The impact of information opacity on the relation between founding-family control and cost of debt

Liangbo Ma[a], Shiguang Ma[a*], Gary Tian[a]

[a] *School of Accounting and Finance, University of Wollongong, Australia 2522*

[*] Corresponding Author. Northfields Avenue, Wollongong, New South Wales 2522, Australia; E-mail address: shiguang_ma@uow.eud.au; Tel: +61 2 4221 3312; Fax: +61 2 4221 4297.

The impact of information opacity on the relation between founding-family control and cost of debt

Abstract:

The literature finds mixed empirical evidence for systematic relations between founding-family ownership and cost of debt. Using a sample of 3380 privately (non-state) controlled but publicly listed firms in China between 2004 and 2010, we find that, on average, founding-family controlled firms pay significantly lower cost of debt, relative to non-founding-family controlled firms. Further investigation reveals that the negative relation between founding-family control and cost of debt exists mainly in firms that are relatively less opaque. Our results are robust to different measures of cost of debt and information opacity. We further generate evidence that in regions with more developed institutions, information opacity has a less significant impact on the relation between founding-family control and cost of debt. Our study highlights the importance of information opacity in understanding the impact of founding-family control on cost of debt, at least in countries with relatively underdeveloped institutions.

JEL classification: G21; G30; G32; G34

Key words: Founder; Family firms; Cost of debt; Bank loans; Information opacity

The impact of information opacity on the relation between founding-family control and cost of debt

1. Introduction

A relatively small proportion of the literature on family firms[1] examines the impacts of family control on the agency problem between shareholders and debt-holders, and on the agency cost of debt (Anderson et al., 2003; Ellul et al., 2007; Aslan and Kumar, 2009; Lin et al., 2011; D'Aurizio et al., 2012). Using a sample of S&P 500 firms between 1993 and 1998, Anderson et al. (2003) find that founding-family ownership is associated with significantly lower cost of debt financing. These authors argue that founding families' undiversified portfolios, strong interests in long-term firm survival, and reputational concerns give them great incentives to reduce the agency conflicts between shareholders and debt-holders. Although the rationale in Anderson et al. (2003) is intuitively sound, caution is needed in interpreting the negative relation between founding-family ownership and cost of debt.

[1] Researchers seem to have used the term "family firms" rather loosely in their various definitions of the term. For example, Anderson and Reeb (2003) and Wang (2006) use "founding family firms" and "family firms" interchangeably; Claessens et al. (2000), Faccio and Lang (2002), Villalonga and Amit (2006) and many others use the more general term "family firms;" while Anderson et al. (2009) explicitly use "founder firms" and "heir firms." Due to the nature of our sample (see detailed description in the data section), we follow Anderson and Reeb (2003) and use "founding-family controlled firms" or simply "founding-family firms" in this study. When referring to other studies, we use the same term as in each respective study to maintain an accurate reflection of that study.

Using a sample of S&P 500 firms between 1994 and 2002, Wang (2006) investigates the relation between founding-family ownership and the quality of accounting information. This author finds that founding-family ownership is associated with higher earnings quality, in other words, greater information transparency.

A closer look at these two studies shows that both Anderson et al. (2003) and Wang (2006) study S&P 500 firms in the U.S., thereby largely excluding the influence of institutions known to affect corporate governance (Shleifer and Vishny, 1997; La Porta et al., 2000; Dyck and Zingales, 2004) and cost of debt (Boubakri and Ghouma, 2010; Qi et al., 2010). The sample periods in these two studies largely overlap.[2] Finally, Wang (2006) follows Anderson and Reeb (2003) in defining and measuring founding-family ownership; the same definition is used in Anderson et al. (2003).

It is well documented that greater information transparency is generally associated with lower cost of debt (Ziebart and Reiter, 1992; Sengupta, 1998; Duffie and Lando, 2001; Yu, 2005; Livingston and Zhou, 2010). The following questions are then raised. Is the negative relation between founding-family ownership and cost of debt discovered by Anderson et al. (2003) a direct result of the nature of family ownership per se? Or does it simply capture the consequences of the deviation of information transparency between founding-family firms and non-family firms, as described in Wang (2006)?

These questions motivate our research. In this study, we investigate the impact of founding-family control on agency cost of debt and the role of information opacity in understanding the relation between founding-family control and agency cost of debt. Extant

[2] In a related paper, Ali et al. (2007) study a sample of S&P 500 firms between 1998 and 2002 and find that family firms make better financial disclosure. As a result, family firms are more transparent as indicated by larger analyst following, more informative analysts' forecasts, and smaller bid-ask spreads. Although these authors' definition of family firms is subject to criticism (Hutton, 2007), they nonetheless provide additional evidence on the positive relation between family firms and information transparency.

evidence shows that institutions have significant influence on agency conflicts (Shleifer and Vishny, 1997; La Porta et al., 2000; Dyck and Zingales, 2004). Some recent studies also find direct links between institutions and cost of debt (Miller and Puthenpurackal, 2002; Boubakri and Ghouma, 2010; Qi et al., 2010). Following these studies, we also examine the impact of institutions on cost of debt and on the role of information opacity. Specifically, we aim to answer the following four main questions: (1) Do founding-family controlled firms exhibit lower or higher cost of debt relative to non-founding-family controlled firms? (2) Is founding-family control positively or negatively associated with corporate information opacity? (3) Does information opacity affect the relation between founding-family control and cost of debt? (4) Do institutions influence the impact of information opacity on the relation between founding-family control and cost of debt?

Using a sample of 3380 privately controlled but publicly listed firms in China between 2004 and 2010, we find that, on average, founding-family controlled firms have substantially lower costs of debt relative to non-founding-family controlled firms, consistent with Anderson et al. (2003). However, further investigation shows that the negative relation between founding-family control and cost of debt exists mainly in firms that are relatively transparent. Such a negative relation weakens substantially in those firms that are relatively opaque. This is not surprising, as controlling shareholders have incentives to reduce information transparency when they attempt to extract private benefits (Leuz et al., 2003; Lang et al., 2004). In other words, in opaque firms, the benefits of founding-family control are likely to be significantly reduced by their entrenchment incentives. This finding indicates that the negative relation between founding-family control and cost of debt is at least partly attributable to the relatively more transparent information in founding-family firms.

We also find evidence that information opacity has a positive impact on cost of debt in both founding-family controlled firms and non-founding-family controlled firms, and that

such positive impact is significantly stronger in founding-family controlled firms than in non-founding-family controlled firms. Finally, we generate evidence that institutional factors, such as the overall degree of marketization and legal protection of property rights can mitigate the adverse impact of information opacity on cost of debt in founding-family controlled firms.

This study contributes to the literature in several ways. First, most previous studies use either U.S. or cross-country data. Our study is one of very few studies that focus on a single country outside the U.S. Our results show that in China—a country well-known for weak institutions—founding-family firms, on average, exhibit lower agency cost of debt than non-founding-family firms. Our results are contrary to Ellul et al. (2007), who find that, relative to non-family firms, family firms in countries with high investor protection benefit from lower debt costs, while family firms in countries with low investor protection suffer from higher debt costs. To our best knowledge, the only other similar study is D'Aurizio et al. (2012), who find evidence that in Italy (also a country known for weak institutions (Volpin, 2002)) family blockholders can attenuate agency conflicts between shareholders and creditors. Thus, our study raises an interesting question. Is China (probably alongside Italy) the only major economy where institutions are weak and yet family firms, on average, are still better at mitigating the shareholder-creditor agency problem than non-family firms?

Second, although a few recent studies begin to examine the relation between founding-family ownership and cost of debt in the framework of institutions (especially the role of investor protections) (Ellul et al., 2007; Boubakri and Ghouma, 2010), little work, if any, examines the potential role of information opacity in understanding such relation, despite the importance of information in closely related areas. For example, Fama (1980), Fama and Jensen (1983), and several other researchers stress the role of information in understanding the agency theory (see Eisenhardt (1989) for a review). Sengupta (1998),

Duffie and Lando (2001), and Yu (2005) all find a strong and positive link between information opacity and cost of debt. We integrate these two lines of research and provide strong evidence that information opacity does matter with respect to the relation between founding-family ownership and cost of debt.

Third, our study contributes to the literature on firm–bank relationships. A number of studies examine the relationship between firms and their creditors (banks in particular) and the impacts of this relationship. On one hand, Both Petersen and Rajan (1994) and Franks and Mayer (1997) find that a close tie between a firm and its banks can facilitate the firm's access to bank financing. On the other hand, Filatotchev and Mickiewicz (2006) and Luo et al. (2011) argue that controlling shareholders and managers may collude with banks to expropriate minority shareholders. In a recent study, Ma et al. (2012) find that founding-family firms are less likely to expropriate minority shareholders compared with non–founding-family firms. Our results therefore show that when founding families are the controlling shareholders, they are more likely to build an intimate and well-informed relationship with banks and reduce the agency cost of bank loans, without this coming at the expense of minority shareholders.

Finally, our study also contributes to the literature on the relation between ownership structure and information opacity. There is a large and growing body of literature that examines how the level and quality of accounting and financial disclosure are affected by firm ownership structure (Chau and Gray, 2000; Fan and Wong, 2002; Francis et al., 2005a; Attig et al., 2006; Wang, 2006; Ali et al., 2007). Wang (2006) compares his finding with that of Fan and Wong (2002), who find that concentrated ownership is associated with low earnings informativeness in East Asian economies. Wang acknowledges that the negative relation between family ownership and high earnings quality in his study may not hold in

countries with weak legal and market institutions. We provide new evidence that such negative relation can exist in a weak-institution country such as China.

The rest of this paper proceeds as follows. Section 2 reviews related literature and presents our hypotheses. Section 3 describes the sample and data. Section 4 reports our main empirical results. Section 5 carries out robustness tests. Finally, Section 6 sets forth our conclusions.

2. Theoretical framework, literature review, and hypotheses

2.1. Founding-family control and agency cost of debt

Founding families are a unique type of blockholders. The benefits and costs of founding-family control have been examined by a large body of literature. Researchers generally have debated two opposite effects of founding-family control, each with theoretical and empirical support.

2.1.1. The entrenchment effect

Founding families often have highly concentrated ownership in their firms. They also enhance their control through complex ownership structures, such as pyramids, dual-class shares, voting agreements, cross-holdings, and disproportionate board control (Zingales, 1995; Shleifer and Vishny, 1997; Claessens et al., 2000, 2002; Anderson and Reeb, 2004; Villalonga and Amit, 2006). In addition, founders may gain additional power and influence from their founder status (Adams et al., 2005). Further, founding-family-controlled firms often limit management positions to family members and associates, even when they lack the necessary expertise and management skills. This negatively affects firm performance (Morck et al., 2000; Villalonga and Amit, 2006). Indeed, it is argued that entrenched family managers who resist being replaced even when they are no longer competent may be the costliest agency problem of all (Shleifer and Vishny, 1997).

Due to their unique and dominant positions, founding families as blockholders have strong incentives and capabilities to extract private benefits, thus increasing risk of bankruptcy. Anticipating such risks, debt-holders will demand higher returns as compensation, resulting in higher cost of debt for founding-family controlled firms, relative to non–founding-family controlled firms.

