Laboratoire
de Recherche
en Gestion
& Economie

Working Paper

2017-09

The impact of family ownership status on determinants of leverage
Empirical evidence from South East Asia

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April 2017

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Empirical evidence from South East Asia

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Abstract

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Key word: Family firms, capital structure, South East Asia.

JEL classification: G30, G32.

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Abstract

We investigate the impact of family ownership on determinants of leverage in South East Asia. We find that family firms use more debt than non-family firms and that family ownership strengthens the positive relationship between firm size and leverage. Family firms have a higher level of tangibility at a certain level of debt relative to non-family firms. On one hand, family firms with family CEOs use more debt to finance internal fund deficit relative to family firms with CEOs from outside or non-family firms. On the other hand, family firms with family CEOs have a lower level of debt corresponding to growth opportunities than others. Our results are robust to alternative estimation techniques and measurement of leverage. These findings contribute to understanding the determinants of leverage among family-controlled firms in South East Asia.

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I. INTRODUCTION

Most literature on the functioning of modern corporate finance is built on the common thought that firms are widely and dispersed held. The original notion is derived from Berle and Means (1932) and is promulgated by Baumol (1959) and Jensen and Meckling (1976). It is interesting, however, to acknowledge that a majority of firms around the world have the founder or the founder's family as large shareholders. Porta et al. (1999) find that founding families control over 53 percent of the largest publicly traded firms in 27 countries. Additionally, the prominent role of families in large firms is reported by Anderson and Reeb (2003a) and Villalonga and Amit (2006) for U.S.; Faccio and Lang (2002) for Europe; Claessens et al. (2000) and Carney and Child (2013) for East Asia. The prevalence of extensive family ownership and control is more pronounced outside the U.S., particularly in South East Asia where legal investor protection is weak (Porta et al., 1999).

Family firms, like other publicly traded firms with ownership concentration, typically have controlling and non-controlling shareholders. However, family firms are distinctive as a family is at the apex of governance institutions of firms. The most important decisions in governance are typically executed by a group of people who have blood or marriage relationship rather than by an individual. The overlap of family and business primarily derives from market imperfections that make arm's-length contract less attractive, or from private benefits that reduce costs of family participation.

The issue of extensive family ownership and control raises the primary conflicts of interests between family and minority shareholders, which are different from original conflicts in classical agency theory. On the one hand, the agency costs of family and minority shareholders in family firms are more severe than those in non-family firms (Demsetz and Lehn, 1985). On the other hand, agency costs of managerial and shareholders' interests are less severe with the presence of large family ownership (Jensen and Meckling, 1976). In addition, economic objectives of founding families are somehow different from diversified shareholders (Bertrand and Schoar, 2006). Founding families are concerned about the long-term survival of the firm since they view it as a trust to pass to next generations rather than just the consuming wealth during their life. Family firms may have "patient capital" and pursue long-term management approach, which is opposite to myopia and short-termism of managers in widely dispersed held firms (Bertrand and Schoar, 2006). Hence, founding family influences on financing policies will

make family firms different from non-family firms. In addition, founding families as large, undiversified blocking holders, are more risk averse (Anderson and Reeb, 2003b). These lead family firms to rely less on external debt financing or seek to risk reducing strategy through using less debt. However, controlling families may have incentives to systematically expropriate minority shareholder wealth (Demsetz and Lehn, 1985, Demsetz, 1983), leading to over-reliance on debt to enhance control power. Because control and survival motivations may drive family firms' decision at the same time, the net effect of family ownership on leverage is still questionable.

Empirical studies provide inconclusive results of the family influences on leverage. Mishra and McConaughy (1999) argue that leverage increases the cost of financial distress and the risk of losing control to creditors. Therefore, family firms among large public U.S. firms use less debt than non-family firms. Anderson and Reeb (2003b) find that family firms finance real investments not differently from non-family firms among U.S. largest public firms. They gauge the severity of moral hazard conflicts with minority shareholders when founding family firms pursue risk-reducing strategy such as using a low probability of default securities like equity. However, they find those founding families have little influence on financing policies; and minority shareholders gain benefit from the presence of the family control. Meanwhile, Ampenberger et al. (2013) find that family firms borrow less than non-family firms in Germany, a bank-based economy. They explain that within family firms, agency cost of free cash flows is less severe. Founding families with large ownership stakes have strong incentives to monitor managers. In addition, the presence of family members in the management or the board aligns the interests of shareholders and managers. In contrast, Driffield et al. (2007) and Singh (2016) find that family firms in East Asia borrow more than non-family firms. Driffield et al. (2007) argue that the separation of voting rights from cash flow rights give controlling shareholders incentives to extract scares resource of a firm for private benefits. Hence, family firms are motivated to maintain control power, leading founding families to be reluctant to issue stocks. Singh (2016) explains that the benefits of creditors' monitoring lead family firms in Indonesia to use more debt. Lo et al. (2016) and Brailsford et al. (2002) find a non-linear relationship between leverage and family ownership.

In addition, an important related issue concerns the determinants of capital structure in family firms versus non-family firms. We expect that due to the differences in economic

objectives, the determinants of financial policies are different for family firms. Numerous authors have paid attention to the impact of family ownership on leverage; however, according to our knowledge, no study has investigated how family ownership moderates capital structure determinants. Our paper aims to fill this gap by exploring the moderating impact of family ownership status on specific-factor and leverage relation. We seek empirical answers to two related research questions: "How do family firms finance their business differently from non-family firms?" and "How does family ownership status moderate the impact of firm-specific factors on leverage?" We focus on four key firm-specific factors namely firm size, asset tangibility, profitability and growth opportunities due to the popularity of these factors in capital structure literature[2]. Furthermore, even though these factors are found to be conclusively correlated with leverage in previous studies, the underlying reasons for these relationships vary from country to country when institutional factors are taken into account (Rajan and Zingales, 1995).

South East Asia provides an ideal setting for studying the moderating impact of family ownership on capital determinants for three major reasons. First, family control is the dominant and stable ownership form in this region (Claessens et al., 2000, Carney and Child, 2013). Second, controlling shareholders typically have excess control rights over cash flow rights through pyramid or cross-holdings (Claessens et al., 2000) and have more ability and incentives to exploit minority shareholders. Third, prior studies find opposite results in U.S. and East Asia, calling for more research on this region where the environmental setting is different from the U.S. Hence, testing the implications of capital structure theory outside the environment from which they are built is salient (Bancel and Mittoo, 2004, Demirgüç-Kunt and Maksimovic, 1999, De Jong et al., 2008).

