Control Motivations and Capital Structure Decisions

Andrew Ellul
Kelley School of Business, Indiana University

This Draft: October 2010

Abstract

This paper investigates the use of leverage as one channel through which control-motivated blockholders can defend their corporate control. Such blockholders face a trade-off between raising external finance and losing their control over the firm. Debt has an advantage over equity in solving this trade-off because it does not dilute the blockholder's voting power. We use a sample of 5,975 firms from 38 countries over the period 1992-2006 and identify the presence of family blockholders and long-term institutional investors which are the type of owners that should value corporate control most. We find that firms that are owned by these blockholders have high leverage, after controlling for other capital structure determinants. This result cannot be explained by the use of debt to discipline firms owned by blockholders that may have higher managerial agency conflicts, overinvestment problems or empire-building concerns. Most importantly, we find that leverage in these firms is used strategically and not indiscriminately given the higher risk of bankruptcy it poses: debt is mostly used when control is contestable and less when blockholders already have control-enhancing mechanisms in place. The evidence is reinforced when analyzing the behavior of leverage around hostile takeovers and withdrawn takeover bids.

Keywords: Corporate Control; Firm Ownership; Capital Structure; International Finance;
JEL Classifications: G30, G32, F30

Address for correspondence: Andrew Ellul, Kelley School of Business, Indiana University, 1309 E. Tenth St., Bloomington, IN 47405-1701, U.S.A., ph. +1-812-855-2768; e-mail: anellul@indiana.edu.

Acknowledgments: I am grateful for comments made by Nihat Aktas, Utpal Bhattacharya, Bernard S. Black, Michael Faulkender, Mark Flannery, Charles Goodhart, Dirk Hackbarth, Ronen Israel, Tullio Jappelli, Sreenivas Kamma, Andrew Karolyi, Luc Laeven, Michael Lemmon, Kai Li, Lubomir Litov, Pedro Matos, David Matsa, Ernst Maug, Mario Padula, Marco Pagano, Michell Petersen, Jay Ritter, Stefano Rossi, Andrei Simonov, Rene Stulz, David Thesmar, Elu von Thadden, David Yermack, Toni Whited and participants at the CEPR Conference (Bergen, Norway), CEPR Summer Symposium (Gerzensee), Indian School of Business's Summer Research Conference, European Finance Association Annual Meeting, the Fourth Corporate Finance Conference at Olin Business School and seminars at Indiana University, London School of Economics, Ohio State University, Tanaka Business School (London), University of Ancona, University of Mannheim, University of Naples Federico II, and University of New South Wales.

Introduction

Can a control-motivated blockholder use the mix of debt and equity in the firm's capital structure to maintain or defend control? Besides the rights over the stream of cash flows, large blockholding also gives rights over the firm's resources and decisions, and insulation from both internal and external discipline.[1] Owners that value control face a clear trade-off: getting external funds to finance firm's investments and possibly *losing (or diluting) their control*, or keeping control and, in case of insufficient internal funds, passing on valuable investments. From a blockholders' point of view, new equity financing is not an optimal way to solve such a trade-off because their control gets diluted.[2] Debt solves this trade-off because it does not endanger control as long as the firm faces no financial distress.

In this paper we empirically investigate whether capital structure is *one* mechanism used by control-motivated blockholders to keep control. Existing theoretical literature argues that control motives can influence the mix of equity and debt. Harris and Raviv (1988), Israel (1991) and Stulz (1988) investigate the actions of entrenched managers and find that they can use the capital structure to gain voting power. Stulz (1988) concludes that "whether management controls too few or too many votes, the firm's *capital structure decision is relevant because of its effect on the distribution of voting rights*" (page 27).

It is clear that debt as a control mechanism cannot be used indiscriminately because it can be costly in certain conditions or unnecessary in others. Too much debt increases bankruptcy risk, in which case owners will cede control to creditors. This means that bankruptcy risk and creditor rights become important considerations. Debt can also be unnecessary because a blockholder that already exerts control through pyramiding or cross-shareholdings will not need leverage to reach that goal.

Control motivations should be tested against other hypotheses. Blockholders with high control motivations often hold undiversified portfolios with significant firm-specific risks. Applying the Fama (1980) and Masulis (1988) frameworks to the case of leverage in firms owned by undiversified control-motivated blockholder, we can hypothesize that lower leverage can be used to reduce firm-specific risk. Debt in firms with concentrated ownership can also be used as a disciplining device to solve agency conflicts, especially where legal

[1] See Morck, Shleifer and Vishny (1988), Stulz (1988), Israel (1991), and Cheng, Nagar and Rajan (2004).
[2] Bolton and von Thadden (1998) state this in the context of firms with an owner-manager: "…most financiers insist on some form of protection, so that the final compromise reached in most financial contracts for small firms is one resembling a debt contract (or a venture capital contract), which protects the founder-manager's control as long as the firm is performing adequately."

protection is ineffective. Harvey et al. (2004) show that debt serves as a governance mechanism in emerging markets because it either reins in the overinvestment problem or signals management's unwillingness to engage in overinvestment. Their evidence is consistent with Jensen (1986, 1993), Flannery (1986), Stulz (1990), Diamond (1991), Hart and Moore (1995), and Zweibel (1996).

We use firm's ownership structure to detect control motivations. The clearest example of shareholders with control motives are family blockholders and institutional blockholders that maintain a long-term presence in the firm's ownership structure (at least for 5 years). These blockholders tend to have large stakes in firms they invest in and keep them for long horizons. In the case of family blockholders, they can view the firm as an asset to bequeath to family members and establishing a multi-generational presence.[3] Such blockholders, especially the family type, often have a direct presence in the firm's management and tend to be relatively undiversified in their investments[4]. These characteristics make investigating family and long-term blockholders particularly suitable to address our research question.

Anecdotal evidence has shown the importance of control motivations to blockholders. An example is a survey of 891 Italian firms sampled from the Mediocredito database. A major problem facing Italian firms is the lack of adequate financing. Bagella *et al.* (2001) report that to the question on their availability for any equity dilution, more than 80% of CEOs answered that they are ready for "No Equity Dilution". When they were asked whether they see any advantage from higher financial stability resulting from external finance, almost 52% saw no advantages.[5]

The empirical literature so far has not addressed the impact of blockholders' control motivations on capital structure. This is surprising given the importance of family and

[3] This argument has been formalized by Becker (1981), Casson (1999) and Chami (1999).

[4] There is some empirical evidence on family's lack of diversification besides anecdotal evidence. For example, the Forbes Wealthiest American Index (2002) shows that family business owners invested 69% of their fortune in the family firm.

[5] A recent example of such control motivations was provided by Bertelsmann, the German media company, a family-owned company since 1835. In 2001 the Bertelsmann family sold 25.1% of its company to Groupe Bruxelles Lambert (GBL) in exchange for 29.9% share (and complete control) of RTL, a media company. The deal gave the right to GBL to list its stake in Bertlesmann publicly after five years. In 2006, to avoid such a public listing, the Bertelsmann family bought back the stake of GBL for some $5.75 billion through an issue of debt, and "for this luxury, Bertlesmann has more than doubled its existing debt…the media company is probably overpaying by around Euro 500 million. However, it avoids the scrutiny of stock analysts, and the activism of hedge funds" (The Economist, 2006).

institutional blockholding around the world and in the U.S.[6] Stulz (2005) argues that controlling shareholders may pursue their own interests and their objectives are likely to have important repercussions on firms they invest in. Leverage is one such important firm decision that they can influence. The only two directly related empirical papers are those of Berger, Ofek and Yermack (1997) who look at entrenched managers, and Litov and John (2006) who look at corporate governance and managers' investment policies. Notably, Berger *et al.* (1997) found that, contrary to the control hypothesis, entrenched managers *decrease* firm's leverage.

We use a panel data comprising 5,975 firms from 38 different countries, over the period 1992–2006. An international study is the right approach to investigate the research question for two reasons: first, the variability of different types of ownership is unlikely to be found in any single country, and, second, different legal frameworks provide us with important insights in how control issues differ across legal environments and the final impact on leverage. We first find that the presence of family blockholders and long-term institutional blockholders is associated with their firms taking on higher leverage. This is consistent with the control motivations hypothesis and we find no support for the risk-reduction hypothesis. Short-term institutional blockholders are not found to influence leverage.

We further investigate this result and find that firms owned by control-motivated blockholders have higher leverage when they form part of a business group that has a financial institution in its structure. We also investigate the role of the control-motivated blockholder when present in the firm's management. For firms owned by family blockholders, we have data on the blockholder's presence in the management. Family managers can be considered as the quintessential entrenched managers. We find that family management has a very large and positive impact on leverage, confirming the importance of control motivations. This particular result goes contrary to the result found by Berger *et al.* (1997) on entrenched managers.

The results that family blockholders increase leverage strategically can also be consistent with alternative explanations. For example, Harvey et al. (2004) find that debt is mostly used by firms where managerial agency costs are highest. Firms owned by control-

[6] According to La Porta *et al.* (1999) 30% of the large public firms around the world are owned by families and this figure rises to 45% when medium-sized firms are considered and family firms' presence in the US is also significant with almost one third of S&P500 firms and 37% of Fortune 500 being family-owned (Anderson and Reeb, 2003, and Villalonga and Amit, 2006). Similar figures were found by Ellul *et al.* (2006) for Fortune 500 firms and international companies that list on the New York Stock Exchange (NYSE) through Level II and III American Depositary Receipts.

motivated blockholders are potential examples. The results in this paper show that control-motivated blockholders are associated with higher leverage even in firms that do not suffer from overinvestment problems. This also means that the results are robust to the argument that such firms may have larger leverage to restrict empire building (Zwiebel (1996)). The impact of control-motivated blockholders can also result from the simultaneity between other decisions taken by blockholders and leverage. Debt and dividends can be substitutes when dealing with agency conflicts (Jensen (1986)). If dividends, instead of debt, are used to discipline managers' empire building, then internal finance will be depleted with a consequent higher reliance on external funding. In the case where equity is more expensive than debt, then higher leverage results but in this case it is not because of any control motivations. We find no support for this hypothesis. From this evidence we conclude that the control motivation hypothesis proves robust to different tests for alternative explanations.

Capital structure is not the only way blockholders can maintain control. Control-enhancing instruments, such as cross-shareholding or pyramids, are used as well. While leverage and control-enhancing instruments may end up having the same results, they may influence risk-sharing differently. With higher leverage to keep control, blockholders will keep the upside risk but will lose control to creditors when downside risk occurs. Control-enhancing mechanism is different under this dimension since control-motivated blockholders using these mechanisms will share both upside and downside risks. Which channel is preferred depends on the costs and benefits of each mechanism considering creditor rights. Most importantly, our tests show that leverage is strategically used as a substitute for control enhancing mechanisms.

To the ardent skeptic, cross-sectional results are not enough to show the use of leverage as a control mechanism. To address these concerns, we should look at ownership ranges or events when corporate control becomes contestable. If leverage is really used for control motivations then we should find that blockholders will only use higher leverage in such situations. To test this prediction we proceed in different directions and use different tests.

First, we investigate firms' ownership concentration and coalition interactions that may occur between the control-motivated blockholder and other shareholders. We use the Shapley Index values which measure the probability that a blockholder's votes become pivotal in a random coalition formation. We find that leverage in family firms is not used when ownership is largely concentrated in the hands of one blockholder and is used more

when the control-motivated blockholder's votes are not pivotal. Second, many countries have takeover rules that allow for mandatory tender offers when an acquiring shareholder's stake reaches a pre-determined level (Nenova (2006)). These ownership cut-off points imposed by takeover laws determine a very broad ownership range where control can become contestable. Using piecewise regressions similar to Morck and Shleifer (1988) with thresholds around such mandatory offers, we find a non-monotonic relationship between the blockholder's voting rights and leverage, with the largest impact found in a range below the mandatory tender offer levels. Although useful as a preliminary test, mandatory tender offer limits have been criticized as ineffective and possibly counter-productive as a mechanism for corporate control on the basis that they increase, not decrease, the cost of takeovers. In this way, corporate control may become less contestable at the mandatory thresholds, thus explaining the result that leverage is used over an ownership range smaller than the mandatory level. To address this problem, we look at hostile takeovers that have taken place between 1992 and 2006 in 38 different countries to determine the ownership level of the control-motivated blockholder that lost control in such events. We consider the defeated blockholder's ownership level as a better indicator of control contestability. Using these thresholds in a piecewise linear regression, we again find that leverage is mostly used around levels where hostile takeovers can take place and thus leading to loss of control. Finally, we look at takeover bids between 1992 and 2006 in 38 different countries that were subsequently withdrawn and analyze the evolution of leverage around and after such events. After such events, a control-motivated blockholder should become more aware that control can come under pressure and possible wrestled away. One instrument a blockholder can use is leverage and hence we should see leverage increasing. However, leverage can also increase because managers may want to signal that they will carry out the improvements required to maximize shareholders' wealth (Safieddine and Titman (1999), and Jandik and Makhija (2005)). To disentangle these two effects, we compare the evolution of leverage around withdrawn takeover bids for widely-held firms and firms with control-motivated blockholders and find that leverage increases far more in the latter. We interpret the various results from the control contestability tests as confirmation that leverage is used strategically by blockholders wanting to keep corporate control.

We contribute to the literature on corporate control by empirically showing, for the first time, that leverage is one instrument used by control-motivated blockholders to achieve or maintain corporate control. Most importantly, we show that leverage is a substitute for

control-enhancing mechanisms and it is used strategically to avoid situations where control is ceded to creditors because of bankruptcy risk. We also contribute to the literature on the driving forces of capital structure decision. While theoretical literature has proposed this idea before, this paper is one of the very first attempts to empirically test the control hypotheses.

The rest of the paper is organized as follows. Section 2 reviews the data and methodologies we use. Section 3 presents and reviews the results and tests alternative hypothesis to investigate the robustness of the control-motivation hypothesis. Section 4 presents the results from control contestability tests. Section 5 concludes.

2.0 Data

The paper uses two different types of tests. The first set of tests use a panel dataset of firms in 38 countries, while the second set of tests use evidence from control contestability events in different countries.