2.1.2. The alignment effect

On the other hand, highly concentrated ownership by founding families can serve as a credible commitment not to expropriate investors (Gomes, 2000). Anderson et al. (2003) argue that, compared with non-founding-family blockholders, founding families have stronger interests in the long-term survival of their firms, with a desire to pass them onto future generations. Fahlenbrach (2009) also argues that founders often consider their firms to be personal achievements, and this motivates them to take a long-term approach. Further, Burkart et al. (2003) point out that a family name connected to a successful family business may bring non-pecuniary or reputational benefits, such as a high social status and political connections.

All these arguments suggest that founding families have strong incentives not to behave in a way that could damage their relationship with investors, including debt-holders. Finally, the ongoing involvement of the same founding family makes it easier for the firm and its creditors to build an intimate and well-informed relationship, which further reduces the agency problem between shareholders and debt-holders (Petersen and Rajan, 1994; Franks and Mayer, 1997; Anderson et al., 2003).

2.1.3. Empirical evidence

The above analyses suggest that whether the entrenchment effect or the alignment effect dominates (and consequently the nature of the relation between founding-family

control and agency cost of debt) is largely an empirical issue. Empirical evidence on this issue is, however, still limited.

Anderson et al. (2003) are the first to directly examine the impact of family ownership on agency cost of debt. Using a sample of S&P 500 firms, these authors find that founding-family firms pay lower cost of debt financing (32 basis points) than non-family firms. They suggest that bondholders view family ownership as an organizational structure that better protects their interests. In a recent paper, D'Aurizio et al. (2012) take advantage of a natural experiment, the collapse of Lehman Brothers in 2008. These authors find that following the bankruptcy of Lehman Brothers in 2008, family firms in Italy experienced a smaller contraction in granted bank credit than non-family firms, indicating that family blockholders can attenuate agency conflicts between shareholders and creditors.

Aslan and Kumar (2009), Boubakri and Ghouma (2010), and Lin et al. (2011) use samples from Western European and East Asian countries (covering 22, 19, and 22 countries, respectively) and find evidence that bond yield spreads are positively related to family control rights and the interaction between family control rights and the control-ownership wedge. These authors conclude that family control is perceived to be of high risk of expropriation by bondholders.

Finally, Ellul et al. (2007) argue that the impact of family blockholders on agency cost of debt can go either way, depending on the creditor's protection environment in the country where the firm is located. Confirming their prediction, these authors find that family firms in countries with strong investor protection benefit from lower debt cost relative to non-family firms, while in countries with weak investor protection family firms suffer from higher debt cost.

China has had a long tradition of cultural emphasis on inter-personal relationships and reputation. The lack of well-developed formal institutions in protecting property rights makes

informal institutions based on reputation and relationships even more crucial in order for entrepreneurs to secure external financing (Allen et al., 2005). As a result, founding families in China may have greater concerns about their reputation than their counterparts in developed economies. Although we are not aware of direct evidence, it is reasonable to assume that founding families in China are less diversified than those in more developed economies, because the underdeveloped financial markets in China limit diversification opportunities. Thus, the success of listed firms that founding families control becomes even more important to them. Overall, founding families in China are strongly motivated by the long-term success of their firms. Consequently the alignment effect is likely to dominate the entrenchment effect. Indeed, Ma et al. (2012) find that founding-family firms are less likely to expropriate assets than non-founding-family firms. Thus, debt-holders regard firms controlled by founding families to be less risky than those controlled by non-founding-family blockholders. Consequently, debt-holders demand lower cost of debt. These arguments lead to our first hypothesis:

H1: On average, founding-family controlled firms have lower cost of debt than non-founding-family controlled firms.

2.2. Founding-family control and information opacity

Stiglitz (2000) points out that information transparency is essential for investors to effectively discriminate among borrowers. A large number of studies provide both theoretical and empirical evidence that information transparency is an important determinant of the cost of debt (Ziebart and Reiter, 1992; Sengupta, 1998; Duffie and Lando, 2001; Francis et al., 2005b; Yu, 2005; Livingston and Zhou, 2010). Therefore, in this section, we briefly review the literature on the relation between family ownership and firm information opacity.

2.2.1. Entrenchment effect and information opacity

When entrenched insiders attempt to expropriate firm assets, they have incentives to withhold or manipulate accounting earnings (Jensen and Meckling, 1976). Leuz et al. (2003) argue that, to conceal their private benefits of control, insiders have incentives to manipulate earnings (thus increasing information opacity) to lower the likelihood of outside intervention. Following this argument, Lang et al. (2004) find that analysts are less willing to follow firms with potential to manipulate information, such as family-controlled firms. Consistent with the entrenchment argument, Chen and Jaggi (2000) find that while board independence is positively associated with the comprehensiveness of financial disclosure in Hong Kong, this association is weaker for family controlled firms. Chau and Gray (2002) find that in Hong Kong and Singapore the level of voluntary information disclosure is lower in family firms. Fan and Wong (2002) also find that across seven East Asian countries, concentrated ownership is associated with low earnings informativeness, as entrenched controlling shareholders limit the flow of accounting information to outside investors.

The above mentioned analyses and evidence thus suggest that entrenched founding-family blockholders increase the opacity of firm financial disclosures.

2.2.2. Alignment effect and information opacity

According to the alignment effect, founding-family blockholders have greater incentives toward the long-term success of the firm and have greater concerns about reputation than non-founding-family blockholders. As a result, founding families are more willing to provide transparent financial information in exchange for better contracting terms from investors, such as lower cost of debt. In addition, founding-family controlling shareholders have better knowledge about the firm's business activities (Anderson and Reeb, 2003). As a result, not only can they quickly detect managers' manipulation of accounting information, they can also rely less on accounting-based performance measures in designing

management compensation (Chen, 2005). This in turn reduces incentives for managers to engage in earnings management.

Thus, the alignment effect suggests that founding-family controlled firms are more transparent than non-founding-family controlled firms. Consistent with this argument, both Wang (2006) and Ali et al. (2007) find evidence that for large U.S. firms, family firms make higher quality financial disclosures than non-family firms. Following our earlier analysis that the alignment effect is likely to dominate the entrenchment effect for founding-family controlled firms in China, we hypothesize that:

H2: On average, founding-family controlled firms are less opaque than non-founding-family controlled firms in terms of corporate information.

2.3. Information opacity and the relation between founding-family control and cost of debt

We earlier argue that, on average, founding-family controlled firms are less opaque and have lower cost of debt than non-founding-family controlled firms, because of the dominance of the alignment effect. However, the degree of opacity can still vary from firm to firm, even for founding-family controlled firms.

Accounting and financial information is used to mitigate the agency problem between shareholders, managers, and creditors (Eisenhardt, 1989; Bushman and Smith, 2001). Transparent information represents founding-family blockholders' long-term commitment to the firm, and thus their greater willingness to align their interests with those of other investors (including debt-holders). Thus, it is not difficult to argue that in opaque firms, founding-family blockholders' commitment is not as strong as in transparent firms, and that founding families have less incentive to mitigating agency conflicts with debt-holders. It is possible that in opaque founding-family firms, the entrenchment effect could overshadow the alignment effect (Leuz et al., 2003). As a result, the negative impact of founding-family

control on cost of debt is expected to be weaker when information is opaque. Formally, we summarize our hypothesis as follows:

H3: The negative relation between founding-family control and cost of debt is stronger when information is transparent; this relation is weaker when information is opaque.

2.4. Institutional development and the impact of information opacity on the relation between founding-family control and cost of debt

Evidence from the literature shows that institutional development is important in mitigating agency conflicts and in curbing private benefits of control (Shleifer and Vishny, 1997; La Porta et al., 2000; Dyck and Zingales, 2004). Recent studies also show that institutions (legal protection of investors in particular) are negatively associated with agency cost of debt (Boubakri and Ghouma, 2010; Qi et al., 2010). Earlier analysis indicates that when information is opaque, founding-family blockholders could become entrenched, and the negative relation between founding-family control and cost of debt would be substantially weaker. In this paper, we take advantage of the huge variations among China's diverse regions, in terms of economic and legal development, to test whether institutions have significant effects in mitigating the adverse impact of information opacity on the relation between founding-family control and cost of debt.

Cheung et al. (2010) find that severity of expropriation by controlling shareholders in state-owned public firms is negatively related to the likelihood of government bureaucrats being prosecuted for misappropriation of state funds. Both Boyreau-Debray and Wei (2004) and Li (2010) find that savings and investments are positively correlated at the provincial level, a strong indication that capital mobility is low in China. These findings imply that the level of legal and economic development in the province in which a firm is located could have an important influence on agency conflicts between shareholders and debt-holders, and consequently, agency cost of debt. We earlier argue that information opacity can weaken the

negative relation between founding-family control and the cost of debt, as founding families may become entrenched when information is opaque. However, in regions with more developed legal and economic institutions, founding families are less likely to take advantage of information opacity to expropriate other investors, including debt-holders. This implies that in regions with more developed institutions, the potential entrenchment effect of founding-family control is less likely to undermine the alignment effect, even when information is opaque. Therefore, our final hypothesis is as follows:

H4: In regions with more developed institutions, information opacity has a less significant impact in weakening the negative relation between founding-family control and cost of debt.

3. Data and statistics

3.1. Sample and data source

Our initial sample consists of all privately controlled non-financial A-share issuing firms listed on either the Shanghai Stock Exchange or the Shenzhen Stock Exchange between 2004 and 2010. We exclude from our sample firms in which the largest ultimate shareholder is a foreign entity and firms that are cross-listed overseas, as foreign accounting rules may affect the treatment of some accounting items used in this study. We then delete observations for the first year of public listing, as an IPO may affect at least three of the four measures of information opacity used in this study, i.e., analyst coverage, trading volume, and analyst forecast error (Rajan and Servaes, 1997; Cliff and Denis, 2004; Ellis, 2006). After deleting observations with missing data, our final sample consists of 708 firms and 3380 firm-year observations.

We obtain our accounting and financial data from the China Stock Market & Accounting Research (CSMAR) database. Compiled by Shenzhen GTA Information Technology Company Ltd., CSMAR is one of the most widely used databases for research on

the Chinese stock market. Data to construct our four information opacity measures is also from CSMAR. We manually collect information on firm founders and manager political connections from annual reports, the Internet, and media reports.

3.2. Measurement of variables

3.2.1. Cost of debt

Most studies measure the cost of debt as the spread between corporate bond yield and a benchmark (e.g., U.S. treasury yield or LIBOR). The corporate bond market, however, is underdeveloped in China and many other emerging economies. Chinese firms were allowed to issue corporate bonds only from 1998. In 2010, total bond issuance in China was 9292 billion Chinese Yuan, of which only 1698 billion (or just 18.27%) was by companies, with the remainder issued by governments.[3] As of the end of 2010, the market capitalization of China's corporate bonds was only 6.9% of GDP; at the same time, stock market capitalization was 66.16% of GDP and bank loans stood at 119.44% of GDP (Ma and Rath, 2012). For our sample firms, bank loans represent over 40% of total liabilities, while bonds account for only 1.6% of total liabilities. Thus, this paper focuses on bank loans.