Using ultimate ownership data of 341 largest publicly traded firms in South East Asia countries including Indonesia, Malaysia, Philippines, Singapore, and Thailand, we find that founding family firms use more debt than non-family firms between 2004 and 2013. Our findings support the expropriation hypothesis that family firms over-rely on debt to enhance control power as debt is considered as an effective tool to raise capital without stock dilution (Demsetz, 1983, Demsetz and Lehn, 1985, Driffield et al., 2007). The results are robust to

[2] For a comprehensive review of capital structure literature, see HARRIS, M. & RAVIV, A. 1991. The theory of capital structure. *the Journal of Finance,* 46**,** 297-355.

alternative family firm proxies and estimation methods. In addition, we consider active and passive family firms that have family members serving as firm's CEO and professional CEO from outside, respectively. The reason for this classification is that family control can be executed via ownership or power. An active family firm with family member serving as firm's CEO has both ownership and power. The presence of founding families in daily economic activities is more intensive.

We further explore how family ownership moderates the impact of firm-specific factors on leverage by using interaction terms between family firm status and firm-specific factors. The positive relationship between firm size and leverage is stronger in family firms, implying that family firms are more concerned about financial distress cost than non-family firms. Our findings show that family influences have multiple effects on leverage. Founding families use more debt as a tool to avoid control dilution from issuing external equity, which is known as dilution-entrenchment (Claessens et al., 2000). They are also more concerned about financial distress cost which leads family firms to have less high debt level.

Family firms have a higher level of tangible assets than non-family firms at a certain level of debt. The explanation for this may come from the view of family firms as a backbone of the economy, characterized by minority shareholder expropriation, unqualified managers and parents' altruism to children, even if they are free-riders. These could lead to low performance among family firms. As a result, lenders may be more cautious when dealing with such firms. Lenders may require family firms to have higher level of tangibility (Voordeckers and Steijvers, 2006), as tangibility can be used as collateral or at least has more value than intangibility when firms are in financial distress.

To deal with internal fund deficit caused by low firm's profitability, family firms with CEO family member use more debt. This suggests that active firms are more driven by control motivation (Demsetz, 1983) than passive family firms and non-family firms. Family ownership also moderates the impact of growth opportunities on leverage. Active family firms with growth opportunities use less debt. The findings implicitly show that underinvestment problem may be more serious among active family firms, leading family firms with a family member serving as firm's CEO to use less debt to avoid underinvestment.

The rest of the paper is structured as follows. Section 2 presents the literature review and proposed hypothesis. Section 3 presents data and methodology. Section 4 displays the results and discussion. Section 5 provides the conclusion.

II. LITERATURE REVIEW AND HYPOTHESIS

2.1 Family firms

There is no universal definition of a family firm (Bennedsen et al., 2010). A family firm is defined variously in previous studies[3]. We take a definition of a family firm, which can distinguish a family firm from others, that is the involvement of family in ownership and governance, a vision for how the firm benefit the family, potentially passing to next generations (Bennedsen et al., 2010, Chua et al., 1999).

Family firms are widespread around the word (Faccio and Lang, 2000, Claessens et al., 2000, Villalonga and Amit, 2006, Porta et al., 1999, Anderson and Reeb, 2003a, Carney and Child, 2013). There are several explanations for the preservation of family control in a firm. The most strongly believed benefit for founding family control for a firm is the possibility of expropriation of minority shareholders wealth (Demsetz, 1983, Demsetz and Lehn, 1985, Porta et al., 1999, Claessens et al., 2002). The expropriation can happen under a variety of forms. Family shareholders may sell assets or products of controlling firm at a lower price to a private firm they own, which is known as "transferring price". In addition, they may assign unqualified family members in management positions. Alternatively, the explanation for keeping founding family control is accompanying reputation of the family in business. Some families stand for quality and political connection as some family members are in the cabinet. Hence, to maintain reputational benefit at a most effective level, founding families controls a firm. The third explanation for founding families maintaining the preservation of significant control is "amenity potential" (Demsetz and Lehn, 1985). Founder of a firm has some non-pecuniary benefits such as observing their children in managing the firm under family's name.

2.2 Family firms and capital structure

According to classic agency theory, family-controlled firms should have less agency cost than non-family firms (Jensen and Meckling, 1976) as controlling families have great incentives to monitor managers of firms (Anderson and Reeb, 2003a). With CEO affiliated with controlling

[3] For comprehensive review definition of a family firm, see MILLER, D., LE BRETON-MILLER, I., LESTER, R. H. & CANNELLA, A. A. 2007. Are family firms really superior performers? *Journal of corporate finance,* 13**,** 829-858.

families in most family firms (Driffield et al., 2007), the conflicts of interests between managers and shareholders are naturally mitigated. However, family firms can create conflicts between family and minority shareholders because controlling families can exploit minority shareholders to achieve private benefits (Demsetz and Lehn, 1985). The possibility of expropriation is high in South East Asia where family firms often have a very large controlling shareholder with an edge of small shareholders (Claessens et al., 2000) and legal system of investor protection is weak (Porta et al., 1996).

Two main competing motivations may influence family firms' capital structure decisions, which are control and risk-reducing motives. A large body of literature reports the control motivation to expropriate minority shareholders in family firms (Demsetz, 1983, Demsetz and Lehn, 1985, Porta et al., 1999, Claessens et al., 2002, Villalonga and Amit, 2006, Shleifer and Vishny, 1986). The separation of control from cash flows rights in most family firms provides greater incentives and ability for controlling families to exploit minority shareholders. For example, controlling families may pursue socioemotional wealth for the family at the expense of the firm by using scarce resources of the firm (Block et al., 2013). Founding families who own a group of publicly traded and private firms may divert resources from public firms to benefit private firms, or family firms may invest less in R&D (Chrisman and Patel, 2012, Block, 2012). When family shareholders have incentives to maintain control power in a firm, they are less willing to issue stock, as this will dilute their control power. Hence, they may prefer using debt instead of equity.

An alternative perspective of family firms suggests that risk-reducing motivation may influence family firm's financing decision. Viewing family firm as a trust to pass to next generations, founding families have a strong desire for long-term firm survival than diversified shareholders (Bertrand and Schoar, 2006, Casson, 1999). In addition, as the large block, undiversified investors, founding families have greater risk aversion. Thus, founding families have greater incentives to minimize the risk of firms (Anderson and Reeb, 2003b). Founding families may employ strategies to reduce risk such as using securities that have a low probability of default risk. Hence, they may prefer using equity to debt for raising capital. Using less debt among family firms may come from other reasons. With a long-term management approach, family firms may receive "patient capital", leading these firms to rely less on debt. The agency cost of cash flows is not the main concern when family members usually serve as CEO/chairman

(Daily and Dollinger, 1992). Hence, the benefit of debt as an effective tool to reduce agency cost of free cash flows (Jensen, 1986) is less important in family firms.