The panel dataset is composed of a total of 5,975 international firms from 38 countries over the period 1992-2006, for a total of 64,218[7] firm-year observations. Panel A of Table 2 shows the geographical decomposition of the sample. We construct the data from different sources. First, we start by using the datasets of Faccio and Lang (2002) and that of Claessens et al. (2000). The former provides ownership data for 5,232 firms from 13 European countries while the latter provides ownership data for 2,980 firms from nine East Asian countries. Second, we augment this dataset by including firms from Argentina, Australia, Brazil, Canada, Colombia, Greece, India, Israel, Mexico, Netherlands, New Zealand, Peru, South Africa, United States (Fortune 500 list as of 1992), and Venezuela. We apply two screens. First, we delete all financial firms. Second, we require financial and accounting data for at least 5 years for each firm.

The core ownership data comes from Faccio and Lang (2002) and Claessens *et al.* (2000) who collect data for European and Asian firms over different periods in the 1990s. We augment the ownership data using Amadeus[8], Osiris and Worldscope. We supplement these sources by looking at firms' websites and contacting firms directly to obtain ownership data when sufficient information is not available. We analyze the ownership data to see

[7] There are instances of missing data for some years for the international firms in our sample, leaving us with a total of 64,218 firm-year observations out of a possible total of 89,625 firm-year observations.

[8] Amadeus is a new dataset providing financial and ownership data for more than 5 million European firms starting from 2002.

whether there are significant changes from those reported for the 1990s to the 2002-2006 period and find significant stability and stickiness over time.[9]

From the same sources, and only for firms owned by a family blockholder, we obtain data on the presence of the family blockholder in the firm's management. There is only sparse and unreliable data available on the presence of institutional blockholders on the Board of Directors, limiting any scope to use these firms when we investigate blockholders' presence on firms' Board of Directors.

The sources for the financial and accounting data also differ across our final dataset. Compustat is the source of financial and accounting data for the Fortune 500 and non-European ADRs while Worldscope is the source for the firms in the Faccio and Lang dataset.

We obtain country-level governance indices from different sources: (a) the shareholder' rights index of La Porta *et al.* (1998), and (b) the creditor' rights index of La Porta *et al.* (1998). From the International Monetary Fund's *International Financial Statistics* and the International Finance Corporation's *Emerging Market Database* we collect country level variables regarding country's financial market development, namely GDP per Head and the Ratio of Stock Market Capitalization to GDP. Finally, we obtain data on country-specific corporate tax rates (the Top Corporate Tax Rate) from the Economist Intelligence Unit dataset. Information on the mandatory tender offers in each country comes from Nenova (2003).

Our sample of acquisitions launched between 1992 and 2006 from the Mergers and Acquisitions Database of the Securities Data Company (SDC). We keep only the transactions involving a change in control in one of the 5,975 firms in our panel dataset. The initial sample includes not only firms that were successfully taken over but also takeover attempts. We only use transactions between independent companies and remove any bid where the target is a subsidiary.[10] These filters produce a sample of 852 takeover announcements. We use LexisNexis, Factiva and Financial Times to verify the information from SDC. We compare the information on the announcement date, the transaction value, share of control acquired, the target's attitude and the bid completion from the different sources. This results in corrections to the SDC data in 21% of the cases. For our analysis we focus on two sub-samples. First, the sample of hostile takeovers in the case of firms with a control-motivated

[9] For example, the family blockholding from the Faccio and Lang dataset has a mean of 40.67% and a standard deviation of 25.97%, while that from Amadeus has a mean of 39.51% and a standard deviation of 26.08%. The same picture emerges for the institutional blockholdings.

[10] We also exclude banks, savings banks, unit trusts, mutual funds and pension funds.

blockholder (174 events). Second, the sample of announced takeovers that were subsequently withdrawn in both widely-held firms and firms with a control-motivated blockholder (248 events) in each of the countries where we observe both types of takeover withdrawals.

2.1 Definitions of Firm Ownership

We next describe how firms are classified between (a) widely-held firms and firms held by short-term blockholders, and (b) firms held by control-motivated blockholders.

Control-motivated blockholders are defined to be of two-types: either family blockholders, or institutional blockholders that are present in the firm's ownership structure for at least 5 years. We define a family firm as one where the founder, or descendents of his/her family (either by blood or through marriage), is the largest blockholder (either individually or as a group) and has an ownership stake of at least 10% of cash flow rights. Likewise, we define firms held by long-term institutional blockholders when an institutional blockholder with an ownership stake of at least 10% of cash flow rights is present in a firm for more than 5 years in the firm's ownership structure. Out of a total of 5,975 firms in the sample, 2,312 are owned by a control-motivated blockholder where family blockholders are present in 1,815 firms and long-term institutional blockholders are present in 497 firms.

We first use a dummy variable to capture the presence of a control-motivated blockholder. The dummy variable "Blockholder Presence" takes the value of 1 if either a family blockholder or a long-term institutional blockholder is present and 0 otherwise. Using a dummy variable suffers from a significant disadvantage because the blockholder's control motives may be a function of its power. This is better captured by its cash flow or voting stakes. Given these problems, we also use the blockholder's ownership stake, "Blockholder Ownership Rights" as one of the measures.

It is not yet clear whether the sheer presence of a control-motivated blockholding is enough to let us identify its impact on leverage. The way a control-motivated blockholder can influence capital structure depends on who makes the decisions at the firm level. It is easier for a blockholder to influence such decisions if it also carries managerial duties. In this case, the channel through which capital structure decisions are taken is clearer. This calls for data on the influence of the blockholder on firm's management. For the sample of firms owned by a family blockholder, we can obtain data on the presence of the family blockholder on the Board of Directors. To implement this approach we use a dummy variable "Family

Blockholder in Management" that takes the value of 1 if a family member is in active management and 0 otherwise.

2.2 Issues with International Comparisons

While international data offers significant benefits, it also has important limitations. This paper, like others with international comparisons, labors under different disclosure environments and accounting standards that may influence our measures of leverage. First, the accounting items that get included and excluded from a balance sheet differ across countries.[11] Second, firms in different countries may value assets (historical cost vs. current value) differently.[12] Third, reporting may be based on consolidated or unconsolidated balance sheets.[13] In the case of unconsolidation firms can act strategically and place debt in obscure subsidiaries and then use intra-firm trade credit to borrow it back. In this case, such firms will show lower leverage.[14] We control for such differences using country-fixed effects. Any accounting differences across countries should only influence our results only in the unlikely event that, within a particular country, ownership structures influence accounting techniques.

2.3 Leverage Measures and Control Variables

We use the two definitions of leverage that have been widely used by existing literature. First we use Book Leverage, defined as:

$$\frac{\text{Long Term Debt} + \text{Debt in Current Liabilities}}{\text{Total Assets}}$$

and also use Market Leverage, defined as:

$$\frac{\text{Long Term Debt} + \text{Debt in Current Liabilities}}{(\text{Long Term Debt} + \text{Debt in Current Liabilities}) + \text{Market Equity}}$$

We next discuss the control variables that we use, which are described in Table 1.

[11] Lease reporting is one example. The other example is the funded and unfunded parts of the pension liabilities. Rajan and Zingales (1995) report that in Germany accounting practices allow firms to have higher provisions for future potential liabilities and this item can be used to smooth accounting items. They report that 29% of German firms' liabilities are included in the category of "Other Liability" when in no other country does this item represent more than 8%.

[12] Nobes and Parker (1991) report that German firms use a more conservative approach to value assets and this may lead to lower asset values compared to similar firms in other countries.

[13] When unconsolidated balance sheets are used, a firm will report a subsidiary's net assets as long term investments on their balance sheet, hence giving the impression of lower leverage than a comparable firm that uses consolidated accounting.

[14] Rajan and Zingales (1995) found that the majority of firms in the Group of 7 countries carry out consolidated accounts, with Germany and Japan being the countries with the least number of firms reporting consolidated accounts (about 76% of firms).

[Insert Table 1]

(a) Firm Characteristics

Various firm characteristics have been found to influence the choice of capital structures (Barclay, Smith, and Watts (1995), Barclay, Morellec, and Smith (2004), Hovakimian *et al.* (2001), Lemmon and Zender (2004), Rajan and Zingales (1995)). In particular, (i) asset tangibility, (ii) growth opportunities, (iii) firm size, and (iv) profitability.

We measure asset tangibility with the ratio of Net Property, Plant and Equipment to Total Assets. To check the robustness of results we also use the ratio of the firm's Intangible Assets to Total Assets. We measure firm's growth opportunities with Tobin's Q and also the Book-to-Market Ratio. Firm size is measured as (log) Total Assets and (log) Sales. Firm's profitability is measured as the Return on Assets (ROA).

(b) Firm Diversification

We use two measures of firm diversification: (a) a dummy variable that takes the value of 1 if the firm is part of a business group and 0 otherwise, and (b) the number of product lines of the company.

(c) Stock Returns

Welch (2004) shows that firms do not have any target capital structure but rather allow leverage to drift automatically with stock returns. Consistent with Liu (2005), we use firms' stock returns measured as the cumulative stock returns over the previous two years.

(d) Persistence of Capital Structure

If persistence exists then capital structure history matters. While Flannery and Rangan (2005), Alti (2005), and Hovakimian (2005) conclude that firms respond fairly quickly following shocks that may change the capital structure, Shyam-Sunder and Myers (1999), Fama and French (2002), and Huang and Ritter (2005) show that firms respond slowly when adjusting the capital structure. Lemmon, Roberts and Zender (2006) find long-lived persistence in capital structure. We capture the persistence and adjustment of capital structure using the lagged capital structure at year t-1. In some specification we adopt the Lemmon,

Roberts and Zender (2006) approach and use the firm's first observation of the capital structure.

(e) Corporate Tax Rates

Corporate tax rates create a debt tax shield that should influence the debt-equity mix. Rajan and Zingales (1995) claim that such a conclusion may not necessarily be true because personal taxes have also to be considered. Personal marginal taxes are notoriously difficult to obtain. We use corporate tax rate to control for any debt tax shields.

(f) Credit Ratings

So far, the control variables listed in (a) to (e) above consider the demand side of the capital structure decision. The implicit assumption is the infinite elasticity of the supply of capital at the correct price. There is an emerging literature that looks at the supply side, i.e. the behavior of finance providers in the presence of market frictions. Faulkender and Petersen (2006) make this point very clearly: firms with access to the public bond market have higher leverage compared to those that only have access to bank lending. We use actual credit ratings obtained from the Securities Data Company database as the first measure and the probability that a firm obtains a credit rating (using a similar model to the one proposed by Faulkender and Petersen (2006))[15] as a second measure.

(g) Shareholder and Creditor Rights

Harris and Raviv (1992) suggest that bankruptcy legislation has fundamental effects on any debt contract. We use the creditor rights index, proposed by La Porta *et al.* (1998). We also use a measure that captures shareholder rights across different countries. We measure investor protection with various indices, namely (a) Shareholder Rights Index proposed by La Porta *et al.* (1998), and (b) Self-Dealing Index proposed by Djankov et al. (2006).

2.7 Sample Characteristics

Table 2 provides descriptive statistics for firm-level characteristics of the 5,975 firms.

[15] We do not have data on the age of the firm so we cannot use the variables "Firm is young " and Ln(1 + firm age). Data on advertising is also sparse and hence we do not use the variable "Advertising/Sales". We substitute the variable "Firm in the S&P 500" with "Firm in the Major Stock Index" that takes the value of 1 if the firm is a constituent of the major stock market index in each country and 0 otherwise. We also substitute the variable "Listing on the NYSE" with "ADR Listing" which takes the value of 1 if the firm has an ADR program and 0 otherwise.

[Insert Table 2]

Panel A shows the country of incorporation and Panel B shows descriptive statistics for financial and ownership data for the entire sample of firms and for the sub-sample of firms owned by control-motivated blockholders and widely-held firms.

For the entire sample, we find that the average Book Leverage is 24.56% (median of 21.80%) while average Market Leverage is 26.85% (median of 22.45%). These figures are comparable to those found by existing literature, both U.S. and international evidence.[16] Family blockholders are the ultimate owners of about 30% of the firms in our sample, long-term institutional blockholders are ultimate owners of 8% of firms and short-term inistitutional blockholders are ultimate owners of 14% of firms in the sample. Panel C shows descriptive statistics for widely-held firms and firms held by short-term institutional investors and Panel D shows descriptive statistics for firms held by control-motivated blockholders. There are a number of differences between these two samples. The average firm held by control-motivated blockholders has a larger mean Book Leverage (26.8%) compared to widely-held firms (24.09%). The same applies to Market Leverage. Using various measures of firm size, such as market capitalization, total assets or total sales, we find that firms with control-motivated blockholders are smaller than widely-held firms ($1.8 billion of market capitalization versus $4.5 billion for non-family firms). The average Tobin's Q of firms with a control-motivated blockholder is greater (1.90 versus 1.55). We do not find any statistical difference between the two types of firms when considering accounting performance (ROA of 4.5% versus 4.3%). Further, firms with a control-motivated blockholder have lower asset tangibility ratios (average Plant, Property and Equipment Ratio of 0.34 versus 0.37).

The average family blockholder's cash flow rights are about 39% and the average voting rights are slightly below 44%, confirming the use of control enhancing mechanisms. The family blockholder occupies a managerial role in about 57% of the firms defined as family-owned. When present as the largest blockholders, long-term inistitutional's cash flow rights are slightly above 15% and voting rights just below 18%, confirming the use of control-enhancing mechanisms.

2.8 Econometric Methodology

[16] Lemmon, Roberts and Zender (2006) find a mean value for Book Leverage of 27% (median is 24%) and for Market Leverage of 29% (median of 23%).

We use two types of methodologies to test our hypotheses. First, we use a cross-sectional regression, using only one observation for each firm. This is the most natural and direct way to test our hypotheses, as follows:

$$\text{Capital Structure}_{i,c} = \alpha\, BH_{i,c} + \lambda\, X_{i,c} + \beta\,(X_{i,c} \times BH_{i,c}) + \delta C + \Theta S + \varepsilon_{i,c} \qquad (1)$$

where for Capital Structure we use book and market leverage measures for each firm i, from country c; BH is the presence of a control-motivated blockholder in each firm i and country c; X is a set of firm-specific control variables; C is a country-specific dummy variable, and S is an industry-specific dummy variable.

We first use a single firm observation from the period 1992-2006 and do so in different ways. First, we use the first available observation of each firm.[17] Second, we use the last observation for each firm. Third, we use an observation chosen randomly from the entire sample. In each case, the total number of observations in each regression is 5,975.

