CAPITAL STRUCTURE IN BLOCKHOLDER-DOMINATED FIRMS: A CLOSER LOOK ON CORPORATE OWNERSHIP AND CONTROL

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Abstract

In countries where holding control takes on much relevance it is arguable that capital structure choices are shaped in response to ownership characteristics. These issues are explored in the Italian context being dominated by pyramidal groups and majority-controlled firms. The results show that (1) family firms are more indebted than non-family counterparts and, within family firms, (2) founding-family controlled ones are more reliant on debt; (3) family firms exploit control-enhancing devices along with long-term leverage; (4) higher cash flow rights are associated with a lower leverage; (5) institutional investors are more common in firms with a higher dependence on long-term debt; (6) decreasing trends of the long-term leverage over time seem to occur with upward paths of the votes-to-capital ratio.

Keywords: capital structure, corporate governance, long-term debt, ownership structure.

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1. Introduction

Studies exploring the determinants of a firm's capital structure are plentiful but the matter, despite its central role in both theoretical and empirical profiles of corporate finance, is still puzzling from several perspectives: one of them stems from the effect exerted, on the equity-debt mix, by a firm's ownership and control structure. Despite a comprehensive theoretical framework, studies on this topic are short on clear, sound and robust empirical findings. Moreover, firstly, only a few issues are covered, leaving many of them unexplored or as anecdotal evidence, secondly, most literature has been focusing on ownership and control outlines and their effects on leverage in the US and the UK contexts that are dominated by large companies running in well developed financial markets, with a well-working market for corporate control, managed by professional managers, with dispersed ownership structures. But, it is well known that a great number of firms operate in countries having remarkably different characteristics than the US and the UK in terms of ownership and control such as concentrated ownership, family control, large use of control-enhancing mechanisms, market for corporate control led by private and voluntary transactions among the largest shareholders, etc.. The above differences require an *ad hoc* analysis that could capture the specificities of firms within a blockholder-dominated setting. Accordingly, it is required to reshape both the US-based ownership structure outlines employed as capital structure determinants and the hypotheses built on each determinant to make the evidence and the related comments consistent in a majority-shareholder system.

On the one hand, this work tries to add to the existent literature by investigating the impact of a number of ownership and control dimensions on firm leverage in Italy, a country with a majority-shareholder framework, high ownership concentration, large incidence of family-controlled pyramidal groups and control-enhancing devices (pyramids, dual-class shares, shareholders' agreements, etc.) as instruments to hold control as well as to separate it from ownership (Aganin and Volpin, 2003, Bianchi and Bianco, 2006). On the other hand, drawing on the peculiarities of corporate governance in Italy, I try to propose an original point of view on how a firm's capital structure could be set up cross-sectionally and over time. Analyses taking into account countries like Italy, remarkably different in a number of corporate governance patterns from the Anglo-Saxon context, are a fruitful area of inquiry because of the lack of reliable and rich studies.

The key idea of the work is that, in the Italian context, capital structure could be shaped to hold control. In other words, capital structure could be a device exploited by the largest shareholder for keeping control either jointly with other control-enhancing devices or as alternative tool to be employed as substitute. This outcome should be particularly clear for family-controlled firms.

The survey is based on all Italian non-financial listed firms during the period 2000-2006 with hand-collected data on corporate ownership to provide unique, detailed and up-to-date information of the entire structure of Italian listed groups needed to get a reliable ground to carry out the analysis.

The results show that family firms are significantly more indebted than non-family counterparts and, within family firms, those ones controlled by founding-families are more reliant on debt. This evidence would confirm the central argumentation of the study. Control-enhancing devices are exploited along with long-term leverage but, as expected, only in family firms. Higher cash flow rights held by the ultimate largest shareholder are associated with a lower leverage ratio: the higher the cash flows the higher will be the economic involvement of the controlling owner that wants to avoid excessive risks by maintaining a less leveraged firm. Institutional investors seem to be more common in firms with a higher dependence on long-term debt: institutional investors are interested in seizing value enhancements as a result of tax and monitoring benefits. Finally, a time-series analysis comparing the leverage ratio to the degree of separation between ownership and control, this latter measured by the votes-to-capital ratio, shows that decreasing trends of the long-term leverage over time seem to occur with upward paths of the votes-to-capital ratio: this evidence is consistent with the thinking that, over time, periods in which the use of control-enhancing mechanisms was large allow firms to raise less debt to hold control.

2. Theoretical framework

In the US framework and, more broadly, in the Anglo-Saxon context, studies have paid particular attention to two issues linked to corporate ownership and control as factors influencing a firm's capital structure:

- Managerial (insider) ownership (Jensen et al., 1992, Friend and Lang, 1988, Kim and Sorensen, 1986, Mehran, 1992, Brailsford et al., 2002, Holderness and Sheehan, 1988, Berger et al., 1997, Anderson and Reeb, 2003).
- The role of market for corporate control (Zwiebel, 1996, Harris and Raviv, 1988, Stulz, 1988, Novaes, 2002 and 2003, Garvey and Hanka, 1999, Berger et al., 1997, John and Litov, 2009).

Referring to the former point, theoretical argumentations state that shareholding held by managers could affect the leverage ratio in three ways: in the first one, agency problems linked to owner-manager conflict, free cash flow hypothesis (Jensen, 1986) as well as the risk aversion of managers worried to lose their position should bankruptcy occur (Donaldson, 1969, Amihud and Lev, 1981, Friend and Lang, 1988) could lead to a negative relation between managerial ownership and leverage (Jensen et al., 1992, Friend and Lang, 1988, Holderness and Sheehan, 1988). Specifically, debt is a tool to distract free cash flows from managerial control. If so, according to Jensen and Meckling (1976), when agency problems are more severe (i.e., insider ownership is too low: "alignment context"), debt may help reduce managerial opportunism. Alternatively, we can draw the same conclusion arguing that when managers are entrenched (insider ownership is too high: "entrenchment context"), bankruptcy risk and financial distress could cause managers to hold underlevered their firm as a result of holding undiversified portfolios increasing specific risk. Both explanations lead to a negative correlation between managerial ownership and leverage.

The second one predicts a non-linear inverted U-shape relation between insider ownership and the use of debt (Brailsford et al., 2002): at moderate levels of managerial ownership, the incentive effect takes place making the disciplinary role of debt unnecessary. When managerial ownership increases, the control by managers over firm increases as well resulting in a higher managerial discretion that could lead to a higher leverage ratio to mitigate the risk of wealth-destroying actions by managers. However, when insider ownership reaches a certain point, managerial discretion as well as economic involvement of managers in the firm are so high to lead to a decrease of leverage for reducing bankruptcy risk (alternatively, one can argue that the alignment role played by managerial shareholding makes debt exploitation redundant at high levels of insider ownership). It is to be noted that the second interpretation puts together the first two explanations. Nonetheless, a few studies also find a positive relation between managerial ownership and leverage (Kim and Sorensen, 1986, Mehran, 1992, Berger et al., 1997). Kim and Sorensen (1986) provide three explanations of the result: the first one accounts for a higher leverage in insider-dominated ownership structures with the aim to hold control by managers; the second one refers to agency costs of equity: the higher the insider ownership the higher should be the costs of external equity associated with incentive to consume perks; the third one pertains to the agency costs of debt: covenants and other provisions reducing incentive to exploit bondholders are more effective when managerial control is close. Moreover, firms with higher insider ownership are likely to negotiate with lenders and to be more willing to infuse equity capital in occurrence of positive NPV growth opportunities. Berger et al. (1997) and Mehran (1992) state that firms with higher insider ownership look for higher leverage ratios in order to increase firm value

as a result of alignment framework. Finally, there are also studies that find no evidence on the relationship between managerial ownership and capital structure choices (Anderson and Reeb, 2003).