Empirical findings on the effect of family firms on leverage are rather inconclusive. Anderson and Reeb (2003b) find no difference in using debt financing between family firms versus non-family firms among S&P 500 firms. Ampenberger et al. (2013) find a lower level of debt among family firms relative to non-family firms in Germany, a bank-based economy. The findings of Ampenberger et al. (2013) is in line with Mishra and McConaughy (1999), who investigate the impact of family ownership on leverage among large U.S. firms. Their findings confirm that family firms are more risk adverse and concerned about their long-term survival. In contrast, Driffield et al. (2007) find that the debt level increases among family firms in four East Asian countries. In a study of family firms conducted in 38 countries, Ellul (2008) concludes that control power motivation influences family firms' capital structure more than risk reduction motivation.

2.3 Empirical hypotheses

Firm size

The positive relationship between firm size and leverage is documented in most empirical studies (Booth et al., 2001, De Jong et al., 2008, Titman and Wessels, 1988, Rajan and Zingales, 1995). The same results are found in studies on the capital structure on East Asia (Deesomsak et al., 2004, Driffield et al., 2007, Pandey, 2001).

Firm size is an inverse proxy for expected bankruptcy cost (Harris and Raviv, 1991). Large firms are well diversified and have lower financial distress cost, leading to use more debt to finance investments. Mishra and McConaughy (1999) find that founding family firms are more concerned about financial distress than non-family firms for at least two reasons. First, founding families are usually large block holders and undiversified investors, facing higher risk (Burkart et al., 2003, Anderson and Reeb, 2003b). Second, they are more concerned with the long-term survival of their firm since they consider it as a trust, a legacy to pass to pass to next generations rather than something they simply own (Ang, 1992, Bertrand and Schoar, 2006). Thus, the positive relationship between firm size and leverage should be stronger in family firms.

H1: Family ownership strengthens the positive relationship between firm size and leverage.

Tangibility

The positive association between tangible assets and leverage are found conclusively in many empirical studies (Rajan and Zingales, 1995, Booth et al., 2001, De Jong et al., 2008). According to Besanko and Thakor (1987), tangible assets can be used as collateral to reduce the agency cost between borrowers and lenders. Hence, firms with high tangibility can borrow more easily.

Under the classic agency model, lenders face the risk of asset substitution with the presence of diversified shareholders (Jensen and Meckling, 1976). In contrast, large undiversified shareholders help to mitigate the risk of bondholder expropriation. The reason is founding families, having an undiversified portfolio and viewing firm as a trust to pass to next generations, are concerned about firm long-term survival (Ang, 1992). Further, with the sustained presence in a firm, founding families are more concerned about the reputation of the firm and their family (Diamond, 1989, Anderson et al., 2003). Family firms are also characterized by self-regulation, a cohesive management structure and personal contact with external parties (Bopaiah, 1998). Family firms will pursue a reduction of risk exposure; this could lead to reducing default risk and agency cost of asset substitution (Diamond, 1989, Bopaiah, 1998, Anderson et al., 2003). Hence, lenders may put lower tangibility criteria when dealing with family firms.

However, family firms are also characterized by "free riding" family members (Bruce and Waldman, 1990), ineffective management entrenchment effects tempered by kinship and altruism (Schulze et al., 2003, Morck et al., 1988) and predatory managers (Morck and Yeung, 2003). According to Schulze et al. (2003), parents' altruism makes them generous with their children even when they free ride and do not have strong desire to create wealth. This leads to the underperformance of the family firm and threatens its long-term survival. Founding family firms prefer to recruit for management position among kinship network rather than professional managers, causing unqualified family members to manage the firm (Morck et al., 1988, Bertrand and Schoar, 2006). Especially, when family firm controls a group of private and publicly traded firms, which is the case in East Asia countries (Claessens et al., 2000, Carney and Child, 2013), managers may act on behalf of controlling families rather than for all shareholders. These generate a set of agency costs, which expropriate minority shareholders and have a negative impact on firm performance. Hence, banks may be more cautious when dealing with family

firms. To protect them, lenders will put higher tangibility criteria for families firms than non-family firms (Voordeckers and Steijvers, 2006, Pan and Tian, 2016).

H2: Family ownership strengthens the positive relationship between tangibility and leverage.

Profitability

The negative relationship between leverage and profitability is also documented in many empirical studies (Titman and Wessels, 1988, Rajan and Zingales, 1995, De Jong et al., 2008, Booth et al., 2001, Pandey, 2001). Myers and Majluf (1984) show that investors usually have less information than insiders, thus having a tendency to discount the stock price. In short run with fixed dividend and investment policy, a decrease in profitability will lead to internal fund deficit. Firms prefer to finance internal deficit by debt over equity to reduce the cost of asymmetric information, as issuing equity would send a negative signal to the stock market.

Founding families, as large block holding and undiversified investors, are more concerned about the negative effect of issuing equity than others. In addition, Villalonga and Amit (2006) state that if a large shareholder is an institutional investor such as a widely-held corporation, a fund or a bank, the incentives of expropriation are weak due to dilution of private benefits among many independent investors. In contrast, family firm is the apex of governance institution of firm, having greater incentives to systematically expropriate minority shareholders (Shleifer and Vishny, 1997, Claessens et al., 2002). Hence, family firms are more aggressive to maintain control power through using debt as it is an effective solution to finance the deficit without ownership dilution (Burkart et al., 2003).

H3: Family ownership strengthens the negative relationship between profitability and leverage.

Growth opportunities

The investment distortions firms face can be under or over investment. The former happen due to asymmetric information between insiders and creditors (Myers and Majluf, 1984) while the latter derives from the misalignment of managerial and shareholders interests (Jensen, 1986). Founding family firms with large ownership stakes usually have CEO from family members, hence the misalignment of interests is not an issue. Rather, the asymmetric information between insiders and creditors that may cause underinvestment is a concern. Firms with growth opportunities have a tendency to use less debt to avoid underinvestment (Jensen, 1986, Stulz,

1990). The underinvestment issue, which is presented as the negative relationship between growth opportunities and leverage, are documented in many empirical researches (Rajan and Zingales, 1995, Deesomsak et al., 2004, Pandey, 2001, De Jong et al., 2008).

The underinvestment in family firms could be more or less problematic under the effect of family ownership. Family firms, having long-term management approach and survival motivation, will build long reputation history and a lasting relationship with creditors (Berger and Udell, 1995). This reduces the level of the asymmetric information between firms and creditors. Thus, the suboptimal investments among family firms should be less severe. In contrast, the risk of expropriation could lead to the underperformance of the family firm (Driffield et al., 2007, Demsetz, 1983, Shleifer and Vishny, 1997, Claessens et al., 2000, Morck and Yeung, 2003, Cronqvist and Nilsson, 2003, Bloom and Van Reenen, 2006). This leads to increase the default risk creditors are facing. Hence, lenders may be more cautious in lending money to family firms, resulting in underinvestment. Particularly, excessive control rights over cash flow rights in South East Asian family firms can help extracting scarce resources for private business (Claessens et al., 2000, Carney and Child, 2013). In addition, South East Asia has weak legal investor protection and poor institutional environment, which increases the possibility of expropriation (La Porta et al., 1997).