We conduct our main analyses using two measures of the cost of bank loans. Our first measure (*Rate 1*) follows Luo et al. (2011) and is defined as interest expense divided by the sum of short-term loans, loans due within one year, and long-term liabilities. Our second measure (*Rate 2*) follows Zou and Adams (2008) and is defined as the sum of interest expense and capitalized interest divided by total liabilities. We use two alternative measures of bank loan cost in our robustness tests in Section 5.

[3] http://www.reuters.com/article/2012/01/05/china-bonds-issuance-idUSL3E8C542820120105, last accessed on September 24, 2012.

3.2.2. Key independent variables

Founding-family firms

Despite the extant literature on family firms, there is no universally accepted definition of what is a family firm.[4] Because of concentrated ownership in many European and East Asian countries, researchers commonly apply a minimum threshold for the largest shareholders' ownership to ensure effective control (Fan and Wong, 2002; Dyck and Zingales, 2004).

In this study, we use a dummy variable to denote a founding-family firm if: (1) the founder and founder family members hold at least 10% of the firm's cash flow rights; *and* (2) the founding-family (all family members combined) is the ultimate largest shareholder.[5] We note that some studies further distinguish among family firms those with founder-CEOs, descendant-CEOs, and hired CEOs. We aim to examine the impact of founding families from a more general perspective and thus do not make such a distinction.

Information opacity

We use four different measures of information opacity: auditor identity, financial analyst coverage, trading volume, and analyst forecast error.

[4] See Miller et al. (2007) for a comprehensive review of a wide variety of family firm definitions.

[5] Among our 3380 sample firms, 1094 meet our definition of founding-family firms. If we relax the definition by removing the 10% threshold for cash flow rights, the number of founding-family firms increases to 1212. We run all regressions using this alternative definition. Our main results remain qualitatively unchanged. If we remove the second criterion, the number of founding-family firms remains the same. In other words, when the founding family holds at least 10% of cash flow rights, no other blockholders hold more than 10% of equity ownership. This also implies that equity ownership concentration is even higher in founding-family controlled firms.

Auditor identity

External auditors provide an independent assessment of the accuracy and fairness of a firm's accounting and financial information, and consequently reduce information asymmetry between shareholders and debt-holders. Chen et al. (2011) find that in China larger auditors are significantly more likely to issue modified audit opinions than smaller auditors, consistent with the view that larger auditors in China are more independent and have stronger incentives to protect their reputations. Numerous studies find a positive association between quality of the external auditor and transparency of the audited firm's financial information.[6]

Thus, we use a dummy variable to denote greater information transparency if the firm hires one of the international Big 4 auditors, or the six largest national auditors by revenue[7] to audit its financial reports.[8]

Financial analyst coverage

The greater the number of financial analysts following a firm, the more intensive the firm's financial information is under market scrutiny. We measure analyst coverage as the natural logarithm of the number of financial analysts following the firm. That is:

$$Analyst = \lg(number\ of\ analysts\ following)$$

Trading volume

Investors are more willing to buy or to sell a company's shares when there is less information asymmetry. Thus, trading volume is an inverse proxy for information opacity

[6] See Armstrong et al. (2010) for a comprehensive review of the literature on the role of external auditors in improving financial information transparency and in reducing agency conflicts.

[7] The international Big 4 are KPMG, PwC, E&Y, and Deloitte. The national top 6 are Lixin, Zhongrui Yuehua, Xinyong Zhonghe, Tianjian, Daxin, and Dahua.

[8] Inevitably, it is a subjective judgment as to how many auditors are deemed to be large auditors. As a robustness check, we alternatively classify the largest 8 (Chen et al., 2011) or the largest 15 auditors as large auditors. Our main findings are robust to these alternative classifications.

(Leuz and Verrecchia, 2000). We measure trading volume as the average daily number of shares traded, scaled by the average total number of shares outstanding.[9]

Analyst forecast error

Analysts' forecast error is regarded as a proxy for availability of the firm's information. Therefore, larger analysts' forecast error indicates information that is more opaque. Following Easterwood and Nutt (1999), we measure forecast error as follows:[10]

$$Forecast\ error = \frac{|Analysts'mean\ forecast\ EPS - Actual\ EPS|}{Stock\ price}$$

Except for auditor identity, which is a dummy variable, a higher value for *Analyst* or *Volume* or a lower value for *Forecast error* indicates information being more transparent. To ease interpretation of results, we multiply *Analyst* and *Volume* by a negative constant (negative 1).

3.2.3. Control variables

To control for other factors that could affect the cost of bank loans, we include the following control variables in our regressions: the size of the firm (*Firm size*), leverage (*Leverage*), net value of property, plant and equipment (*PPE*), cash flow performance (*Performance*), capital expenditure (*CAPEX*), ratio of current assets to current liabilities (*Current ratio*), sales growth (*Sales*), tunneling by controlling shareholders (*Tunneling*), total number of directors on the board (*Board size*), percentage of independent directors (*Independence*), political connectedness of CEO (*Political*), and official lending rate

[9] It is clear that the results will be the same if we measure the trading volume as daily average value of shares traded scaled by average market capitalization.

[10] We calculate forecast error using the absolute difference between mean analysts' forecast EPS and actual EPS in the numerator, as we are interested only in the magnitude of the forecast error, not the direction of the error.

specified by the regulator (*Official rate*). Theoretical and empirical evidence on the impacts of these variables on cost of bank loans is relatively well-known. We therefore provide only a brief discussion.

Larger firms are perceived to be less risky as they have more assets in place and are more visible, relative to smaller firms. Therefore, larger firms are expected to be associated with lower cost of bank loans. Firms with higher leverage have higher default risk and thus are required to pay higher cost for bank loans. PPE is expected to be negatively associated with cost of bank loans, since higher PPE indicates more collateral in case of loan default. Both cash flow performance and current ratio are expected to be negatively associated with cost of bank loans, since higher cash flows and higher current ratio enable the firm to better service its loans and reduce default risk. We also expect negative impacts from both sales growth and capital expenditure on cost of bank loans, as higher sales growth and capital expenditure indicate greater future growth potential. Following Jiang et al. (2010), we measure the severity of controlling shareholders' tunneling activities as the total amount of "other receivables" scaled by total assets. [11] A higher value for tunneling indicates more severe agency problems and thus higher risk of default. Therefore, tunneling is expected to be positively associated with cost of bank loans. While we expect a negative association between board independence and cost of bank loans, the relation between board size and cost of bank loans is less clear-cut. On one hand, Yermack (1996) finds that board size is negatively associated with firm performance, which implies that board size is positively associated with cost of bank loans. On the other hand, Cheng (2008) finds that firms with

[11]The literature commonly uses the wedge between controlling shareholders' control rights and cash flow rights as a proxy for tunneling. A few recent studies (e.g., Masulis et al. (2011)) note that not all wedges necessarily lead to tunneling. Therefore, we follow Jiang et al. (2010) and use a more direct measure of tunneling. "Other receivables" is an accounting item that includes receivables that are not part of ordinary business transactions. These receivables are essentially interest-free loans made by listed firms to other parties (Jiang et al. 2010).

larger boards have lower variability of firm performance. Also, firms with lower risk are expected to pay lower cost of bank loans, ceteris paribus. The relation between CEO political connection and cost of debt is not as straightforward as it may first appear. On one hand, Boubakri et al. (2010) find that politically connected firms enjoy a lower cost of equity capital, as investors consider these firms less risky than non-connected firms. On the other hand, Chaney et al. (2011) find that the quality of accounting earnings in politically connected firms is significantly poorer than that of similar non-connected firms, which implies a higher cost of bank loans for politically connected firms. Finally, following Petersen and Rajan (1994) and Zou and Adams (2008), we control for the influence of official lending rate on cost of bank loans. Specifically, following Zou and Adams (2008), the one- to three-year bank loan rate is used as a proxy for the official lending rate. We expect a positive relation between official lending rate and cost of bank loans.

We also include industry and year dummy variables in all regression analyses. Industry dummy variables are based on the classification system published by the China Securities Regulatory Commission (CSRC), which classifies all listed firms into 13 broad industries (12 industries if the financial service industry is excluded). Detailed descriptions of all variables used in this paper are reported in Table 1.

< Insert Table 1 about here>

3.3. Descriptive statistics

Tables 2A and 2B report the distribution of founding-family controlled firms and non-founding-family controlled firms by year and industry, respectively. Table 2A shows the number and percentage of founding-family firms steadily rising, except for a small drop in the percentage between 2005 and 2006. In 2004, the Chinese government established the Small and Medium Enterprise Board (SMEB) under the Shenzhen Stock Exchange. A large proportion of all IPOs on the SMEB are by founding-family firms. Founding-family

controlled firms represent about 32.4% of all firms in our sample. The percentage of founding-family controlled firms rises to almost 42% as of the end of 2010, from about 22.5% in 2004. This highlights the importance of studying the impacts of founding-family control.

<Insert Tables 2A and 2B about here>

Table 2B shows the number and percentage of founding-family firms varying significantly across industries. The manufacturing industry has by far the largest number of founding-family firms, reflecting the fact that it also represents the largest industry by total number of firms. Also notable is that there is no founding-family firm in the power, gas, and water supply industry. This is not surprising, given that this is a highly regulated industry monopolized by newly privatized former state owned enterprises (SOEs).

Table 3 provides descriptive statistics, broken down by founding-family controlled firms and non-founding-family controlled firms. Both measures of the cost of bank loans, Rate 1 and Rate 2, are significantly lower in founding-family firms relative to non-founding-family firms. The differences are significant at the 1% level. The cost of bank loans for both founding-family firms and non-founding-family firms are lower than the official lending rate, which ranges from 5.40% to 7.36% in our sample period. This suggests that the costs of some other financing sources (e.g., trade credits) are lower than bank loans.

<Insert Table 3 about here>

On average, founding-family firms are more likely to hire large auditors, have greater financial analyst coverage, and lower analyst forecast error than non-founding-family firms. However, trading volume is lower for founding-family firms. All differences are significant at the 1% level. Three of the four measures of information opacity indicate that founding-family controlled firms are less opaque than non-founding-family controlled firms. As discussed in Section 4.2, the lower trading volume for founding-family firms is subject to

several interpretations. Thus, the overall data suggest that, on average, founding-family firms are less opaque than non-founding-family firms.

These statistics prompt a question: Is the lower cost of bank loans in founding-family firms simply a reflection of the fact that information is more transparent (transparency is expected to be negatively associated with cost of bank loans) in founding-family firms, relative to non-founding-family firms? We explore this issue later in Section 4.

Interestingly, the negative relation between founding-family control and cost of bank loans, and the positive relation between founding-family control and information transparency are consistent with the findings of Anderson et al. (2003) and Wang (2006), both of which use U.S. data. However, these results are contrary to the findings of Ellul et al. (2007) and of Fan and Wong (2002). Applying these latter studies' arguments to China, a country with low investor protection and weak market and legal institutions, would predict a positive impact of founding-family control on cost of bank loans and a negative impact on information transparency.

Founding-family firms are, on average, significantly larger than non-founding-family firms. They have significantly lower leverage. Founding-family firms have significantly higher capital expenditure, but significantly lower PPE ratio. This might imply that these firms invest more in R&D and other long-term assets. The data are consistent with the findings of Fahlenbrach (2009), which uses U.S. data.