With reference to the role of market for corporate control, some influential studies predict (Zwiebel, 1996, Harris and Raviv, 1988, Stulz, 1988, Novaes, 2002 and 2003, Israel, 1992) and find (Berger et al., 1997, Garvey and Hanka, 1999, John and Litov, 2009) a strong link between corporate leverage and the activity in the market for corporate control. What emerged from the literature is that takeover threats cause managers to increase leverage largely in response to the trade-off between empire-building purposes of entrenched managers interested in holding their charge and the necessity to make sure an efficient and viable running, therefore a high firm value, to keep control pressures and bankruptcy risks away. From this perspective, takeover and bankruptcy occurrences are taken into account because both events may jeopardize mangers tenure: capital structure is shaped to maximize managers' interest which, over financing policies, could deviate from shareholders one (Novaes, 2003). In other words, capital structure choices themselves are subjected to an agency problem. Israel (1992) models optimal capital and ownership structures as resulting from anticipated future control contests. He shows that (1) more efficient managers use less debt, (2) firms facing better challenger for control issue more debt, (3) firms with supermajority rules raise less debt. Zwiebel (1996) provides a theoretical model showing that capital structure arises as an optimal response of managers to simultaneous concerns for expanding and retaining control of their empires. In the same vein as Israel (1992), Novaes (2002) further demonstrates that managers who lever up to end a takeover threat have a higher probability of being replaced as increasing leverage would convey bad news on the management's ability. Berger et al. (1997) empirically show that entrenched managers are more likely to use equity. Garvey and Hanka (1999) find that firms protected by stronger antitakeover laws reduce their leverage ratio. A recent study by John and Litov (2009) proposes a different view and finds consistent results. Unlike Berger et al. (1997) and Garvey and Hanka (1999), they find that managers insulated from takeover threats are likely to increase leverage as a result of better financing conditions and better access to debt.

Other studies have paid attention to other governance issues as factors affecting capital structure largely outside the Anglo-Saxon context but many questions remain unresolved. The literature on these issues is unsystematic and lacks of strong and consistent results. In those studies, key ownership and governance issues are related to ownership concentration (Filatotchev and Mickiewicz, 2001, Mueller and Inderst, 1999, Driffield et al., 2007), the identity of the largest shareholder (Mishra and McConaughy, 1999, Romano et al., 2001, Anderson and Reeb, 2003, Anderson et al., 2003, Harijono et al., 2004, King and Santor, 2008), outside blockholders (Brailsford et al., 2002), wedge between cash flow rights and voting rights (Driffield et al., 2007, King and Santor, 2008).

Filatotchev and Mickiewicz (2001) show that, especially when shareholders protection is poor, dominant owner and creditors can collude at the expense of minority shareholders providing support to the role of debt as tool to expropriate wealth from minority shareholders. Mueller and Inderst (1999) declare that ownership concentration increases agency costs of debt as a result of costs borne by dispersed owners in providing information needed to select investment opportunities and, therefore, to undertake high-risk projects.

Driffield et al. (2007) as well as King and Santor (2008) find that a closer control is associated with a greater use of debt. Mishra and McConaughy (1999), Romano et al. (2001), Harijono et al. (2004), King and Santor (2008), Anderson and Reeb (2003) point out the role of a particular type of majority shareholder (i.e., the family) as influencing capital structure decisions. They find mixed results: Mishra and McConaughy (1999) show that family firms are less reliant on debt because of risk aversion of families; Harijono et al. (2004) and King and Santor (2008) find opposite results; Anderson and Reeb (2003) find no difference on financing mix between family and non-family firms. However, Anderson et al. (2003) show that family-controlled firms face lower agency costs of debt in comparison with non-family counterparts.

Brailsford et al. (2002) assess the influence of external blockholders and find a positive relation between the stake held by outside blockholders and the leverage ratio. This result supports the value-seeking position of outside blockholders interested in acquiring value enhancements as a result of tax benefits and the monitoring role of debt.

Driffield et al. (2007) and King and Santor (2008) find different results on the link between ownership-control separation and leverage: the former show that firms having a divorce between voting and cash flow rights bear a higher amount of debt; the latter find that the wedge itself plays no role on capital structure decisions but the use of control-enhancing mechanisms prompts a lower leverage ratio. It is essential to note that the sample is notably different in both studies: Driffield et al. (2007) explore a sample of Asian firms covering countries with poor investor protection; King and Santor (2008) analyze Canadian firms, belonging to a country having a good legal and judicial system protecting shareholders. In the first study, from the corporate control perspective, debt is raised along with other control mechanisms, in the second one, debt is a substitute of them.

Apart from the role of managerial ownership and market for corporate control, which are matters well studied and with a steady background in the Anglo-

Saxon framework, empirical evidence and theoretical approach for the other topics are still too limited and anecdotal to enable us to describe a comprehensive picture on how ownership and governance profiles could affect financing policies in non-US-based contexts. In light of quoted results, this study tries to contribute to bridge the gap by exploring the effect of a number of ownership and governance issues that are common attributes in firms outside the US and the UK.

3. Facts and figures accounting for such a survey

Since 1998, with the so called "*Draghi Reform*" (i.e., the consolidated Italian law on companies, markets and finance, D.Lgs 58/1998), Italy has been experiencing a massive and frenetic process improving the legal framework protecting shareholders. Enriques and Volpin (2007) show and comment the main stages of this evolution. However, despite the new Company Law (2004) and the Law on Savings (2005), the quality of Italian corporate governance keeps being poor in comparison with other developed Common Law and Civil Law countries. An excellent work by Aggarwal et al. (2007) that updates and improves the seminal study by La Porta et al. (1998) on the quality of corporate governance systems around the world, shows that Italy is well below the mean country. More in detail, by relying on 44 governance attributes related to four sections (i.e., board, audit, anti-takeover, compensation & ownership), they find that the sample of Italian firms meets 44% of governance attributes compared with a US score and a mean score, respectively, equal to 61% and 58% (without US firms, the mean score stands at 49%). Only two countries (i.e., Belgium and Portugal) have a lower score. The situation is even worse if we only focus on those provisions that, in the opinion of authors, have received the most attention in academic literature and from observers and practitioners: Italy stands at penultimate position with a 42% score. Only France performs worse with a 36% score. Overall, from the situation depicted in La Porta et al. (1998), where Italy, in a six-point anti-director rights index, had 1 point, corporate reforms evolution, in a comparative approach, seems not to provide substantial enhancements to the quality of Italian corporate governance.

Based on the above framework, a recent paper (Mengoli et al., 2009) studying the evolution of corporate ownership in Italy gives the picture of ownership, control and votes-to-capital ratio, over the period 1995-2005, of all Italian listed firms. This study provides valuable information supporting the above considerations. First of all, the study shows that mean and median values of the voting stake held by the largest shareholder almost always outnumber the absolute majority threshold: in light of its persistence over time, keeping the control seems to be important and source of advantages for the largest shareholders of Italian firms no matter which changes have affected the Company Law during the decade (Bianchi and Bianco, 2006). Secondly, cash flow rights values show an increasing trend: the median value rises from 43.8% (in 1995) to 50% (in 2005), showing an increase of ownership concentration. The stability over time of voting rights along with the rise of cash flow rights leads to a decline of the votes-to-capital ratio and, therefore, a lower ownership-control separation (the mean value of the ratio drops from 1.28 to 1.09. The difference is statistically significant). Thirdly, as regards the use of control-enhancing devices, the extent of pyramiding (percentage of firms controlled by a pyramidal scheme) declines from 31% to 14% as well as the use of dual-class shares (the dual-class shares' plunge was 27%: from 39% in 1995 to 12% in 2005).

The survey shows further noteworthy results: the above decline in the ownership-control separation and in the use of control-enhancing devices is remarkably lower for "existing firms" that are firms surviving in the sample for the entire period (the mean of the votes-to-capital ratio decreases from 1.25 to 1.14. The difference is not statistically significant). Moreover, despite the above trends involve median and mean values, for both cash flow rights and voting rights, the median value is significantly higher than the mean one and the difference increases in later years (i.e., the rise of median value is quicker than that of mean value). These results have three important outcomes: firstly, over time, the number of firms that do not separate goes up; secondly, both surviving and exiting firms separate much more than entering firms; thirdly, firms choosing separation exploit it to extreme levels. Overall, despite corporate reforms seem to have influenced ownership and control framework, older firms are shown to be more resistant to changes than younger ones. In short, despite both newly-listed and older firms account for the decrease in ownership-control separation, the older ones seem to contribute to a lesser extent.

Consistently with Mengoli et al. (2009), from the late 1980s, voting premium size has been experiencing a decreasing (but irregular) trend that has brought it to historic low levels. Caprio and Croci (2008) have estimated a mean and median voting premium, respectively, equal to 19.76% and 9.82% in 2003, peaking at 100% in 1988. This trend and the difference between mean and median values are results of two main factors: on the one hand, family control keeps dominating, on the other hand, expropriation risks are smaller. The large difference between mean and median, that has increased in later years, stems from the coexistence of cases in which expropriation risks are greater, with an increasing number of firms having no wealth-extraction problem.

