverage of firms with low corporate block ownership and firms with high corporate blocks. Firms in my sample are divided into four quartiles based on the ranking of corporate block ownership in the first year after their block formation. As shown in both panels in Table 5, both market leverage and book leverage seem to decrease monotonically as firms move from the lowest quartile in corporate ownership to the highest quartile. This is the first piece of evidence that corporate block ownership has a negative association with leverage.

Next, to investigate whether corporate blockholders play an important role in target firms' capital structure in a multivariate setting, I examine the determinants of firm leverage after the formation of corporate blocks. I regress the target firm leverage on the corporate blockholders' ownership stakes and leverage while controlling for other well-documented leverage determinants including industry median leverage, market-to-book, profitability, firm size, tangibility, and expected inflation³ (Frank and Goyal, 2009). The main regression is as follows:

$$\begin{aligned} \text{Target firm's Leverage}_{it} = & \alpha + \beta_1 \text{Corporate Block Ownership}_{i,t-1} + \beta_2 \text{Industry Median} \\ & \text{Leverage}_{i,t-1} + \beta_3 \text{Market-to-Book}_{i,t-1} + \beta_4 \text{Profitability}_{i,t-1} + \beta_5 \text{Firm Size}_{i,t-1} + \beta_6 \text{Tangibility}_{i,t-1} \\ & + \beta_7 \text{Inflation}_{i,t-1} + \beta_8 \text{Corporate blockholders' leverage}_{i,t-1} + \epsilon \end{aligned} \quad (1)$$

My main regression results are presented in Table 6 for the full sample, and in Appendix B for subsamples of carveouts and partial acquisitions. In Table 6, Panel A, column 1 shows the OLS regression of target firm leverage on corporate block ownership stakes and several well-documented determinants of leverage in the literature, and they all have the expected signs: negative coefficients for market-to-book and profitability, and positive coefficients for industry median leverage, firm size, tangibility, and inflation. I notice that corporate blockholders' leverage is positively and significantly related to the target firm's leverage. I conjecture that it might be due to managerial specific effect (Bertrand and Schoar, 2003; Malmendier, Tate, and Yan, 2011) or product markets (additional tests in Table 9 discussed in later sections). More importantly, the coefficient of corporate block ownership is negative and significant. Column 2 in Table 6 uses firm fixed effects specification to reduce the concern that unobservable time-invariant firm

³ Expected inflation data is available on <https://www.clevelandfed.org/en/our-research/indicators-and-data/inflation-expectations.aspx>

characteristics are driving the results. The corporate block ownership is still negatively related to firm leverage in fixed effects regression.

In term of economic significance, using the coefficients in fixed effects regression, a one standard deviation (std) increase in corporate block ownership is associated with a 4.2% decrease in the firm's market leverage. Compared to the economic significance of other determinants, a one std increase in industry median leverage is associated with a 5.1% increase in firm leverage; a one std increase in profitability is associated with a 1.7% decrease in firm leverage; and a one std increase in market-to-book is associated with a 1.6% decrease in firm leverage.

The negative association between corporate block ownership and leverage documented in Table 5 and 6 can be interpreted in several ways. First, corporate blocks might reduce leverage in the target firms. Second, low leverage firms can attract corporate blockholders. Finally, both leverage and corporate block ownership are associated with some time-varying omitted variables. In an attempt to discriminate among these alternative explanations, I perform several tests: first, I used dynamic GMM system estimators, second I used an interaction with board representation, third, an interaction with different agency cost measures, and fourth, an interaction with product market relationship.

The dynamic panel GMM estimator is developed in a series of papers by Holtz-Eskin, Newey, and Rosen (1988), Arellano and Bond (1991), and Blundell and Bond (1998). As argued in Wintoki et al. (2012), this method improves on OLS and traditional fixed effects estimates in several ways. First, unlike OLS, we can include firm-fixed effects to account for unobservable heterogeneity.

Second, unlike traditional fixed-effects, it allows block ownership to be influenced by previous realizations of, or shocks to past leverage. Third, unlike either OLS or traditional fixed effects estimates, a key insight of the dynamic panel GMM estimator is that the underlying economic process itself is dynamic – in my case, if corporate block ownership is related to past leverage – then it may be possible to use some combination of variables from the firm’s history as valid instruments to account for simultaneity. Thus, an important aspect of the methodology is that it relies on a set of “internal” instruments contained within the panel itself. This eliminates the need for external instruments.

The basic estimation procedure consists of two steps: first, I rewrite the model (1) to include lagged leverage and other variables in first-differenced form:

$$\Delta \text{Leverage}_{it} = \alpha + \mu_p \sum \Delta \text{Leverage}_{it-p} + \beta \Delta \text{Corporate Block Ownership}_{i,t-1} + \gamma \Delta Z_{i,t-1} + \Delta \epsilon_{it} \quad (2)$$

First-differencing eliminates any potential bias that may arise from time-invariant unobserved heterogeneity. After first-differencing, I estimate (2) via GMM using lagged values of the explanatory variables as instruments for the current explanatory variables. That is, I use historical values of leverage, ownership, and other firm characteristics variables as instruments for current changes in these variables.

The result for the dynamic GMM estimators is shown in Panel B, Table 6. Besides the coefficient for inflation that loses its significance, other leverage determinants are significant and have the expected signs. More importantly, corporate block ownership is still negatively related to leverage, indicating that corporate ownership has a negative effect on firm leverage.

As pointed out by Wintoki et al. (2012), the biggest concern when using dynamic GMM estimators is whether or not I have included enough lags to control for the dynamic aspects of the empirical relationship. If I have, then any historical value of a firm's leverage beyond those lags is a potentially valid instrument since it will be exogenous to current leverage changes. For my GMM estimates, if the assumptions of my specification are valid, by construction, the residuals in first differences should be correlated, but there should be no correlation in second differences and higher. I use Arellano and Bond's (1991) test to check the serial correlation in second-order and higher, the results are shown in Table 6, Panel C. The insignificant p-values for second to fourth-order confirm that there is no serial correlation in second differences and higher, and the instruments are valid.

The dynamic panel estimation methodology has its own limitation as mentioned in Wintoki et al. (2012). First, it relies on using the firm's history (lags of dependent and independent variables) for identification. Thus, there is a potential problem with weak instruments, which becomes greater as the number of lags of the instrumental variables increases. This represents an empirical trade-off between the exogeneity and the strength of the instruments: increasing the instruments' lag length makes them more exogenous, but may also make them weaker. Second, Griliches and Hausman (1986) note that the bias resulting from errors in variables may be magnified when using panel data estimators. Since the dynamic panel GMM estimator relies on first-differencing, dynamic panel estimators may not eliminate measurement error bias. Finally, it is possible that any cross-sectional regression of leverage on corporate block ownership is mis-specified and that there are omitted time-varying unobserved variables that affect both leverage and corporate block ownership. However, misspecification is likely to be as big a problem with OLS and traditional

fixed-effects estimation as well. Therefore, despite the mentioned limitations of the dynamic GMM estimator, it likely still dominates inference from OLS or fixed-effects estimation if the underlying economic process is dynamic.