Second, we also use a panel regression to get closer to the literature on capital structure. The model is as follows:

$$\text{Capital Structure}_{i,c,t} = \alpha\, BH_{i,c,t-1} + \lambda\, X_{i,c,t-1} + \beta\,(X_{i,c} \times BH_{i,c}) + \delta_c + \Theta_s + \Omega_F + \varepsilon_{i,c,t} \qquad (2)$$

where Capital Structure, BH and X have the same meaning as for (1) above but they are measured in each year t. We also include country dummy variables, C, and sector dummy variables, S. Most of the regressions will use firm effects $\Omega(F=1,\ldots,F)$ to control for any unobserved heterogeneity at the firm level. We also check the robustness of the results using four further specifications: (a) a firm and country fixed effect approach, (b) a country fixed effect specification, (c) an industry fixed effect specification, and (d) an industry and country fixed effect specification.

One potential problem when using panel regressions in (2) is the relative time-invariance of the blockholders ownership stake and country-level control variables. While there are some changes in family ownership across time in our sample, such changes are never large and we rarely see instances where the family blockholders sell-out completely. The only variable that is truly time-invariant are the country-level measures of investor protection. The relative time-invariance of these two variables can bias the results. We address these problems as suggested by Bertrand, Duflo, and Mullainthan (2004): first, we

[17] Recall that, consistent with existing literature, all independent variables, with the exception of stock returns, are measured over year t-1. Stock returns require two years and are measured over years t-2 and t-1. This means that for most stocks the first observation we can use falls in 1996.

use the clustering correction at the firm level, and second, we collapse the data to a single observation for each firm and run a cross-sectional regression as in (1).

3.0 Results

Table 3 shows the results using both the cross-sectional (columns 1-3) and the panel dimension of the dataset (columns 4-6).[18] The Table shows the impact of control-motivated blockholders measured with a dummy variable (columns 1 and 4), cash flow rights (columns 2 and 5), and voting rights (columns 3 and 6). We report the results using book leverage but the results do not change when we use market leverage. We do not report the results on market leverage for the sake of brevity.

[Insert Table 3]

Starting with the results from a cross-sectional test, we find that the first striking result is that all coefficient estimates for the presence of a control-motivated blockholder are positive and statistically significance whether we use a cross-sectional test or use the entire panel dataset and whether we look at book leverage or market leverage. The impact also has economic significance. If we use the dummy variable we find that the presence of a control-motivated blockholder increases Book Leverage (Market Leverage) by 3.15% (3.68%). Since average Book Leverage (Market Leverage) is 24.56% (26.85%) the presence of the blockholder increases leverage by more than twelve (fourteen) percentage points. This result becomes more significant when considering that we control for variables that have been found to influence leverage by existing literature.

The second important result is found in the second row where we report the coefficient estimates for the diversification variable. We find that higher diversification increases leverage but the result has no statistical significance. We interpret these two results as being more consistent with leverage being used as a control mechanism rather than an instrument to reduce firm-specific risk.

These results are obtained after controlling for country effects that may arise from different financial development, issuing methods, etc. across different countries.[19] The signs of the control variables are as expected, and most of them have statistical significance.

[18] Columns 1-3 in Table 3 show the results using the first observation for each firm. Results obtained using the last observation and random observations are similar to those reproduced in Table 3 and not reported for the sake of brevity.

[19] We also run the same specification as shown in Table 3 but, rather than using country dummy variables, we use either the Log GDP Per Head, or the Ratio of Stock Market Capitalization to GDP. The main results do not change.

Consistent with the pecking order theory, firms with higher profitability have lower debt ratios. Leverage is also found to be higher in larger firm size, consistent with the results of Graham, Lemmon and Schallheim (1998), and Hovakimian, Opler and Titman (2001). Firms with more tangible assets are found to have higher leverage. Firms with high growth opportunities, as measured by Tobin's Q, are found to have lower leverage. The two-year cumulative stock returns have a negative impact on book leverage. Following Welch (2004), we interpret the results to mean that firms do not tend to rebalance leverage after periods of either increasing or decreasing prices. We also find that the supply side of the capital structure decision influence leverage. In fact, firms with credit rating tend to have higher leverage.

Moving on to the tests using the panel data we find very similar results to those found in columns 1-3 regarding the use of leverage as a control mechanism. In columns 4-6 we use lagged capital structure and corporate tax rates as additional control variables together with year dummy variables. There is a firm fixed effect specification when using the blockholders' cash flow and voting rights, and an industry and country fixed effect specification when using the dummy variable approach.[20] The economic significance for the major result is similar to that found above. In addition, we find that the coefficient estimate on lagged debt ratios has a positive sign, consistent with existing literature and that corporate tax rates are not found to have any impact on capital structure.[21]

3.1 Business Groups and Management Presence

We can identify two channels through which a control-motivated blockholder can directly influence the leverage decision. First, it is easier to increase leverage if the firm is part of a business group with a financial institution. In this case, debt can be obtained easier and strategically placed. Second, a blockholder is likely to have a direct impact on the decision to increase leverage if it has a presence in the firm's management. We next investigate these two channels.

To test the first prediction, we get data on which firms form part of a business group with a financial institution and use the following model:

[20] Recall that we use the 10% cash flow right cut-off to capture family presence and this limits the possibilities of having significant time variability in the dummy variable.

[21] We also run the same panel specification using the first available capital structure observation for each firm as one of the independent variables (Lemmon, Roberts and Zender (2006)). This observation remains constant for a single firm over the entire period. In this case, we drop the firm fixed effects and apply industry effects. The results do not change.

$$CS_{i,c,t} = \alpha BH_{i,c,t-1} + \xi(BH_{i,c,t-1} \text{ x } BG_{i,c}) + \lambda X_{i,c,t-1} + \beta(X_{i,c} \text{ x } BH_{i,c}) + \delta_c + \Theta_s + \Omega_F + \varepsilon_{i,c,t} \quad (3)$$

where the variables have the same meaning as in (2) above and BG is a dummy variable that takes the value of 1 if a firm owned by a control-motivated blockholder is part of a business group with a financial institution and 0 otherwise. If the presence of a financial institution in a business group makes debt more accessible, then we should find that the marginal effect as measured by the coefficient ξ is positive and statistically significant. The results are shown in Panel A of Table 4.

[Insert Table 4.]

Panel A of Table 4 confirms the prediction that when debt is more accessible for a control-motivated blockholder it will be used more aggressively. The coefficient estimate ξ is positive and significant at the 5% confidence level. While the presence of control-motivated blockholder continues to have an impact, the result in the first row of Panel A shows that it becomes less so when we introduce the interaction term ($BH_{i,c,t-1}$ x $BG_{i,c}$) to account for the accessibility of leverage.

Next we test the second prediction, i.e. that leverage will be higher when the control-motivated blockholder also has a presence in the firm's management. Ownership without direct representation in the management can only have an impact through close monitoring, in which case it is not clear whether it is really control motivations that drive the leverage decision or some other factor. To counter such argument, we look at the way the blockholder exerts its influence in the firm. We use the information on the presence of the blockholder on the firm's Board of Directors. Such information is only available for family blockholders. Hence, our test will be carried out on a sub-sample that includes only family firms, firms with short term institutional blockholders and widely-held firms. The model tested is as follows:

$$CS_{i,c,t} = \alpha\, FB_{i,c,t-1} + \psi\, FM_{i,c,t-1} + \lambda\, X_{i,c,t-1} + \beta(X_{i,c} \text{ x } BH_{i,c}) + \delta_c + \Theta_s + \Omega_F + \varepsilon_{i,c,t} \quad (4)$$

where the variables have the same meaning as in (2) above, FB measures the presence of a family blockholder, and FM is a dummy variable that takes the value of 1 if the family blockholder has a presence on the firm's Board of Directors and 0 otherwise. If the presence

on the Board of Directors facilitates the leverage decision then we should expect that the marginal effect as measured by the coefficient ψ is positive and statistically significant.

The results are shown in Panel B of Table 4. Both family ownership and family management have significant impacts on leverage. As expected, the inclusion of family management reduces the economic and statistical significance of family ownership on its own. The family blockholder's cash flow rights and voting rights are now only significant at the 10% level, while that of the Family Management is at the 5% level. The coefficient estimate on Family in Management is statistically significant and has high economic significance. This result is important when compared to the earlier results of Berger *et al.* (1997). If we consider family manager as the quintessential type of an entrenched manager then our results differ from those of Berger *et al.* (1997) who found that entrenched managers reduce leverage. We interpret this result as more consistent with the control motivations rather than the risk-reducing motivations.

3.3 Impact of Different Types of Blockholders

So far we have used the definition of control-motivated blockholders to distinguish from concentrated ownership. We have argued that different types of blockholders have different control motivations and distinguished between family blockholders and long-term institutional investors on one hand and short-term institutional blockholders on the other. We now test the impact of each of these types of blockholders against the benchmark provided by widely-held firms. For example, when testing the impact of family blockholders (long-term blockholders) we remove from the sample firms that have as their ultimate owner an institutional blockholder (family blockholders and short-term institutions). The results are shown in Table 5.

[Insert Table 5]

Looking at the first three rows where we report the coefficient of the impact of each type of blockholder on leverage we find that family blockholders and long-term institutions have a positive sign and the impact is statistically significant (each at the 5% level) and economically significant. As predicted by the control hypothesis, there is no impact resulting from the presence of short-term institutions. It is also important to note that the magnitude of the family blockholder's coefficient is larger than that of long-term institutions and has a larger economic impact. Using the unreported results based on the dummy variable approach, we find that the presence of a family blockholder leads to an eighteen percentage point

increase in leverage relative to widely held firms while the presence of long-term institutions increase leverage by nine percentage points.

3.4. Alternative Hypotheses

The results so far can also be consistent with alternative explanations. Debt can be used as a disciplining device (Jensen (1986, 1993), Flannery (1986), Stulz (1990), Diamond (1991), Hart and Moore (1995), Harvey et al. (2004), and Zweibel (1996)) and such mechanism can be used in firms where the control-motivated blockholder can expropriate minority shareholders. Further, we have also not considered the simultaneity that exists between capital structure and other firm decisions.

We start by investigating whether leverage is used to constrain overinvestment and empire building rather than for control purposes. We adopt a methodology similar to that of Harvey et al. (2004) and find proxies for overinvestment, which can be tangible assets, Tobin's Q and free-cash flows. We split the sample into firms with above- and below-median levels, at the country level, of (a) tangible assets in place, (b) free-cash flows, and (iii) Tobin's Q. We run a two-stage regression using two equations, one for leverage (using Book Leverage), and the other for valuation (using Tobin's Q). The model for the capital structure is the same as the one used in (2) above. The model for the valuation equation uses the following variables: Book Leverage, Presence of a Control-Motivated Blockholder, the interaction term between Book Leverage and Presence of a Control-Motivated Blockholder, Log of Total Assets, Capital Expenditure to Assets, Return on Assets, Industry Dummies, Year Dummies and Country Dummies. Consistent with Harvey et al. (2004), we use the interaction term between Book Leverage and Presence of a Control-Motivated Blockholder to capture the dynamics of debt as an instrument used by the blockholder to solve agency conflicts. If debt is used exclusively in this role, then we should find no impact arising from the sole presence of a control-motivated blockholder. The results for the split of the sample on tangible assets and free-cash flows are shown in Table 6. The results using the split on Tobin's Q are similar and not reported for sake of brevity.

[Insert Table 6]

Starting from the first row we see that the coefficient for the interaction term between Book Leverage and Presence of a Control-Motivated Blockholder is only statistically significant in the sub-sample of firms with above-median tangible assets (and free-cash flows) in place. These are precisely the type of firms that suffer most from overinvestment

problems. The same result (not reported) is obtained when we split the sample on Tobin's Q: the coefficient for the interaction term is only statistically significant for the sample of firms with below-median Tobin's Q. If we then proceed to the second row to analyze the coefficient of the Presence of a Control-Motivated Blockholder on leverage we still find it to carry a positive sign and statistical (and economic) significance in both samples and the coefficient estimates are very similar. Together these results imply that debt is used as a disciplining mechanism but its control-motivation role at the hands of control-motivated blockholders is not dented.

Another possible explanation for higher leverage is higher financial deficit (Frank and Goyal (2003)).[22] Firms with a dominant blockholder may be among the best candidates to have high financial deficits. In these cases, the blockholders may decide to pay high dividends which will increase the financial deficit, or divert the firm's internal cash flows for their private benefits, diminishing the amount of internal funds available for investments. These actions should increase financial deficits and such firms will end up with higher leverage because of their financial deficit situation rather than because of control motivations.

We compute the financial deficits as in Frank and Goyal (2003) for all firms and test whether the inclusion of this variable alters our results from the model in (2) above. We then focus exclusively on firms held by control-motivated blockholders and split the sample made up of such firms in two groups: those with high financial deficits (higher than the median deficit) and those with low deficits (below the median deficits). The results are not shown for the sake of brevity. The results show that the coefficient estimate for high financial deficit is positive but lacks any statistical significance but its inclusion does not change the impact (and significance) of the presence of the blockholder. Second, splitting the sample of firms with high and low financial deficits shows that firms owned by control-motivated blockholders and that have high financial deficits do not have higher leverage relative to those with low financial deficits. We can thus conclude that the financial deficits hypothesis cannot explain our results.

Another possible explanation comes from a different channel: debt and dividends are substitutes in controlling such agency conflicts (Jensen (1986)). A central theme in the dominant blockholders literature is the expropriation of minority shareholders. Firms with a

[22] Frank and Goyal (2003) define financial deficit as Dividend Payments + Investments – Change in Working Capital + Internal Cashflow.

control motivated blockholder can solve such agency conflicts by paying high dividends which have the benefit of transferring cash flows on a pro-rata basis from the hands of the controlling blockholder to all shareholders. For example, Faccio *et al.* (2001) show that group-affiliated corporations in Europe pay higher dividends to dampen insider expropriation. The downside of higher dividends will be lower retained earnings and higher reliance on external finance to fund investment opportunities. This simultaneity between dividend decisions and financing decisions could explain our results.

We run a simultaneous equations framework using two equations: Market Leverage and Dividends/Sales Ratio. The equation for the capital structure is the same as the one used in (3) above and add the ratio of Dividends/Sales to the independent variables. We use the following variables for the firm's dividend policy: Market Leverage, Presence of Family Blockholder, Log of Total Assets, Log of Tobin's Q, Return on Assets, GDP per Head, Industry Dummies, Year Dummies and Country Dummies. The results are shown in Panel A of Table 7.