Bigelli et al. (2007) find that nearly 70% of dual-class shares unifications into a single class took place after the 1998 "*Draghi Reform*". Bianchi and Bianco (2006) find a trend comparable to Mengoli et al.

(2009) in the use of pyramiding by listed firms and show that compared with the decline in pyramiding, firms controlled by coalitions rose. By number, coalitions rose as much as 23% (from 10.9% to 34.4% of all listed firms) in the period 1990-2005. Interestingly, types of coalitions that experienced greater increases were both family coalitions and non-family coalitions with a bank joining the coalition itself.

Overall, holding control keeps being very important but the tools by which it is exerted seem to have changed over time also as a result of reforms involving the Company Law that have made instruments aimed at enhancing the control less appealing. Moreover, economic data on voting premium cast some doubts on why it is so important. Not surprisingly, the role of market for corporate control is insignificant.

The study wants to contribute to the debate on changing control devices in Italy as well as on capital structure determinants from the stand of governance and ownership profiles by studying to which extent corporate leverage could be exploited in order to wield control and to keep ownership dilution problems away. Put differently, is the use of corporate leverage a result of the owner's goal to preserve firm control? Besides, I am going to explore the effect exerted by the type of controlling owner as well as other ownership and governance variables arguably linked to debt financing.

4. Research hypotheses design

Once holding control has been demonstrated to be a "must" of Italian shareholders, it is possible to raise some questions and hypotheses entitling capital structure decisions to be outcomes of ownership and control aims. From this point of view, debt is known to be an alternative source of funds that prevents dilution control issues. If being in control is really important:

HP 1: a positive relationship between ownership concentration and leverage ratio is expected.

But, greater ownership concentration, when the separation between voting and cash flow rights is at low levels, also entails a higher economic involvement of the largest shareholder as well as a higher risk (i.e., undiversified shareholders, like families, have much of their wealth invested in the firm. They could bear significant losses in the occurrence of distress or failure of their firm). If so, higher leverage ratio, *ceteris paribus*, asks for higher bankruptcy risk resulting in a huge damage to controlling shareholder should collapse occur:

HP 2: a negative relationship between ownership concentration and leverage ratio is expected.

Joining the above argumentations, they could give rise to a non-linear relationship between ownership concentration and leverage ratio. Specifically, It is arguable that there could be an inverted U-shape relationship between ownership concentration and leverage: at low levels of concentration, debt amount stands at low figures as well. When concentration increases, as debt is exploited to accomplish the increase itself, the leverage soars as well. At a certain point, concentration and debt levels lead to a couple of occurrences: firstly, economic commitment of controlling shareholder gets to extraordinarily high levels, secondly, bankruptcy and financial distress risks arise. Accordingly, it is reasonable that the need to hold control is overwhelmed by the need to keep bankruptcy risks away. This pattern should result in a decline of leverage:

HP 3: an inverted U-shape relationship between leverage ratio and ownership concentration is expected.

HP 1 and to some extent HP 2 and HP 3 evaluate being in control without considering the type of controlling shareholder. This issue is noteworthy as the benefits coming from being the largest shareholder could be remarkably different depending on the nature of the dominant owner. On the matter, some recent literature (Claessens et al., 2002, Morck et al., 2000, Cronqvist and Nilsson, 2003, Faccio et al., 2001) argues that the family is a controlling shareholder more able and inclined than others to divert private benefits and then it would give a higher value to control (Caprio and Croci, 2008). If the aim to hold control outweighs the risk aversion that a few studies (Mishra and McConaughy, 1999, Fernandez and Nieto, 2005) identify as an attribute of family firms:

HP 4: a positive relationship between family control and leverage ratio is expected.

As said above, debt could be employed as either an alternative tool for being in control or a device to be used along with other control mechanisms. In the first case, a negative relation between control-enhancing devices and leverage should be found, in the second one, the relationship should be inverted. Which of the two above argumentations could be suitable for Italy? According to the decreasing trend in the use of control-enhancing mechanisms along with the stability of the voting stake held by the dominant owner (Mengoli et al., 2009) it is arguable that debt could be raised to avoid control dilution issues stemming from the lower reliance on separating mechanisms. From this perspective, debt is viewed as a replacement of such mechanisms therefore:

HP 5: a negative relationship between leverage ratio and the extent of separation is expected.

An alternative view is that being in control is really important mainly for firms exploiting control-enhancing devices over time. It is important to recall that "existing" and "exiting" firms in the Mengoli et al. (2009) sample are remarkably less affected by trends involving ownership and control. On the contrary, majority shareholders of firms that do not use control-enhancing mechanisms are likely to give up or to lessen the control without making use of leverage. From this perspective debt reliance runs along with separating mechanisms therefore:

HP 6: a positive relationship between leverage ratio and the extent of separation is expected.

According to Brailsford et al. (2002), I also take into account as determinant of capital structure decisions the role of outside investors (i.e., investors not linked to controlling owner, to managers and to firm itself through economic and personal ties).
From a theoretical perspective, the link between firm leverage and outside blockholders is sound and based on a couple of explanations. According to the value-based hypothesis, outside blockholders look after firm value and accordingly are interested in value-creating actions. Judicious increase of leverage is likely to rise firm value. According to the monitoring hypothesis, outside blockholders want to avoid that managers put in place opportunistic actions at the expense of shareholders. Debt is a disciplinary tool binding managerial discretion. Alternatively, one can expect outside blockholders to be a monitoring device therefore making the use of debt redundant. The first explanation leads to a positive link between outside blockholders and leverage, the second one to a negative relationship.

In the Italian context, it is reasonable to expect the role of outside blockholders in affecting leverage to be trivial. Bianchi and Bianco (2006) found that, in 2005, financial institutions (banks, insurance companies and institutional investors) held a mean stake in non-financial listed companies as much as 3.6%. For foreign investors, the mean stake rises to 10.8%. Foreign investors and, especially, financial institutions are more likely to be "outsiders". Moreover, despite recent reforms have increased the "voice" of minorities, the effectiveness of these provisions has to be proved.

HP 7: no relationship between capital structure choices and outside blockholders is expected.

5. Research design

The analysis has been performed on a sample of 203 Italian non-financial listed firms from 2000 to 2006 (seven years). Sample selection has provided an unbalanced panel totaling 1,142 observations. Capital structure has been measured by common proxies according to the debt/equity mix and the debt maturity composition:

- LEV1 = interest-bearing debt / (interest-bearing debt + equity)
- LEV2 = long-term debt / (long-term debt + equity)
- LEV3 = short-term debt / (short-term debt + equity)

The use of different capital structure variables aims to assess if ownership structure patterns account for a larger or lower use of debt with different maturities. The idea on the relevance of the debt maturity is that short-term debt is more constraining than long-term debt as refinancing and repayment needs are closer. Besides, short-term debt is often associated to routine operations by funding working capital investment. Accordingly, its changes could not be under the discretionary control of the firm. Vice versa, long-term debt-raising plans are usually a result of strategic choices (e.g., fixed investments, acquisitions, etc.) that are made by the firm with a greater extent of flexibility. The above discussion leads us to argue that long-term debt could serve as corporate control mechanism better than short-term debt.

The effect on capital structure of ownership structure and governance variables has been assessed by regression analysis according to different regression models and several econometric techniques. Capital structure determinants not linked to ownership and governance patterns have been introduced as control variables and summarized as follows:

- TAX: (tax expenses / pre-tax profit). It is the effective tax rate employed as proxy of the corporate tax burden. According to the trade-off theory, it is expected a positive link with the leverage ratio (Barclay et al., 1995, Balakrishnan and Fox, 1993, Kim and Sorensen, 1986, Bayless and Diltz, 1994, Mackie-Mason, 1990, Graham, 1996, Rajan and Zingales, 1995).
- TANG: (fixed assets / total assets). It defines a firm's asset tangibility. The higher the ratio the lower should be bankruptcy risks and costs. According to the trade-off theory, it is expected a positive link with leverage (Harris and Raviv, 1990).
- ROA: (EBIT / total assets). It measures the firm performance. According to the pecking order hypothesis (Myers, 1977, Myers and Majluf, 1984), it is expected a negative link with leverage.
- CASH: [(cash and equivalents) / total assets]. The higher the degree of liquidity the lower should be financing needs and the lower should be bankruptcy risks. Accordingly, it is expected a negative relationship with leverage.
- AGE: natural logarithm of the number of years since firm foundation. Firm age could be used as proxy of business growth stage. According to the financial growth cycle theory by Berger and Udell (1998), older firms are likely to be in a maturity stage, with stable cash flows and therefore to raise more debt.