Founding-family firms have better cash flow performance as well as higher current ratio than non-founding-family firms, implying that these firms may be more concerned about their ability to service short-term debt. The data also show that founding-family firms have a lower sales growth rate, but the difference is insignificant. Higher capital expenditure, however, may imply that these firms have greater future growth potential (Zou and Adams, 2008).

Founding-family firms are significantly less likely to tunnel relative to non-founding-family firms, which is consistent with Ma et al. (2012). This is in line with our earlier argument that founding families are more interested in the long-term success of their firms and they are willing to forgo some private benefits of control. Founding-family firms also have a higher percentage of independent directors than non-founding-family firms, which may imply that the former have better corporate governance. Also notable is that founding-family firms are significantly more likely to be politically connected, which may support the argument that, to overcome imperfect markets and market-supporting institutions, private entrepreneurs have strong motivation to enter politics or to establish political connections (Li et al., 2006).

To summarize, founding-family firms and non-founding-family firms differ significantly in their cost of bank loans and information opacity. They also differ significantly in size, capital structure, investment, and corporate governance. We next formally assess how these factors affect the difference in cost of bank loans between these two groups of firms.

4. Multivariate results

4.1. Impact of founding-family control on cost of bank loans

Table 4 reports the results of OLS regressions of cost of bank loans on founding-family control and founding-family ownership. In columns (1) to (4), we use *Rate 1* as the dependent variable and in columns (5) to (8) we use *Rate 2* as the dependent variable. For each dependent variable, we run two sets of regressions, one using a dummy variable to indicate founding-family control and the other using continuous equity ownership by the founding-family. We use two specifications for each key independent variable. The first does not control for the official rate, year and industry fixed effects. The second controls for all these effects.

<Insert Table 4 about here>

In columns (1) and (2), the coefficients of the *Founding-family dummy* are -0.284 and -0.269, respectively. Both coefficients are significant at the 5% level. The results indicate that founding-family firms pay significantly lower cost of bank loans than non-founding-family firms, confirming the univariate differences reported in Table 3. The results in columns (3) and (4) provide further evidence on the negative impact of founding-family ownership on cost of bank loans. Compared with the *Founding-family dummy*, the coefficients of *Founding-family ownership* are statistically more significant (at the 1% level vs. the 5% level for *Founding-family dummy*).

The results in columns (5) to (8) are consistent with those in columns (1) to (4), in that both *Founding-family dummy* and *Founding-family ownership* are found to be significantly and negatively associated with cost of bank loans as measured by *Rate 2*. By comparing the results in columns (1) to (4) with those in (5) and (8), we observe an interesting fact. Both of the coefficients of *Founding-family dummy* (columns (5) and (6)) and *Founding-family ownership* (columns (7) and (8)) are significantly larger than those in columns (1) and (2) and in columns (3) and (4), respectively. Since *Rate 2* takes into account capitalized interest and interest expense in the current year, the results may imply that the negative impact of founding family on the cost of bank loans is even stronger if longer-term cost is taken into account.

Thus, overall, the results in Table 4 confirm our first hypothesis that, on average, founding-family firms have significantly lower costs of bank loans, relative to non-founding-family firms. The findings here and in Anderson et al. (2003) suggest that founding-family firms enjoy lower cost of debt both in China and the U.S., despite the immense difference in investor protection and other institutions. However, our finding is contrary to that of Ellul et

al. (2007), who find that family firms in countries with low investor protection suffer from higher cost of debt. Further investigation appears necessary to establish conclusive evidence.

The coefficients of control variables have the same sign across all eight specifications in Table 4, and are generally in line with our expectation. Larger (*Firm size*), better performing (*Performance*), less risky (*Leverage* and *Current ratio*), and higher-growth (*Sales* and *CAPEX*) firms pay lower cost of bank loans, relative to smaller, worse performing, more risky and lower-growth firms. Firms with more tunneling (*Tunneling*) pay higher cost of bank loans, as tunneling by controlling shareholders indicates a greater agency problem between controlling and minority shareholders and may increase default risk. Firms with larger boards (*Board size*) pay lower cost of bank loans, although the significance of the impact varies across specifications. This may provide some weak support to the notion that larger boards lower the variability of firm performance (Cheng, 2008). Percentage of independent directors (*Independence*) has no effect on cost of bank loans, implying that such directors do not play a monitoring role in China. Finally, political connection (*Political*) is positively associated with cost of bank loans, although not significantly. This result is contrary to Boubakri et al. (2010), who find a negative relation between political connection and cost of equity capital. In unreported results, we find that political connection does not have a significant effect on a firm's financial leverage, a proxy for access to bank loans. These results may imply that for China's privately controlled firms, political connection is established mainly for other purposes, for example, favored legal treatment (Cheung et al., 2010).

4.2. Impact of founding-family control on information opacity

We next assess the impact of founding-family control on a firm's information opacity. The results are reported in Table 5. Across all four regressions in Table 5, the key independent variable is a dummy variable denoted 1 for founding-family controlled firms. Column (1) uses the logistic regression model and columns (2) to (4) use OLS regressions.

<Insert Table 5 about here>

The dependent variable in column (1) is a dummy variable denoted 1 if the firm hires a large auditor. The coefficient of *Founding family* dummy is 0.221 and is significant at the 1% level, indicating that founding-family firms are significantly more likely to hire a large auditor, relative to non-founding-family firms.

The dependent variable in column (2) is analyst coverage, measured as the natural logarithm of the number of analysts following the firm. The coefficient of *Founding family* dummy is 1.741, significant at the 1% level. This result suggests that founding-family firms attract significantly more financial analysts than non-founding-family firms. Our finding contradicts that of Lang et al. (2004), who find that analysts are less willing to follow family firms, because of concerns about a potential incentive to withhold or manipulate information. The contradictory findings between Lang et al. (2004) and the present paper provide indirect support to our argument that, in China, founding-family firms have fewer agency problems, relative to non–founding-family firms.

The dependent variable in column (3) is trading volume, measured as the ratio of average daily number of shares traded to total number of shares outstanding. The coefficient of *Founding family* dummy is -0.001, significant at the 5% level. The negative coefficient indicates that investors are less likely to buy or sell shares in founding-family firms than in non-founding-family firms. Apparently, this may imply that founding-family firms are more opaque when measured by trading volume. However, a plausible alternative interpretation is that, since shareholders in founding-family firms have greater confidence in the long-term success of their firms, they are more willing to hold their shares for a longer period of time, causing trading volume to be lower for founding-family firms. Unfortunately, we are unable to test which of these two interpretations applies here.

The dependent variable in column (4) is forecast error. By definition, a smaller forecast error indicates that a firm's information is more transparent. The coefficient of *Founding-family* dummy is -0.006, significant at the 10% level. This result shows that founding-family firms have smaller analysts' forecast errors, indicating more transparent information. The number of observations in column (4) is significantly smaller than those in columns (1) to (3). This is because only 1853 of our sample firms have at least one analyst following.

Altogether, the results in Table 5 confirm the statistics in Table 3. The regression results for three out of four measures of information opacity provide strong evidence that founding-family firms are less opaque than non-founding-family firms. The result for the other measure, trading volume, is open to interpretation. Thus, the overall results in Table 5 confirm H2.

4.3. Impact of information opacity on the relation between founding-family control and cost of bank loans

Accounting and financial information is used to mitigate the agency problem between shareholders, managers, and creditors (Eisenhardt, 1989; Bushman and Smith, 2001). Therefore, it is reasonable to argue that the agency problem is more severe when information is opaque. Applying this argument to the relation between founding-family control and the cost of bank loans implies that the negative relation documented in Section 4.1is weaker when information is opaque and is stronger when information is transparent. We test these notions in this section. The results are reported in Tables 6, 7, and 8.

In Panel A of Table 6, we first group all firms into founding-family firms and non-founding-family firms. Within each group, firms are further divided into two sub-groups based on levels of information opacity. We then compare cost of bank loans for transparent founding-family firms with the cost for opaque founding-family firms, and compare cost of

bank loans for transparent non-founding-family firms with the cost for opaque non-founding-family firms.

<Insert Table 6 about here>

The statistics show that among founding-family firms, cost of bank loans is significantly higher for opaque firms than for transparent firms. This difference is significant at the 1% level, for each of the four measures of opacity. For non-founding-family firms, although the cost of bank loans is also higher for opaque firms, the difference is less significant. In fact, there is no significant difference, whether a non-founding-family firm hires a large auditor or a small auditor, and whether a non-founding-family firm has high trading volume or low trading volume. The statistics in Panel A indicate that investors value information transparency more when a firm is a founding-family firm, probably because these firms are perceived to have a greater agency problem.

In Panel B of Table 6, we compare the cost of bank loans for transparent founding-family firms with the cost for transparent non-founding-family firms, and compare the cost of bank loans for opaque founding-family firms with the cost for opaque non-founding-family firms. As we argue in Section 2, we expect the cost difference to be larger for transparent firms and smaller for non-transparent firms.

The statistics show that when information is transparent (i.e., *Large auditor*, *Analyst* > median, *Volume* > median, and *Forecast error* < median), founding-family firms pay significantly lower cost of bank loans than non-founding-family firms; the difference is significant at the 1% level (except for *Rate 1* when *Volume* > median, which is at the 5% level). When information is opaque (i.e., *Small auditor*, *Analyst* < median, *Volume* < median, and *Forecast error* > median), although founding-family firms still pay lower cost of bank loans than non-founding-family firms, the difference is less significant. In some cases, the differences become insignificant.

Based on the univariate statistics in Table 6, we then run OLS regressions to formally test the different impacts of founding-family control on cost of debt between transparent firms and opaque firms. The results are reported in Tables 7A and 7B. The dependent variable is *Rate 1* in Table 7A and *Rate 2* in Table 7B. All control variables are the same in both Tables 7A and 7B.

<Insert Table 7A and Table 7B about here>

In Table 7A, column (1) contains only those firms that hire a large auditor (in other words, transparent firms only) and column (2) contains only those firms that hire a small auditor (in other words, opaque firms only). The coefficient of *Founding family* dummy in column (1) is -0.391 and is significant at the 5% level. Although the coefficient of *Founding family* dummy in column (2) is also negative (-0.181), it is not significant, even at the 10% level. That is, for firms hiring a large auditor (i.e., transparent firms), the difference in bank loan cost between founding-family firms and non-founding-family firms is more than double the difference for firms hiring a small auditor (i.e., opaque firms) (-0.391 vs. -0.181). The results in column (3) to column (9) demonstrate that the difference in the magnitude and significance of the coefficient of *Founding family* dummy is also evident when the other three measures of information opacity are used. Results in Table 7B largely confirm those in Table 7A. Founding-family control significantly reduces cost of bank loans as measured by *Rate 2* among transparent firms. However, founding-family control does not significantly affect cost of bank loans among opaque firms, except in column (2) when opacity is measured by small auditor, in which case founding-family firms pay marginally lower cost of bank loans than non-founding-family firms.

The statistics in Table 6 and the sub-group regression results in Table 7A and Table 7B provide strong evidence that founding-family control significantly reduces cost of

bank loans among transparent firms; but the negative impact of founding-family control on cost of bank loans weakens substantially when information is opaque.

In Table 8, we provide further evidence on the role of information opacity in the relation between founding-family control and cost of bank loans. Our baseline models are shown in Table 4. We add to our baseline models a variable indicating information opacity and an interaction term between the founding-family control dummy and information opacity. The dependent variables are *Rate 1* in columns (1) to (4) and *Rate 2* in columns (5) to (8).