[Insert Table 7]

The result of leverage as a control instrument do not change even after taking into consideration any simultaneity of the dividend-leverage decision and the impact of blockholding remains both statistically and economically significant. The results also show some interesting insights into the dividend-leverage dynamics. First, while the blockholder's presence leads to higher leverage, its impact on the Dividends/Sales ratio is not statistically significant, meaning that control-motivated blockholders are not paying themselves higher dividends. Second, highly levered firms have lower Dividends/Sales ratios. This result can be interpreted in two ways: (a) the Jensen (1986) argument that debt and dividends are substitutes as solutions to agency conflicts, or (b) creditors may use their powers and limit transfers of cash flows to shareholders.

There may also be simultaneity between the presence of a control-motivated blockholder and its influence on both firm valuation and capital structure. A growing literature looks at the performance of family firms relative to non-family firms and find that over-performance occurs in founding family firms.[23] On the other hand, Harvey et al. (2004) find that ownership of voting rights in excess of cash flow rights (similar to what we find for

[23] See, Gorton and Schmid (2000), Volpin (2002), Cronqvist and Nilsson (2003), Barottini and Caprio (2005), Villalonga and Amit (2006) amongst others.

control-motivated blockholders in our sample) leads to lower firm valuations. While the literature has not yet found unambiguous evidence on this question, there is enough evidence to argue for a possible causality. At the same time, firm valuation or performance has been found to influence the firm's capital structure. Thus there may be a latent variable that influences firm valuation and leverage simultaneously. We use a simultaneous equations framework to address this issue using two equations: Market Leverage and Tobin's Q. We use the same independent variables as in (2) above. The following variables are used to explain the firm's performance (log of Tobin's Q): Market Leverage, Presence of Family Blockholder, Log of Total Assets, Dividend/Sales Ratio, Shareholders' Rights, Industry Dummies, Year Dummies and Country Dummies.

The results, shown in Panel B of Table 7, show that the impact of control-motivated blockholding remains both statistically and economically significant even after considering any simultaneity of the performance-leverage decision. We check the robustness of this result using ROA as the measure of performance (shown in Panel C of Table 7). The main result holds.

John and Litov (2006) find that managers in firms with weak corporate governance will choose conservative investment policies and can thus take up more leverage. Firms with control-motivated blockholders may have weak corporate governance and may take up less risky investments leading them to take up more debt not because of control motivations. This suggests that we control for investment riskiness. We capture investment risk using the standard deviation of monthly stock returns in the previous five years. We use three types of methodologies. First, we use a cross-sectional methodology. For this approach, we measure the standard deviation of monthly stock returns over the five year period 1992-1996 and we use a random firm observation from 1997 onwards. Second, we use a panel regression approach starting from 1997, allowing us to measure the standard deviation of returns over a 5-year period. Third, since there may be simultaneity between investment risk and capital structure we also apply a simultaneous equations approach. The results are shown in Table 8.

[Insert Table 8]

The sign of the coefficient estimate of the blockholder presence[24] remains positive and carries statistical and economic significance, even after controlling for the riskiness of the firms' investment policies. The coefficient estimate of the standard deviation of returns is positive, different from the evidence found of John and Litov (2006). Its statistical

[24] The Table reports results using cash flow rights and voting rights. Results hold when using dummy variable.

significance, however, is low. One important result in column 4 is that firms owned by control-motivated blockholders tend to have riskier investments. Applying the John and Litov (2006) argument, we would have expected such firms to have less debt. Instead we find they have larger leverage which is consistent with control motivations.

3.5 Control Enhancing Mechanisms

There are various ways in which a control-motivated blockholder can reach its control goals. One of these is the use of control-enhancing mechanisms, such as pyramids and cross-shareholdings. The question that needs to be addressed is whether capital structure is a complimentary or a substitute to these mechanisms. It is to be expected that a blockholder that can maintain control through the use of pyramids may not have any incentive to use capital structure as an (additional) way to maintain control. While the benefit of high leverage will be limited in such a case, the costs may be very high because of the higher bankruptcy risk. Likewise, a blockholder that has a very large stake in a firm can exercise control directly through its stake and thus has no incentives to leverage up the firm.

We address these issues in different ways. First we look at the impact of wedge, which is the difference between the blockholder's cash flow and voting rights. Wedge will be positive in the case a blockholder uses control enhancing mechanisms. We run the model in (2) above using cash flow rights (voting rights) and wedge together. If leverage is really a substitute for control enhancing mechanisms then we expect a negative sign for the wedge coefficient. The results are shown in Panel A in Table 9.

[Insert Table 9]

While the coefficient of the ownership is positive as before, the coefficient estimate for wedge (Blockholder Wedge) is negative and statistically significant, confirming that blockholders that keep control through control enhancing mechanisms use lower leverage.

As argued by Harvey et al. (2004), firm value, leverage and ownership structures can be endogenously determined. We investigate the endogenous relation among these variables in Panel B of Table 9. As in Harvey et al. (2004), we estimate a three-stage least squares regression model with valuation (Tobin's Q) being the structural equation. The results confirm that firms with a control-motivated blockholder have higher leverage than widely-held firms and that the wedge of the blockholder's ownership stake is negatively related with leverage. These two results confirm that leverage and pyramiding are substitutes and used strategically by control-motivated blockholders to keep corporate control.

So far we have found that (a) a blockholder with a presence on the firm's management increases leverage, and (b) leverage is used as a substitute for control-enhancing mechanisms. Further insights can be achieved by bringing these two together. We do so for family firms since for such firms we also have data on their presence on the firm's Board of Directors. Having a family in active management should make it significantly easier for the family blockholder to increase leverage to maintain control. At the same time, a wedge in the family blockholding may decrease the family's propensity to leverage up if the leverage decision is a substitute for control enhancing mechanisms. Looking at the interaction of these two factors we can classify family firms in four different categories: (a) family firms where the family is in active management and makes use of control enhancing mechanisms, (b) family firms where the family is not in active management while it makes use of control enhancing mechanisms, (c) family firms where the family is in active management but does not make use of control enhancing mechanisms, and (d) family firms where the family is neither in active management and nor does it make use of control enhancing mechanisms.

If the capital structure decision is a substitute for the control enhancing mechanisms, then we expect that the propensity to leverage up is largest in the third type of family firm. In this case, the blockholder wants to use leverage for control motivations and has the means to achieve this objective by virtue of its presence in the management. Using a similar argument, the family's propensity to increase leverage will be lowest in the second type of family firms. We have no *a priori* regarding family firms classified in the first category and the fourth category.

We run the model in (2) above using these four categories of family firms. From the sample of 5,975 firms we remove the 497 firms with a long-term institutional blockholder so that the analysis will be comparing firms with a family blockholder to widely-held firms and firms with short-term institutional blockholders. Column 1 use the dummy variable "Family Management and Wedge" that takes the value of 1 if the family is in the firm's management and has positive wedge and 0 otherwise. Columns 2 use the dummy variable "No Family Management and Wedge" that takes the value of 1 if the family is not in the firm's management but has positive wedge and 0 otherwise. Column 3 use the dummy variable "Family Management and No Wedge" that takes the value of 1 if the family is in the firm's management but has no wedge and 0 otherwise. Column 4 use the dummy variable "No Family Management and No Wedge" that takes the value of 1 if the family is not in the firm's management and has no wedge and 0 otherwise. The results are shown in Table 10.

[Insert Table 10]

As hypothesized, the coefficient estimate is largest (with statistical and economic significance) for the "Family Management and No Wedge" and is smallest (with no statistically significance) in the case of "No Family Management and Wedge". These two results indicate that capital structure is a substitute for control enhancing mechanisms and reinforces the control motivations hypothesis.

4.0 Control Contestability

If leverage is one of the instruments available to blockholders to keep control then it will be used strategically. Leverage is not a costless option because it increases the risk of bankruptcy. This is an outcome that control-motivated blockholders, especially family blockholders, are especially averse to. The use of leverage is then strictly related to the control contestability within a firm. If control is not contestable or the blockholder has already enough voting power then we should not expect that leverage is used.

We first investigate whether the impact of a blockholding ownership is non-monotonic in the ownership stake. The results in Table 3 show that ownership size has a positive impact on leverage but if it is really control that matters then it is unlikely that the relationship is strictly increasing. A very large family ownership gives the family all the control it needs without any use of leverage. We introduce non-linearities in model (2) above by using the cash flow rights (voting rights) squared together with the cash flow rights (voting rights). We find that the sign of the coefficient estimates of the squared term is negative and statistically significant. This result implies that the blockholder's incentives to increase leverage to maintain control increases with size, but it does so at a decreasing rate. Blockholders seem to use more leverage when its control over the firm is at most risk. As the blockholder's stake become larger, and control is more secure, the propensity to use debt diminishes. Figure 1[25] shows the simulations using the results from both the Blockholder Presence and the Blockholder Presence Squared. Leverage as a control mechanism is mostly used when the blockholder's voting flow rights range between 20% and 40%, the range over which control is most contestable in many countries.

[Insert Figure 1]

[25] To generate Figure 1 we winsorize the bottom 5% (with family ownership less than 4%) and the upper 5% (with family ownership higher than 80%) of family firms in the sample.

(a) Mandatory Offer Thresholds

We start the analysis by looking at ownership thresholds when control becomes contestable. A starting point are the mandatory offer threshold that have been adopted by several countries as the most obvious ownership stake cut-off points that determine the strength of the blockholder's position. These thresholds provide us with ownership ranges where control becomes contestable at the country level. Following this we look at the firms' ownership structure to determine the strength of the control-motivated blockholder's voting position in coalition formation as measured by the Shapley values.

The takeover code in many countries provides regulations obliging an acquiring shareholder to make a bid for a company when its position reaches certain ownership thresholds. Once an acquiring shareholder reaches these mandatory thresholds it must make a bid for all classes of shares. Mandatory thresholds differ across countries and within groups of countries that share similar legal environments. While there are no such thresholds in the US, the UK has a threshold at 30% while both Australia and Canada set them at 20%. Within the civil law country group, there are no thresholds in Brazil and Mexico, while Italy sets them at 10%, France at 33% and Germany at 50%.

If these mandatory thresholds are really effective, then it can be argued that the blockholder's control position is mostly at risk when it is near such thresholds. Once it is significantly above such thresholds then its position, from a control perspective, gives it enough protection against any takeover bids. Thus, if control motivations are really a driving force of the leverage decision, then we should expect a non-monotonic relationship between the voting stake of family blockholders and leverage.

We use a piecewise linear regression to investigate the non-monotonicity between blockholder's voting power and leverage. Such methodology imposes that we determine the number of changes in the slope coefficients and at which points these changes occur. Our first specification uses four changes in the slope coefficient for the first test. The first slope change, Blockholder_1, is determined at the 5% (voting rights) level. The second and third slope changes are determined using some distance away from each country's mandatory thresholds. The second slope change, Blockholder_2, is set at the mandatory tender offer less 5%. The third slope change, Blockholder_3, is set at the mandatory tender offer plus 5%. The fourth slope change, Blockholder_4, is determined at the point of absolute majority (50%). In this specification, the values of each of the five variables in the case of a blockholder with 34% (51%) voting stake in a country where the mandatory tender offer is placed at 30% is as

follows: Blockholder_1 is 0.05 (0.05), Blockholder_2 is 0.20 (0.20), Blockholder_3 is 0.09 (0.10), Blockholder_4 is 0 (0.15) and Blockholder_5 is 0 (0.01). The piecewise linear regression uses all the control variables used in (2) above and is estimated for each country for which a mandatory tender offer threshold exists and then the coefficient estimates are averaged across countries. We run various robustness checks of the main result using various specifications. In the first robustness test we use the blockholder's voting rights to determine the four changes in the slope coefficient as follows: the first slope change is at 5% of voting rights, the second slope change is at 15%, the third change is at 30%, and the fourth slope change is at 50%. In the second robustness test we use five changes in the slope coefficient as follows: the first slope change is at 10% of voting rights, the second slope change is at 20%, the third change is at 30%, the fourth slope change is at 45%. For the first specification we only include countries where the mandatory tender offer threshold is larger than 10% and smaller than 45%. We include all countries in the other two specifications. The results are shown in Table 11.

[Insert Table 11]

The results for the different specifications are shown in Table 11. There are some striking results from the coefficient estimates of Blockholder_1, Blockholder_2, Blockholder_3, Blockholder_4 and Blockholder_5. If control motivations drive the leverage decision then we should expect that leverage is highest in the ownership range captured by Blockholder_2 and Blockholder_3 which are the ranges centered around the mandatory tender offer level. We find clear evidence from the first specification that supports this idea. The coefficient for Blockholder_1 is positive and not statistically significant, showing that at very low ownership levels blockholders do not influence leverage in any way. Over this range, a 1% increase in the ownership of the control-motivated blockholder increases leverage by 0.02%. For example, when a blockholder has a stake of 5% it has about 0.1% higher leverage than a non-family firm. This is very small in magnitude and has no statistical significance. The coefficient for Blockholder_2 is positive, statistically significant at the 1%, and is the largest. Over this ownership range, an increase of 1% of the blockholder's ownership increases leverage by 0.47%. This means that a firm where the blockholder has a 20% voting stake will have about 6% higher leverage than a widely-held firm. The coefficient estimate for Blockholder_3 decreases compared to Blockholder_2 but remains statistically significant. This means that a firm with a control-motivated blockholder with a 30% voting stake will have about 10% higher leverage than a widely-held firm. The

coefficient for Blockholder_4 becomes negative, implying that the propensity of the blockholder to use leverage starts decreasing over this range, possibly because the blockholder's stake together with the takeover laws decreases control contestability. Finally, the coefficient estimate for Blockholder_5 is negative and statistically significant clearly indicating that blockholders over this range have absolute voting stakes and have no interest in using leverage for control motivations. The results from the other specifications show similar results and this is all the more important since in Specification 2 and Specification 3 we include all the countries in our sample to obtain these coefficient estimates.

(b) Shapley Values

Control contests are less likely when ownership is concentrated. One measure that can be used for the control-change probability is the voting stake of the dominant blockholders. A blockholder can find itself in two different positions: it can either be the only blockholder, or be the largest blockholder co-existing with other blockholders. The Herfindahl Index is silent about the strategic interaction that may occur between blockholders. Instead, the Shapley Index (Milnor and Shapley, 1978), as suggested by Nenova (2003), measures this strategic interaction between the different blockholders. Specifically, the Shapley Index measures the interactions between the control-motivated blockholder and all other blockholders and atomistic shareholders. Since we have data for the largest three blockholders, we can calculate the Shapley value of the votes of the control-motivated blockholder in the presence of two other blockholders and atomistic shareholders. We can then use this measure as the proxy for the control value held by the control-motivated blockholder, giving us the probability that the votes held by the blockholder become pivotal in a random coalition formation. The smaller the Shapley value of the blockholder the lower is the probability that the votes are pivotal and the more likely that blockholders want to use leverage to keep control. Blockholders with Shapley values closer to 1 should not use leverage because they hold control through their strong ownership position.