In summary, results in Table 5 and 6 show that the negative association between corporate block ownership and leverage is strong and robust. The next section will investigate further the explanation for the negative relationship between leverage and corporate block ownership.

2. Corporate Blockholders and Governance Activities

a. Board of Directors

The results so far have shown that corporate blockholders and leverage have a negative association. One possible explanation is that both debt and corporate blockholders can be considered as effective monitoring mechanisms as suggested by agency models (Jensen and Meckling, 1976; Jensen, 1986); however, debt can be costly due to bankruptcy costs, therefore we can expect these two monitoring devices to substitute for each other, which leads to their negative relationship. To further explore the monitoring possibility of corporate blockholders, in this section, I examine one specific type of governance activities that corporate blockholders might initiate after the block formation: board representation. Board representation can be considered as active involvement of corporate blockholders in target firms' decisions (Smith, 1996). If corporate blockholders really play a monitoring role in target firms, one important way they can exercise their power is by obtaining board seats.

I collected information about board representation from proxy statements for the following 2 to 10 years from the date of block formation. Board representation by corporate blockholders is defined when a director is nominated by corporate blockholders or a director in serving on the boards of both targets and acquirers. As summarized in Table 2, panel E, 61% of firms have directors designated by their corporate blockholders. More specifically, since carved-out firms are originally divisions or subsidiaries of parent firms, the board representation happens in 86% of the equity carveout sample; while in partial acquisitions, 34% of target firms have directors designated by their partial acquirers.

More importantly, Table 7 Panel A reveals that the negative relationship between leverage and corporate block ownership is driven by firms that have board representation from corporate blockholders. The coefficient of board representation is negative and significant. More importantly, the interaction term between corporate block ownership and board representation is negative and significant, indicating that the effect of corporate blocks on leverage is stronger for firms that have board representation. In other words, the negative association between leverage and corporate blockholders only exists for “active” corporate blockholders. This result supports the involvement of corporate blockholders in governance activities, and the leverage change due to corporate blockholders’ monitoring role.

Furthermore, instead of using just a dummy variable for board representation, in Table 7 Panel B (and Appendix C for subsamples), I use the percentage of board domination represented by corporate blockholders’ nominated directors to further test the involvement of corporate blockholders in target firms’ governance activities. The higher percentage of the board dominated

by corporate blockholders' members, the more power they have to influence target firms' leverage decisions. The variable "*board proportion*" is measured as the number of directors nominated by corporate blockholders divided by the total number of directors on the board. I collect data on board proportion using firms' proxy statements. On average, corporate blockholders hold 25% (17% median) of target firms' boards. The coefficient of the interaction term between board proportion and corporate block ownership in Table 7 panel B is negative and significant, indicating that board power possessed by corporate blockholders intensifies the negative relationship between leverage and corporate blockholders. In summary, the results in both panels of Table 7 point toward the story that corporate blockholders are actively involved in target firms' governance to partially influence firms' debt policies.

b. Agency Costs

The results in previous sections suggest that the monitoring role of corporate blockholders can explain the negative relationship between their ownership and leverage of target firms. A natural question to ask is which mechanism enables them to do so. It is difficult to identify the precise mechanism through which corporate blockholders exert their influence on firm leverage, therefore, in this section, I perform an indirect test to show that such a mechanism exists. I follow the Michaely, et al. (2017) approach to test if such an agency mechanism underlies the negative relationship between corporate block ownership and leverage. I extend the main regression in equation (1) to include interactions with different measures of agency costs. The idea here is that if corporate blockholders are actively involved in firms' governance, their role would be more important in firms where agency costs are high, i.e. their relationship with leverage would be stronger with higher agency costs.

In Table 8, I analyze how the relationship between corporate ownership and leverage changes with firm characteristics that capture heterogeneity in potential agency costs within my sample of firms over time. I use four alternative measures of agency costs suggested by Ang, Cole and Lin (2000) and Michaely, et al. (2017). The first measure is total assets over sales or the inverse of asset turnover, a measure of how effectively the firm's management deploys its assets. A firm whose sales-to-asset ratio is lower experiences positive agency cost. These costs might arise because managers act in some ways that do not maximize firm value: make poor investment decisions, exert insufficient effort, or consume executive perquisites. The second measure is operating expenses over sales, a measure of how effectively the firm's management controls operating costs, including excessive perquisite consumption, and other direct agency costs. For both measures, the higher the ratios are, the higher agency costs these firms experience.

The next two measures are used in Michaely, et al. (2017)⁴. For the third measure, I define a high agency cost firm as a large market capitalization firm with few growth opportunities; these firms are more prone to free cash flow problems (Jensen, 1986). My fourth definition of a high agency cost firm examines low sales growth but high Selling, General and Administrative (SG&A) expense firms. SG&A costs represent a significant proportion of the costs of business operations. According to Anderson, Banker, and Janakiraman, (2003) on average, the SG&A costs to total assets ratio is 27 percent, compared to the research and development (R&D) to total assets ratio of 3 percent. The intuition of this agency cost measure comes from the accounting literature that demonstrates SG&A expenses increase more rapidly when demand increases than they decline

⁴ Michaely, et al. (2017) also use another measure of previous non-core acquisitions for agency costs. However, about half of my sample are equity carved-out firms who do not have historical operation to have sufficient data for this measure.

when demand decreases (Anderson, et al., 2003; Chen, Lu, and Sougiannis, 2012). This definition captures the idea that empire building managers are likely to increase SG&A costs rapidly by adding employees and awarding bonuses too quickly when sales go up and to decrease SG&A costs too slowly by delaying deductions to payroll, travel, and entertainment expenses when sales go down.

As shown in Table 8, across different measures of agency costs, the negative effect of corporate block ownership on leverage intensifies in high agency cost firms. Because the importance of agency costs remains robust across four alternative definitions, each of which captures a nuance of managerial potential for agency conflicts, it is comforting my inference that an agency mechanism is a meaningful explanation for the negative relationship is not fragile to a single definitional assumption. These results in Table 8 reassure the inference that an agency mechanism can provide an explanation for the substitution between leverage and corporate block ownership.