<Insert Table 8 about here>

As is evident in Table 8, the coefficient of *Founding family* dummy is negative and significant across all eight models, indicating that founding-family firms pay significantly lower cost of bank loans when information is relatively transparent. The coefficients of all four measures of information opacity, namely *Small auditor*, *NegAnalyst*, *NegVolume*, and *Forecast error*, are positive and significant, indicating that, on average, opaque firms pay significantly higher cost of bank loans than transparent firms. These results are consistent with other studies (Sengupta, 1998; Francis et al., 2005; Livingston and Zhou, 2010). The coefficients of the interaction terms between *Founding family* dummy and information opacity are all positive and significant. The positive coefficients of the interaction terms indicate that the negative impact of founding-family control on the cost of bank loans is weaker when information is relatively more opaque.

The regression results in Table 8 confirm both the univariate statistics in Table 6 and the sub-group regression results in Tables 7A and 7B. Taken together, the statistics and regression results in Tables 6 to 8 provide strong evidence to support H3.

4.4. Role of institutions in relation between founding-family control, information opacity, and cost of bank loans

Building on findings in the literature that institutions can mitigate agency problems (Shleifer and Vishny, 1997; La Porta et al., 2000; Dyck and Zingales, 2004) and some recent empirical evidence that the relation between founding-family control and cost of debt differs among countries at different levels of institutional development (Ellul et al., 2007), we test the role of institutional development by taking advantage of its large variation among China's regions.

The regressions in this section are based on Fan et al. (2011), who evaluate a wide range of economic and institutional factors in China and construct a range of indices to measure these factors at the provincial level. The indices are available up to 2009. Therefore, the sample period is 2004–2009 for all regressions in this section. We report the results in Tables 9 and 10.

<Insert Table 9 about here>

The dependent variable in Table 9 are cost of bank loans, measured by *Rate 1* (columns 1 to 4) and *Rate 2* (columns 5 to 8). We use a variable for overall institutional development, *Market*, an index that measures the overall level of marketization of the province in which a firm is headquartered (Fan et al., 2011). Higher index values indicate higher level of marketization. As is evident from Table 9, the coefficient of *Market* is negative and statistically significant in all eight regressions, indicating that firms in provinces with more developed institutions pay significantly lower cost of bank loans, after controlling for other factors. This result is consistent with prior studies that show that institutions can help mitigate agency problems. The coefficient of the interaction term between *Founding family*, *Information opacity*, and *Market* is negative and statistically significant, indicating

that the impact of information opacity is less significant in provinces with relatively more developed institutions.

In Table 10, we use another variable for institutional development, *Legal*, an index that measures the level of legal protection of property rights in the province in which a firm is headquartered (Fan et al., 2011). Higher index values indicate a higher level of legal protection. As is evident from Table 10, the coefficient of *Legal* is negative and statistically significant (except in column (4)), indicating that firms located in provinces with better property rights protections pay lower cost of bank loans. The coefficient of the interaction term between *Founding family*, *Information opacity*, and *Legal* is negative in all eight models, but significant only in some models. The results in Table 10 indicate that while legal protection of property rights can mitigate the agency problem caused by information opacity, its impact is less significant than the impact of the overall degree of marketization.

<Insert Table 10 about here>

Overall, the results in Tables 9 and 10 support H4. That is, while information opacity, on average, weakens the negative relation between founding-family control and cost of bank loans, its impact is less significant in regions with more developed institutions.

5. Robustness checks

The preceding analyses provide evidence on the relation among founding-family control, information opacity, and cost of debt. There is a potential endogeneity concern, however. Specifically, lower cost of debt indicates better firm performance (both past and future), ceteris paribus. It is intuitive to argue that founding families are more likely to retain control when firms perform well. Further, greater information opacity can potentially deter outside investors and consequently make the firm more likely to be controlled by the founding family. In this section, we first address the potential endogeneity issue. We then test

the sensitivity of our results to alternative definitions of founding-family firms and alternative measures of cost of bank loans.

5.1. Endogeneity of founding-family control

We address the endogeneity issue with the instrumental variable (IV) approach. An appropriate IV needs to satisfy two conditions. First, the IV needs to be exogenous in the main regressions. Second, the IV must be correlated to the endogenous variable, conditional on other covariates. Anderson et al. (2003) conduct their robustness tests following Himmelberg et al. (1999), who use firm size and stock price volatility as IVs for insider ownership. However, numerous studies find that these two variables are correlated with firm valuations, which in turn affect cost of debt. Indeed, Anderson et al. (2003) find a strong link between cost of debt and firm size.

In this paper, we use two alternative IVs. Following Fahlenbrach (2009), our first IV ("*Personal name*") is a dummy variable that equals 1 if the name of the firm at the time of IPO contains at least part of the personal name(s) of the founder(s). There is no reason to believe that the name of the firm at the time of IPO is related to current cost of bank loans. It is reasonable to assume that a firm that bears the name of the founders at IPO is more likely to be a founding-family controlled firm. Thus, our first IV satisfies both conditions for an appropriate IV. Following Adams et al. (2009), our second IV ("*Multiple founders*") is a dummy variable that equals 1 if the firm has more than one founder (from different families). Whether a firm has more than one founder is unlikely to have direct effect on the firm's cost of bank loans. Further, it is also reasonable to believe that a firm is more likely still to be controlled by one of the founding families if it was founded by more than one family. Thus, our second IV also meets both of the conditions.

We apply the two-stage least squares (2SLS) model in the robustness test. Following Kim and Lu (2011), we regress the founding-family control dummy and the interaction terms

between founding-family control and information opacity in the first-stage regression. The independent variables in the first stage include *Personal name*, the interaction term between *Personal name* and *Information opacity*, *Multiple founders*, and the interaction term between *Multiple founders* and *Information opacity*. All control variables used in the main regressions in Table 8 are also included in the first stage. For brevity, the results of the first-stage regressions are not reported in this paper, but they are available from the authors upon request.

In the second stage, the predicted values from the first stage are used as the key independent variables. Table 11 reports second-stage results with the cost of bank loans (*Rate 1* and *Rate 2*) as dependent variables. As is evident from Table 11, the coefficients of *Founding family* dummy are negative in all eight models. If we compare the results in Table 11 with the corresponding results in Table 8, it is obvious that the coefficients are significantly larger than those in Table 8. For example, in column (1) of Table 11, the coefficient of *Founding family* dummy is -1.253, while the coefficient of *Founding family* in column (1) of Table 8 is -0.449. Similarly, the coefficient of *Founding family***Small auditor* in Table 11 is 0.549 compared with 0.247 in Table 8. The differences are also evident with the other three measures of information opacity. Thus, the results from the 2SLS regressions confirm our main results.

<Insert Table 11 about here>

5.2. Alternative specifications

In our main analyses, we use two measures of interest rate as proxies for cost of bank loans. As a robustness check, we follow Luo et al. (2011) and use firm-level financial expenses (scaled by total assets), rather than interest rates, as a proxy for cost of bank loans. Since bank loans generally represent the largest component of a firm's total liabilities, we expect similar results similar to those in our main analyses. We run all regressions from Table

4 to Table 11 using financial expenses as the dependent variable. The results generally confirm our expectations.

In our main analyses, we define founding-family firms as those firms in which the founding-family is the ultimate largest shareholder, with at least 10% of cash flow rights. If we remove the 10% cash flow rights restriction, the number of founding-family firms in our sample increases to 1212. We run all regressions with this new definition and our main results remain qualitatively unchanged. Faccio and Lang (2002), along with several other studies, use 20% of voting rights as an alternative threshold in defining family firms. We also apply this definition to check the sensitivity of our results. There are 1021 founding-family firms in our sample under this definition. We repeat our analyses with this new set of founding-family firms. Again, our main results remain qualitatively unchanged.

6. Conclusions

Building on some recent studies in the U.S. (Anderson et al., 2003; Wang, 2006), we raise the question of whether the negative relation between founding-family control and cost of debt can be explained by the relatively more transparent information in founding-family firms, relative to non-founding-family firms. Using a sample of privately controlled public firms in China over the period 2004–2010, we find that, on average, founding-family controlled firms pay significantly lower cost of debt, relative to non-founding-family firms. We also find that this negative relation exists mainly in relatively transparent firms. Founding-family control does not significantly affect cost of debt when a firm is relatively opaque. We further provide evidence that institutional development reduces the impact of information opacity on the relation between founding-family control and cost of debt. This study highlights the importance of information opacity in understanding the impact of

founding-family control on cost of debt in countries with relatively underdeveloped institutions.

References

Adams, R. B., Almeida, H., Ferreira, D., 2005. Powerful COEs and their impact on corporate performance. Review of Financial Studies 18, 1403-1432.

Adams, R. B., Almeida, H., Ferreira, D., 2009. Understanding the relationship between founder-CEOs and firm performance. Journal of Empirical Finance 16, 136-150.

Ali, A., Chen, T. Y., Radhakrishnan, S., 2007. Corporate disclosures by family firms. Journal of Accounting and Economics 44, 238-286.

Allen, F., Qian, J., Qian, M. J., 2005. Law, finance, and economic growth in China. Journal of Financial Economics 77, 57-116.

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

Anderson, R., Reeb, D., 2003. Founding family ownership and firm performance: Evidence from the S&P 500. Journal of Finance 58, 1301-1329.

Anderson, R., Reeb, D., 2004. Board composition: Balancing family influence in S&P 500 firms. Administrative Sciences Quarterly 49, 209-237.

Armstrong, C. S., Guay, W. R., Weber, J. P., 2010. The role of information and financial reporting in corporate governance and debt contracting. Journal of Accounting and Economics 50, 179-234.

Aslan, H., Kumar, P., 2009. Controlling shareholders and the agency cost of debt: Evidence from syndicated loans. Available at SSRN: http://ssrn.com/abstract=1334886.

Attig, N., Fong, W. M., Gadhoum, Y., Lang, L. H. P., 2006. Effects of large shareholding on information asymmetry and stock liquidity. Journal of Banking and Finance 30, 2875-2892.

Boubakri, N., Ghouma, H., 2010. Control / ownership structure, creditor rights protection, and the cost of debt financing: International evidence. Journal of Banking and Finance 34, 2481-2499.

Boubakri, N., Guedhami, O., Mishra, D., Saffar, W., 2010. Political connections and the cost of equity capital. Available at SSRN: http://ssrn.com/abstract=1589688.

Boyreau-Debray, G., Wei, S. J., 2004. Can China grow faster? A diagnosis of the fragmentation of its domestic capital market. IMF working paper, WP/04/76.

Burkart, M., Panunzi, F., Shleifer, A., 2003. Family firms. Journal of Finance 58, 2167-2202.

Bushman, R. M., Smith, A., 2001. Financial accounting information and corporate governance. Journal of Accounting and Economics 32, 237-351.

Chaney, P. K., Faccio, M., Parsly, D., 2011. The quality of accounting information in politically connected firms. Journal of Accounting and Economics 51, 58-76.

Chau, G. K., Gray, S. J., 2002. Ownership structure and corporate voluntary disclosure in Hong Kong and Singapore. International Journal of Finance 37, 247-265.