We use a piecewise linear regression to investigate the non-monotonicity between Shapley values and leverage. The first specification uses three changes in the slope coefficient: the first slope change, Shapley Range 1, is determined at the 0.20 level; the second slope change, Shapley Range_2, is set at 0.40; the third slope change, Shapley Range 3, is set at 0.60.

The results are shown in Panel B of Table 11. The coefficient estimate for Shapley Range 1 is 0.0024 and is statistically significant at the 5% confidence level and economically significant. The coefficient estimate decreases slightly to 0.0021 for the Shapley values between 0.20 and 0.40 and carries statistical significance. The coefficient estimate decreases further to 0.0005 with no statistical significance for Shapley values between 0.41 and 0.60 and turns negative (-0.0010) for Shapley values higher than 0.60. Shapley values higher than 0.60 occur for those firms where the blockholder holds a very large fraction of the votes and a takeover bid is very unlikely. Again, we find evidence of the non-monotonicity of the use of leverage by control-motivated blockholders. To summarize, the evidence from Panels A and B of Table 11 confirms that leverage is exclusively used when control becomes contestable, supporting the control motivation hypothesis.

(c) Hostile Takeovers

It has been argued (Burkart and Panunzi (2004)) that mandatory tender offers decrease, and not increase, the probability of takeovers. This is because they inflict a cost on potential acquirers by virtue of the fact that they will have to bid not only for the shares of the controlling shareholder but also the remaining shareholders. Given this cost, it may very well be the case that there is less, not more, contestability when the controlling blockholder's ownership stake lies around the thresholds set by takeover laws. We find evidence consistent in Panel A of Table 11 since leverage seems to be used more aggressively in the ownership range just before the levels set by takeover laws to be the triggers for mandatory tender offers.

To address this concern we investigate 174 hostile takeovers that took place during the period from 1992 to 2006 in 38 different countries where a controlling blockholder in one of the 5,975 firms in our sample lost corporate control. We get data on the ownership stake of the controlling blockholder that lost control and set that stake as the point of control contestability based on the argument that the blockholder lost control because its stake was not large enough and hence attracted acquirers that could wrestle control away. We call this as the "control-contestable stake". Given that hostile takeovers are very sparse and some countries have not had any hostile takeovers over the period we consider, we group the 38 countries by their legal origin (civil law and common law) and take the average of the control-contestable stake within each group of countries. This approach is justified in the light of the results of Rossi and Volpin (2003). We then run a piecewise linear regression to

check for the non-monotonic nature of leverage if it is used as a control mechanism. Our specification uses four changes in the slope coefficient for the first test, similar to the one we used for mandatory tender offer thresholds but this time using the control-contestable stakes. The first slope change, Blockholder_1, is determined at the 5% (voting rights) level. The second and third slope changes are determined using some distance away from each group of countries' contestable stake. The second slope change, Blockholder_2, is set at the contestable stake less 5%. The third slope change, Blockholder_3, is set at the contestable stake plus 5%. The fourth slope change, Blockholder_4, is determined at the point of absolute majority (50%). The results are shown in Panel A of Table 12.

[Insert Table 12]

The results shown in Panel A clearly indicate, once again, the non-monotonic and strategic nature of the usage of leverage in firms with control-motivated blockholders. Leverage is highest at Blockholder_3, precisely when corporate control is mostly contestable. The second highest coefficient is found for Blockholder_2. That is, leverage is mostly used in the ownership range where hostile takeovers have taken place and controlling blockholders have lost their control.

The final piece of evidence on control contestability is obtained by investigating the evolution of leverage after takeover bids are withdrawn. Increasing leverage around such events can be explained by two different reasons. First, consistent with the disciplinary role of debt, managers of target firms can increase leverage to commitment themselves to improvements. Second, control-motivated blockholders may become more aware about the control contestability in their firm and to avoid future threats they may increase leverage as a mechanism to reinforce their control. Safieddine and Titman (1999) argue that increasing leverage when faced by a takeover bid will not only decrease the probability of a takeover but also that such an increase in leverage acts as a commitment device for managers to maximize shareholders' wealth. In this way, managers will signal their commitment to do what the raiders proposed to do while still maintaining their jobs. Consistent with this hypothesis, Safieddine and Titman (1999) find a positive relationship between increasing leverage and targets' subsequent long-term performance. On the other hand, Jandik and Makhija (2005) find that target leverage increases following withdrawn takeover bids do not necessarily improve the target's subsequent long term performance unless the type of debt and its structure are also considered.

In order to disentangle between these two effects we use a sample of 248 withdrawn takeover bids during the period 1992 to 2006 for firms that are widely held and firms with a control-motivated blockholder as their ultimate owner. If control-motivations provide one reason for the use of leverage, then we should find that any increase in leverage following a takeover withdrawal should be significantly larger in the case of firms with a control-motivated blockholder. We first investigate the evolution of book leverage and industry-adjusted book leverage from the year before the takeover bid up to 5 years after the bid withdrawal for widely-held firms and firms with a control-motivated blockholder. The results are shown in Panel B of Table 12. The results show that widely-held firms that experience a takeover bid withdrawal experience an increase in leverage (and in industry-adjusted leverage) up to 2 years after the bid withdrawal but this is reversed from year +3 onwards. For firms with a control-motivated blockholder, the increase in leverage is (a) larger than that experienced by widely-held firms, and (b) most importantly, it is permanent because leverage (and industry-adjusted leverage) remain higher at year +5 compared to year -1.

Section 4. Conclusion

This paper investigates how the blockholders' control motivations influence the capital structure of firms. These blockholders face a clear trade-off: getting external finance to finance the firm's investment and *possibly losing (or diluting) control*, or keeping control and, in case of insufficient internal funds, passing on valuable investments. Debt can solve this problem because it allows external financiers without diluting control.

Using a panel data comprising 5,975 firms from 38 different countries we find that (a) family firms have higher leverage ratios than non-family firms, (b) institutional blockholders do not have any impact on capital structure, (c) leverage in family firms is used as a substitute for other control-enhancing mechanisms, such as pyramid structures and cross-holdings, and (d) family firms incorporated in countries with low shareholders' rights have higher leverage than family firms incorporated in countries with high shareholders' rights.

The results for family firms are both statistically and economically significant. We find that although non-family firms have more tangible assets, lower Tobin Q and are generally bigger – all factors that should lead to higher leverage ratios – they have lower debt in their capital structures when compared to family firms.

These results clearly reject the risk reduction hypothesis and are consistent with the control hypothesis where a blockholder increases leverage to maintain or enhance control

over the firm's decision making process. Our results cannot be explained by other hypotheses. As found by the literature, debt can be used as a mechanism to discipline management's propensity for overinvestment or as a credible signal to restrict empire building. We find no evidence that supports these hypotheses.

Capital structure is not the only way blockholders can maintain control. Control-enhancing instruments, such as cross-shareholding or pyramids, are used as well. While leverage and control-enhancing instruments may end up having the same results, they may influence risk-sharing differently. Most importantly, we find that leverage is used very strategically and not indiscriminately given the higher risk of bankruptcy it poses: debt is mostly used when control is contestable, and used less when blockholders already have control-enhancing mechanisms in place. The evidence is reinforced when analyzing the evolution of leverage around hostile takeovers and withdrawn takeover bids.

References

Anderson, R.C., S.A. Mansi, and D.M. Reeb, 2003, Founding family ownership and the agency cost of debt, Journal of Financial Economics 68, 263-285.

Anderson, R.C., and D.M. Reeb, 2003, Family Ownership, Corporate Diversification, and Firm Leverage, *Journal of Law and Economics,* 46, p.653-684.

Bagella, A., L. Becchetti, and A. Caggese, 2001, Financial constraints on investments: A three-pillar approach, *Research in Economics* (2001) 55, 219–254

Barclay, M.J., E. Morellec, and C.W. Smith, 2001, On the debt capacity of growth options, *Journal of Business*, forthcoming.

Barclay, M.J., C.W. Smith, and R. Watts, 1995, The determinants of corporate leverage and dividend policies, *Journal of Applied Corporate Finane*, 7, 4-19.

Becker, G. S., 1981, A treatise on the family. Cambridge, MA: Harvard University Press.

Berger, P.G., E. Ofek, and D.L. Yermack, 1997, Managerial entrenchment and capital structure decisions, *Journal of Finance* 52, 1411-1438.

Berkowitz, Daniel, K. Pistor, and J. Richard, 2003, Economic development, legality and the transplant effect, *European Economic Review* 47, 165-195.

Bertrand, M., E. Duflo, and S. Mullainathan, 2004, How much should we trust differences-in-differences estimates?, *The Quarterly Journal of Economics*, 119, 249-275.

Bolton, P., and E. L. von Thadden, 1998, Blocks, liquidity, and corporate control, *Journal of Finance*, 53, 1-25.

Burkart, M. and F. Panunzi, F., 2004, Mandatory bids, squeeze-out, sell-out and the dynamics of the tender offer process, in G. Ferrarini, K. Hopt, Winter, and Wymeersch (eds), *Modern Company and Takeover Law in Europe*, Oxford, Oxford University Press.

Casson, M., 1999, The economics of the family firm, *Scandinavian Economic History Review*, 47, 10-23.

Chami, R., 1999, What's different about family business?, Working Paper University of Notre Dame and the International Monetary Fund.

Cheng S., V. Nagar, and M.V. Rajan, 2004, Identifying control motives in managerial ownership: Evidence from antitakeover legislation, *Review of Financial Studies*, 18, 638-672.

Cronqvist H. and M. Nilsson, 2003, Agency costs of controlling minority shareholders, *Journal of Financial and Quantitative analysis* 38, 695-719.

Diamond, D., 1991, Monitoring and reputation: The choice between bank loans and directly placed debt, *Journal of Political Economy* 99, 689-721.

Djankov, S., R. La Porta, F. Lopez-de-Silanes, and A. Shleifer, 2006, The law and economics of self-dealing, Journal of Finance, *forthcoming*.

Economist, 2006, All in the Family, May 27 2006 Issue, 62.

Faccio, M., and L.H.P. Lang, 2002, The ultimate ownership of Western European corporations, *Journal of Financial Economics*, 65 (3), 365-395

Faccio, M., L.H.P. Lang, and L. Young., 2001, Dividends and expropriation, *American Economic Review*, 91(1), 54-78.

Fama, E., 1980, Agency problems and the theory of the firm, *Journal of Political Economy*, 88, 288-307.

Faulkender. M., and M.A. Petersen, 2006, Does the source of capital affect capital structure?, *Review of Financial Studies*, 19 (1), 45-79.

Gorton G., and F.A. Schmid, 2000, Universal banking and the performance of German firms, *Journal of Financial Economics* 58, 29-79.

Graham, J., M. Lemmon, and J. Schallheim, 1998, Debt, leases, taxes and the endogeneity of corporate tax status, *Journal of Finance*, 53, 131-162.

Flannery, M., 1986, Asymmetric information and risky debt maturity choice, *Journal of Finance* 41, 19-37.

Harris, M. and A. Raviv, 1988, Corporate control contests and capital structure, *Journal of Financial Economics*, 20, 55-86.

Harris, M. and A. Raviv, 1992, The design of bankruptcy procedures, C.R.S.P. Working Paper, University of Chicago.

Hart, O., and J. Moore, 1995, Debt and seniority: An analysis of the role of hard claims in constraining management, *American Economic Review* 85, 567-585.

Harvey, C., K. Lins, and A. Roper, 2004, The effect of capital structure when expected agency costs are extreme, *Journal of Financial Economics* 74, (2004): 3-30.

Hovakimian, A., T. Opler, and S. Titman, 2001, The debt-equity choice, *Journal of Financial and Quantitative Analysis*, 36, 1–24.

Israel, R., 1991, Capital structure and the market for corporate control: The defensive role of debt financing, *Journal of Finance*, 46, 1391-1409.

Jandik, T., and A.K. Makhija, 2005, Debt, debt structure and corporate performance after unsuccessful takeovers: evidence from targets that remain independent, *Journal of Corporate Finance* 11, 882–914.

Jensen, M.C., 1986, Agency cost of free cash flow, corporate finance, and takeovers, *American Economic Review*, 76(2), 323-329.

Jensen, M. C., 1993, The modern industrial revolution, exit, and the failure of internal control systems, *Journal of Finance* 48, 831-880.

Kose, J, and L. Litov, 2006, Corporate governance and financing policy: New evidence, Working Paper, New York University.

La Porta, R., F. Lopez-de-Silanes, A. Shleifer, and R. W. Vishny, 1997, Legal determinants of external finance, *Journal of Finance*, 52: 1131-1150.

La Porta, R., F. Lopez-de-Silanes, A. Shleifer, and R. W. Vishny, 1998, Law and finance, *Journal of Political Economy*, 106: 1113-1155.

La Porta, R., F. Lopez-de-Silanes, and A. Shleifer, 1999, Corporate ownership around the world, *Journal of Finance*, 54: 471-518.

La Porta, R., F. Lopez-de-Silanes, A. Shleifer, and R. W. Vishny, 2000, Agency problems and dividend policies around the world, *Journal of Finance*, 55(1), 1-33.

Liu, X.L., 2005, Do firms have target leverage ratios? Evidence from historical market-to-book and past returns, University of Rochester, Working Paper.

Lemmon, M., Roberts, M., and Zender, J., 2006, Back to the beginning: Persistence and the cross-section of corporate capital structure, Working Paper, University of Utah.

Lemmon, M., and J. Zender, 2004, Debt capacity and tests of capital structure theories, Working paper, University of Colorado

Lemmon, M., and J. Zender, 2004, Looking under the lamppost: An empirical examination of the determinants of capital structure, Working Paper, University of Utah.

Masulis, R. W., 1988, Corporate investment and dividend decisions under differential personal taxation, *Journal of Financial and Quantitative Analysis*, 23(4), 369-385.

Miller, M., 1977, Debt and taxes, *Journal of Finance* 32, 261-275.