3. Corporate Blockholders and Product Market Relationship

Since a majority of corporate blocks seem to establish their ownership positions to accompany a specific venture or business agreement with the target firms as mentioned in Section III, I consider this as an important factor that might influence the relationship between corporate blockholders and leverage. As argued by Brav, Jiang, Partnoy, and Thomas (2008) mutual funds have more conflicts of interest than hedge funds in terms of monitoring since mutual funds often have business relationships with firms whose shares they hold. Similarly, corporate blockholders might not have enough incentives to monitor and intervene with target firms' governance activities since such actions might jeopardize their business relationships. In addition, if these strategic reasons

for establishing the block position are correlated with the optimal leverage, then the documented effects might be not due to the corporate block ownership per se, but rather, to the underlying strategic reason for forming the block. For example, corporate blockholders obtain board seats to monitor their specific business arrangements, and might be not for the target firm's governance in general.

In order to address this concern, I include product market relationship and its interaction with corporate blocks as explanatory variables. On the one hand, if corporate blockholders really have a monitoring effect on the target firms, we should expect to see the effects remain or even strengthen in the case of no business ties since they have more incentives to monitor and less conflicts of interest. On the other hand, if corporate blockholders have a strategic relationship with target firms, and leverage changes are the results of that strategic reason, we should not see such association between leverage and corporate block ownership in cases where no such strategic relationship exists. Therefore, the test in this section should help us distinguish between the monitoring effect of corporate blockholders and the strategic motivation for corporate block formation.

Table 9 Panel A presents the results. The coefficient on the interaction term between corporate blocks and product market is insignificant while the coefficient on corporate blocks alone is negative and significant, indicating that corporate blocks have a negative effect on firm leverage even when there are no business ties between the two parties. In addition, as summarized in Table 2 Panel E, about 44% of firms that have no product market with corporate blockholders still have board representation from these operating investors. These results support the monitoring effect of

corporate blockholders and rule out the alternative explanation that corporate blocks only care when they have product market relationship with target firms.

The last two columns in Table 9 Panel A explore how product markets play a role in the positive relationship between corporate blockholders' leverage and target firms' leverage observed in all previous leverage regressions. Leary and Roberts (2014) find that smaller, financial policies of less successful firms are highly sensitive to their larger, more successful peers. Firms with corporate blocks in my sample are on average smaller than their peers as shown in Table 4. I conjecture that when corporate blockholders and target firms share some product market relationships, their cultures and operations have more similarities, which makes the "peer effect" between their leverage even stronger. The interaction term between product market and corporate blockholders' leverage in column 3 and 4 is positive and significant, suggesting that product market strengthens the positive relationship between two firms' financial policies.

Another related concern with the results presented in previous sections is that corporate blockholders who have a vertical relationship with target firms can also offer an alternative explanation. Corporate blockholders can obtain board seats just to monitor their trade credits with no intention to get involved in firms' governance activities. In order to address this concern, I collected the details on the nature of their business relationship from proxy statements, annual reports 10-k and Factiva news on their block announcements. I re-ran the regressions in Table 9 and used the "*vertical*" variable instead of "*product*" dummy variable, *vertical* equals 1 if firms involve in buyer-supplier relationships with their corporate blockholders, and 0 otherwise. The results shown in Table 8 Panel B. The coefficient on *vertical* and its interaction term with corporate

blocks are not significant, indicating that vertical relationship does not explain the negative effect of corporate blockholder ownership on target firms' leverage.

Furthermore, the results with product market relationship in this section rule out the story of information asymmetry which also predicts a negative association between corporate blockholders and leverage. Under the information asymmetry argument, since corporate blockholders have informational advantages over other investors (Lerner, et al., 2003), the information asymmetry problem associated with equity issuance (Myers and Majluf, 1984) is reduced, hence firms can use more equity and less debt. If this is true, we should see the association between corporate blockholders and leverage become stronger when firms are involved in business ventures since they would share even more information during the collaborative process, effectively reducing the cost of equity financing. However, the results in Table 8 show that it is not the case.

4. Corporate Blockholders and Institutional Ownership

The previous sections provide some evidence on the negative association between corporate blockholders and target firms' leverage, indicating that corporate blockholders might have some monitoring effect on the target firms and they can substitute for other monitoring devices including leverage. In the sense that institutional investors are also very active in their monitoring role (Gillan and Starks, 2000; Hartzell and Starks, 2003; Chen, Harford, and Li, 2007).), next I want to explore how the presence of corporate blockholders in firms' ownership structures affects the institutional holdings.

Table 10 presents the regression results on institutional ownership of target firms. I obtained institutional ownership data from Thomson Reuters Institutional (13F) Holdings. Controlling variables are firm size, profitability, and market-to-book based on the evidence in prior research. Falkenstein (1996) and Gompers and Metrick (2001) find that institutional investors have a strong demand for large, stable, and liquid stocks because of their liquidity and transaction-cost motives. Chung and Zhang (2011) find that institutional investors prefer firms with good governance practices to meet fiduciary responsibility and to minimize monitoring and exit costs.

Table 10 shows that corporate block ownership is significantly and negatively related to institutional ownership of target firms, suggesting corporate blocks might substitute for institutional holdings in the monitoring role. I argue that since there already exists a corporate blockholder to monitor, institutional investors might find it less beneficial for them to come in and intervene with the target firms. Other control variables have the expected signs: larger firms with higher market valuation seem to attract more institutional investors.

One might argue that this negative relationship between corporate ownership and institutional ownership is simply the mechanical effect within the firm's ownership structure. However, the results in Table 11 and 12 provide further evidence on the substitution effect between corporate blocks and institutional holdings. The product market relationship between target firms and corporate blocks can help us distinguish between these two explanations.

If it is simply the mechanical effect, we should always see the negative association between corporate blocks and institutional ownership regardless of whether or not the target firms have a

product market relationship with their corporate blockholders. However, if these two blockholders are substitutes for monitoring devices, we should see their negative association become stronger in the case where corporate blockholders have more monitoring incentives, i.e. no business ties with the target firms since there are less conflicts of interest.

As reported in Table 11, the coefficients on product market and corporate blocks are both significant in the fixed-effects regression on firms' institutional ownership, but have opposite signs. In term of magnitude, the two coefficients cancel out each other when $product=1$, and the coefficient on corporate ownership is still significantly negative when $product=0$. This result indicates that corporate block ownership only substitutes for institutional ownership in the monitoring role when they have no business ties with target firms, or greater incentives to monitor and less conflicts of interest.

Finally, since Michaely et al. (2017) find that institutional ownership has a negative effect on leverage due to their monitoring role, in Table 12, I re-run my main regression (1) to include institutional ownership as an additional explanatory variable. The coefficient on institutional ownership loses its significance in the fixed effects regression, while the coefficient on corporate ownership remains negative and significant. This result supports the substitution effect between corporate blockholders and institutional investors in the monitoring role. In summary, the findings in this section confirm the monitoring effect of corporate blockholders, and these corporate holders can substitute for other monitoring devices including leverage and institutional investors.