- SIZE: natural logarithm of a firm's total assets. Firm size is often employed as proxy of firm diversification, bankruptcy risks and its ability to access capital markets. Larger firms are likely to be more diversified, to bear lower bankruptcy risks and to find an easier access to capital markets. Accordingly, it is expected a positive correlation with leverage (Rajan and Zingales, 1995, Titman and Wessels, 1988, Whited, 1992).
- OPER: (depreciation + labor cost)/sales. The variable points to assess the business risk (Barton and Gordon, 1988, Ferri and Jones, 1979, Friend and Hasbrouck, 1989, Friend and Lang, 1988, Bradley et al., 1984, Mehran, 1992, Mackie-Mason, 1990, Titman and Wessels, 1988, Ang and Peterson, 1986, Balakrishnan and Fox, 1993, Jensen et al., 1992). Depreciation and labor cost are likely to be costs that, within a certain production capacity, are not affected by changes in firm production and sales. Accordingly, these costs give rise to operating leverage that makes operating income more volatile.
- LN_MTBV: natural logarithm of the market-to-book ratio. It is a proxy of a firm's growth opportunities. Most literature discusses and finds a negative correlation with leverage. Several explanations are provided (Smith and Watts, 1992, Barclay et al., 1995, Rajan and Zingales, 1995, Jung et al., 1996, Lang et al., 1996, Hovakimian, 2006, Baker and Wurgler, 2002, Kayhan and Titman, 2007): firstly, firms with a higher market-to-book ratio are likely to show lower agency costs of free cash flow (Jensen, 1986). Secondly, a higher market-to-book ratio could be due to a high incidence of intangible assets and related bankruptcy costs. Finally, many growth opportunities could lead to higher agency costs of debt as a result of asset substitution risks.

A few studies (Chen and Zhao, 2006, Du and Dai, 2005) find a positive correlation between market-to-book ratio and leverage. This result is consistent with the pecking order hypothesis: high growth rates ask for great financing needs to be fulfilled by making use of debt should internal funds be insufficient. One can also argue that firms with good growth opportunities face a lower cost of debt. Moreover, we could find contrasting results depending on which leverage measure is employed (market leverage vs. book leverage). Du and Dai (2005) find a negative link by using market leverage and a positive link by using book leverage: firstly, the market value of equity is often larger than the book value, secondly, if one employed the market value of equity instead of the book value in the denominator of the ratio, when the stock market rises the variable LN_MTBV would go up, while the market leverage ratio would go down. The book leverage would remain unaffected by the equity market value changes.

Determinants of capital structure related to a firm's ownership and control structure are as follows:

- VR/CFR: votes-to-capital ratio of the ultimate controlling shareholder. The ratio is the common measure of the separation between ownership and control. The expected link with leverage could have a lot of explanations: on the one hand, shareholders of firms making large use of control-enhancing devices could face no problem in holding corporate control and in pursuing firm growth opportunities. Accordingly, they could make less use of debt to this purpose. Alternatively, firms experiencing a convergence between cash flow rights and voting rights could be forced to raise debt to keep growing without losing control. In both cases, we can suppose a negative correlation with leverage.

On the other hand, heavy reliance on these devices could prove that shareholders are struggling to hold control. Alternatively, it is arguable that shareholders that meet one-share-one-vote rule pay lesser attention to hold control. As debt allows firms to raise capital without diluting control, from those perspectives, a positive correlation is expected. Moreover, the higher the ratio the lower will be the economic involvement of the controlling owner that results in a lower portfolio concentration, a lower risk aversion and a higher willingness to raise debt to fund investments as bankruptcy risk is less worrying (wealth at risk is lower).

The ownership concentration, the persistence over time of a close control despite a sharp decline in the use of control-enhancing mechanisms, chiefly due to newly-listed firms but not to older firms, lead us to argue that in Italy could play the second explanation. See HP 5 and HP 6 in section 4 for a more formal statement of hypotheses.

With reference to the methodology employed to assess voting rights and cash flow rights, the former are the result of the application of the weakest-link rule (Faccio and Lang, 2002), the latter come up from the application of the input-output model (Leontief, 1986) on shareholdings. Based on the technology matrix, the input-output model allows us to take into account direct and indirect ownership, treasury shares and cross-holdings for any type of group.

- CFR: cash flow rights held by the ultimate largest shareholder. This variable is employed to provide a measure of the incentive effect of the controlling shareholder. At first glance, the link with leverage could be as follows: a high value of CFR gives evidence of a strong commitment of the largest shareholder in the firm and therefore a great amount of wealth exposed to risk in occurrence of bankruptcy. Accordingly, risk-avoiding actions, like refraining from raising debt to keep bankruptcy risk away, could be major aims of majority shareholder. From this perspective, we should find a negative correlation with leverage. However, high values of CFR could also be due to a financing policy chiefly oriented to debt rather than to equity. In this case, the expected link is positive and the explanatory variable comes to be the capital structure making the endogeneity test required. See HP 1, HP 2 and HP 3 in the section 4.
- INSTIT: this variable captures the weight of institutional investors in a firm's ownership structure. Hypotheses related to the use of this variable are

largely provided in the section 4 (HP 7). Here I want to give some calculation notes. I have taken into consideration stakes held by banks, insurance companies and mutual funds. Unfortunately, as Italian law on shareholders' disclosure requirements sets at 2% the trigger percentage on shareholdings, the "real" voice of these investors has been definitely underestimated. Institutional investors, serving as minority shareholders, can get involved in the firm running by the rights that the Company Law provides them. Institutional investors are eligible for all the rights granted to minorities by holding at least a 10% voting stake. Below 10%, rights are distributed in the following ranges:

- OWNERSHIP = 0% no right
- 0% < OWNERSHIP < 5% (e.g., filling the agenda in the shareholders' meeting with new matters, reporting to the board of auditors potential irregularities, filing suit against directors, etc.).
- 5% ≤ OWNERSHIP < 10% (e.g., reporting to the court potential irregularities, etc.).
- OWNERSHIP ≥ 10% (e.g., calling a shareholders' meeting, etc.).

To take into account the above breakdown, I have built the variable INSTIT as follows:

INSTIT = 0, if no institutional investor holds a stake.
INSTIT = 1, if the stake held by institutional investors ranges from 0% (excluded) to 5% (excluded).
INSTIT = 2, if the stake held by institutional investors ranges from 5% (included) to 10% (excluded).
INSTIT = 3, if the stake held by institutional investors is greater than or equal to 10%.

- FAM: it is reasonable to believe that the type of controlling owner could affect capital structure choices as a result of owner's aims. The most widespread controlling shareholder both in Italy and throughout the world is the family whose objectives are both personal (e.g., reputation and well-being of the family, achieving success at work and in life for heirs, sharing values as honesty, loyalty, mutual trust, etc.) and economic (e.g., increasing portfolio wealth, getting rent-seeking positions, protecting the firm from extreme risk-taking actions, etc.). The family can achieve them by affecting capital structure choices: on the one hand, as already said, debt allows firm to raise capital keeping dilution problems away. If the family intends to exploit benefits coming from being the controlling owner, debt could help carry out this aim. On the other hand, debt, above certain levels, causes financial distress and bankruptcy risks casting family wealth and reputation in trouble. Accordingly, the family would prefer an equity-oriented capital structure (see HP 4 in section 4). This variable is a dummy equaling 1 in case of family-controlled firms, 0 otherwise. A firm is family-controlled if the ultimate largest shareholder (i.e., at the top of a pyramidal control chain, if existing) is one of the following subjects:
  - A group of people linked by kinship that hold at least a 30% voting stake as a whole. If the stake is in the 30% − 50% range, to make sure family control, it is additionally required that the largest shareholder's stake doubles the second largest shareholder's stake.
  - A single owner (there is no family member holding stakes) with at least a relative of the controlling shareholder in the board.

The identity of the ultimate largest shareholder has been traced by using *R&S-Mediobanca* database and the reports of chambers of commerce that also show the ownership structure of non-listed firms (in pyramidal groups, holding and sub-holding firms are often non-listed companies). The family has been identified by surname (stakes held by relatives with the same surname have been considered as a whole). For families with more than one branch and family members with different surnames (i.e., founder's wife, sons of female heirs, etc.), family membership has been controlled by using *Google search engine* and *Lexis-Nexis* database for reading annals of the most important Italian and international newspapers (e.g., *Il Sole 24 Ore*, *La Stampa*, *The Wall Street Journal*, *Financial Times*, etc.).