Milnor, J., and Shapley, L., 1978, Values of large games II: Oceanic games, *Mathematics of Operations Research*, 3, 290-307.

Morck, R., A., Shleifer, and R. Vishny, 1988, Management ownership and market valuation: An empirical analysis, *Journal of Financial Economics*, 20, 293–315.

Nenova, T., 2003, The value of corporate voting rights and control: A cross-country analysis, *Journal of Financial Economics*, 68, 325-351.

Nenova, T., 2006, Takeover laws and financial development, Working Paper.

Nobes, C., and R. Parker, 1991, *Comparative International Accounting,* Prentice Hall, NY.

Rajan, R.G., and L. Zingales, 1995, What do we know about capital structure? Some evidence from international data, *Journal of Finance* 50, 1421-1467.

Rossi, S., and P. Volpin, 2003, Cross-country determinants of mergers and acquisitions, *Journal of FinancialEconomics*, 74(2), 277–304.

Safieddine, A. and S. Titman, 1999, Leverage and corporate performance: Evidence from unsuccessful takeovers, *Journal of Finance* 54, 547-580.

Shleifer, A., and R.W. Vishny, 1997, A survey of corporate governance, Journal of Finance, 52(2), 737-783.

Stulz, R., 1988, Managerial control of voting rights: Financing policies and the market for managerial control, *Journal of Financial Economics*, 20, 25–54.

Stulz, R., 1990, Managerial discretion and optimal financing policies, *Journal of Financial Economics* 26, 3-27.

Stulz, R., 2005, The limits of financial globalization, *Journal of Finance* 60, 1595-1638.

Titman, S., and R. Wessels, 1988, The determinants of capital structure choice, *Journal of Finance*, 43, 1-19.

Tufano, P., 1996, Who manages risk? An empirical examination of risk management practices in the gold mining industry, *Journal of Finance* 51, 1097-1137.

Villalonga, B. and R. Amit, 2006, How do family ownership, control, and management affect firm value?, *Journal of Financial Economics* 80, 385-418.

Volpin P., 2002, Governance with poor investor protection: Evidence from top executive turnover in Italy, *Journal of Financial Economics* 64, 61-90.

Welch, I., 2004, Capital structure and stock return, *Journal of Political Economy*, 112, 106-131.

Zwiebel, J., 1996, Dynamic capital structure under managerial entrenchment, *The American Economic Review*, 86, 1197-1215.

Table 1. Variable Definitions

Name of the Variable	Definition
Capital Structure	
Book Leverage	[Long Term Debt + Debt in Current Liabilities] / [Total Assets]
Market Leverage	[Long Term Debt + Debt in Current Liabilities] / [(Long Term Debt + Debt in Current Liabilities) + (Market Equity)]
Firm-Level Characteristics	
First Book (Market) Leverage	The first Book Leverage (Market Leverage) observed for every firm in the dataset.
Lag Book (Market) Leverage	Book Leverage (Market Leverage) at t-1.
Tobin's Q	Natural logarithm of (book value of assets plus market capitalization less common equity divided by the book value of assets).
Market-to-Book Ratio	Market value of equity divided by common equity.
Tangibility (Property, Plant and Equipment Ratio)	Net property, plant and equipment divided by total assets.
Log Total Assets	Natural logarithm of total assets.
Return on Assets	Net income divided by total assets.
Dividends/Sales	Total dividends paid by the firm divided by total annual sales.
Diversification 1	A dummy variable that takes the value of 1 if the firm is part of a business group and 0 otherwise.
Diversification 2	The number of product lines of the company.
Credit Ratings	The first measure is a dummy variable that equals 1 if a firm has a credit rating and 0 otherwise. Data obtained from the Securities Data Company. The second measure is the probability that a firm will obtain a credit rating using a similar model to the one used by Faulkender and Petersen (2006).
Stock Returns	The firm's cumulative stock returns over the previous two years.
Stock Returns Variability	The standard deviation of monthly stock returns over the preceding five year period.
Firm Ownership Measures	
Blockholder Ownership Rights (cash flow rights, and voting rights)	Percentage ownership (cash flow rights and voting rights) of the founding family or of the long-term institutional blockholder (with a presence of at least 5 years in the firm's ownership).

Blockholder Presence	Equals one if either a founding family or a long-term institutional investors (with a presence of at least 5 years in the firm's ownership) owns shares in the firm, and zero otherwise. In both the case of a family blockholder and long-term institutional blockholder, they need to own at least 10% of the cash flow rights.
Family in Management	Equals one if the founding family blockholder is in the active management (i.e. Board of Directors) of the firm, and zero otherwise.
Blockholder's Wedge	The difference between the family's (or long-term institutional blockholder) cash flow rights and its voting rights. It is calculated as the difference between the percentage of the votes held by the blockholder and the percentage of outstanding shares held by the blockholder.
Short-term Institutional Blockholder	Percentage ownership of a firm or person that owns at least 10% of the cash flow rights, is not part of the founding family and remains in the firm's ownership structure for less than 5 years.
Country-Level Governance Measures	
Shareholders' Rights Index	Shareholders' Rights Index is an aggregate measure of how well a country's legal system protects minority shareholders against large shareholders. The Index takes a value between 1 and 5. Higher values indicate stronger shareholders' protection.
Legal Environment (Legality)	Legal Environment is derived from a principal components analysis of the covariance matrix from the efficiency of the judiciary system, rule of law, corruption, risk of expropriation, and the risk of contract repudiation.
Creditor Rights Index	Creditor Rights Index is an aggregate measure of creditor rights. It measures how well creditor rights are protected under bankruptcy and reorganization laws. This Index takes a value between 1 and 4.
Self-Dealing Index	This index focuses on private enforcement mechanisms, and considers fundamental issues in self-dealing transactions, such as disclosure, approval, and litigation.
Country-Level Variables	
Corporate Tax Rate	The Top Corporate Tax Rate obtained from the *Economist Intelligence Unit* dataset.
Ratio of Stock Market Capitalization to GDP	Obtained from the International Monetary Fund's *International Financial Statistics* and the International Finance Corporation's *Emerging Market Database*.

Table 2. Descriptive Statistics

The Table shows descriptive statistics for the 5,975 firms in the dataset. Panel A shows the decomposition of the number of firms in the dataset by the country of incorporation. Panel B shows descriptive statistics for firm-level financial and ownership characteristics for the entire sample. Panel C shows descriptive statistics for widely-held firms and firms owned by short-term blockholders. Panel D shows statistics for firms with control-motivated blockholders (family blockholders and long-term institutional blockholders). The variables shown in each panel are described in Table 1. Financial and accounting data is from Worldscope (international firms) and Compustat (US firms).

Panel A: Country of Origin

Country of Origin	Number of Firms	Country of Origin	Number of Firms
Argentina	21	Malaysia	114
Australia	108	Mexico	56
Austria	32	Netherlands	49
Belgium	60	New Zealand	28
Brazil	60	Norway	82
Canada	128	Peru	20
Colombia	25	Philippines	62
Denmark	54	Portugal	23
Finland	173	Singapore	148
France	356	South Africa	41
Germany	570	South Korea	181
Greece	14	Spain	121
Hong Kong	198	Sweden	194
India	58	Switzerland	66
Indonesia	90	Taiwan	115
Ireland	51	Thailand	110
Israel	45	United Kingdom	926
Italy	194	United States	450
Japan	942	Venezuela	10
		Total	**5,975**

Panel B: Descriptive Statistics for Entire Dataset

	Mean	Median	Std. Dev	Minimum	Maximum
Book Leverage	0.2456	0.2180	0.2605	0	0.9587
Market Leverage	0.2683	0.2245	0.2324	0	0.9882
Assets (in $000,000)	4,647	345	20,084	2.92	575,244
Sales (in $000,000)	3,776	356	12,055	0.23	160,883
Tobin's Q	1.6418	1.1702	6.1437	0.3751	12.68
R&D Ratio	0.0113	0	0.0414	0	0.2138
Return on Assets	0.0442	0.0548	0.1672	-0.151	0.339
PPE Ratio	0.3640	0.3194	0.2301	0.0072	0.9284
Market Capitalization (in $000,000)	3,828	475	14,108	2.70	280,115
Family Dummy	0.30	0	0.45	0	1
Family in Management	0.18	0	0.35	0	1
Institutional BH Dummy	0.22	0	0.38	0	1
Long-term Institutional BH	0.08	0	0.10	0	1
Short-term Institutional BH	0.14	0	0.16	0	1

Panel C: Descriptive Statistics for Widely-held Firms and Firms Held by Short-term Blockholders

	Mean	Median	Std. Dev	Minimum	Maximum
Book Leverage	0.2409	0.2024	0.2575	0	0.9587
Market Leverage	0.2571	0.2101	0.2101	0	0.9048
Assets (in $000,000)	6,020	469	22,846	2.92	575,244
Sales (in $000,000)	4,707	492	12,744	0.23	160,883
Tobin's Q	1.5479	1.1098	2.5032	0.3751	9.2504
R&D Ratio	0.0113	0	0.0422	0	0.1873
Return on Assets	0.0431	0.0569	0.0757	-0.0493	0.3207
PPE Ratio	0.3807	0.3365	0.2329	0.0072	0.9284
Market Capitalization (in $000,000)	4,510	626	17,070	3.97	280,115
Short-term institutional blockholder cash rights (%)	12.80	11.59	9.83	0	38.00
Short-term institutional blockholder voting rights (%)	15.42	14.06	10.57	0	44.15

Panel D: Descriptive Statistics for Firms with Control-Motivated Blockholders

	Mean	Median	Std. Dev	Minimum	Maximum
Book Leverage	0.2681	0.2290	0.1939	0	0.9456
Market Leverage	0.2841	0.2298	0.2370	0	0.9882
Assets (in $000,000)	2,216	152	14,853	5.78	45,027
Sales (in $000,000)	1,775	153	9,751	3.98	38,151
Tobin's Q	1.8901	1.2611	2.8610	0.66	12.68
R&D Ratio	0.0111	0	0.0396	0	0.2138
Return on Assets	0.045	0.049	0.0846	-0.151	0.339
PPE Ratio	0.3390	0.2945	0.2201	0.0116	0.9222
Market Capitalization (in $000,000)	1,805	502	6,158	2.70	131,297
Family cashflow rights (%)	38.78	35.81	23.07	2.80	98.6
Family voting rights (%)	43.57	39.95	22.84	4.10	99
Family in Management	0.57	1	0.49	0	1
Institutional Blockholder cashflow rights (%)	14.18	9.02	10.67	0	35.88
Institutional Blockholder voting rights (%)	17.80	10.81	12.41	0	43.08

Table 3. Control-motivated Blockholders and Capital Structure

This table provides estimates from a cross-sectional regression model (columns 1-3) and a panel regression model with fixed effects (columns 4-6) for 5,975 firms from 38 countries. The dependent variable is Book Leverage as defined in Table 1. We define independent variables in Table 1. The results in columns 1 and 4 use a dummy variable to indicate the presence of a control-motivated blockholder. The results in columns 2 and 5 use the cash flow rights of the control-motivated blockholder while those in columns 3 and 6 use the voting rights. For the cross-sectional regression we use the firm's first available observation. Standard errors in the panel regressions are corrected for serial correlation and heteroscedasticity. The t-statistics appear in parentheses below parameter estimates. ***, **, and * indicate significance at 1%, 5%, and 10% level respectively.

	Cross-sectional Regression			**Panel Regression**		
	Dummy	**Cash Rights**	**Voting Rights**	**Dummy**	**Cash Rights**	**Voting Rights**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Blockholder Presence	**0.0315****	**0.0029****	**0.0031****	**0.0352****	**0.0031****	**0.0032****
	(2.42)	**(2.35)**	**(2.39)**	**(2.45)**	**(2.41)**	**(2.44)**
Diversification 1	0.0097	0.0091	0.0092	0.0101	0.0105	0.0102
	(1.42)	(1.47)	(1.41)	(1.52)	(1.55)	(1.48)
Tobin's Q	-0.0079	-0.0080	-0.0079	-0.0269***	-0.0667***	-0.0668***
	(-0.89)	(-0.89)	(-0.88)	(4.13)	(-16.31)	(-16.30)
Total Assets	0.0132***	0.0131***	0.0130***	0.0182***	0.0480***	0.0479***
	(5.29)	(5.45)	(5.41)	(10.01)	(20.99)	(22.37)
Return on Assets	-0.1452**	-0.1472**	-0.1464**	-0.1431***	-0.0639***	-0.0639***
	(-2.29)	(-2.34)	(-2.33)	(-16.22)	(-11.03)	(-11.04)
Tangibility Ratio	0.1475***	0.1467***	0.1467***	0.1594***	0.1637***	0.1541***
	(6.26)	(6.21)	(6.20)	(13.72)	(12.89)	(12.93)
Past Stock Returns	-0.0002***	-0.0002***	-0.0002***	-0.0004***	-0.0003***	-0.0004***
	(-3.56)	(-3.52)	(-3.55)	(-11.65)	(-10.60)	(-11.18)
Credit Ratings	0.0648**	0.0649**	0.0653**	0.0752*	0.0856**	0.0928**
	(2.35)	(2.37)	(2.28)	(1.74)	(1.97)	(2.05)
Tobin's Q x Blockholder Presence	0.0011	0.0001	0.0002	0.0019	0.0005	0.0005
	(0.89)	(0.75)	(0.82)	(1.04)	(0.99)	(1.02)
Total Assets x Blockholder Presence	0.0024	0.0005	0.0007	0.0038	0.0009	0.0006
	(0.58)	(0.47)	(0.49)	(0.82)	(0.61)	(0.51)
Return on Assets x Blockholder Presence	-0.0010	-0.0007	-0.0006	-0.0014	-0.0009	-0.0005
	(-0.45)	(-0.28)	(-0.25)	(-0.52)	(-0.40)	(-0.29)
Tangibility Ratio x Blockholder Presence	-0.0029	-0.0008	-0.0007	-0.00035	-0.0010	-0.0011
	(-0.67)	(-0.75)	(-0.72)	(-0.81)	(-0.92)	(-0.94)
Past Stock Returns x Blockholder Presence (x100)	-0.0001	-0.0001	-0.0001	-0.0002	-0.0003	-0.0003
	(-0.27)	(-0.25)	(-0.22)	(-0.29)	(-0.38)	(-0.41)