5. Robustness Check

One concern on the results in equity carved-out firms included in the full sample examined in previous sections is that they might be driven by the majority ownership of parent firms. Therefore, for a robustness check, I performed a sub-sample analysis on a sample of equity carveouts with less than 50% equity held by parent firms. In Table 13, I repeated the regressions in previous sections of parent block ownership on target's leverage and institutional ownership, and found that the results stay robust in this sub-sample. Minority interest of parent firms is still negatively related to leverage and institutional ownership of public subsidiaries.

V. CONCLUSION

This paper examines the relationship between corporate block ownership and capital structure. Since corporate blockholders can be formed primarily by two methods, equity carveouts and partial acquisitions, I examine the evolution of corporate blockholders after these events occurred in the period 1989 to 2009. I find that corporate block ownership is negatively related to leverage and institutional ownership of the target firms in both fixed effects and dynamic GMM regressions. These associations are stronger in the cases where corporate blockholders have board representation on the target firms, when firms experience high agency costs, and when they do not have business ties with the target firms, i.e. when their monitoring incentives are not compromised for strategic business reasons. This result is consistent with the story that corporate blockholders play an important monitoring role and can substitute for other agency controls including leverage and institutional ownership. My findings also provide support for the influence of ownership structures on capital structures, and the heterogenous effect of different types of

blockholders on corporate policies. Some possibilities for interesting future research venues include the choices between different agency control mechanisms, i.e. when do firms prefer to use leverage or corporate block ownership, the advantages and disadvantages of these methods and the optimal agency solution combinations.

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Table 1

Distribution of Corporate Block Sample

The sample consists of U.S. public firms that have corporate block ownership established via equity carveouts and partial acquisitions for the period 1989-2009 from the Securities Data Company (SDC) Database. I impose the following screening criteria: (1) Both parents/acquirers and subsidiaries/targets are U.S. public firms (2) Both parents/acquirers and subsidiaries/targets are not financial or utility firms. (3) Both parents/acquirers and subsidiaries/targets have at least 2 years of financial data in Compustat and ownership data in SEC/Thomson after block formation. The full sample consists of 129 firms that are involved in equity carveouts and 111 firms that are involved in partial acquisitions for a total of 1,311 firm-year observations.

Event/Year	Equity Carveouts	Partial Acquisitions
1989	10	5
1990	12	6
1991	11	6
1992	8	8
1993	10	10
1994	9	11
1995	12	7
1996	11	9
1997	12	7
1998	13	7
1999	9	12
2000	9	8
2001	4	3
2002	2	2
2003	2	2
2005	1	5
2008	1	2
2009	3	1
Total	129	111

Table 2**Summary Statistics for Corporate Block Ownership**

This table presents descriptive statistics for firms with corporate block ownership established via equity carveouts and partial acquisitions for the period 1989-2009. Corporate block ownership, insider ownership and institutional block ownership are hand-collected from proxy statements in SEC (for period after 1996) and Thomson One (for period before 1996). Total institutional ownership and ownership concentration are from Thomson Reuters Institutional (13f) Holdings. Block ownership is ownership more than 5% of shares outstanding. *Board* is an indicator, equal 1 if corporate blockholders have board representation on the target firms. *Product* is an indicator, equal 1 if corporate blockholders have a business relationship or strategic alliance with target firms.

Panel A: Ownership Structure in Corporate Block Full Sample

Variable	N	Mean	Median	Std Dev
Corporate Block Ownership	1311	0.32	0.21	0.29
Insider Ownership	1311	0.18	0.11	0.20
Institutional Block Ownership	1311	0.12	0.07	0.14
Total Institutional Ownership	1195	0.35	0.26	0.29
Ownership Concentration - Herfindahl-Hirschman Index	1103	0.24	0.14	0.26

Panel B: Ownership Structure in Equity Carveouts

Variable	N	Mean	Median	Std Dev
Corporate Ownership	667	0.48	0.58	0.25
Unit's Inst. Ownership	585	0.27	0.19	0.26
Parent's Inst. Ownership	572	0.38	0.41	0.27
Unit's Ownership		0.29	0.16	0.28
Concentration HHI Index	517			
Parent's Ownership		0.19	0.09	0.24
Concentration HHI Index	480			

Panel C: Ownership Structure in Partial Acquisitions

Variable	N	Mean	Median	Std Dev
Corporate Ownership	644	0.17	0.15	0.13
Target's Inst. Ownership	610	0.32	0.31	0.25
Acquirer's Inst. Ownership	596	0.53	0.53	0.20
Target's Ownership Concentration HHI Index	586	0.23	0.14	0.25
Acquirer's Ownership Concentration HHI Index	529	0.08	0.03	0.14

Panel D: Duration of Corporate Block Ownership

Event	N	Mean	Median	Std Dev
Carveouts	129	4.39	4	1.87
Partial Acquisitions	111	4.54	4	2.08

Panel E: Board Representation and Product Market Relationship

Board	Partial Acquisitions	Equity Carveouts	Total
0	418	86	504 (39%)
1	214	568	782 (61%)
Total	632	654	1286

	Board Proportion				
Type	N	Mean	Median	Minimum	Maximum
Partial Acquisitions	632	0.10	0.06	0.00	0.61
Equity Carveouts	654	0.41	0.33	0.00	0.88
Full Sample	1286	0.25	0.17	0.00	0.88

Product Market	Partial Acquisitions	Equity Carveouts	Total
0	298	240	538 (41%)
1	346	427	772 (59%)
Total	644	667	1311

Table 3

The Evolution of Corporate Block Ownership

This table presents ownership statistics for firms with corporate block ownership established via equity carveouts and partial acquisitions for the period 1989-2009. Corporate block ownership data for the following 2-10 years after block formation is hand-collected from proxy statements in Edgar-SEC for the years after 1996 and Thomson One for the years before 1996.

Year after Event	N	Mean	Median	Std Dev
1	143	0.43	0.45	0.27
2	149	0.39	0.36	0.27
3	146	0.36	0.29	0.28
4	142	0.33	0.23	0.28
5	138	0.29	0.20	0.29
6	135	0.18	0.08	0.24
7	116	0.15	0.00	0.23
8	109	0.13	0.00	0.23
9	109	0.11	0.00	0.21
10	109	0.10	0.00	0.21

Table 4**Firm Characteristics in Corporate Block Sample**

This table presents descriptive statistics for firms with corporate block ownership established via equity carveouts and partial acquisitions for the period 1989-2009. All accounting data is from Compustat. Variable description is included in Appendix A. The last column, t-test difference, shows the tests for differences between characteristics of firm with corporate blocks and their peers in the same industry.