Statistical assessments are based on the following OLS regression model with time and industry fixed effects:

$$LEV_{i,t} = \alpha + \beta_1 ROA_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 AGE_{i,t} + \beta_4 TANG_{i,t} + \beta_5 OPER_{i,t} + \beta_6 LN\_MTBV_{i,t} +$$
$$+ \beta_7 CASH_{i,t} + \beta_8 TAX_{i,t} + \beta_9 CFR_{i,t} + \beta_{10} VR/CFR_{i,t} + \beta_{11} FAM_{i,t} + \beta_{12} INSTIT_{i,t} + \overline{\beta}_{IID} INDUSTRY_i + \overline{\beta}_{TD} TIME_t$$

Where:

$INDUSTRY_{i,t}$ is a vector composed of (30-1) industry dummies, one for each sector (Mediobanca industry classification has been employed).

$TIME_t$ is a vector composed of (7-1) time dummies, one for each year of the survey.

$LEV_{i,t}$ is the dependent variable taking the meaning described above (LEV1, LEV2 or LEV3). All the independent variables are described above.

Data related to control variables have been collected from *Datastream Thomson Financial* database; information concerning the firms' ownership and control structure has been collected from *Calepino dell'Azionista*, *CONSOB web site*, *R&S-Mediobanca*, reports of chambers of commerce.

6. Main results

Table 1 provides a first sight of the main descriptive statistics of the variables employed in the study and compares each of them between family and non-family firms. At first glance, family firms are more reliant on long-term debt but not on short-term one and, at the same time, show a higher mean value of votes-to-capital ratio and cash flow rights. It appears that controlling families exploit both instruments (i.e., debt and equity-based control-enhancing devices) to avoid dilution problems. Besides, as expected, ownership structure of family firms shows a lower

mean stake held by institutional investors. With reference to other determinants of capital structure, I find that family firms perform better than non-family counterparts in terms of accounting measures while the relationship is reversed by using market measures. Family firms are older, larger and show a higher operating risk as pointed out by the ratio between fixed costs and sales. The result showing that family firms are older as well as larger than non-family firms seems to be counterintuitive: the reason behind it is that, among non-family firms, I have included a number of entrepreneur-led firms as well as firms controlled by unrelated managers that are generally much younger and smaller than the others.

Moving to Table 2, we can make a first analysis of the correlation among the key variables. Firstly, the results related to common determinants provide a preliminary support of familiar hypotheses on capital structure determinants. The correlation matrix exhibits a strong and positive link between leverage measures and the following variables: SIZE, AGE, TANG and TAX, while it shows a negative relationship with the following determinants: ROA, OPER and CASH. Secondly, with reference to ownership structure variables, opening results seem to be of interest and those ones on total and long-term debt above all. More in detail, as shown in Table 1, family firms are shown to be more indebted than non-family firms but only as regards total and long-term debt. The proxy of the separation between ownership and control (VR/CFR) evidences a positive and significant link with leverage measures: it seems that firms with a higher separation intend to exploit the leverage to a greater extent than the others highlighting that whenever holding control gets relevance (i.e., VR/CFR is higher), the controlling owner deploys debt financing to consolidate his/her position keeping the risk of loss of control away. Cash flow rights, as one could predict by observing the positive sign of VR/CFR, show a negative relationship with leverage. Indeed, CFR and VR/CFR are strongly negatively correlated and the negative sign of CFR is expected to lead to a positive link between VR/CFR and leverage. According to economic (not exclusively statistical) argumentations, introductory results shed light, on the one hand, on the real chance that the higher the ownership concentration (i.e., CFR) the higher will be the risk taken on by the controlling shareholder who will be inclined to hold a safer capital structure, on the other hand, on the fact that entrenched dominant owners are unwilling to give up the control even though that aim calls for a more aggressive, riskier and, maybe, unsound capital structure. Finally, correlation matrix seems not to show any significant link between institutional investors and capital structure except for long-term debt. This latter points out a positive and significant link with the variable INSTIT. One could argue that, on the one hand, because the tax shield depends on the interests charged that, normally, are higher for long-term debt, institutional investors prefer firms bearing debt with longer maturities, on the other hand, long-term debt is less constraining than short-term one and, therefore, institutional investors could act as monitoring device in place of debt. In this case, a reverse causality relationship between capital structure and institutional investors could take place.

Turning to the regression analysis, all tables show that familiar determinants of capital structure are consistent with the common hypotheses supporting each of them with the exception of the market-to-book ratio which shows a positive and significant relationship with leverage that is found by a little literature (Chen and Zhao, 2006). However, the unpredicted result could be due to the use of book leverage rather than market leverage (Du and Dai, 2005). Without paying further attention to the well-known determinants, I focus on the ownership structure determinants (i.e., CFR, VR/CFR, FAM and INSTIT) being the key issue of the study.

Table 3 shows a negative and significant relationship between cash flow rights and leverage (short-term + long-term leverage). This means that the higher the ownership concentration the lower will be the firm reliance on debt. The result is consistent with hypothesis HP 2 relating the higher ownership concentration to the higher risk-taking of the controlling owner that picks a more conservative leverage ratio (i.e., the dominant owner invests a great deal of its own wealth in the firm and accordingly it is highly committed to the firm viability). Family firms, as supposed in hypothesis HP 4, are significantly more indebted than non-family counterparts. The evidence supports the view that debt financing helps controlling families keep control without preventing firm growth at least within safe levels of leverage ratio. This result is strong and accordant with the opinion that the aim to hold control more than offsets risk-avoiding behaviors.

Despite the total leverage does not show any statistically significant link with the variables VR/CFR and INSTIT, Table 4, which takes into account debt with a longer maturity, shows more interesting results. The variable INSTIT turns to be positive and statistically significant highlighting that, as stated above, institutional investors "encourage" the firm to raise more long-term debt either to gain greater tax benefits or for monitoring purposes.

With reference to the short-term debt (Table 6), the results related to ownership structure variables are remarkably poorer: the only variable that holds its statistically significance and economic meaning is FAM. It is arguable that short-term debt, unlike long-term one, is strongly linked to financing needs generated by day-to-day operations; therefore it is more likely to be less dependent on a firm's ownership characteristics. In other words, plans to raise short-term debt are likely to be accomplished for aims unrelated to ownership attributes.

More interestingly, because it is reasonable to believe that ownership factors, and particularly

ownership-control separation, matter much more in family firms, in Table 5 I run the same regression as in Table 4 introducing an interactive variable defined as product between the variables FAM and VR/CFR in order to investigate whether the direction and the significance of the link between separation and leverage is different and stronger/weaker in family firms than non-family counterparts. The results are noteworthy and show that family firms exploiting control-enhancing devices to a greater extent are also significantly more reliant on long-term debt. Vice versa, non-family firms having a higher degree of separation seem to bear a lower amount of long-term debt. Basically, in family firms, debt and control-enhancing mechanisms work jointly while in non-family firms they work apart. This result consolidates the hypothesis that the control is definitely important for family firms that, despite the significant deviation between cash flow rights and voting rights, are also disposed to increase the leverage. A vicious and realistic interpretation of the above finding is that the inclination of the family-controlled firms towards riskier capital structures is a result of the higher separation and, therefore, of the weaker link between (higher) voting power and (lower) wealth at risk.

The investigation of the link between votes-to-capital ratio and long-term leverage in both all firms and family firms has been enriched by a comparative analysis of the historical trend of both variables. Figures 1 (all firms) and 2 (family firms) compare both trends and show an appealing evidence: an upward tendency of the long-term debt seems to go together with a decreasing trend of the votes-to-capital ratio. The path seems to be significantly more outlined in family firms. It appears that, if on the one hand, more indebted family firms exploit control-enhancing mechanisms to a greater extent, on the other hand, over time the link between long-term leverage and separation seems to be negative: basically, periods with increasing trends of the leverage occur with decreasing movements of the votes-to-capital ratio.