Table 3 continues on next page

Table 3 continues

Credit Ratings x Blockholder Presence	0.0037	0.0009	0.0010	0.0048	0.0011	0.0015
	(1.28)	(1.39)	(1.42)	(1.46)	(1.52)	(1.58)
Lagged Book Leverage				0.4182***	0.3316***	0.3316***
				(5.18)	(4.04)	(4.89)
Corporate Tax Rates				0.0025	-0.0028	-0.0030
				(0.20)	(-0.21)	(-0.25)
Creditor Rights			0.0887*			0.0905*
			(1.95)			(1.89)
Intercept	0.1552	0.1663	0.1644	0.2832	0.2993*	0.2965
	(1.14)	(1.21)	(1.19)	(1.57)	(1.65)	(1.62)
Industry Dummies	YES	YES	YES	YES	YES	YES
Country Dummies	YES	YES	NO	YES	YES	NO
Time Dummies				YES	YES	YES
Fixed Effects	-	-	-	Industry and Country	Firm	Firm
Number of Observations	5,975	5,975	5,975	64,218	64,218	64,218
Adjusted R^2	0.2065	0.2072	0.2067	0.1481	0.1813	0.1798

Table 4. Business Groups, Family Management and Capital Structure

Panel A provides the estimates of a panel regression model with firm fixed effects for 5,975 firms from 38 countries on the influence of control-motivated blockholders in firms that form part of a business group that has a financial institution. Panel B the estimates of a panel regression model with firm fixed effects for 5,478 firms on the influence of a control-motivated blockholder with a presence in the firm's management. The regression in Panel B is run on a sample that contains only firms with family blockholders, firms with short-term institutional blockholders and widely-held firms. The dependent variable is Book Leverage as defined in Table 1. We define independent variables in Table 1. The results are obtained using cash flow rights and voting rights to indicate the presence of the control-motivated blockholder. The control variables included are: *Diversification 1, Log of Q, Log of Total Assets, Return on Assets, Tangibility Ratio, Stock Returns, Credit Ratings, Log of Q x Blockholder Presence, Log of Total Assets x Blockholder Presence, Return on Assets x Blockholder Presence, Tangibility Ratio x Blockholder Presence, Stock Returns x Blockholder Presence, Credit Ratings x Blockholder Presence, and Creditor Rights*. Standard errors are corrected for serial correlation and heteroscedasticity. The t-statistics appear in parentheses below parameter estimates. ***, **, and * indicate significance at 1%, 5%, and 10% level respectively.

	Panel A: Business Groups		**Panel B: Family Blockholders and Management**	
	Cash Rights	**Voting Rights**	**Cash Rights**	**Voting Rights**
Blockholder Ownership Rights	**0.0026*** (2.21)**	**0.0025** (2.19)**		
Blockholder Presence x Business Group	**0.0010* (1.89)**	**0.0014** (1.99)**		
Family Ownership Rights			**0.0019* (1.90)**	**0.0021* (1.92)**
Family Blockholder in Management			**0.0572*** (2.89)**	**0.0605*** (2.91)**
Control Variables	YES	YES	YES	YES
Industry Dummies	YES	YES	YES	YES
Year Dummies	YES	YES	YES	YES
Country Dummies	YES	YES	YES	YES
Fixed Effects	Firm	Firm	Firm	Firm
Number of Observations	64,218	64,218	57,172	57,172
R^2	0.2113	0.2199	0.2411	0.2487

Table 5. Types of Blockholders and Capital Structure

This table provides estimates from a cross-sectional regression model (columns 1-3) and a panel regression model with fixed effects (columns 4-6) to test the impact of different types of blockholders (family blockholders, long-term inistitutional blockholders, and short-term institutional blockholders) on firm's capital structure. The dependent variable is Book Leverage as defined in Table 1. We define independent variables in Table 1. The results shown use the cash flow rights of the blockholder. For the cross-sectional regression we use each firm's first available observation and for most firms we use the leverage observation in 1996. The other control variables included are: *Log of Q x Blockholder Presence, Log of Total Assets x Blockholder Presence, Return on Assets x Blockholder Presence, Tangibility Ratio x Blockholder Presence, Stock Returns x Blockholder Presence, Credit Ratings x Blockholder Presence, and Creditor Rights*. Standard errors in the panel regression are corrected for serial correlation and heteroscedasticity. The t-statistics appear in parentheses below parameter estimates. ***, **, and * indicate significance at 1%, 5%, and 10% level respectively.

	Cross-sectional Regression			**Panel Regression**		
Family Ownership Rights	**0.0037*** (2.65)**			**0.0039*** (2.72)**		
Long-term Institutional Ownership Rights		**0.0022** (1.97)**			**0.0021** (1.98)**	
Short-term Institutional Ownership Rights			**0.0009(0.97)**			**0.0007 (0.90)**
Tobin's Q	-0.0072	-0.0071	-0.0081	-0.1060**	-0.1047**	-0.1069**
	(-0.92)	(-0.94)	(-0.95)	(-2.13)	(-2.61)	(-2.94)
Total Assets	0.0118***	0.0119***	0.0116***	0.0107***	0.0099***	0.0112***
	(4.96)	(5.09)	(5.27)	(4.35)	(4.17)	(4.57)
Diversification 1	0.0104	0.0109	0.0106	0.0102	0.0104	0.0106
	(1.58)	(1.56)	(1.51)	(1.50)	(1.51)	(1.50)
Return on Assets	-0.1416**	-0.1418**	-0.1429	-0.0659*	-0.0665	-0.0638*
	(-2.10)	(-2.10)	(-2.29)	(-1.73)	(-1.59)	(-1.73)
Tangibility Ratio	0.1478***	0.1481***	0.1497***	0.0994***	0.0812***	0.1017***
	(6.83)	(6.85)	(6.97)	(4.64)	(3.87)	(4.70)
Stock Returns	-0.0003***	-0.0003***	-0.0003***	-0.0004***	-0.0004***	-0.0003***
	(-3.60)	(-3.61)	(-3.71)	(-4.10)	(-3.81)	(-3.91)
Credit Constraints	0.0641**	0.0647**	0.0651**	0.0228	0.0211*	0.0234
	(2.64)	(2.68)	(2.71)	(1.44)	(1.65)	(1.42)
Other Control Variables	YES	YES	YES	YES	YES	YES
Intercept	0.1510	0.1424	0.1605	0.060	0.046	-0.0972
	(1.05)	(1.00)	(1.09)	(0.20)	(0.034)	(-0.33)
Industry Dummies	YES	YES	YES	YES	YES	YES
Country Dummies	YES	YES	YES	YES	YES	YES
Fixed Effects				Firm	Firm	Firm
Number of Observations	4,643	3,325	3,659	48,901	35,088	40,026
R^2	0.1832	0.1841	0.1810	0.3043	0.3247	0.3058

Table 6: Control Motivations vs. Discipline Motives

The Table presents two-stage least squares analysis of the jointly determined system between Tobin's Q and book leverage for 5,975 international firms over the period 1992-2006. The dependent variable is Book Leverage as defined in Table 1. We define independent variables in Table 1. The results shown use the cash flow rights of the blockholder. We split the sample into firms with above- and below-median levels, at the country level, of tangible assets in place and free-cash flows. The t-statistics appear in parentheses below parameter estimates. ***, **, and * indicate significance at 1%, 5%, and 10% level respectively. P-values are based on an F-test of model specification.

	Panel A: Above-median % Tangible Assets		**Panel B: Below-median % Tangible Assets**	
	Tobin's Q	**Book Leverage**	**Tobin's Q**	**Book Leverage**
Book Leverage x Blockholder Ownership Rights	0.0197**		0.0065	
	(2.15)		(1.49)	
Blockholder Ownership Rights	0.0095***	0.0038**	0.0108***	0.0044***
	(2.71)	(2.59)	(2.88)	(2.70)
Book Leverage	-1.2180***		-1.4904***	
	(-5.02)		(-5.92)	
Tobin's Q		0.0918*		-0.0288***
		(1.82)		(-5.16)
Total Assets	0.0098	0.0068**	0.0199**	0.0082**
	(1.50)	(2.11)	(2.56)	(2.49)
Return on Assets		-0.0311**		-0.0528***
		(-2.47)		(-2.98)
Capital Expenditure to Assets	0.982		1.051	
	(1.58)		(1.64)	
Tangibility Ratio		0.0388**		0.0462***
		(2.41)		(2.70)
Stock Returns		-0.0004***		-0.0006***
		(-4.19)		(-5.20)
Credit Constraints		0.0149**		0.0144**
		(2.07)		(1.98)
Industry Dummies	YES	YES	YES	YES
Year Dummies	YES	YES	YES	YES
Country Dummies	YES	YES	YES	YES
Fixed Effects	Firm	Firm	Firm	Firm
Number of Observations	64,218	64,218	64,218	64,218
P-Value	<0.01	<0.01	<0.01	<0.01

Table 7. Simultaneity of Firm Decisions and Impact on Capital Structure

This table provides the estimates of a simultaneous set of equations for 5,975 international firms over the period 1992-2006. The models use the cash flow rights of the control-motivated blockholder to measure its presence. Panel A shows the results for the two simultaneous equations for dividend policy and leverage. Panel B shows the results for the two simultaneous equations for Tobin's Q and leverage. Panel C shows the results for the two simultaneous equations for Return on Assets and leverage. We define independent variables in Table 1. The t-statistics appear in parentheses below parameter estimates. ***, **, and * indicate significance at 1%, 5%, and 10% level respectively.

	Panel A		**Panel B**		**Panel C**	
	Dividend	**Book Leverage**	**Tobin's Q**	**Book Leverage**	**ROA**	**Book Leverage**
Blockholder Ownership Rights	**-0.0055**	**0.0025****	**0.0082****	**0.0021****	**0.0060****	**0.0024****
	(-0.51)	**(2.20)**	**(2.49)**	**(2.08)**	**(2.24)**	**(2.14)**
Book Leverage	-8.4807**		-1.1612***		-0.1862**	
	(-2.57)		(-4.84)		(2.42)	
Dividend/Sales Ratio		-0.0004*	-0.0013**	-0.0005**	0.0003**	-0.0004*
		(-1.85)	(-2.38)	(-2.58)	(2.26)	(-1.76)
Tobin's Q	-5.8727***	-0.0259***		-0.1245***		-0.0247***
	(-5.43)	(-5.16)		(-6.13)		(-8.74)
Total Assets	-1.7295***	0.0072***	0.0142***	0.0078***	0.0178***	0.0085***
	(6.14)	(6.28)	(3.41)	(6.82)	(6.07)	(6.79)
Return on Assets	-5.3620**	-0.0452**		-0.0406***		-0.1178**
	(-2.18)	(-5.08)		(-2.76)		(-2.04)
Tangibility Ratio		0.0475***		0.0419**		0.0469***
		(8.64)		(2.64)		(5.18)
Stock Returns		-0.0009***		-0.0005***		-0.0009***
		(-8.28)		(-5.20)		(-6.01)
Credit Constraints		0.0448**		0.0158*		0.0146*
		(1.98)		(1.92)		(1.92)
Industry Dummies	YES	YES	YES	YES	YES	YES
Year Dummies	YES	YES	YES	YES	YES	YES
Country Dummies	YES	YES	YES	YES	YES	YES
Number of Observations	64,218	64,218	64,218	64,218	64,218	64,218
R^2	0.1346	0.3002	0.2272	0.2825	0.3247	0.2915

Table 8. Investment Policy and Capital Structure

This table provides the estimates of different methodologies to investigate the impact of firms' investment policies on capital structures. The dependent variable is Book Leverage as defined in Table 1. Independent variables are defined in Table 1. Results shown in columns 1 and 2 use a cross-sectional approach. Column 3 shows the results from a panel regression. Columns 4 and 5 show the results from a simultaneous set of equations. The other control variables included are: *Log of Q x Blockholder Presence, Log of Total Assets x Blockholder Presence, Return on Assets x Blockholder Presence, Tangibility Ratio x Blockholder Presence, Stock Returns x Blockholder Presence, Credit Ratings x Blockholder Presence, and Creditor Rights*. The t-statistics appear in parentheses below parameter estimates. ***, **, and * indicate significance at 1%, 5%, and 10% level respectively.

	Cash Rights	**Voting Rights**	**Cash Rights**	**Investment Risk**	**Leverage**
Blockholder Ownership Rights	**0.0015** **(2.31)**	**0.0014** **(2.04)**	**0.0018** **(2.58)**	**0.0542** **(2.51)**	**0.0015** **(2.24)**
Stock Returns Variability	0.0009* (1.90)	0.0009* (1.90)	0.0010* (1.85)		0.0014* (1.78)
Book Leverage				18.5561** (2.58)	
Dividend/Sales	-0.0015*** (-5.67)	-0.0015*** (-5.69)	-0.0005*** (3.02)		-0.0015** (2.16)
Tobin's Q	-0.2022** (-2.19)	-0.2023** (-2.18)	-0.03861** (-2.02)	6.8344** (2.42)	-0.2075*** (-4.04)
Total Assets	0.0201*** (4.16)	0.01991*** (4.21)	0.0475** (2.41)	-1.0728** (-2.38)	0.0205*** (6.08)
Return on Assets	-0.3580** (-2.11)	-0.3564** (-2.10)	-0.0811** (-2.03)	-14.2536** (-2.57)	-0.3416** (-2.50)
Tangibility Ratio	0.1519** (2.24)	0.1518*** (2.28)	0.1107** (2.10)	-14.9827** (-2.48)	0.1604*** (2.72)
Stock Returns	-0.0010*** (-3.06)	-0.0010*** (-3.02)	-0.0012*** (-3.05)		-0.0010*** (-3.82)
Credit Constraints	0.0329** (2.27)	0.0334** (2.35)	0.0559** (2.18)		0.0215* (1.72)
Other Control Variables	YES	YES	YES	YES	YES
Intercept	0.0132 (0.14)	0.0104 (0.10)	-0.0414** (-2.41)		
Industry Dummies	YES	YES	YES	YES	YES
Year Dummies	NO	NO	YES	YES	YES
Country Dummies	YES	YES	YES	YES	YES
Number of Observations	5,975	5,975	42,119	42,119	42,119
R^2	0.2514	0.2508	0.3011	0.2214	0.2851

Table 9. Ownership Wedge and Capital Structure

This table provides the estimates of a panel regression model with firm fixed effects for 5,975 US and international firms. The dependent variable is Book Leverage as defined in Table 1. The control variables included are: Diversification 1, Log of Q, Log of Total Assets, Return on Assets, Tangibility Ratio, Stock Returns, Credit Ratings, and Shareholders' Rights. We define independent variables in Table 1. The control variables included for the regressions shown in Panel A are: *Diversification 1, Log of Q, Log of Total Assets, Return on Assets, Tangibility Ratio, Stock Returns, Credit Ratings, Log of Q x Blockholder Presence, Log of Total Assets x Blockholder Presence, Return on Assets x Blockholder Presence, Tangibility Ratio x Blockholder Presence, Stock Returns x Blockholder Presence, Credit Ratings x Blockholder Presence, and Creditor Rights*. *The following are the control variables for the Tobin's Q equation in Panel B: Log of Total Assets, Capital Expenditure to Assets, Return on Assets. The following are the control variables for the Book Leverage equation in Panel B: Log of Q, Log of Total Assets, Return on Assets, Tangibility Ratio, Stock Returns, Credit Ratings. The following are the control variables for the Voting Rights equation in Panel B: Log of Total Assets, Log of Q, Return on Assets, Tangibility Ratio, and Standard Deviation of Stock Returns.* The standard errors in Panel A are corrected for serial correlation and heteroscedasticity. The t-statistics appear in parentheses below parameter estimates. ***, **, and * indicate significance at 1%, 5%, and 10% level respectively. In Panel B we report the P-values based on an F-test of model specification.