Panel A: Firms with Corporate Blocks

Variable	N	Mean	Median	Std Dev	Minimum	Maximum	t-test difference
Total Assets (mil)	1311	1,777.31	118.03	8,064.99	2.44	63,078.00	***
Firm Size ln (assets)	1311	4.93	4.77	2.04	0.89	11.05	
Book Leverage	1311	0.19	0.13	0.21	0.00	0.99	***
Market Leverage	1301	0.17	0.08	0.21	0.00	1.00	***
Cash Ratio	1311	0.18	0.10	0.21	0.00	0.88	**
Market-to-book	1311	2.49	1.65	3.01	0.43	12.10	
Tangibility	1311	0.24	0.16	0.21	0.00	0.87	
CAPEX	1284	0.06	0.04	0.07	0.00	0.67	
R&D	857	0.16	0.08	0.25	0.01	0.88	***
Profitability	1311	0.03	0.07	0.35	0.00	0.74	

Panel B: Other Firms in the Same Industry (2-digit SIC)

Variable	N	Mean	Median	Std Dev	Minimum	Maximum
Total Assets	106754	2,226.60	84.9	14,383.83	1	797,769.00
Firm Size	108065	4.66	4.45	2.33	0	13.59
Book Leverage	106754	0.21	0.16	0.21	0	1
Market Leverage	106754	0.20	0.12	0.23	0	1
Cash Ratio	102091	0.15	0.07	0.19	0	1
Market-to-book	106548	2.51	1.54	4.74	0.01	52.57
Tangibility	106625	0.27	0.19	0.24	0	1
CAPEX	104946	0.07	0.04	0.15	0	0.87
R&D	66177	0.13	0.06	0.25	0	0.97
Profitability	106024	0.04	0.09	0.45	-0.13	0.87

Panel C:

Pre-Block Firm Characteristics for Firms with Corporate Blocks Formed by Partial Acquisitions

Variable	N	Mean	Median	Std Dev	Minimum	Maximum
Total Assets	412	870.88	46.44	4,637.82	0.35	38,899.01
Firm Size	412	3.99	3.84	1.96	0.58	10.45
Book Leverage	412	0.22	0.16	0.25	0	0.95
Market Leverage	363	0.19	0.14	0.2	0	0.88
Market-to-book	363	2.67	1.89	2.38	0.43	25.27
Tangibility	412	0.23	0.16	0.2	0.01	0.93
Cash Ratio	391	0.22	0.14	0.23	0	0.99
CAPEX	403	0.07	0.05	0.07	0	0.43
R&D	313	0.15	0.08	0.19	0.01	0.79
Profitability	410	0.02	0.05	0.39	0.00	0.75

Table 5**Leverage of Firms based on Quartile Ranking in Corporate Block Ownership**

This table reports the market leverage and book leverage of firms based on ranking in corporate block ownership. First quartile includes firms with lowest corporate block ownership in the first year after their block formation, and fourth quartile with highest corporate block ownership. Corporate block ownership data is hand-collected from proxy statements in Edgar-SEC for the years after 1996 and Thomson One for the years before 1996. The sample period is 1989-2009.

Corporate Block Ownership	N	Mean Market Leverage	Median Leverage	Minimum Leverage	Maximum Leverage
Q1 (Lowest ownership)	70	0.185	0.125	0	0.856
Q2	59	0.163	0.111	0	0.790
Q3	61	0.157	0.062	0	0.653
Q4 (Highest Ownership)	50	0.140	0.056	0	0.717

Corporate Block Ownership	N	Mean Book Leverage	Median Leverage	Minimum Leverage	Maximum Leverage
Q1 (Lowest ownership)	70	0.197	0.192	0	0.848
Q2	59	0.189	0.135	0	0.687
Q3	61	0.173	0.114	0	0.611
Q4 (Highest Ownership)	50	0.147	0.091	0	0.573

Table 6

Corporate Blockholder Ownership and Leverage

This table presents regression results on firm market leverage for a sample of firms with corporate blocks formed via equity carveouts and partial acquisitions for the period 1989-2009. The regression is as follows:

$$\text{Target firm's Leverage}_{it} = \alpha + \beta_1 \text{Corporate Block Ownership}_{i,t-1} + \beta_2 \text{Industry Median Leverage}_{i,t-1} + \beta_3 \text{Market-to-Book}_{i,t-1} + \beta_4 \text{Profitability}_{i,t-1} + \beta_5 \text{Firm Size}_{i,t-1} + \beta_6 \text{Tangibility}_{i,t-1} + \beta_7 \text{Inflation}_{i,t-1} + \beta_8 \text{Corporate blockholders' leverage}_{i,t-1} + \epsilon(1)$$

Panel A: OLS and Fixed-Effects Regressions

Variables	(1)	(2)
Corporate Block Ownership	-0.1335***	-0.146***
	(0.0167)	(0.0290)
Industry Med Leverage	0.657***	0.504***
	(0.0611)	(0.106)
Market-to-book	-0.0103**	-0.00498***
	(0.00468)	(0.00141)
Profitability	-0.0365	-0.0446***
	(0.0231)	(0.0164)
Firm Size	0.0111***	0.0470***
	(0.00300)	(0.00696)
Tangibility	0.171***	0.415***
	(0.0289)	(0.0472)
Inflation	0.162***	0.115***
	(0.0448)	(0.014)
Blockholders' Leverage	0.250***	0.117***
	(0.0338)	(0.0307)
Constant	-0.0649**	-0.145**
	(0.0256)	(0.0584)
Observations	1,274	1,274
R-squared	0.364	0.728
Robust standard errors in parentheses		
*** p<0.01, ** p<0.05, * p<0.1		

Panel B: Dynamic GMM Regression

Variables	GMM
Lagged Leverage	0.342***
	(0.0409)
Corporate Block Ownership	-0.130***
	(0.0361)
Industry Med Leverage	0.563***
	(0.108)
Market-to-book	-0.00280**
	(0.00135)
Profitability	-0.0458***
	(0.0178)
Firm Size	0.0646***
	(0.00913)
Tangibility	0.385***
	(0.0561)
Inflation	0.605
	(1.085)
Blockholders' Leverage	0.195***
	(0.0343)
Constant	-0.423***
	(0.0684)
Observations	991
Standard errors in parentheses	
*** p<0.01, ** p<0.05, * p<0.1	

Panel C:

Arellano-Bond test for zero autocorrelation in first-differenced errors

Order	z	Prob > z
1	-3.7416	0.0002
2	.59456	0.5521
3	-1.2935	0.1958
4	.68988	0.4903

H0: no autocorrelation

Table 7**Corporate Block Ownership, Leverage and Board Representation**

This table shows the regression results on firm leverage that have corporate blocks established during the period 1989-2009. Data on board representation is hand-collected from proxy statements. *Board* representation in Panel A is a dummy variable to indicate whether corporate blockholders have directors on target firms' board. *Board proportion* in Panel B is measured as the number of directors nominated by corporate blockholders divided by total number of directors on boards.