Figure 3 provides a similar comparison over a larger sample that also includes non-family firms and a longer period of time. Specifically, it is intended to show a summary review of the historical trends of long-term debt and voting premium, this latter employed as a proxy of the votes-to-capital ratio that is missing for the earlier years (i.e., in Italy, a high voting premium is associated with a high ownership-control separation, Nicodano, 1998). The figure seems to confirm the previous evidence showing an interesting and original although preliminary point in the research: from the early 1980s to the early 1990s, long-term leverage experienced a sharp decline (the ratio almost halved), while the voting premium faced an increasing and equally sharp trend (the voting premium experienced a ten-time increase). In the mid-1990s, after the peak, the voting premium seems to stabilize around 50-60% and subsequently takes a vigorous downward drift (it is to be noted the comparable trend between votes-to-capital ratio in Figures 1 and 2 and voting premium in Figure 3 since 2000). And the long-term leverage? In the same period as the voting premium, it shows, since the early 1990s, a steady path until 2000 after that the trend is inverted taking an upward direction. In summary, there seems to be a non-spurious relationship between voting premium and long-term leverage: the historical trends show that when the ownership-control separation tends to increase (i.e., the voting premium is high), the long-term leverage follows a reverse direction or, at least, sharply adjusts the intensity of the past tendency. Despite the above comments come from a reading of a graph and keep holding on as anecdotal evidence, 23 years of observations could already give an interesting and original revisitation of the link between ownership-control separation and debt financing.

Besides, I have split family firms in two subgroups, founding-family controlled firms (i.e., the founding-family runs the company and/or holds the majority of ownership) and non-founding-family controlled firms (i.e., the largest shareholder and the firm's managers are not member of the founding-family), by introducing a further dummy variable (FOUNDING) that takes value 1 for founding-family controlled firms and value 0 otherwise. Table 7 shows that the former are significantly more leveraged than the latter. The result is once more very consistent with the role of debt as corporate control mechanism. Based on such result, it is plausible to believe that founding-families are more willing to hold control as well as to curb the use of own funds for supporting the firm's growth without dilution problems. Vice versa, for non-founding-families the firm itself is more likely to be a mere financial investment to be sold should good market conditions and returns occur.

As robustness tests, I have performed regressions by using panel data models (random and fixed effects) on long-term leverage that has shown a more appealing evidence. Overall, Table 8 provides results supporting the findings described above with reference to both familiar determinants of capital structure and ownership structure determinants. The most consistent results come from the random effects specification (Panel A), while the fixed effects specification (Panel B) shows weaker results. In reading both specifications, it is to be noted that, firstly, in Panel A2 of Table 8, the Hausman test indicates the absence of correlation between the composite error term ($\omega_{i,t} = \varepsilon_i + \nu_{i,t}$) and all the explanatory variables. In general, the random effects approach is more appropriate and produces more efficient estimations than the fixed effects approach provided that the composite error term is uncorrelated with all of the independent variables (Brooks, 2008). Secondly, the within transformation performed in the fixed effects model rules out time-invariant variables. Accordingly, this procedure makes the results of the variables FAM and INSTIT, that are almost always constant over time, unreliable.

7. Concluding remarks

This study explores, on the one hand, the capital structure determinants from the point of view of corporate ownership and control in a country dominated by family-controlled pyramidal groups with high ownership concentration. The existent literature on the topic only focuses on a few ownership attributes and finds either a weakly significant empirical evidence or discordant results on the role of ownership structure variables. This study provides support to the argumentation that ownership and control variables matter, at least in a blockholder-dominated context. On the other hand, it shows an interesting, although anecdotal, view of the capital structure evolution suitable in contexts with a high dependence on control-enhancing mechanisms. Specifically, the study finds that family firms are significantly more reliant on debt. This result is relevant because it tells us that the families, as expected, put a high level of importance on the objective to hold the control which overwhelms risk-reducing behaviors aimed at keeping a sound and viable firm. This evidence is consistent with other studies (King and Santor, 2008, Harijono et al., 2004) which take into consideration countries like Canada where family firms and pyramidal structures are very common and countries like Australia where private benefits of control seem to be high (Nenova, 2003), particularly in mining industries. Besides, the results show that just the family firms exploit the long-term debt along with a severe usage of control-enhancing mechanisms. Finally, a high level of cash flow rights held by the ultimate largest shareholder is associated with low levels of the leverage ratio. The key policy implication coming from a merger of the above results is that, in the extent to which the families can exploit instruments to separate ownership from control therefore lowering the amount of wealth exposed to risk, the families themselves are inclined to reinforce their position as controlling owners by raising debt to retain the control, to support the firm's growth, to save their own resources and to curb the risk-taking. This line of reasoning is further validated by the results obtained by comparing founding-family controlled firms with non-founding-family controlled ones: the former are significantly more leveraged than the latter. Because it is expected that founding-families look after their firm like if it was their own thing, holding control is likely to be a paramount aim for them. Probably, this aim is less emphasized in non-founding-families. The above comments lose their consistence moving from long-term debt to short-term debt: the former, as a result of its longer maturity, is more manageable and less constraining for the management than the latter. Accordingly, long-term debt is shown to be more suitable for achieving corporate ownership and control purposes.

With reference to the temporal trend of the long-term leverage in comparison with the votes-to-capital ratio, it seems to come out a remarkable result that for now is going to hold as anecdotal evidence because of the shortage of data: over time, the link between the long-term debt and the extent of separation appears to be negative. Basically, decreasing trends of the long-term debt take place in periods with increasing trends of the votes-to-capital ratio. We can argue that periods with an intensive use of control-enhancing mechanisms lead firms to lower their dependence on long-term debt as instrument to be employed to raise funds and to keep dilution issues away. Unfortunately, a more in-depth analysis would require a huge amount of reliable data on corporate ownership, that are available only after the entry into force of the "*Testo Unico della Finanza*" (i.e., the consolidated Italian law on companies, markets and finance) in 1998.

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Appendices

Table 1. Descriptive statistics

	All firms			Family firms			Non-family firms		
	Mean	Median	Std. dev	Mean	Median	Std. dev	Mean	Median	Std. dev
LEV1***	0.4111	0.4342	0.2432	0.4226	0.4383	0.2319	0.3769	0.3891	0.2530
LEV2***	0.2771	0.2422	0.2296	0.2916	0.2593	0.2237	0.2431	0.1845	0.2340
LEV3	0.2653	0.2233	0.2077	0.2678	0.2317	0.1999	0.2484	0.1952	0.2128
ROA***	0.0380	0.0531	0.1094	0.0586	0.0621	0.0781	0.0058	0.0327	0.1374
SIZE***	12.8771	12.6976	1.7025	13.0884	12.8962	1.5569	12.7405	12.2319	1.8989
AGE***	3.1604	3.1355	1.0171	3.2871	3.3322	0.9226	3.0656	2.9957	1.1143
TANG***	0.2275	0.1866	0.1818	0.2470	0.2109	0.1747	0.2025	0.1540	0.1878
OPER***	0.2808	0.2501	0.1695	0.2548	0.2492	0.1163	0.3249	0.2601	0.2197
LN_MTBV***	0.5718	0.5306	0.7116	0.4746	0.4187	0.6954	0.6935	0.6259	0.7147
CASH	0.1286	0.0831	0.1339	0.1319	0.0883	0.1300	0.1336	0.0871	0.1417
TAX***	0.4389	0.4281	0.1863	0.4055	0.4035	0.1742	0.4763	0.4746	0.1904
CFR***	0.4891	0.5200	0.1835	0.5400	0.5670	0.1678	0.4255	0.4246	0.1825
INSTIT***	1.1524	1.0000	1.1456	1.0205	1.0000	1.0706	1.3176	1.0000	1.2141
VR/CFR***	1.2177	1.0000	0.5864	1.2798	1.0000	0.7148	1.1399	1.0000	0.3526
FAM	0.5560	1.0000	0.4971						
t-stat significance level, * (10%), ** (5%), *** (1%), on difference of means between family and non-family firms									