Chen, C. J. P., Jaggi, B., 2000. Association between independent non-executive directors, family control, and financial disclosures in Hong Kong. Journal of Accounting and Public Policy 19, 285-310.

Chen, H., Chen, J. Z., Lobo, G. J., Wang, Y., 2011. Effects of audit quality on earnings management and cost of equity capital: Evidence from China. Contemporary Accounting Research 28, 892-925.

Chen, T., 2005. Executive compensation contracts of family firms. Working paper, University of Texas at Dallas.

Cheng, S., 2008. Board size and the variability of corporate performance. Journal of Financial Economics 87, 157-176.

Cheung, Y. L., Rau, P. R., Stouraitis, A., 2010. Helping hands or grabbing hand? Central vs. local government shareholders in Chinese listed firms. Review of Finance 14, 669-694.

Claessens, S., Djankov, S., Fan, J. P. H., Lang, L. H. P., 2002. Disentangling the incentive and entrenchment effects of large shareholdings. Journal of Finance 57, 2741-2772.

Claessens, S., Djankov, S., Lang, L., 2000. The separation of ownership and control in East Asian corporations. Journal of Financial Economics 58, 81-112.

Cliff, M. T., Denis, D. J., 2004. Do initial public offering firms purchase analyst coverage with underpricing? Journal of Finance 59, 2871-2901.

D'Aurizio, L., Oliviero, T., Romano, L., 2012. Family firms and the agency cost of debt: The role of soft information during a crisis. Available at SSRN: http://ssrn.com/abstract=2123895.

Duffie, D., Lando, D., 2001. Term structures of credit spreads with incomplete accounting information. Econometrica 69, 633-664.

Dyck, A., Zingales, L., 2004. Private benefits of control: An international comparison. Journal of Finance 59, 537-600.

Easterwood, J. C., Nutt, S. R., 1999. Inefficiency in analysts' earnings forecasts: Systematic misreaction or systematic optimism? Journal of Finance 54, 1777-1797.

Eisenhardt, K. M., 1989. Agency theory: An assessment and review. The Academy of Management Review 14, 57-74.

Ellis, K., 2006. Who trades IPOs? A close look at the first days of trading. Journal of Financial Economics 79, 339-363.

Ellul, A., Guntay, L., Lel, U., 2007. External governance and debt agency costs of family firms. Federal Reserve International Finance Discussion Paper No. 908.

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

Fahlenbrach, R., 2009. Founder–CEOs, investment decisions, and stock market performance. Journal of Financial and Quantitative Analysis 44, 439-466.

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

Fama, E., Jensen, M., 1983. Separation of ownership and control. Journal of Law and Economics 26, 301-325.

Fan, G., Wang, X., Zhu, H., 2011. NERI index of marketization of China's provinces 2011 report. Economic Science Press, Beijing (in Chinese).

Fan, J., Wong, T. J., 2002. Corporate ownership structure and the informativeness of accounting earnings in East Asia. Journal of Accounting and Finance 33, 401-425.

Filatotchev, I., Mickiewicz, T., 2006. Ownership concentration, private benefits of control, and debt financing. In: Corporate governance and finance in Poland and Russia (Mickiewicz, T. Ed.) 159-176. Palgrave Macmillan Press, U.K.

Francis, J., Lafond, R., Olsson, P., Schipper, K., 2005b. The market pricing of accrual quality. Journal of Accounting and Economics 39, 295-327.

Francis, J., Schipper, K., Vincent, L., 2005a. Earnings and dividends informativeness when cash flow rights are separated from voting rights. Journal of Accounting and Economics 39, 329-360.

Franks, J., Mayer, C., 1997. Corporate ownership and control in the UK, Germany, and France. Journal of Applied Corporate Finance 9, 30-45.

Gomes, A., 2000. Going public without governance: managerial reputation effects. Journal of Finance 55, 615-646.

Himmelberg, C., Hubbard, R., Palia, D., 1999. Understanding the determinants of managerial ownership and the link between ownership and performance. Journal of Financial Economics 53, 353-384.

Hutton, A. P., 2007. A discussion of "Corporate disclosure by family firms." Journal of Accounting and Economics 44, 287-297.

Jensen, M., Meckling, W., 1976. Theory of the firm: Managerial behavior, agency costs and ownership structure. Journal of Financial Economics 3, 305-360.

Kim, E. H., Lu, Y., 2011. CEO ownership, external governance, and risk-taking. Journal of Financial Economics 101, 272-292.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., Vishny, R., 2000. Investor protection and corporate governance. Journal of Financial Economics 58, 3-27.

Lang, M., Lins, K., Miller, D., 2004. Concentrated control, analyst following, and valuation: Do analysts matter most when investors are protected least? Journal of Accounting Research 42, 589-623.

Leuz, C., Nanda, D., Wysocki, P., 2003. Earnings management and investor protection: An international comparison. Journal of Financial Economics 69, 505-527.

Leuz, C., Verrecchia, R., 2000. The economic consequences of increased disclosure. Journal of Accounting Research 38, 91-124.

Li, C., 2010. Savings, investment, and capital mobility within China. China Economic Review 21, 14-23.

Li, H., Meng, L. S., Zhang, J., 2006. Why do entrepreneurs enter politics? Evidence from China. Economic Inquiry 44, 559-578.

Lin, C., Ma, Y., Malatesta, P., Xuan, Y., 2011. Ownership structure and the cost of corporate borrowing. Journal of Financial Economics 100, 1-23.

Livingston, M., Zhou, L., 2010. Split bond ratings and information opacity premiums. Financial Management 39, 515-532.

Luo, W., Zhang, Y., Zhu, N., 2011. Bank ownership and executive perquisites: New evidence from an emerging market. Journal of Corporate Finance 17, 352-370.

Ma, L., Ma, S., Tian, G., 2012. Political connections, founder-managers, and their impacts on tunneling in China's listed firms. Unpublished working paper.

Ma, S., Rath, S., 2012. State ownership and market timing of equity issues. Unpublished working paper.

Masulis, R. W., Pham, P. K., Zein, J., 2011. Family business groups around the world: Financing advantages, control motivations, and organizational choices. Review of Financial Studies 24 (11), 3556-3600.

Miller, D., Breton-Miller, I. L., Lester, R. H., Cannella Jr., A. A., 2007. Are family firms really superior performers? Journal of Corporate Finance 13, 829-858.

Miller, D. P., Puthenpurackal, J. J., 2002. The costs, wealth effects and determinants of public Yankee bond offerings. Journal of Financial Intermediation 11, 455-485.

Morck, R. K., Stangeland, D. A., Yeung, B. Y., 2000. Concentrated corporate ownership: Inherited wealth, corporate control, and economic growth the Canadian disease? NBER book chapter. Available at SSRN: http://ssrn.com/abstract=1915866.

Petersen, M. A., Rajan, R. G., 1994. The benefits of lending relationships: Evidence from small business data. Journal of Finance 49, 3-37.

Qi, Y., Roth, L., Wald, J. K., 2010. Political rights and the cost of debt. Journal of Financial Economics 95, 202-226.

Rajan, R., Servaes, H., 1997. Analyst following of initial public offerings. Journal of Finance 52, 507-529.

Sengupta, P., 1998. Corporate disclosure quality and the cost of debt. The Accounting Review 73, 459-474.

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

Stiglitz, J., 2000. The contributions of the economics of information to twentieth century economics. Quarterly Journal of Economics 115, 1441-1478.

Villalonga, B., Amit, R., 2006. How do family ownership, control, and management affect firm value? Journal of Financial Economics 80, 385-417.

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

Wang, D., 2006. Founding family ownership and earnings quality. Journal of Accounting Research 44 (3), 619-656.

Yermack, D., 1996. Higher market valuation of companies with a small board of directors. Journal of Financial Economics 40, 185-211.

Yu, F., 2005. Accounting transparency and the term structure of credit spreads. Journal of Financial Economics 75, 53-84.

Ziebart, D. A., Reiter, S. A., 1992. Bond ratings, bond yields and financial information. Contemporary Accounting Research 9, 252-282.

Zingales, L., 1995. What determines the value of corporate votes? Quarterly Journal of Economics 110, 1047-1073.

Zou, H., Adams, M. B., 2008. Debt capacity cost of debt, and corporate insurance. Journal of Financial and Quantitative Analysis 43, 433-466.

Table 1. Descriptions of all variables used in the analyses.

Variable	Description
Dependent variables	
Rate 1	Interest expense / (short-term debt + long-term debt + debt due within one year) (Luo et al., 2011)
Rate 2	(Interest expense + capitalized interest) / total liabilities (Zou and Adams, 2008)
Key independent variables	
Founding family	Dummy variable that equals 1 if both of the conditions are met: (1) the founder and founder family members hold at least 10% of the firm's cash flow rights; and (2) the founding family (all family members combined) is the ultimate largest shareholder.
Founding-family ownership	Fractional equity ownership by the founding family if a firm is classified as a founding-family firm; zero for all non-founding-family firms.
Large auditor	Dummy variable that equals 1 if a firm's annual financial report is audited by one of the largest 10 auditing firms in China (Big 4 international firms plus the largest 6 national firms based on revenue); zero otherwise
Small auditor	Dummy variable that equals 1 if a firm's annual financial report is not audited by one of the largest ten auditing firms; zero otherwise
Analyst	Natural log of the number of financial analysts that follow a firm
NegAnalyst	Natural log of the number of financial analysts that follow a firm multiplied by negative 1 (i.e., NegAnalyst = Analyst*(-1))
Volume	Average daily number of shares traded during the year / average number of total shares outstanding during the year
NegVolume	= Volume*(-1)
Forecast error	Absolute value of the difference between the consensus of analysts' forecast earnings per share and actual earnings per share scaled by firm stock price
Borrowing firm characteristics	
Firm size	Natural log of total assets
Leverage	Total liabilities / total assets
PPE	Net property, plant, and equipment / total assets
Performance	Net operating cash flow / total assets
CAPEX	Current assets / current liabilities
Current ratio	(Short-term bank borrowing + long-term bank borrowing) / total liabilities
Sales	(Total sales this year – total sales last year) / total sales last year
Tunneling	Amount of "other receivables" / total assets, a proxy for tunneling by controlling shareholders (Jiang et al., 2010)
Board size	Natural log of total number of directors on the board
Board independence (Independence)	Number of independent directors / total number of directors
Political connection (Political)	Dummy variable that equals 1 if either the Chairman or the CEO is politically connected; zero otherwise
ROA	Net income / total assets
Largest	Equity ownership of the largest shareholder
Official rate	Financial institutions' official lending rate specified by the People's Bank of China (the central bank in China). We use the one-to three-year loan rate as a proxy for the official lending rate (Zou and Adams, 2008)
Instrumental variables	
Personal name	Dummy variable that equals 1 if the name of the firm at the time of IPO contains (part of) personal name(s) related to the founder(s) (Fahlenbrach, 2009)
Multiple founders	Dummy variable that equals 1 if the firm has more than one founder (Adams et al., 2009)

Table 2A. Number and percentage of founding-family firms by year.