Panel A

Variables	(1) OLS	(2) FE
Corporate block ownership	-0.0385***	-0.0391**
	(0.0117)	(0.0186)
board*corp.block	-0.360***	-0.401***
	(0.0957)	(0.108)
Board	-0.0409**	-0.0486*
	(0.0189)	(0.0285)
Industry Med Lev	0.663***	0.517***
	(0.0615)	(0.107)
Market-to-book	-0.00989**	-0.00487***
	(0.00463)	(0.00142)
Profitability	-0.0213	-0.0437***
	(0.0222)	(0.0164)
Firm Size	0.00725**	0.0485***
	(0.00322)	(0.00700)
Tangibility	0.188***	0.423***
	(0.0287)	(0.0475)
Inflation	0.078*	0.055
	(0.043)	(0.042)
Blockholders' Leverage	0.248***	0.129***
	(0.0338)	(0.0312)
Constant	0.0506	-0.165***
	(0.0391)	(0.0594)
Observations	1,261	1,261
R-squared	0.382	0.729
Robust standard errors in parentheses		
*** p<0.01, ** p<0.05, * p<0.1		

Panel B

Variables	(1) OLS	(2) FE
Corporate block ownership	-0.0671*	-0.157***
	(0.0384)	(0.0521)
Board proportion*corp.block	-0.351***	-0.232*
	(0.0871)	(0.137)
Board Proportion	-0.282***	-0.0422
	(0.0608)	(0.0785)
Industry Med Lev	0.628***	0.522***
	(0.0654)	(0.109)
Market-to-book	-0.00958**	-0.00495***
	(0.00459)	(0.00142)
Profitability	-0.0261	-0.0400**
	(0.0230)	(0.0164)
Firm Size	0.00856***	0.0468***
	(0.00320)	(0.00700)
Tangibility	0.193***	0.414***
	(0.0293)	(0.0483)
Inflation	0.037***	0.0913*
	(0.014)	(0.049)
Blockholders' Leverage	0.247***	0.133***
	(0.0346)	(0.0330)
Constant	0.0388	-0.168***
	(0.0405)	(0.0604)
Observations	1,261	1,261
R-squared	0.392	0.734
Robust standard errors in parentheses		
*** p<0.01, ** p<0.05, * p<0.1		

Table 8

Corporate Block Ownership, Leverage, and Agency Costs

This table explores how the relationship between leverage and corporate block ownership is affected by agency costs. Column 1 to 4 uses the first to the fourth measure of agency costs respectively as defined in Appendix A.

Variables	(1)	(2)	(3)	(4)
Corporate Block Ownership	-0.143***	-0.121***	-0.106***	-0.111***
	(0.0376)	(0.0294)	(0.0291)	(0.0291)
C.own#Agency1	-0.0168**			
	(0.00848)			
Agency Costs 1	-0.0277*			
	(0.0168)			
C.own#Agency2		-0.00205***		
		(0.000355)		
Agency Costs 2		-0.000226		
		(0.00104)		
C.own#Agency3			-0.0901*	
			(0.0510)	
Agency Costs 3			-0.0579	
			(0.145)	
C.own#Agency4				-0.0920***
				(0.0394)
Agency Costs 4				-0.00848
				(0.0757)
Industry Med Lev	0.499***	0.497***	0.507***	0.512***
	(0.106)	(0.107)	(0.106)	(0.106)
Profitability	-0.0470***	-0.0497***	-0.0444***	-0.0464***
	(0.0165)	(0.0169)	(0.0164)	(0.0164)
Firm Size	0.0502***	0.0455***	0.0469***	0.0470***
	(0.00727)	(0.00721)	(0.00697)	(0.00696)
Tangibility	0.414***	0.395***	0.414***	0.410***
	(0.0470)	(0.0484)	(0.0472)	(0.0472)
Additional controls	Yes	Yes	Yes	Yes
Firm Fixed Effect	Yes	Yes	Yes	Yes
Observations	1,160	1,140	1,173	1,173
R-squared	0.732	0.733	0.728	0.729
Standard errors in parentheses				
*** p<0.01, ** p<0.05, * p<0.1				

Table 9

Corporate Blocks, Leverage, and Product Market Relationship

This table presents regression analysis of firm leverage on product market relationship and its interaction with corporate block ownership. A product market relationship with corporate blockholders is defined when firms disclose it in their proxy statements or the equity block establishment is announced on Factiva news along with strategic business transactions, alliances, or product agreements. *Vertical* in panel B is a dummy variable to indicate whether corporate blockholders have a vertical business relationship with target firms.

Panel A

Variables	(1) OLS	(2) FE	(3) OLS	(4) FE
Corporate block	-0.1195***	-0.1455***	-0.1279***	-0.1465***
	(0.0339)	(0.0423)	(0.0344)	(0.0424)
Product*corp.block	-0.0376	-0.0879	-0.0516	-0.0841
	(0.0377)	(0.0570)	(0.0395)	(0.0580)
Product Market	-0.0291**	-0.00991	-0.0434***	-0.00700
	(0.0148)	(0.0167)	(0.0163)	(0.0185)
Industry Med Lev	0.651***	0.517***	0.653***	0.518***
	(0.0613)	(0.107)	(0.0613)	(0.107)
Market-to-book	-0.00982**	-0.00481***	-0.00966**	-0.00485***
	(0.00445)	(0.00142)	(0.00438)	(0.00142)
Profitability	-0.0275	-0.0451***	-0.0261	-0.0457***
	(0.0226)	(0.0163)	(0.0231)	(0.0164)
Firm Size	0.00821***	0.0467***	0.00820***	0.0469***
	(0.00316)	(0.00697)	(0.00316)	(0.00699)
Tangibility	0.188***	0.402***	0.188***	0.402***
	(0.0278)	(0.0481)	(0.0278)	(0.0481)
Inflation	0.035	0.758	0.026	0.777
	(0.923)	(1.041)	(0.926)	(1.043)
Blockholders' Leverage	0.243***	0.117***	0.198***	0.128***
	(0.0342)	(0.0307)	(0.0484)	(0.0431)
Product*blockholders' lev			0.0905**	0.0889*
			(0.0405)	(0.0511)
Constant	0.0678*	-0.146**	0.0767**	-0.149**
	(0.0381)	(0.0584)	(0.0382)	(0.0589)
Observations	1,173	1,173	1,173	1,173
R-squared	0.383	0.722	0.384	0.724
Robust standard errors in parentheses				
*** p<0.01, ** p<0.05, * p<0.1				