H4: Family ownership strengthens the negative relationship between growth opportunities and leverage.

III. EMPIRICAL STRATEGY

3.1 Data

We collect data from several sources. We obtain ownership data for publicly traded firms in four South East Asian countries (Indonesia, Malaysia, Philippines, Singapore, and Thailand) from the study of Carney and Child (2013). This data set is the most updated database of ownership in East Asia and identifies the ultimate controlling shareholders, ultimate cash flows (ownership) and voting (control) rights of firms in 2008. We exclude financial institutions (Anderson and Reeb, 2003b, Driffield et al., 2007, Ellul, 2008, Ampenberger et al., 2013).

Next, we extract firm financial data from Osiris and then match manually the ownership dataset with the firm financial data. After deleting firms with insufficient financial data, we end up with 2,373 firm-year observations.

Finally, we obtain macro factors including gross domestic product (GDP) growth rate, interest rate and inflation rate from the International Monetary Fund and legal origin, judicial enforcement, creditor, and anti-director indices from La Porta et al. (1997) and Djankov et al. (2007).

3.2 Variables

3.2.1 Leverage

We consider the long-term interest-bearing debt over the market value of a firm as a proxy for capital structure (De Jong et al., 2008, Titman and Wessels, 1988, Booth et al., 2001, Demirgüç-Kunt and Maksimovic, 1999)[4]. Long-term interest-bearing debt provides information on long-term capital raised by firms, which is consistent with the theoretical definition of capital structure as a mix of long-term debt and equity. Short-term debt often includes largely trade credit, which is influenced by completely different determinants (De Jong et al., 2008). Hence, leverage is measured by total debt ratio may lead to generate results, which are difficult to interpret. We use book value of debt due to difficulties in obtaining data to calculate the market value of debt. We use long-term debt over total assets as an alternative debt measurement for robustness checks.

3.2.2 Family firm

To distinguish between family and non-family firm, we follow the definition of a family firm in the study of Claessens et al. (2000) and Carney and Child (2013). They define it as a firm in which the largest ultimate shareholder with at least 20% of voting rights is an individual or a family. We use the threshold of 20 percent of voting rights follows the classification of Enriques and Volpin (2007). We design a dummy variable, *Family_firm*, equal to 1 if a firm is defined as a family firm, otherwise 0.

In addition, we employ an alternative proxy for the family control. We use a dummy variable, *Family_firm_CEO*, equal to 1 if the firm has CEOs, Board Chairman, or Vice-Chairman affiliated with founding family, otherwise 0. Founding families can exercise the greatest influence on a firm by assigning one of family members in the position of CEO (Morck et al., 1988, Anderson and Reeb, 2003b, Driffield et al., 2007). We expect that the control entrenchment is greater among family firms with family CEOs relative to non-family firms or family firms with outside CEOs.

[4] All variables are defined in the appendix.

We also explore how the difference between control rights versus cash flow rights in family firms influences financing decisions. The incentives to expropriate wealth from minority shareholders are stronger when controlling families have influence exceeding their ownership rights (Faccio et al., 2001). The conflicts between family and non-family shareholders are more severe in East Asia firms when the wedge between cash flow and control rights is large (Faccio et al., 2001, Claessens et al., 2000). We compute the ratio of control over cash flow rights of a controlling family in a firm. This variable, *Family_firm_control*, measures the wedge between control and cash flow rights in a family firm. Family firms usually are characterized by personal contact (Voordeckers and Steijvers, 2006); therefore, the old family firm may have long-term bank relationship. This relationship may lead to well-established family firms borrowing easier realtive to non-family firms, or young family firms (Cucculelli et al., 2016, Ongena and Smith, 2001). We investigate if the old and young family firms borrow differently or not by regressing the age of the family firm on the leverage.

3.2.3 Firm-specific factors

Four key firm-specific factors including firm size, tangibility, profitability and growth opportunities are measured following previous empirical studies (Rajan and Zingales, 1995, De Jong et al., 2008, Booth et al., 2001). *Size* is the natural logarithm of total assets. Total fixed assets divided by total assets gives *Tangibility*. *Profitability* is measured by net income divided by total assets (ROA). *Growth_opp* is defined as market value divided by book value of the firm.

3.2.4 Control variables

We control for other factors which are expected to have an impact on firm leverage. First, we control for industry sector following previous studies (Titman and Wessels, 1988, Myers, 1984, Hall et al., 2000, Song and Philippatos, 2004). Next, we control for macroeconomic conditions such as real GDP growth rate (Huang and Ritter, 2009, De Jong et al., 2008, Booth et al., 2001), and interest rate (Huang and Ritter, 2009, Goldstein et al., 2001, El-Masry and Hyde, 2007). Leverage is cumulated from previous years (Frank and Goyal, 2009). Hence, to investigate the net impact of the firm-specific factor on the leverage, we include one year lagged leverage to control for cumulating of the leverage.

Furthermore, we control for some institutional environment factors including anti-director index, judicial index and creditor index following La Porta et al. (1997) who show that law and quality of enforcement are important determinants of firm's external financing.

3.3 Model

To investigate the influence of family firm status on the determinants of leverage, we estimate the following specification:

$$lev_{it} = \alpha + \beta D_{fam_i} + \sum_{j=1}^{j} \gamma_j Firm\_factor_{it} + \sum_{k=1}^{k} \theta_k \, Control_{\,it} + \varepsilon_{it}$$

To get insight into the moderating effect of family ownership, we use interaction terms between family firm proxies and firm-specific factors. We use the following specification:

$$lev_{it} = \alpha + \beta D_{fam_i} + \sum_{j=1}^{j} \gamma_j Firm\_factor_{it} + \sum_{j=1}^{j} \delta_j D_{fam_i} Firm\_factor_{it} + \sum_{k=1}^{k} \theta_k \, Control_{\,it} + \varepsilon_{it}$$

IV. RESULTS AND DISCUSSION

4.1 Descriptive statistics

We use industry classification following Campbell (1996) (see table 1).

Family firms use more debt than non-family firms except in 2010 (see figure 1).

We remark that family firms use more debt than non-family firms in Indonesia and Philippines (see table 2).

These countries have low quality of enforcement (low judicial index, less than 5 over 10) (see table 3). In contrast, family firms use less debt than non-family firms in Singapore and Malaysia, which have the high quality of enforcement (high judicial index, 9 over 10). There is no difference in using debt between family and non-family-firms.

Table 4 summarizes descriptive statistics of variables and *t-test* for difference in mean of four key firm-specific factors between family and non-family firms. Family firms use more debt than non-family firms. Family firms are smaller, less profitable and have the higher level of tangibility than non-family firms. There is no difference in growth opportunities between family and non-family firms.