Table 2. Pearson correlation

	LEV1	LEV2	LEV3	ROA	SIZE	AGE	TANG	OPER	LN_MTBV	CASH	TAX	CFR	VR/CFR	FAM	INSTIT
LEV1		0.868**	0.837**	-0.126**	0.402**	0.151**	0.152**	-0.207**	0.022	-0.377**	0.098**	-0.136**	0.095**	0.094**	0.035
LEV2			0.535**	-0.046	0.445**	0.157**	0.241**	-0.141**	-0.015	-0.241**	0.040	-0.156**	0.138**	0.105**	0.099**
LEV3				-0.192**	0.216**	0.127**	-0.012	-0.191**	0.034	-0.340**	0.171**	-0.055	-0.002	0.047	-0.026
ROA					0.269**	0.139**	0.095**	-0.373**	0.038	0.032	-0.199**	0.085**	0.107**	0.236**	0.021
SIZE						0.290**	0.108**	-0.344**	-0.022	-0.185**	-0.108**	-0.152**	0.281**	0.127**	0.054
AGE							0.252**	-0.235**	-0.306**	-0.141**	-0.050	0.009	0.162**	0.108**	-0.040
TANG								0.116**	-0.166**	-0.284**	-0.083**	-0.024	0.070*	0.121**	-0.001
OPER									0.103**	0.168**	0.115**	-0.166**	0.004	-0.201**	0.068*
LN_MTBV										0.019	-0.072*	-0.070*	-0.009	-0.153**	0.111**
CASH											-0.184**	0.035	-0.019	-0.006	0.009
TAX												-0.000	-0.061	-0.189**	-0.045
CFR													-0.530**	0.310**	-0.258**
VR/CFR														0.119**	-0.006
FAM															-0.129**

** Correlation is significant at the 0.01 level (2-tailed)

* Correlation is significant at the 0.05 level (2-tailed)

Table 3. Leverage and ownership structure

PANEL A – leverage (LEV1) and economic involvement (CFR)				PANEL B – leverage (LEV1) and wedge (VR/CFR)			
Variables	Coeff.	Std. Error	t-stat	Variables	Coeff.	Std. Error	t-stat
const	-0.0890	0.1225	-0.7262	const	-0.1916*	0.1116	-1.7174
ROA	-0.8087***	0.1177	-6.8710	ROA	-0.8000***	0.1211	-6.6050
OPER	-0.2521***	0.0936	-2.6945	OPER	-0.2232**	0.0945	-2.3619
CASH	-0.4010***	0.0665	-6.0261	CASH	-0.4105***	0.0673	-6.1018
TAX	0.1487***	0.0486	3.0609	TAX	0.1461***	0.0486	3.0041
FAM	0.0800***	0.0242	3.3089	FAM	0.0688***	0.0243	2.8332
LN_MTBV	0.0528***	0.0144	3.6661	LN_MTBV	0.0529***	0.0145	3.6497
AGE	0.0203*	0.0111	1.8283	AGE	0.0195*	0.0114	1.7100
SIZE	0.0582***	0.0079	7.3603	SIZE	0.0619***	0.0081	7.6247
INSTIT	0.0034	0.0060	0.5605	INSTIT	0.0071	0.0060	1.1908
CFR	-0.1318**	0.0546	-2.4139	VR/CFR	0.0001	0.0130	0.0058
TANG	0.0191	0.0891	0.2145	TANG	0.0093	0.0874	0.1068
HAC standard error of Arellano (2003) for panel data Adj. R-squared: 0.5303 Significance level: * (10%), ** (5%), *** (1%)				HAC standard error of Arellano (2003) for panel data Adj. R-squared: 0.5231 Significance level: * (10%), ** (5%), *** (1%)			

Table 4. Long-term debt and ownership structure

PANEL A – leverage (LEV2) and economic involvement (CFR)				PANEL B – leverage (LEV2) and wedge (VR/CFR)			
Variables	Coeff.	Std. Error	t-stat	Variables	Coeff.	Std. Error	t-stat
const	-0.3370***	0.1195	-2.8196	const	-0.4098***	0.1132	-3.6214
ROA	-0.5217***	0.0911	-5.7285	ROA	-0.5171***	0.0896	-5.7727
OPER	-0.1009	0.0690	-1.4619	OPER	-0.0820	0.0691	-1.1865
CASH	-0.1195**	0.0574	-2.0820	CASH	-0.1252**	0.0574	-2.1817
TAX	0.1221***	0.0454	2.6880	TAX	0.1209***	0.0448	2.6988
FAM	0.0654***	0.0225	2.9039	FAM	0.0550**	0.0225	2.4449
LN_MTBV	0.0271*	0.0144	1.8810	LN_MTBV	0.0266*	0.0144	1.8458
AGE	0.0089	0.0104	0.8556	AGE	0.0071	0.0104	0.6836
SIZE	0.0660***	0.0075	8.7618	SIZE	0.0676***	0.0078	8.6662
INSTIT	0.0094*	0.0054	1.7419	INSTIT	0.0123**	0.0055	2.2369
CFR	-0.1022**	0.0475	-2.1536	VR/CFR	0.0124	0.0125	0.9939
TANG	0.1112	0.0849	1.3086	TANG	0.1048	0.0841	1.2462
HAC standard error of Arellano (2003) for panel data Adj. R-squared: 0.5247 Significance level: * (10%), ** (5%), *** (1%)				HAC standard error of Arellano (2003) for panel data Adj. R-squared: 0.5208 Significance level: * (10%), ** (5%), *** (1%)			

Table 5. Long-term debt, wedge and family firms

Variables	Coeff.	Std. Error	t-stat
const	-0.3297***	0.1187	-2.7780
ROA	-0.5040***	0.0925	-5.4463
OPER	-0.0751	0.0691	-1.0863
CASH	-0.1171**	0.0588	-1.9923
TAX	0.1249***	0.0454	2.7480
FAM	-0.0416	0.0542	-0.7677
LN_MTBV	0.0265*	0.0144	1.8389
AGE	0.0052	0.0104	0.4988
SIZE	0.0681***	0.0079	8.5716
INSTIT	0.0114**	0.0055	2.0759
VR/CFR	-0.0609*	0.0361	-1.6847
TANG	0.1027	0.0824	1.2457
FAM x VR/CFR	0.0841**	0.0392	2.1431
HAC standard error of Arellano (2003) for panel data Adj. R-squared: 0.5250 Significance level: * (10%), ** (5%), *** (1%)			

Table 6. Short-term debt and ownership structure

PANEL A – leverage (LEV3) and economic involvement (CFR)				PANEL B – leverage (LEV3) and wedge (VR/CFR)			
Variables	Coeff.	Std. Error	t-stat	Variables	Coeff.	Std. Error	t-stat
const	-0.0166	0.1430	-0.1163	const	-0.0762	0.1279	-0.5958
ROA	-0.7277***	0.1455	-5.0012	ROA	-0.7202***	0.1485	-4.8499
OPER	-0.2428***	0.0840	-2.8895	OPER	-0.2237***	0.0843	-2.6544
CASH	-0.3484***	0.0584	-5.9613	CASH	-0.3555***	0.0586	-6.0647
TAX	0.1412***	0.0445	3.1754	TAX	0.1387***	0.0451	3.0775
FAM	0.0488**	0.0206	2.3704	FAM	0.0461**	0.0203	2.2658
LN_MTBV	0.0475***	0.0140	3.3970	LN_MTBV	0.0485***	0.0135	3.6020
AGE	0.0271***	0.0093	2.9188	AGE	0.0283***	0.0092	3.0783
SIZE	0.0252***	0.0073	3.4608	SIZE	0.0289***	0.0073	3.9336
INSTIT	-0.0018	0.0056	-0.3142	INSTIT	-0.0001	0.0053	-0.0096
CFR	-0.0634	0.0646	-0.9818	VR/CFR	-0.0187	0.0181	-1.0346
TANG	-0.0587	0.0670	-0.8759	TANG	-0.0653	0.0673	-0.9704
HAC standard error of Arellano (2003) for panel data Adj. R-squared: 0.3722 Significance level: * (10%), ** (5%), *** (1%)				HAC standard error of Arellano (2003) for panel data Adj. R-squared: 0.3724 Significance level: * (10%), ** (5%), *** (1%)			

Table 7. Leverage and family firms: Founding-families vs. non-founding-families

Variables	Coeff.	Std. Error	t-stat
const	-0.2379	0.1575	-1.5107
ROA	-0.9357***	0.2013	-4.6480
OPER	-0.1055	0.1502	-0.7023
CASH	-0.4281***	0.0929	-4.6097
TAX	0.1924***	0.0580	3.3183
LN_MTBV	0.0657***	0.0201	3.2689
AGE	0.0285**	0.0128	2.2219
SIZE	0.0687***	0.0114	6.0321
INSTIT	-0.0131	0.0097	-1.3574
CFR	-0.1268**	0.0603	-2.1020
TANG	-0.1132	0.1089	-1.0392
FOUNDING	0.0862***	0.0283	3.0436
HAC standard error of Arellano (2003) for panel data Adj. R-squared: 0.6207 Significance level: * (10%), ** (5%), *** (1%)			