Table 9
Panel B

Variables	(1) OLS	(2) FE
Corporate block	-0.0939***	-0.0865***
	(0.0193)	(0.0311)
Vertical*corp.block	-0.119	-0.100
	(0.9533)	(0.0858)
Vertical Relationship	-0.0578*	-0.0194
	(0.0311)	(0.0319)
Industry Med Lev	0.645***	0.511***
	(0.0621)	(0.106)
Market-to-book	-0.00991**	-0.00490***
	(0.00461)	(0.00141)
Profitability	-0.0233	-0.0454***
	(0.0230)	(0.0164)
Firm Size	0.00806**	0.0476***
	(0.00322)	(0.00696)
Tangibility	0.187***	0.414***
	(0.0293)	(0.0473)
Inflation	0.959	0.919
	(0.940)	(1.020)
Blockholders' Leverage	0.255***	0.115***
	(0.0342)	(0.0307)
Constant	0.0487	-0.151**
	(0.0393)	(0.0585)
Observations	1,173	1,173
R-squared	0.378	0.727
Robust standard errors in parentheses		
*** p<0.01, ** p<0.05, * p<0.1		

Table 10

Corporate Block Ownership and Institutional Ownership

This table presents regression results on firms' institutional ownership for a sample of firms that have corporate blocks formed via equity carveouts and partial acquisitions for the period 1989-2009. Data on institutional ownership is from Thomson Reuters Institutional (13f) Holdings. The regression is as follows:

$$\text{Target Firm's Institutional Ownership}_{it} = \alpha + \beta_1 \text{Corporate Block Ownership}_{i,t-1} + \beta_2 \text{Firm Size}_{i,t-1} + \beta_3 \text{Market-to-Book}_{i,t-1} + \beta_4 \text{Profitability}_{i,t-1} + \epsilon$$

Variables	(1) OLS	(2) FE
Corporate Blocks	-0.417***	-0.366***
	(0.0271)	(0.0409)
Firm Size	0.0787***	0.0936***
	(0.00414)	(0.0101)
Market-to-book	0.0122***	0.00759*
	(0.00427)	(0.00399)
Profitability	0.0751**	-0.00932
	(0.0355)	(0.0188)
Constant	0.0489*	-0.0320
	(0.0279)	(0.0595)
Observations	902	902
R-squared	0.498	0.652
Robust standard errors in parentheses		
*** p<0.01, ** p<0.05, * p<0.1		

Table 11**Corporate Blocks, Institutional Ownership, and Product Market Relationship**

This table presents regression analysis on firms' institutional ownership on product market relationship and its interaction with corporate block ownership. The dependent variable is firms' institutional ownership. *Product* is an indicator, equal 1 if corporate blockholders have some product market relationship or strategic alliances with target firms.

Variables	(1) OLS	(2) FE
Product	0.0528***	0.0672***
	(0.0228)	(0.0236)
Corporate Blocks	-0.087***	-0.0844***
	(0.0431)	(0.0430)
Product*Corp. Blocks	0.0293	0.0123
	(0.0524)	(0.0934)
Firm Size	0.0782***	0.0815***
	(0.00404)	(0.00987)
Market-to-book	0.00370	0.00284*
	(0.00273)	(0.00159)
Profitability	0.0708**	0.0117
	(0.0360)	(0.0203)
Constant	0.0761**	0.0683
	(0.0295)	(0.0572)
Observations	845	845
R-squared	0.519	0.659
Robust standard errors in parentheses		
*** p<0.01, ** p<0.05, * p<0.1		

Table 12**Corporate Ownership, Institutional Ownership and Leverage**

This table presents regression results on firm leverage for a sample of firms that have corporate blocks formed via equity carveouts and partial acquisitions for the period 1989-2009. It repeats the regression (1) in Table 6 to include institutional ownership and ownership concentration. Data on institutional ownership is from Thomson Reuters Institutional (13F) Holdings.

Variables	(1) OLS	(2) FE
Corporate block	-0.0693**	-0.140***
	(0.0277)	(0.0435)
Institutional Ownership	-0.0982***	-0.0476
	(0.0338)	(0.0370)
Industry Med Lev	0.635***	0.468***
	(0.0783)	(0.149)
Market-to-book	-0.00718*	-0.00380**
	(0.00386)	(0.00150)
Profitability	0.00320	-0.0467**
	(0.0222)	(0.0193)
Firm Size	0.0211***	0.0446***
	(0.00491)	(0.00989)
Tangibility	0.171***	0.357***
	(0.0356)	(0.0663)
Inflation	0.958***	0.408**
	(0.126)	(0.208)
Blockholders' Leverage	0.292***	0.146***
	(0.0371)	(0.0375)
Constant	0.0314	-0.0510
	(0.0437)	(0.0779)
Observations	935	935
R-squared	0.405	0.753
Robust standard errors in parentheses		
*** p<0.01, ** p<0.05, * p<0.1		

Table 13

Robustness Check on Equity Carveouts with Minority Stake Held by Parent Firms

This table repeats the regressions on firm leverage and institutional ownership in a sub-sample of equity carveouts with less than 50% ownership held by parent firms.

Panel A:
Regression on Target Firm leverage

VARIABLES	(1) FE
Block Ownership	-0.912* (0.507)
Parent's Book Leverage	0.354*** (0.0921)
Industry Median Leverage	0.413* (0.220)
Market-to-book	-0.0364*** (0.0103)
Profitability	-0.225*** (0.0788)
Firm Size	0.0323*** (0.0111)
Tangibility	0.0222 (0.0971)
Constant	0.380 (0.237)
Observations	136
R-squared	0.560
Robust standard errors in parentheses	
*** p<0.01, ** p<0.05, * p<0.1	

Panel B:
Regression on Target Firms' Institutional Ownership

VARIABLES	(1) FE
Parent Block Ownership	-0.697*** (0.126)
Firm Size	0.0725** (0.0315)
Market-to-book	0.00234 (0.0131)
Profitability	-0.0524 (0.0906)
Constant	0.216 (0.192)
Observations	165
R-squared	0.661
*** p<0.01, ** p<0.05, * p<0.1	

Appendix A

Variable Definition

- Book leverage is measured as debt in current liabilities (*DLC*) plus total long-term debt (*DLTT*) divided by total assets (*AT*).
- Market Leverage $_{it} = \frac{DLTT+DLC}{DLTT+DLC+(PRCC*CSHO)}$

where *DLTT* is the amount of long-term debt, *DLC* is debt in current liabilities, including the portion of long-term debt due within one year, *PRCC* is the year-end common share price, and *CSHO* is the year-end number of common shares outstanding.