	Panel A: Panel Regression		**Panel B: Three Stage Least Squares**		
	(Cash Rights of Blockholder)	**(Voting Rights of Blockholder)**	**Tobin's Q**	**Book Leverage**	**Voting Rights**
Blockholder Ownership Rights	**0.0028** **(2.35)**	**0.0027** **(2.29)**	**0.0125*** **(2.90)**	**0.0049*** **(2.85)**	
Blockholder Wedge	**-0.0071** **(-2.00)**	**-0.0094*** **(-2.83)**	**-0.0052** **(-2.46)**	**-0.0129*** **(-2.99)**	
Book Leverage x Blockholder Ownership Rights			**0.0081*** **(1.82)**		
Book Leverage			**-1.6240*** **(-5.40)**		**0.8117** **(1.40)**
Control Variables	YES	YES	YES		YES
Industry Dummies	YES	YES	YES		YES
Year Dummies	YES	YES	YES		YES
Country Dummies	YES	YES	YES		YES
Fixed Effects	Firm	Firm	Firm		Firm
Number of Observations	64,218	64,218	64,218		64,218
R^2	0.2346	0.2295			
P-Value			<0.01	<0.01	<0.01

Table 10. Family Ownership, Management, Wedge and Capital Structure

This table provides the estimates of a panel regression model with firm fixed effects for 5,478 firms that have a family blockholder, a short-term institutional blockholder or are widely-held. The dependent variable is Book Leverage as defined in Table 1. The *Family Management and Wedge* is a dummy variable that takes the value of 1 if a firm has a family blockholder that is on the firm's Board of Directors and has voting rights in access of cash flow rights and 0 otherwise. The *No Family Management and Wedge* is a dummy variable that takes the value of 1 if a firm has a family blockholder that is not on the firm's Board of Directors and has voting rights in access of cash flow rights and 0 otherwise. The *Family Management and No Wedge* is a dummy variable that takes the value of 1 if a firm has a family blockholder that is on the firm's Board of Directors and does not have voting rights in access of cash flow rights and 0 otherwise. The *No Family Management and No Wedge* is a dummy variable that takes the value of 1 if a firm has a family blockholder that is not on the firm's Board of Directors and does not have voting rights in access of cash flow rights and 0 otherwise. The control variables included are: Diversification 1, Log of Q, Log of Total Assets, Return on Assets, Tangibility Ratio, Stock Returns, Credit Ratings, and Shareholders' Rights. We define independent variables in Table 1. The control variables included are: *Diversification 1, Log of Q, Log of Total Assets, Return on Assets, Tangibility Ratio, Stock Returns, Credit Ratings, Log of Q x Blockholder Presence, Log of Total Assets x Blockholder Presence, Return on Assets x Blockholder Presence, Tangibility Ratio x Blockholder Presence, Stock Returns x Blockholder Presence, Credit Ratings x Blockholder Presence, and Creditor Rights*. Standard errors are corrected for serial correlation and heteroscedasticity. The t-statistics appear in parentheses below parameter estimates. ***, **, and * indicate significance at 1%, 5%, and 10% level respectively.

	(1)	(2)	(3)	(4)
Family Management and Wedge	**0.0261** **(2.03)**			
No Family Management and Wedge		**-0.0031** **(-0.10)**		
Family Management and No Wedge			**0.0422***** **(3.07)**	
No Family Management and No Wedge				**0.0188** **(1.26)**
Control Variables	YES	YES	YES	YES
Industry Dummies	YES	YES	YES	YES
Year Dummies	YES	YES	YES	YES
Country Dummies	YES	YES	YES	YES
Fixed Effects	Industry and Country	Industry and Country	Industry and Country	Industry and Country
Number of Observations	64,218	64,218	64,218	64,218
R^2	0.2026	0.1911	0.2195	0.1905

Table 11. Control Contestability and Capital Structure

This table provides the estimates of a piecewise linear regression for 2,312 international firms that have a control-motivated blockholder as their ultimate owner. The dependent variable is Book Leverage as defined in Table 1. Specification 1 in Panel A sets the first slope change, Blockholder_1, at the 5% voting rights level; the second slope change, Blockholder_2, is set at the mandatory tender offer less 5%; the third slope change, Blockholder_3, is set at the mandatory tender offer plus 5%; and the fourth slope change, Blockholder_4, is determined at the point of absolute majority (50%). Specification 2 in Panel A defines the first slope change, Blockholder_1, is determined at the 5% voting rights level; the second slope change, Blockholder_2, is set at 15%; the third slope change, Blockholder_3, is set at 30%; and the fourth slope change, Blockholder_4, is determined at the point of absolute majority (50%). Specification 3 in Panel A defines the first slope change, Blockholder_1, is determined at the 10% voting rights level; the second slope change, Blockholder_2, is set at 20%; the third slope change, Blockholder_3, is set at 30%; and the fourth slope change, Blockholder_4, is determined at 45%. Panel B presents the results using the Shapley values with three changes in the slope coefficient. The first slope change, Shapley Range 1, is determined at the 0.20 Shapley value level; the second slope change, Shapley Range_2, is set at 0.40 Shapley value; the third slope change, Shapley Range 3, is set at 0.60 Shapley value. The control variables included are: *Diversification 1, Log of Q, Log of Total Assets, Return on Assets, Tangibility Ratio, Stock Returns, Credit Ratings, Log of Q x Blockholder Presence, Log of Total Assets x Blockholder Presence, Return on Assets x Blockholder Presence, Tangibility Ratio x Blockholder Presence, Stock Returns x Blockholder Presence, Credit Ratings x Blockholder Presence, and Creditor Rights*. The t-statistics appear in parentheses below parameter estimates. ***, **, and * indicate significance at 1%, 5%, and 10% level respectively.

Panel A: Mandatory Tender Offers

	Blockholder_1	**Blockholder_2**	**Blockholder_3**	**Blockholder_4**	**Blockholder_5**
Specification 1	0.0002	0.0047***	0.0010**	-0.0021*	-0.0025*
Control Variables	YES	YES	YES	YES	YES
Specification 2	0.0002	0.0025**	0.0032**	-0.0010*	-0.0024*
Control Variables	YES	YES	YES	YES	YES
Specification 3	0.0008	0.0010**	0.0028**	-0.0012*	-0.0028*
Control Variables	YES	YES	YES	YES	YES

Panel B: Shapley Values

	Shapley Range 1	**Shapley Range 2**	**Shapley Range 3**	**Shapley Range 4**
Specification 1	0.0024**	0.0021***	0.0005	-0.0010*
Control Variables	YES	YES	YES	YES

Table 12. Control Contestability and Capital Structure

Panel A in this table provides the estimates of a piecewise linear regression for 2,312 international firms that have a control-motivated blockholder as their ultimate owner. The dependent variable is Book Leverage as defined in Table 1. From hostile takeovers that took place in 38 countries we obtain data on the ownership stake of the controlling blockholder that lost control and set this stake as the point of control contestability and call this as the "control-contestable stake". We group the 38 countries by their legal origin (civil law and common law) and take the average of the control-contestable stake within each group of countries. The piecewise linear regression uses four changes in the slope coefficient as follows: the first slope change, Blockholder_1, is determined at the 5% (voting rights) level, the second slope change, Blockholder_2, is set at the contestable stake less 5%, the third slope change, Blockholder_3, is set at the contestable stake plus 5%, and the fourth slope change, Blockholder_4, is determined at the point of absolute majority (50%). The control variables included are: *Diversification 1, Log of Q, Log of Total Assets, Return on Assets, Tangibility Ratio, Stock Returns, Credit Ratings, Log of Q x Blockholder Presence, Log of Total Assets x Blockholder Presence, Return on Assets x Blockholder Presence, Tangibility Ratio x Blockholder Presence, Stock Returns x Blockholder Presence, Credit Ratings x Blockholder Presence, and Creditor Rights*. Panel B (Panel C) shows the evolution of leverage (industry-adjusted leverage) for the sample of 248 takeover bids which were withdrawn from year -1 to year +5 for target firms that had a control-motivated blockholder as an ultimate blockholder and for widely-held firms. The t-statistics appear in parentheses below parameter estimates. ***, **, and * indicate significance at 1%, 5%, and 10% level respectively.

Panel A: Control-Contestable Ownership Stake

	Blockholder_1	**Blockholder_2**	**Blockholder_3**	**Blockholder_4**	**Blockholder_5**
Blockholder Ownership	0.0002	0.0021***	0.0029***	-0.0015*	-0.0022*
Control Variables	YES	YES	YES	YES	YES

Panel B: Leverage Evolution in Target Firms After Takeover Bid Withdrawals

	Leverage at Year -1	**Leverage at Year +1**	**Leverage at Year +2**	**Leverage at Year +3**	**Leverage at Year +5**
Presence of Blockholder	0.3018	0.3522	0.3607	0.3502	0.3490
Average Difference From -1		0.0504***	0.0589***	0.0484***	0.0472***
Widely-held Firms	0.2682	0.2960	0.2852	0.2709	0.2720
Average Difference From -1		0.0278**	0.0170**	0.0027	0.0038
Diff-in-Diff		0.0226**	0.0419***	0.0457***	0.0434***

Panel C: Changes in Target's Industry-adjusted Leverage Evolution After Takeover Bid Withdrawals

Presence of Blockholder	0.0319	0.0772	0.0811	0.0764	0.0780
Average Difference		0.0453***	0.0492***	0.0445***	0.0461***
Widely-held Firms	-0.0128	0.0197	0.0186	-0.0056	-0.0041
Average Difference		0.0325***	0.0314***	0.0072	0.0087
Diff-in-Diff		0.0128**	0.0178**	0.0373***	0.0374***

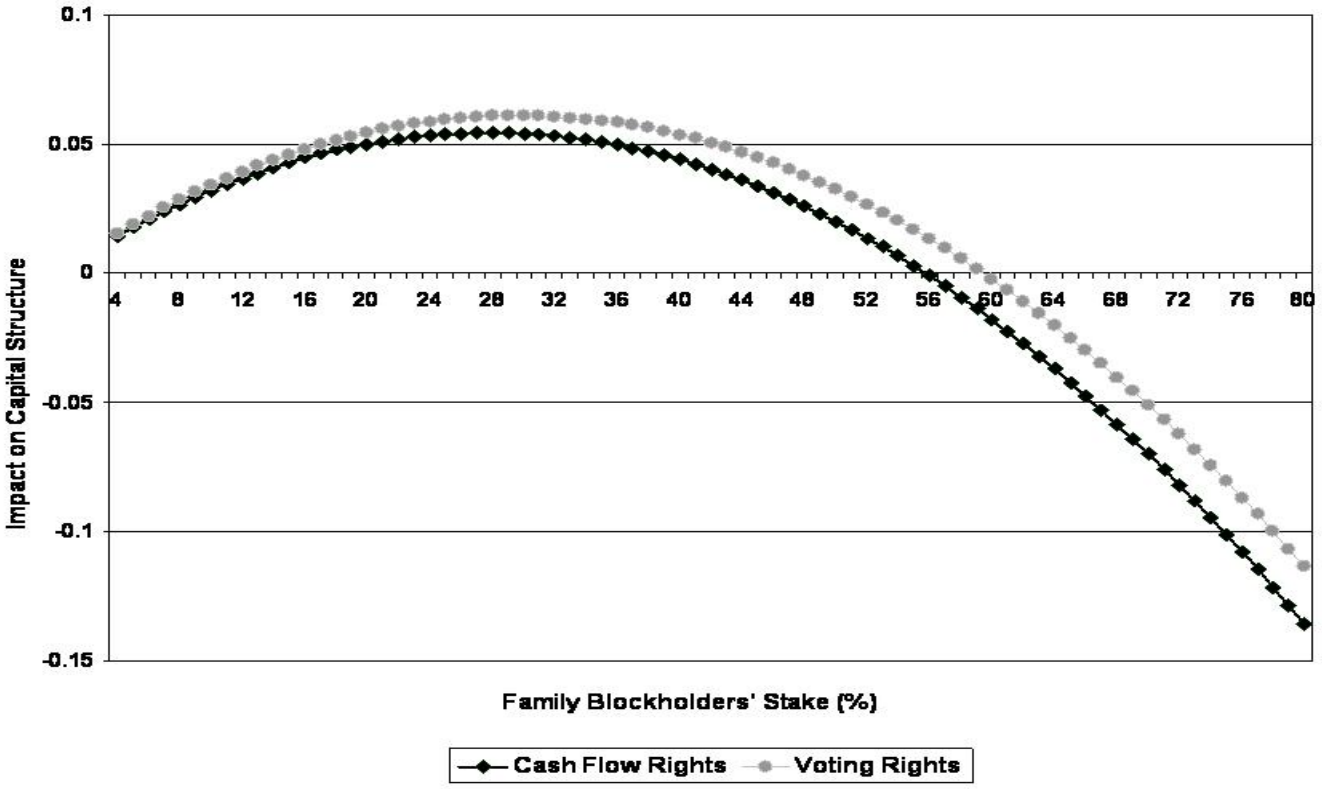

Figure 1. Relationship Between Blockholder Ownership Stake and Book Leverage
The Figure shows the impact of the ownership rights of a control-motivated blockholder on leverage *relative* to the average leverage of a widely-held firm.