Year	All firms	Founding-family firms	Non-founding-family firms	Percentage of founding-family firms (%)
2004	334	75	259	22.5
2005	394	103	291	26.1
2006	424	105	319	24.8
2007	467	130	337	27.8
2008	534	187	347	35.0
2009	592	228	364	38.5
2010	635	266	369	41.9
Total	3380	1094	2286	32.4

A firm is defined as a founding-family firm if both conditions are met: (1) Founder and founder family members hold at least 10% of firm cash flow rights; and (2) the founding-family (all family members combined) is the ultimate largest shareholder.

Table 2B. Number and percentage of founding-family firms by industry.

Industry code	Industry description	All firms	Founding-family firms	Non-founding-family firms	Percentage of founding-family firms (%)
A	Agricultural, forestry, livestock & fishery	90	38	52	42.2
B	Mining	24	6	18	25.0
C	Manufacturing	1995	736	1259	36.9
D	Power, gas & water production & supply	34	0	34	0
E	Construction	64	28	36	43.8
F	Transport & storage	33	9	24	27.3
G	Information technology	284	135	149	47.5
H	Wholesale & retail trade	212	21	191	9.9
J	Real estate	323	69	254	21.4
K	Social services	97	15	82	15.5
L	Communication & cultural industry	13	6	7	46.2
M	Comprehensive	211	31	180	14.7
	Total	3380	1094	2286	32.4

Table 3. Univariate analyses on mean differences between founding-family firms and non-founding-family firms.

		All firms		Founding-family firms		Non-founding-family firms		Difference in means	
		(1)		(2)		(3)		(2)–(3)	p-value
Variables	No. of obs.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.		
Dependent variables									
Rate 1	3380	2.522	20.924	1.646	4.169	2.942	25.270	-1.296	0.009***
Rate 2	3380	3.082	21.110	1.916	4.585	3.641	25.455	-1.725	0.001***
Key independent variables									
Founding-family ownership	3380	0.103	0.171	0.318	0.147	0	0	0.318	0.000***
Large auditor	3380	0.200	0.400	0.243	0.429	0.179	0.383	0.064	0.000***
No. of analysts	3380	3.475	5.684	5.959	6.891	2.287	4.549	3.672	0.000***
Volume	3335	0.017	0.012	0.016	0.010	0.017	0.012	-0.001	0.000***
Forecast error	1853	0.029	0.049	0.026	0.036	0.034	0.060	-0.008	0.005***
Other control variables									
Total assets (RMB billions)	3380	2.309	3.429	2.740	3.939	2.103	3.135	0.637	0.000***
Leverage	3380	0.844	4.294	0.452	0.200	1.032	0.109	-0.580	0.000***
PPE	3380	0.254	0.172	0.241	0.150	0.260	0.181	-0.019	0.001***
Performance	3380	-0.095	6.009	0.066	0.064	-0.172	7.306	0.238	0.060*
CAPEX	3380	0.055	0.066	0.071	0.062	0.047	0.066	0.023	0.000***
Current ratio	3380	1.783	2.861	2.102	2.691	1.630	2.927	0.471	0.000***
Sales	3380	0.279	0.938	0.277	0.626	0.281	1.055	-0.004	0.444
Tunneling	3380	0.064	0.137	0.026	0.058	0.082	0.157	-0.056	0.000***
No. of directors	3380	8.724	1.759	8.668	1.606	8.750	1.828	-0.082	0.092*
Board independence	3380	0.363	0.534	0.367	0.051	0.361	0.055	0.005	0.003***
Political connection	3380	0.365	0.482	0.473	0.499	0.314	0.464	0.158	0.000***

Variables include cost of bank loans (*Rate 1 and Rate 2*), corporate information opacity (auditor identity, analyst coverage, trading volume, and analysts' forecast error) and borrowing firm characteristics. All variables are defined in Table 1. *P*-values using the two-tailed *t*-test (Mann-Whitney-Wilcoxon test) are reported in parentheses below the differences in means.

* Indicate significance at the 10% level.

** Indicate significance at the 5% level.

*** Indicate significance at the 1% level.

Table 4. OLS regression analyses on impact of founding-family control on cost of bank loans.

Dependent variable	Rate 1	Rate 1	Rate 1	Rate 1	Rate 2	Rate 2	Rate 2	Rate 2
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Constant	0.647	-1.046	0.586	-1.104	9.730***	4.530*	9.653***	4.478*
	(0.727)	(0.556)	(0.751)	(0.532)	(0.000)	(0.054)	(0.000)	(0.056)
Founding family	-0.284**	-0.269**			-0.504***	-0.585***		
dummy	(0.033)	(0.036)			(0.002)	(0.000)		
Founding family			-1.412***	-1.244***			-2.244***	-2.343***
ownership			(0.000)	(0.000)			(0.000)	(0.000)
Firm size	-0.118*	-0.131*	-0.119*	-0.132*	-0.269***	-0.260***	-0.268***	-0.262***
	(0.087)	(0.063)	(0.081)	(0.061)	(0.003)	(0.004)	(0.002)	(0.004)
Leverage	0.173	0.170	0.172	0.169	0.279***	0.264***	0.279***	0.264***
	(0.171)	(0.185)	(0.172)	(0.186)	(0.001)	(0.002)	(0.001)	(0.002)
PPE	0.031***	0.024***	0.029***	0.023***	0.036***	0.036***	0.035***	0.034***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Performance	-0.129***	-0.129***	-0.129***	-0.129***	-0.127***	-0.128***	-0.127***	-0.127***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
CAPEX	-0.661	-1.609*	-0.321	-1.337	-5.093***	-5.528***	-4.619***	-5.105***
	(0.500)	(0.100)	(0.742)	(0.175)	(0.000)	(0.000)	(0.000)	(0.000)
Current ratio	-0.587***	-0.572***	-0.584***	-0.571***	-0.654***	-0.647***	-0.650***	-0.645***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Sales	-0.107**	-0.115**	-0.106**	-0.113**	-0.084	-0.082	-0.083	-0.079
	(0.019)	(0.020)	(0.018)	(0.021)	(0.261)	(0.276)	(0.267)	(0.291)
Tunneling	0.022***	0.025***	0.021***	0.025***	0.001	0.012*	0.002	0.012*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.891)	(0.068)	(0.764)	(0.082)
board size	-0.377	-0.398	-0.389	-0.403*	-0.678*	-0.507	-0.691**	-0.511
	(0.112)	(0.103)	(0.102)	(0.100)	(0.052)	(0.158)	(0.047)	(0.154)
Independence	0.001	0.004	0.004	0.006	0.016	0.015	0.021	0.019
	(0.912)	(0.710)	(0.686)	(0.527)	(0.282)	(0.316)	(0.172)	(0.196)
Political	0.043	0.020	0.069	0.041	0.086	0.110	0.122	0.141
	(0.674)	(0.842)	(0.494)	(0.678)	(0.520)	(0.401)	(0.364)	(0.284)
Official rate		0.332***		0.334***		0.817***		0.818***
		(0.000)		(0.000)		(0.000)		(0.000)
Year dummies	No	Yes	No	Yes	No	Yes	No	Yes
Industry dummies	No	Yes	No	Yes	No	Yes	No	Yes
No. of obs.	3380	3380	3380	3380	3380	3380	3380	3380
R-square	0.978	0.979	0.978	0.979	0.964	0.966	0.964	0.966

This table presents OLS regression results of the impacts of founding-family control on the cost of debt. Columns (1) to (4) use *Rate 1* as the dependent variable and columns (5) to (8) use *Rate 2* as the dependent variable. For each dependent variable, we use both *Founding family dummy* and *Founding-family ownership* as the key independent variables. *Rate 1*, *Rate 2*, *Founding-family dummy*, *Founding-family ownership* and all other control variables are defined in Table 1. *P*-values based on standard errors corrected for heteroskedasticity using White (1980) are reported in parentheses.

* Indicate significance at the 10% level.

** Indicate significance at the 5% level.

*** Indicate significance at the 1% level.

Table 5. Regression analyses on impacts of founding-family control on corporate information opacity.

Dependent variable	Large auditor	Analyst	Volume	Forecast error
	(1)	(2)	(3)	(4)
Constant	-8.041***	-43.486***	0.050***	-0.070*
	(0.000)	(0.000)	(0.000)	(0.077)
Founding family	0.221***	1.741***	-0.001**	-0.006*
	(0.010)	(0.000)	(0.018)	(0.070)
Firm size	0.200***	1.533***	-0.001***	0.005***
	(0.000)	(0.000)	(0.000)	(0.003)
Leverage	<-0.001	0.052***	<0.001	0.019***
	(0.969)	(0.003)	(0.623)	(0.009)
PPE	<0.001	-0.011**	<0.001**	<0.001***
	(0.958)	(0.023)	(0.013)	(0.001)
ROA	<0.001	-0.001***	<-0.001	-0.067
	(0.166)	(0.000)	(0.214)	(0.339)
Largest	0.009***	0.024***	<-0.001***	<0.001
	(0.000)	(0.000)	(0.000)	(0.216)
CAPEX	2.758***	16.649***	-0.012***	-0.048**
	(0.000)	(0.000)	(0.000)	(0.041)
Sales	-0.075*	0.059	-0.001***	-0.006***
	(0.089)	(0.483)	(0.000)	(0.007)
Tunneling	<-0.001	-0.022***	<-0.001**	0.004***
	(0.901)	(0.000)	(0.022)	(0.009)
Board size	0.513**	1.237***	-0.003***	-0.006
	(0.011)	(0.001)	(0.000)	(0.474)
Board independence	0.009	0.003	<-0.001	<-0.001
	(0.263)	(0.838)	(0.136)	(0.798)
Political connection	0.148*	0.265*	0.001*	0.002
	(0.060)	(0.086)	(0.086)	(0.489)
Year dummies	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes
No. of obs.	3380	3380	3335	1853
R-square		0.421	0.487	0.307
Wald chi square	225.14			
Log likelihood	-2116.03			
Pseudo R-square	0.055			

This table presents regression results of the impacts of founding-family control on corporate information opacity. Column (1) uses the logistic regression model. Columns (2) to (4) use OLS regression models. The dependent variables are the four measures of corporate opacity used in this study, namely, the identity (size) of auditing firms, the number of analysts following a firm, the trading volume of a firm's stock, and the level of analysts' forecast error of a firm's earnings. The key independent variable is the *Founding family* dummy. The definitions of all variables are given in Table 1. *P*-values based on standard errors corrected for heteroskedasticity using White (1980) are reported in parentheses.

* Indicate significance at the 10% level.