Table 8. Long-term leverage and ownership structure: Alternative econometric specifications

PANEL A

RANDOM EFFECTS							
PANEL A1 – leverage (LEV2) and economic involvement (CFR)				PANEL A2 – leverage (LEV2) and wedge (VR/CFR)			
Variables	Coeff.	Std. Error	t-stat	Variables	Coeff.	Std. Error	t-stat
const	-0.8530***	0.0996	-8.5626	const	-0.9086***	0.0949	-9.5744
ROA	-0.3457***	0.0565	-6.1140	ROA	-0.3345***	0.0563	-5.9419
OPER	-0.1176**	0.0538	-2.1863	OPER	-0.0920*	0.0532	-1.7295
CASH	-0.0503	0.0476	-1.0565	CASH	-0.0761*	0.0458	-1.6611
TAX	0.0710**	0.0296	2.3956	TAX	0.0706**	0.0295	2.3923
LN_MTBV	0.0358***	0.0096	3.7291	LN_MTBV	0.0355***	0.0096	3.6976
AGE	0.0135	0.0110	1.2287	AGE	0.0181*	0.0113	1.6761
INSTIT	0.0051	0.0050	1.0149	INSTIT	0.0057	0.0050	1.1455
SIZE	0.0822***	0.0065	12.6355	SIZE	0.0860***	0.0066	12.9446
CFR	-0.0828*	0.0495	-1.6710	VR/CFR	-0.0206	0.0166	-1.2422
FAM	0.0351*	0.0195	1.8037	FAM	0.0374*	0.0199	1.8791
TANG	0.0919*	0.0525	1.7508	TANG	0.0947*	0.0526	1.8000
HAC standard error of Arellano (2003) for panel data Hausman test: chi-square = 50.1416, p-value = 0.0010 Time dummy = YES Significance level: * (10%), ** (5%), *** (1%)				HAC standard error of Arellano (2003) for panel data Hausman test: chi-square = 6.9461, p-value = 0.9743 Time dummy = YES Significance level: * (10%), ** (5%), *** (1%)			

PANEL B

FIXED EFFECTS							
PANEL B1 – leverage (LEV2) and economic involvement (CFR)				PANEL B2 – leverage (LEV2) and wedge (VR/CFR)			
Variables	Coeff.	Std. Error	t-stat	Variables	Coeff.	Std. Error	t-stat
const	-2.0478***	0.1888	-10.8456	const	-2.0815***	0.1943	-10.7110
ROA	-0.3218***	0.0582	-5.5293	ROA	-0.3219***	0.0583	-5.5179
OPER	-0.0578	0.0616	-0.9378	OPER	-0.0510	0.0617	-0.8277
CASH	0.0279	0.0521	0.5360	CASH	0.0204	0.0523	0.3903
TAX	0.0398	0.0305	1.3059	TAX	0.0444	0.0305	1.4567
LN_MTBV	0.0483***	0.0105	4.6079	LN_MTBV	0.0480***	0.0105	4.5624
AGE	0.0829***	0.0245	3.3861	AGE	0.0856***	0.0245	3.4884
INSTIT	-0.0007	0.0053	-0.1255	INSTIT	0.0005	0.0052	0.1041
SIZE	0.1565***	0.0126	12.4176	SIZE	0.1542***	0.0127	12.1643
CFR	-0.1236*	0.0646	-1.9138	VR/CFR	-0.0015	0.0246	-0.0625
FAM	0.0170	0.0289	0.5886	FAM	0.0082	0.0287	0.2856
TANG	0.0877	0.0739	1.1862	TANG	0.0802	0.0741	1.0823
HAC standard error of Arellano (2003) for panel data Adj. R-squared: 0.8005 Time dummy = YES Significance level: * (10%), ** (5%), *** (1%)				HAC standard error of Arellano (2003) for panel data Adj. R-squared: 0.7996 Time dummy = YES Significance level: * (10%), ** (5%), *** (1%)			

Figure 1. Long-term debt and votes-to-capital ratio: Temporal trend

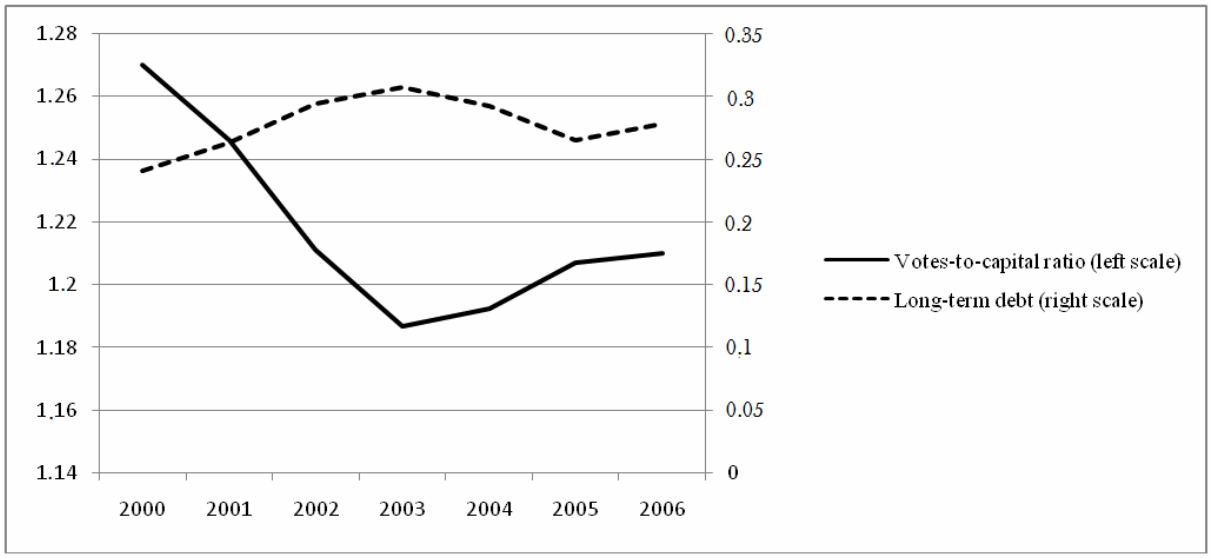

Figure 2. Long-term debt and votes-to-capital ratio in family firms: Temporal trend

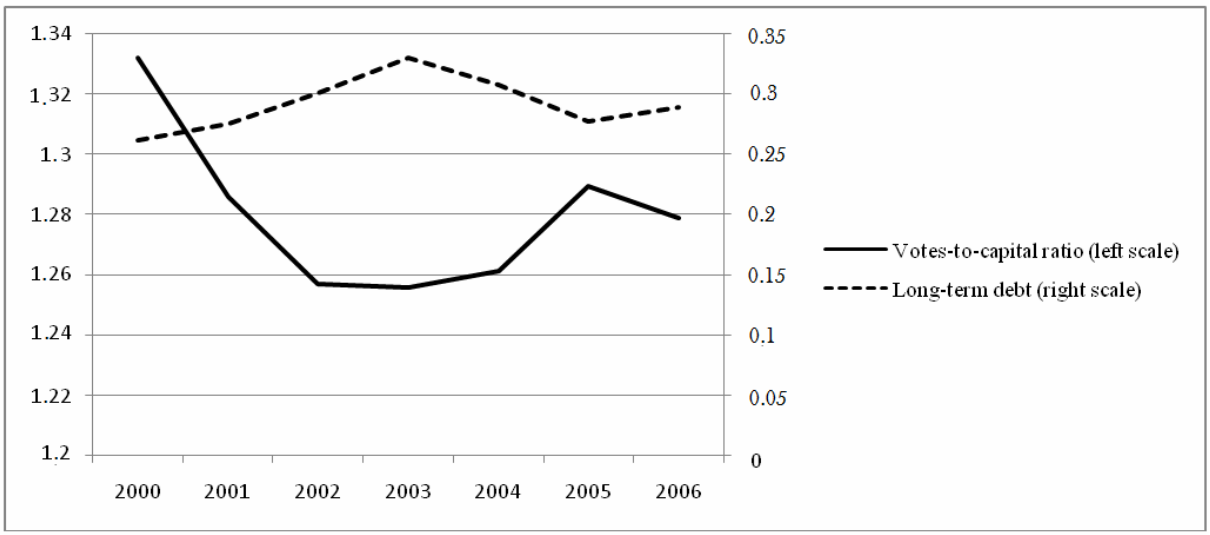

Figure 3. Long-term debt and voting premium (1980-2003)