4.2 Results

Table 5 provides our first results. Family firms use more debt than non-family firms in both leverage measurements (columns 1 and 5). The result is unchanged under alternative proxy for a family firm (columns 2 and 6). Debt is an effective tool to avoid ownership dilution; hence family firms may use debt to enhance control power (Demsetz and Lehn, 1985). The results show that in general, family firms are motivated by control power through using more debt than non-family firms. The incentives for wealth expropriation are stronger when the control rights

exceed cash flow rights (Faccio et al., 2001, Claessens et al., 2002). Our results show that the larger ratio of control over cash flow rights of the controlling family in the firm, the more debt family firm use (columns 3 and 7). Similarly to study of Anderson and Reeb (2003b) and Driffield et al. (2007), we find that the age of the family firm has no impact on the leverage (columns 4 and 8).

In table 6, the results show the moderating effect of family firm status on the relation of firm size, tangibility, profitability, and growth opportunities and the leverage.

The coefficient estimate on the interaction term *Family firm x Size* is significantly positive at 5% level (column 1, panel A), showing the positive relationship between the leverage and firm size is stronger among family firms than non-family firms. The result is unchanged using the book leverage ratio (column 5, panel A). Our findings support hypothesis 1 that *"Family ownership strengthens the positive relationship between firm size and the leverage*". The explanation may be founding families are more sensitive to expected bankruptcy cost due to their underdiversified investment portfolios (Burkart et al., 2003, Anderson and Reeb, 2003b). When we use an alternative proxy for a family firm, the *Family firm with CEO*, the results are similar (columns 1 and 5, panel B).

The estimated parameter of interaction term *Family_firm x Tangibility* is significantly positive at 1% level (column 2, panel A). Family firms have higher level of tangibility than non-family firms at a certain level of debt. The reason for that is that banks usually ask for tangible assets as loan collateral to reduce default risk. The risk of expropriation derived from family control leads to an increased credit risk; this leads to banks requiring more tangibility as loan collateral (Pan and Tian, 2016, Voordeckers and Steijvers, 2006). Our findings support the hypothesis 2 that "*Family firm status has a moderating effect on the relationship between tangibility and the leverage*". This is close to findings of Steijvers et al. (2010) that family versus non-family distinction plays important role in determining the use of collateral. The moderating effect of family firm status on tangibility and the leverage relation is unchanged when we use the alternative proxy for family firms (column 1, panel B) or different leverage ratio (column 6, panel A).

The parameter estimation of interaction term *Family_firm x Profitability* is negative but not significant for both market and book leverage ratio (columns 3 and 7, panel A). However, under the alternative proxy for the family firm, which has CEO, Board Chairman, or Vice-

Chairman affiliated with the founding family, the negative relationship between profitability and the leverage is stronger among family firms with family CEO (column 3, panel B). Active family firms with their family member representation in management use more debt to finance the internal fund deficits. The findings show that dilution entrenchment is stronger among family firms with family CEO relative to non-family firms or family firms with outside CEO. The findings support the hypothesis 3 that "*Family ownership status influences the effect of profitability on the leverage*".

The coefficient for the interaction term *Family_firm x Growth_opp.* is negative but not significant for both market and book leverage ratio (columns 4 and 8, panel A). However, again, the findings show that family firm with family CEO has influence on the relationship between growth opportunities and the leverage (column 4, panel B). This can be explained by the fact that the risk of expropriation in family firms is greater with the representation of a family member in the position of CEO (Anderson and Reeb, 2003b); hence bankers will be more cautious when dealing with family firms with family CEO relative to non-family firms or family firms with outside CEO. As a result, the underinvestment is more problematic in family firms with family CEO.

4.3 Robusness checks

Table 7 shows results of different estimate methods. We perform several robustness checks. First, we check for outliers. Next, we run the regression with and without clustering at the firm level to control for heteroskedasticity and obtain similar results (columns 1 and 2). We rerun regression using panel correction standard error method (PCSE) following Beck (2008) and general least square (GLS). Again, we obtain similar results (columns 3 and 4).

V. CONCLUSION

We explore how family firm status affects the firm's financing decisions. We investigate 314 largest publicly traded firms in Southeast Asian countries including Indonesia, Malaysia, Philipines, Singapore, and Thailand. Our findings show that family firms borrow more than non-family firms during the period of 2004 to 2013. The results imply that the dilution entrenchment may lead family firms to rely more on debt as debt is an effective tool to raise capital without ownership dilution. Family firms are driven by control power motivation. We find a positive association between the level of debt family firms use and the ratio of control rights to cash flow

rights. The larger ratio of control to cash flow rights, the more debt family firms borrow. The alternative leverage measurement and proxy for the family firm do not change our findings.

We find the family ownership affects the relationship between the firms-specific factor and the leverage. The positive relationship between firm size and the leverage is stronger among family firms. The results show that family firms are more concerned about financial distress cost than non-family firms are. In addition, family firms have a higher level of tangibility at the certain level of debt than non-family firms do. Family firms are usually characterized by "free rider", parents' altruism, predatory manager, expropriation risk; this lead to the increasing risk of default. Hence, to protect themselves, creditors may ask more tangibility from family firms. Tangibility with a role of loan collateral or at least has more value than intangibility do when the firm in financial distress cost. Family firms with family CEOs use more debt to finance the internal financial deficit relative to non-family firms or family firms with outside CEOs. Again, the results show the control power motivation influence the firm's financing decision. On the other hand, family firms with family CEOs use less than to reduce the underinvestment problem. The different techniques do not change our results.

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Appendix: Variable definitions and Data Sources

Variable	Definition	Source
Panel A: Leverage ratio measurement		
ltd	The ratio of long-term interest-bearing debt to market value of the firm	Authors' calculation based on Osiris
LTD	The ratio od long-term interest-bearing debt to total assets	As above
Panel B: Family firm measurement		
Family_firm	A dummy variable equals 1 if the largest ultimate shareholder is family, otherwise 0	Authors' calculation based on Carney and Child (2013)
Family_firm_CEO	A dummy variable equals 1 if a member of controlling family is also CEO, Chairman, or Vice-Chairman, otherwise 0	As above
Family_control	The ratio of control to cash flow rights in a family firm	As above
Panel C: Firm-level variables		
Family_firm_age	Fiscal year minus the year of establishment	Authors' calculation based on Carney and Child (2013)
Size	The natural logarithm of total assets in thousands of $US.	Authors' calculation based on Osiris
Tangibility	The ratio of fixed assets to total assets	As above
Profitability	The ratio of net income to total assets	As above
Growth_opp.	The ratio of the market value of the firm to total assets	As above
Lagged_leverage	Leverage ratio of the firm in previous year	As above
Panel D: Country-level institutions		
GDP_growth	Real GDP growth rate	Authors' calculations based on IMF source
Real_int	Real interest rate	As above
Anti-index	Anti-director index measures the quality of investors' right protection	Porta et al. (1996)
Judicial	Judicial index measures the quality of enforcement	As above