- Market-to-Book is computed as:

$$M/B_{it} = \frac{AT_{it} - SEQ_{it} - TXDITC_{it} + (PRCC_{it} * CSHO_{it}) + PSTKL_{it}}{AT_{it}}$$

where *AT* is total assets, *SEQ* is book equity, *TXDITC* is deferred tax, *PRCC* is the year-end common share price, *CSHO* is the year-end number of common shares outstanding, and *PSTKL* is liquidation value of preferred stock.

- *Profitability* is operating income before depreciation (*OIBDP*) over total assets.
- *Tangibility* is fixed assets (*PPENT*) over total assets.
- *Cash Ratio* is cash and short-term investments (*CH*) over total assets.
- *Firm size* is the natural log of total assets.
- *Board*: equal 1 if corporate blockholders assign directors or have same directors on the target firms' boards, and 0 otherwise.
- *Product*: equal 1 if corporate blockholders have a product market relationship with target firms, and 0 otherwise.
- *Vertical*: equal 1 if corporate blockholders have a vertical relationship with target firms, and 0 otherwise.
- *Agency1* is the first measure of agency costs calculated by total assets over sales.
- *Agency2* is the second measure of agency costs calculated by operating expenses over sales.
- *Agency3* is the third measure of agency costs, a dummy variable taking the value of one if a firm is large and has few growth opportunities (i.e., market capitalization greater than the 80th percentile and market-to-book ratio less than the 20th percentile in a given calendar year).
- *Agency4* is the fourth measure of agency costs, a dummy variable taking the value of one for firms with managers that tend to overspend on Selling, General and Administrative (SG&A) costs without legitimate economic reasons (i.e., SG&A expenses greater than the 80th percentile and sales growth less than the 20th percentile in a given calendar year).

Appendix B

Subsample Results on Corporate Blockholders and Leverage

This table presents regression results of corporate block ownership on target firms' leverage separately for sub-samples of equity carveouts and partial acquisitions for the period 1989-2009.

Panel A: Equity Carveouts

Variables	(1) OLS	(2) FE
Parent Block Ownership	-0.0996***	-0.115***
	(0.0267)	(0.0337)
Industry Med Leverage	0.674***	0.494***
	(0.0833)	(0.126)
Market-to-book	-0.0192***	-0.0150***
	(0.00480)	(0.00345)
Profitability	-0.142***	-0.129***
	(0.0367)	(0.0400)
Firm Size	0.0113**	0.0509***
	(0.00502)	(0.0122)
Tangibility	0.123***	0.459***
	(0.0371)	(0.0788)
Inflation	0.963***	0.574*
	(0.1482)	(0.324)
Parents' Leverage	0.294***	0.112***
	(0.0441)	(0.0420)
Constant	0.217***	-0.128
	(0.0580)	(0.101)
Observations	653	653
R-squared	0.435	0.755
Robust standard errors in parentheses		
*** p<0.01, ** p<0.05, * p<0.1		

Panel B: Partial Acquisitions

Variables	(1) OLS	(2) FE
Corporate Block Ownership	-0.105*	-0.1571**
	(0.0605)	(0.0721)
Industry Med Leverage	0.508***	0.513**
	(0.0875)	(0.217)
Market-to-book	-0.00525	-0.00247*
	(0.00349)	(0.00146)
Profitability	-0.00931	-0.0218
	(0.0160)	(0.0173)
Firm Size	0.00577	0.0432***
	(0.00376)	(0.00840)
Tangibility	0.254***	0.342***
	(0.0436)	(0.0595)
Inflation	0.478***	0.476*
	(0.182)	(0.252)
Acquirers' Leverage	0.161***	0.107**
	(0.0425)	(0.0472)
Constant	0.0373	-0.158**
	(0.0459)	(0.0761)
Observations	621	621
R-squared	0.377	0.767
Robust standard errors in parentheses		
*** p<0.01, ** p<0.05, * p<0.1		

Appendix C

Subsample Results on Corporate Blockholders, Board Proportion, and Leverage

This table presents regression results of corporate block ownership and board proportion on target firms' leverage separately for sub-samples of equity carveouts and partial acquisitions.

Panel A: Equity Carve-outs

Variables	(1) OLS	(2) FE
Corporate block	-0.672***	-0.898*
	(0.183)	(0.508)
b.proportion*corp.block	-0.426**	-0.800***
	(0.187)	(0.112)
Board Proportion	-0.131***	-0.0943***
	(0.0357)	(0.0393)
Industry Med Lev	0.596***	0.519***
	(0.0864)	(0.127)
Market-to-book	-0.0195***	-0.0148***
	(0.00469)	(0.00346)
Profitability	-0.144***	-0.130***
	(0.0356)	(0.0402)
Firm Size	0.0105**	0.0522***
	(0.00492)	(0.0126)
Tangibility	0.134***	0.476***
	(0.0366)	(0.0807)
Inflation	0.142	0.318
	(1.439)	(1.560)
Blockholders' Leverage	0.305***	0.128***
	(0.0436)	(0.0427)
Constant	0.175***	-0.155
	(0.0560)	(0.105)
Observations	647	647
R-squared	0.467	0.762
Robust standard errors in parentheses		
*** p<0.01, ** p<0.05, * p<0.1		

Panel B: Partial Acquisitions

Variables	(1) OLS	(2) FE
Corporate block	-0.224**	-0.1754*
	(0.104)	(0.100)
b.proportion*corp.block	-0.756***	-0.517***
	(0.143)	(0.162)
Board Proportion	-0.0434*	-0.0398
	(0.0251)	(0.0309)
Industry Med Lev	0.511***	0.574**
	(0.0872)	(0.223)
Market-to-book	-0.00538	-0.00250*
	(0.00351)	(0.00147)
Profitability	-0.00832	-0.0190
	(0.0166)	(0.0174)
Firm Size	0.00572	0.0417***
	(0.00385)	(0.00847)
Tangibility	0.242***	0.336***
	(0.0450)	(0.0604)
Inflation	0.334***	0.211**
	(0.171)	(0.106)
Blockholders' Leverage	0.169***	0.115**
	(0.0428)	(0.0478)
Constant	0.0350	-0.168**
	(0.0460)	(0.0766)
Observations	614	614
R-squared	0.382	0.670
Robust standard errors in parentheses		
*** p<0.01, ** p<0.05, * p<0.1		