Figure 1: Leverage over time

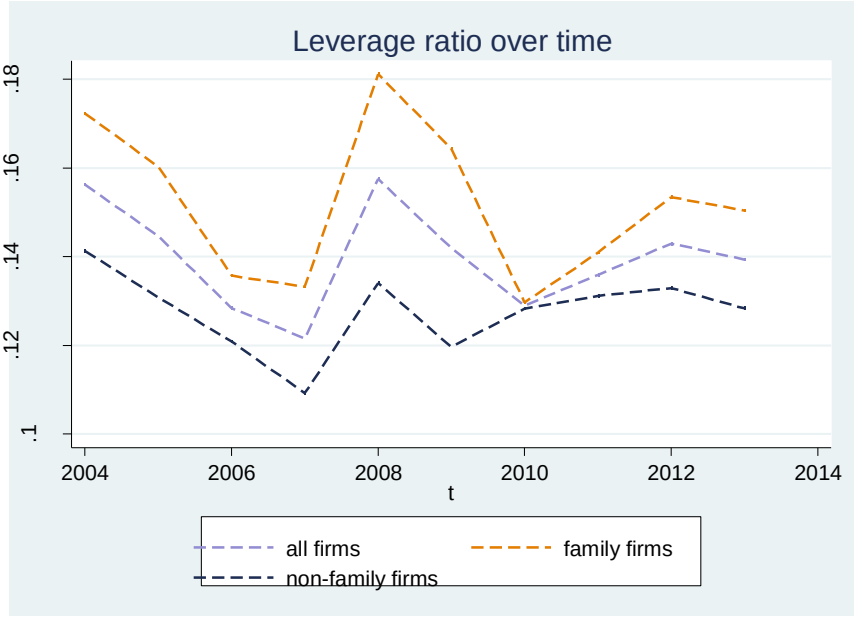

Table 1: Family firms vs. non-family firms by industry

Industry	All firms		All firms		
	Number of firms	%	Family-firm	Non-family firm	Total
Petroleum industry	14	4%	1	13	14
			7%	93%	100%
Real estate industry	12	3%	7	5	12
			58%	42%	100%
Consumer durables	62	16%	33	29	62
			53%	47%	100%
Basic industry	53	14%	30	23	53
			57%	43%	100%
Food/Tobacco industry	60	16%	38	22	60
			63%	37%	100%
Construction industry	26	7%	11	15	26
			42%	58%	100%
Capital goods industry	15	4%	9	6	15
			60%	40%	100%
Transportation industry	27	7%	10	17	27
			37%	63%	100%
Utilities industry	43	11%	15	28	43
			35%	65%	100%
Textile/Trade industry	26	7%	14	12	26
			54%	46%	100%
Services industry	17	4%	7	10	17
			41%	59%	100%
Leisure industry	23	6%	14	9	23
			61%	39%	100%
Total	378	100%	189	189	378
			50%	50%	100%

Table 2: Long-term debt ratios by country

This table reports the results of univariate tests for difference in leverage between family firms and non-family firms. The sample is composed of 2,373 firm-year observations representing 341 unique firms over the period 2004–2013. Definitions and data sources for the variables are provided in the Appendix. ***, **, * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	Full sample	**Indonesia**	**Malaysia**	**Philippines**	**Singapore**	**Thailand**
Non-family firms	.1267	.1609	.1535	.1337	.1321	.1728
Family firms	.1489	.2294	.1307	.1697	.1118	.1831
All firms	.1328	.2021	.1432	.1633	.1219	.1758
Diff. family vs non-family firms	-.0161**	-.0685***	.0228***	-.0361**	.0203**	-.0103
	(-4.3208)	(-4.3915)	(2.3472)	(-1.8000)	(1.9353)	(-0.7855)

Table 3: Institutional environment index by country

Source: country origin and an average of creditor right indicator come from Djankov, S., McLiesh, C., Shleifer, A., 2007. Private Credit in 129 Countries. Journal of Financial Economics 84, 299–329. Anti-director index and judicial come from Porta, Rafael La, Lopez-de-Silane, Florencio Shleifer, Andrei Vishny, Robert W., 1996. Law and Finance. National Bureau of Economic Research.

	Indonesia	**Malaysia**	**Philippines**	**Singapore**	**Thailand**
Country origin	Civil	Common	Civil	Common	Civil
Anti-director index	2	3	4	3	3
Creditor right	2	3	1	3	2
Judicial	2.5	9	4.75	10	3.25

Table 4: Descriptive statistics and univariate tests

This table reports the results of univariate tests for differences between family firms and non-family firms. The sample is composed of 2,373 firm-year observations representing 341 unique firms over the period 2004–2013. Definitions and data sources for the variables are provided in the Appendix. ***, **, * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Summary statistic

Variable	N	Mean	SD	Median	Min	Max
Long-term leverage	2643	0.14	0.14	0.10	0.00	0.81
Size	3769	12.85	1.69	12.85	3.83	17.82
Tangibility	3769	0.56	0.22	0.57	0.00	1.00
Profitability	3758	0.09	0.12	0.08	-0.97	0.88
Growth_opp	3270	2.35	21.79	1.19	0.16	976.57
Real_int	3860	0.04	0.02	0.04	-0.01	0.10
Anti-index	3860	2.92	0.59	3.00	2.00	4.00
Creditor_Right	3860	2.26	0.69	2.00	1.00	3.00
Judicial	3860	5.77	3.08	4.75	2.50	10.00
GDPgrowth	3860	0.05	0.04	0.04	-0.06	0.18

Panel B: Univariate Tests: Family Firms versus Non-family Firms

	Non-family firm	Family firm	T-test
Long-term leverage	0.13	0.15	(-4.32)***
Size	13.07	12.61	(8.41)***
Tangibility	0.55	0.58	(-4.45)***
Profitability	0.09	0.08	(3.01)**
Growth opp.	1.69	3.03	(-1.76)
Observations	1914	1914	3769

Table 5: Family firms and leverage

This table reports the OLS regressions of family firms on leverage. The sample is composed of 2,373 firm-year observations representing 341 unique firms over the period 2004–2013. The dependent variable is long-term leverage. Definition of variables appears in Appendix. A dummy variable for industry sector are included in the regressions but are not reported. Robust *t*-statistics adjusted for clustering by the firm are reported in parentheses. ***, **, * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	Long-term debt/Market value of firm				**Long-term debt/Total assets**			
	1	2	3	4	5	6	7	8
Family_firm	0.0131***				0.0116***			
	(0.0043)				(0.0040)			
Family_firm_CEO		0.0118**				0.0148***		
		(0.0045)				(0.0046)		
Family_control			0.0035***				0.0029**	
			(0.0013)				(0.0012)	
Family_firm_age				0.0000				0.0000
				0.0000				0.0000
Size	0.0086***	0.0083***	0.0088***	0.0119***	0.0076***	0.0075***	0.0078***	0.0101***
	(0.0020)	(0.0020)	(0.0020)	(0.0030)	(0.0018)	(0.0018)	(0.0019)	(0.0025)
Tangibility	0.0636***	0.0656***	0.0641***	0.0849***	0.0678***	0.0700***	0.0684***	0.0711***
	(0.0122)	(0.0123)	(0.0121)	(0.0208)	(0.0127)	(0.0126)	(0.0125)	(0.0196)
Profitability	-0.1168***	-0.1138***	-0.1177***	-0.0972***	-0.1999***	-0.1975***	-0.2011***	-0.2049***
	(0.0298)	(0.0296)	(0.0300)	(0.0312)	(0.0487)	(0.0478)	(0.0490)	(0.0645)
Growth_opp	-0.0079**	-0.0077**	-0.0080**	(0.0078)	0.0096***	0.0099***	0.0094***	0.0127**
	(0.0038)	(0.0039)	(0.0038)	(0.0063)	(0.0035)	(0.0036)	(0.0035)	(0.0050)
Lagged_leverage	0.6935***	0.6960***	0.6954***	0.6977***	0.7504***	0.7501***	0.7518***	0.7693***
	(0.0321)	(0.0323)	(0.0323)	(0.0297)	(0.0437)	(0.0432)	(0.0445)	(0.0442)
GDP_growth	(0.0178)	(0.0147)	(0.0045)	0.0414	(0.0470)	(0.0467)	(0.0341)	(0.0847)
	(0.0443)	(0.0443)	(0.0448)	(0.0635)	(0.0500)	(0.0505)	(0.0495)	(0.0831)
Real_int	-0.5699***	-0.5617***	-0.5426***	-0.5708***	0.0222	0.0207	0.0487	0.0374
	(0.1068)	(0.1057)	(0.1063)	(0.1484)	(0.0921)	(0.0922)	(0.0918)	(0.1373)
anti-index	-0.0149***	-0.0145***	-0.0137***	-0.0127**	-0.0081*	-0.0083**	-0.0069*	(0.0072)

	(0.0045)	(0.0044)	(0.0045)	(0.0056)	(0.0041)	(0.0041)	(0.0040)	(0.0049)
Judicial	-0.0035***	-0.0035***	-0.0034***	-0.0032**	-0.0016**	-0.0016**	-0.0015**	-0.0022*
	(0.0008)	(0.0008)	(0.0008)	(0.0014)	(0.0007)	(0.0007)	(0.0007)	(0.0012)
Intercept	(0.0285)	(0.0281)	(0.0320)	-0.0940**	-0.0932***	-0.0946***	-0.0962***	-0.1256***
	(0.0313)	(0.0315)	(0.0314)	(0.0469)	(0.0302)	(0.0300)	(0.0307)	(0.0434)
Obs.	2373	2373	2373	1199	2480	2480	2480	1252
Adj.R2	0.6962	0.6957	0.6954	0.7301	0.7201	0.7206	0.7195	0.7489

Table 6: Moderating impact of family firms on capital structure determinants

This table reports the pool regressions of family firms on leverage. The sample is composed of 2,373 firm-year observations representing 341 unique firms over the period 2004–2013. The dependent variable is long-term leverage. Definition of variables appears in Appendix. A dummy variable for industry sector are included in the regressions but are not reported. Robust *t*-statistics adjusted for clustering by a firm are reported in parentheses. ***, **, * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: The largest ultimate shareholder (voting rights > =20%) is an individual or a family

	Long-term debt/Market value of firm				Long-term debt/Total asset			
	1	2	3	4	5	6	7	8
Family_firm	-0.0788**	-0.0216**	0.0125**	0.0126	-0.0543*	(0.0088)	0.0130*	0.0056
	(0.0380)	(0.0103)	(0.0057)	(0.0107)	(0.0310)	(0.0093)	(0.0068)	(0.0050)
Family_firm x Size	0.0069**				0.0050**			
	(0.0030)				(0.0024)			
Family_firm x Tangibility		0.0600***				0.0354*		
		(0.0203)				(0.0194)		
Family_firm x Profitability			0.0082				(0.0174)	
			(0.0575)				(0.0640)	
Family_firm x Growth_opp.				0.0004				0.0042
				(0.0072)				(0.0030)
Size	0.0056***	0.0086***	0.0086***	0.0086***	0.0055***	0.0076***	0.0075***	0.0077***
	(0.0020)	(0.0019)	(0.0020)	(0.0019)	(0.0020)	(0.0018)	(0.0019)	(0.0018)
Tangibility	0.0639***	0.0374***	0.0636***	0.0635***	0.0681***	0.0523***	0.0678***	0.0674***
	(0.0124)	(0.0129)	(0.0122)	(0.0123)	(0.0128)	(0.0153)	(0.0126)	(0.0127)
Profitability	-0.1134***	-0.1124***	-0.1214***	-0.1169***	-0.1975***	-0.1974***	-0.1898***	-0.2010***
	(0.0299)	(0.0295)	(0.0410)	(0.0293)	(0.0488)	(0.0481)	(0.0486)	(0.0488)
Growth_opp.	-0.0081**	-0.0085**	-0.0079**	-0.0081**	0.0095***	0.0093***	0.0095***	0.0075**
	(0.0038)	(0.0038)	(0.0038)	(0.0034)	(0.0035)	(0.0035)	(0.0035)	(0.0031)
Lagged_ leverage	0.6911***	0.6891***	0.6935***	0.6934***	0.7492***	0.7484***	0.7504***	0.7496***
	(0.0322)	(0.0327)	(0.0321)	(0.0320)	(0.0437)	(0.0436)	(0.0438)	(0.0436)

GDP_growth	(0.0170)	(0.0230)	(0.0179)	(0.0176)	(0.0459)	(0.0494)	(0.0469)	(0.0457)
	(0.0445)	(0.0440)	(0.0443)	(0.0443)	(0.0503)	(0.0504)	(0.0499)	(0.0497)
Real_int.	-0.5684***	-0.5715***	-0.5698***	-0.5697***	0.0231	0.0206	0.0224	0.0238
	(0.1067)	(0.1058)	(0.1068)	(0.1065)	(0.0920)	(0.0919)	(0.0921)	(0.0925)
Anti-index	-0.0153***	-0.0159***	-0.0150***	-0.0149***	-0.0083*	-0.0086**	-0.0080**	-0.0081*
	(0.0046)	(0.0046)	(0.0045)	(0.0045)	(0.0042)	(0.0043)	(0.0040)	(0.0042)
Judicial	-0.0034***	-0.0034***	-0.0035***	-0.0035***	-0.0015**	-0.0015**	-0.0016**	-0.0016**
	(0.0008)	(0.0008)	(0.0008)	(0.0008)	(0.0007)	(0.0007)	(0.0007)	(0.0007)
Intercept	0.0100	(0.0123)	(0.0282)	(0.0282)	-0.0658**	-0.0841***	-0.0937***	-0.0902***
	(0.0309)	(0.0301)	(0.0312)	(0.0317)	(0.0319)	(0.0306)	(0.0294)	(0.0306)
Obs.	2373	2373	2373	2373	2480	2480	2480	2480
Adj.R2	0.6972	0.6976	0.6961	0.6961	0.7205	0.7204	0.7200	0.7202

Panel B: A member of controlling family is also CEO, Chairman, or Vice-Chairman

	Long-term debt/Market value of firm				**Long-term debt/Total asset**			
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Family_firm_CEO	-0.1273***	-0.0215**	0.0175***	0.0247***	-0.1000***	(0.0133)	0.0233***	0.0074
	(0.0451)	(0.0108)	(0.0059)	(0.0094)	(0.0344)	(0.0108)	(0.0085)	(0.0070)
Family_firm _CEO x Size	0.0105***				0.0087***			
	(0.0036)				(0.0027)			
Family_firm_CEO x Tangibility		0.0576***				0.0487**		
		(0.0217)				(0.0228)		
Family_firm_CEO x Profitability			-0.0818*				(0.1217)	
			(0.0442)				(0.0766)	
Family_firm_CEO_ x Growth opp.				-0.0098*				0.0055
				(0.0055)				(0.0051)
Size	0.0050**	0.0083***	0.0083***	0.0085***	0.0047**	0.0075***	0.0075***	0.0074***
	(0.0020)	(0.0020)	(0.0020)	(0.0020)	(0.0019)	(0.0018)	(0.0018)	(0.0018)
Tangibility	0.0680***	0.0476***	0.0642***	0.0646***	0.0717***	0.0546***	0.0680***	0.0709***
	(0.0125)	(0.0135)	(0.0123)	(0.0122)	(0.0127)	(0.0149)	(0.0132)	(0.0124)

Profitability	-0.1123***	-0.1096***	-0.0858**	-0.1184***	-0.1961***	-0.1944***	-0.1563***	-0.1949***
	(0.0296)	(0.0294)	(0.0352)	(0.0290)	(0.0477)	(0.0469)	(0.0403)	(0.0470)
Growth_opp.	-0.0079**	-0.0081**	-0.0088**	(0.0058)	0.0099***	0.0097***	0.0084***	0.0087**
	(0.0039)	(0.0039)	(0.0035)	(0.0042)	(0.0036)	(0.0036)	(0.0029)	(0.0034)
Lagged_leverage	0.6895***	0.6919***	0.6932***	0.6941***	0.7466***	0.7473***	0.7469***	0.7503***
	(0.0325)	(0.0326)	(0.0318)	(0.0319)	(0.0434)	(0.0427)	(0.0422)	(0.0432)
GDP_growth	(0.0160)	(0.0184)	(0.0101)	(0.0185)	(0.0465)	(0.0488)	(0.0390)	(0.0450)
	(0.0445)	(0.0442)	(0.0443)	(0.0443)	(0.0509)	(0.0509)	(0.0480)	(0.0498)
Real_int.	-0.5583***	-0.5643***	-0.5532***	-0.5562***	0.0213	0.0167	0.0316	0.0181
	(0.1055)	(0.1048)	(0.1053)	(0.1059)	(0.0920)	(0.0920)	(0.0927)	(0.0926)
Anti-index	-0.0149***	-0.0156***	-0.0142***	-0.0148***	-0.0086**	-0.0092**	-0.0079*	-0.0081**
	(0.0044)	(0.0044)	(0.0044)	(0.0044)	(0.0042)	(0.0043)	(0.0040)	(0.0041)
Judicial	-0.0035***	-0.0035***	-0.0035***	-0.0037***	-0.0016**	-0.0017**	-0.0015**	-0.0016**
	(0.0008)	(0.0008)	(0.0008)	(0.0008)	(0.0007)	(0.0007)	(0.0007)	(0.0007)
Intercept	0.0146	(0.0165)	(0.0291)	(0.0305)	-0.0592*	-0.0852***	-0.0964***	-0.0934***
	(0.0311)	(0.0302)	(0.0316)	(0.0320)	(0.0307)	(0.0305)	(0.0295)	(0.0306)
Obs.	2373	2373	2373	2373	2480	2480	2480	2480
Adj.R2	0.6979	0.6969	0.6963	0.6964	0.7218	0.7213	0.7218	0.7207

Table 7: Robustness tests

This table reports regressions of family firm status on leverage and the moderating effect of family firm status on the relationship between the firm-specific factor and the leverage. The sample is composed of 2,373 firm-year observations representing 341 unique firms over the period 2004–2013. The dependent variable is long-term leverage. Definition of variables appears in Appendix. Size, Tangibility, Profitability, real GDP growth rate, real interest rate, anti-director index, Judicial, dummy variable for industry sector are included in the regressions but are not reported. Robust *t*-statistics adjusted for clustering by a firm are reported in parentheses. ***, **, * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	Model 1 (OLS)	Model 2 (Cluster by Firms)	Model 3 (GLS)	Model 4 (PCSE)
Panel A: The largest ultimate shareholder (voting rights > =20%) is an individual or a family				
Family_firm	0.0131***	0.0131***	0.0060***	0.0131***
	(0.0035)	(0.0043)	(0.0018)	(0.0035)
Family_firm x Size	0.0069***	0.0069**	0.0025**	0.0069***
	(0.0023)	(0.0030)	(0.0011)	(0.0022)
Family_firm x Tangibility	0.0600***	0.0600***	0.0273***	0.0600***
	(0.0171)	(0.0203)	(0.0086)	(0.0173)
Family_firm x Profitability	0.0082	0.0082	(0.0121)	0.0082
	(0.0314)	(0.0575)	(0.0180)	(0.0516)
Family_firm x Growth_opp.	0.0004	0.0004	(0.0008)	0.0004
	(0.0030)	(0.0072)	(0.0016)	(0.0030)
Panel B: A member of controlling family is also CEO, Chairman, or Vice-Chairman				
Family_firm_CEO	0.0118***	0.0118**	0.0069***	0.0118***
	(0.0037)	(0.0045)	(0.0018)	(0.0037)
Family_firm_CEO x Size	0.0105***	0.0105***	0.0050***	0.0105***
	(0.0025)	(0.0036)	(0.0013)	(0.0026)
Family_firm_CEO x Tangibility	0.0576***	0.0576***	0.0367***	0.0576***
	(0.0179)	(0.0217)	(0.0089)	(0.0179)
Family_firm_CEO x Profitability	-0.0818**	-0.0818*	-0.0444**	(0.0818)
	(0.0354)	(0.0442)	(0.0201)	(0.0514)
Family_firm_CEO x Growth_opp.	-0.0098**	-0.0098*	-0.0051**	-0.0098***
	(0.0039)	(0.0055)	(0.0021)	(0.0037)

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