** Indicate significance at the 5% level.

*** Indicate significance at the 1% level.

Table 6. Univariate analyses on impacts of corporate information opacity on cost of bank loans between founding-family firms and non-founding-family firms.
Panel A

		Auditor identity			Analyst coverage			Trading volume			Forecast error		
		Small auditor	Large auditor	Diff. in means	Analyst < median	Analyst > median	Diff. in means	Volume < median	Volume > median	Diff. in means	Error > median	Error < median	Diff. in means
		(1)	(2)	(1)–(2)	(3)	(4)	(3)–(4)	(5)	(6)	(5)–(6)	(7)	(8)	(7)–(8)
All firms	Rate 1	3.374	2.310	1.064 (0.275)	3.197	1.598	1.599*** (0.005)	2.691	2.351	0.341 (0.319)	1.832	0.883	0.950*** (0.000)
	Rate 2	3.797	2.904	0.893 (0.309)	4.085	1.708	2.377*** (0.000)	3.125	2.893	0.232 (0.625)	1.983	1.022	0.961*** (0.000)
Founding-family firms	Rate 1	1.845	1.024	0.821*** (0.001)	2.357	1.276	1.081*** (0.000)	2.130	1.207	0.923*** (0.000)	1.690	0.087	1.603*** (0.000)
	Rate 2	2.147	1.195	0.952*** (0.000)	3.048	1.327	1.721*** (0.000)	2.579	1.314	1.265*** (0.000)	1.658	0.217	1.441*** (0.000)
Non-founding-family firms	Rate 1	4.902	2.515	2.387 (0.208)	3.396	1.926	1.470** (0.028)	3.461	2.579	1.002 (0.179)	1.996	1.682	0.313 (0.111)
	Rate 2	5.489	3.238	2.251 (0.222)	4.331	2.096	2.235*** (0.002)	3.715	3.573	0.142 (0.381)	2.354	1.829	0.525** (0.032)

Panel B

			Auditor identity		Analyst coverage		Trading volume		Forecast error	
			Small auditor	Large auditor	Analyst < median	Analyst > median	Volume < median	Volume > median	Error > median	Error < median
Rate 1	(1)	Founding-family firms	1.845	1.024	2.357	1.276	2.130	1.207	1.690	0.087
	(2)	Non-founding-family firms	4.902	2.515	3.396	1.926	3.461	2.579	1.996	1.682
		Diff. in means	-2.247*	-1.491***	-1.039*	-0.650***	-1.331*	-1.372**	-0.306	-0.883***
		Row (1)–Row (2)	(0.092)	(0.000)	(0.091)	(0.001)	(0.053)	(0.016)	(0.169)	(0.000)
Rate 2	(3)	Founding-family firms	2.147	1.195	3.048	1.327	2.579	1.314	1.658	0.217
	(4)	Non-founding-family firms	5.489	3.238	4.331	2.096	3.715	3.573	2.354	1.829
		Diff. in means	-3.342*	-2.043***	-1.283*	-0.769***	-1.136	-2.259***	-0.696**	-1.612***
		Row (3)–Row (4)	(0.073)	(0.000)	(0.057)	(0.000)	(0.115)	(0.000)	(0.018)	(0.000)

This table presents univariate analysis results of different impacts of corporate information opacity on cost of bank loans between founding-family firms and non-founding-family firms. Four different measures of information opacity are used, namely, identity (size) of auditing firms, number of analysts following a firm, trading volume of a firm's stock, and analysts' forecast error of a firm's earnings. The definitions of these four measures are given in Table 1. *P*-values using two-tailed *t*-test (Mann-Whitney-Wilcoxon test) are reported in parentheses below the differences in means. Panel A compares differences in cost of bank loans for founding-family firms with different levels of corporate information opacity and for non-founding-family firms with different levels of corporate information opacity. The full sample is first divided into two groups, i.e., founding-family firms and non-founding-family firms. Then, within each group, firms are further divided into two sub-groups based on the level of information opacity. Panel B compares differences in cost of bank loans between founding-family firms and non-founding-family firms, for a given level of information opacity. For each measure of corporate information opacity, the full sample is first divided into two groups based on the level of information opacity. Then, within each group, firms are further divided into founding-family firms and non-founding-family firms.

* Indicate significance at the 10% level.

** Indicate significance at the 5% level.

*** Indicate significance at the 1% level.

Table 7A. OLS regression analyses on relation between founding-family control and cost of bank loans for transparent firms and opaque firms.

	Dependent variable: Rate 1							
	Auditor identity		Analyst coverage		Trading volume		Forecast error	
	Large auditor	Small auditor	Analyst > median	Analyst < median	Volume > median	Volume < median	Error < median	Error > median
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Constant	-5.623	-0.018	-3.691	-2.069	-1.624	-0.287	-4.966	1.949
	(0.146)	(0.991)	(0.285)	(0.324)	(0.627)	(0.902)	(0.322)	(0.641)
Founding family	-0.391**	-0.181	-0.661**	-0.058	-0.510***	-0.089	-0.401*	-0.213
	(0.041)	(0.222)	(0.018)	(0.788)	(0.002)	(0.659)	(0.093)	(0.507)
Firm size	-0.065	-0.429***	-0.063	-0.177*	-0.051	-0.208***	-0.112	-0.168
	(0.266)	(0.002)	(0.537)	(0.054)	(0.605)	(0.006)	(0.421)	(0.252)
Leverage	0.046	0.041**	0.059	0.184	0.006	0.054***	4.655**	0.817*
	(0.296)	(0.031)	(0.427)	(0.168)	(0.899)	(0.002)	(0.012)	(0.051)
PPE	0.046***	0.022***	0.034***	0.019***	0.028***	0.026***	0.038***	0.043***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)
Performance	-0.132***	0.212***	-0.286**	-0.225	-0.132***	0.238***	-0.006*	-0.238
	(0.000)	(0.000)	(0.012)	(0.231)	(0.000)	(0.000)	(0.089)	(0.237)
CAPEX	-4.354***	-1.346	-0.838	-1.567	-1.422	-1.600	-1.752	-0.085
	(0.006)	(0.230)	(0.595)	(0.258)	(0.283)	(0.182)	(0.236)	(0.968)
Current ratio	-0.361**	-0.725***	-0.445**	-0.727***	-0.545**	-0.625***	-0.483**	-0.389***
	(0.011)	(0.000)	(0.016)	(0.000)	(0.011)	(0.003)	(0.038)	(0.008)
Sales	0.061	-0.151***	0.131	-0.164***	0.062	-0.161*	0.003	0.004
	(0.563)	(0.008)	(0.419)	(0.001)	(0.292)	(0.099)	(0.982)	(0.988)
Tunneling	0.055***	0.021***	0.057**	0.022***	0.030***	0.026***	0.056	0.057
	(0.000)	(0.000)	(0.019)	(0.000)	(0.000)	(0.000)	(0.150)	(0.121)
Board size	-0.222	-0.391	-0.027	-0.567**	-0.190	-0.482	-0.130	-0.215
	(0.617)	(0.166)	(0.949)	(0.035)	(0.565)	(0.191)	(0.889)	(0.709)
Independence	-0.013	0.007	0.003	0.001	0.003	0.001	0.016	-0.015
	(0.554)	(0.471)	(0.868)	(0.919)	(0.831)	(0.955)	(0.601)	(0.547)
Political	0.065	-0.027	0.102	-0.070	0.081	-0.131	0.028	-0.299
	(0.732)	(0.814)	(0.439)	(0.649)	(0.543)	(0.373)	(0.903)	(0.329)
Official rate	0.140	0.423***	0.269**	0.743***	0.281	0.285***	1.019**	0.622**
	(0.654)	(0.000)	(0.014)	(0.000)	(0.372)	(0.010)	(0.034)	(0.020)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of obs.	675	2705	1426	1954	1682	1653	928	927
R-square	0.997	0.364	0.987	0.444	0.992	0.339	0.541	0.252

This table presents OLS regression results of different impacts of founding-family control on cost of bank loans for firms with different levels of information opacity. The dependent variable is *Rate 1*, calculated as interest expense divided by the sum of short-term debt, long-term debt, and debt due in one year (Luo et al., 2011). Columns (1), (3), (5), and (7) are for high transparent firms; Columns (2), (4), (6), and (8) are for low transparent (or opaque) firms. *Founding family* firm dummy and all other control variables are defined in Table 1. *P*-values based on standard errors corrected for heteroskedasticity using White (1980) are reported in parentheses.

* Indicate significance at the 10% level.

** Indicate significance at the 5% level.

*** Indicate significance at the 1% level.

Table 7B. OLS regression analyses on relation between founding-family control and cost of bank loans for transparent firms and opaque firms.

	Dependent variable: Rate 2							
	Auditor identity		Analyst coverage		Trading volume		Forecast error	
	Large auditor	Small auditor	Analyst > median	Analyst < median	Volume > median	Volume < median	Error < median	Error > median
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Constant	-2.153	7.202***	-3.480	2.899	1.999	4.926	-5.856	5.004
	(0.635)	(0.003)	(0.309)	(0.387)	(0.470)	(0.348)	(0.254)	(0.300)
Founding family	-0.641**	-0.301*	-0.409**	-0.173	-0.669***	-0.261	-0.598**	-0.398
	(0.020)	(0.057)	(0.034)	(0.299)	(0.000)	(0.260)	(0.014)	(0.144)
Firm size	-0.174	-0.399***	-0.013	-0.233*	-0.120	-0.349***	-0.143	-0.359**
	(0.347)	(0.000)	(0.899)	(0.068)	(0.340)	(0.003)	(0.309)	(0.041)
Leverage	0.138**	0.136**	0.135*	0.274***	0.271	0.096	4.923***	1.978***
	(0.038)	(0.015)	(0.061)	(0.000)	(0.114)	(0.136)	(0.010)	(0.000)
PPE	0.065***	0.030***	0.039***	0.033***	0.039***	0.035***	0.044***	0.054***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Performance	-0.130***	0.080*	-0.295*	-0.127*	-0.127***	0.001	-0.504	-0.235
	(0.000)	(0.064)	(0.000)	(0.097)	(0.000)	(0.110)	(0.115)	(0.247)
CAPEX	-6.508***	-5.378***	-1.230	-6.699***	-3.419**	-7.305***	-2.080	-1.929
	(0.008)	(0.000)	(0.404)	(0.000)	(0.012)	(0.000)	(0.168)	(0.418)
Current ratio	-0.357**	-0.848***	-0.741***	-0.532**	-0.544**	-0.777***	-0.455*	-0.421***
	(0.026)	(0.000)	(0.000)	(0.019)	(0.018)	(0.001)	(0.058)	(0.008)
Sales	-0.048	-0.090	-0.165	-0.114	-0.028	-0.090	-0.001	-0.137
	(0.742)	(0.288)	(0.288)	(0.170)	(0.698)	(0.596)	(0.997)	(0.524)
Tunneling	0.005	0.044**	0.008	0.103***	0.004	0.046***	0.053	0.055
	(0.448)	(0.013)	(0.268)	(0.000)	(0.948)	(0.004)	(0.186)	(0.168)
Board size	-0.196	-0.591	-0.105	-0.503	-0.138	-0.698	-0.066	-0.270
	(0.750)	(0.163)	(0.804)	(0.295)	(0.711)	(0.264)	(0.944)	(0.645)
Independence	-0.034	0.021	-0.005	0.023	0.014	0.014	0.022	-0.013
	(0.206)	(0.207)	(0.714)	(0.286)	(0.308)	(0.601)	(0.481)	(0.586)
Political	0.053	0.116	0.015	0.169	-0.005	0.090	0.022	-0.058
	(0.807)	(0.446)	(0.911)	(0.428)	(0.970)	(0.674)	(0.924)	(0.800)
Official rate	0.264	0.921***	0.850***	0.991***	0.549***	1.167**	1.115***	0.723***
	(0.458)	(0.000)	(0.000)	(0.000)	(0.000)	(0.020)	(0.023)	(0.005)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of obs.	675	2705	1426	1954	1682	1653	928	927
R-square	0.994	0.321	0.973	0.517	0.989	0.287	0.525	0.420

This table presents OLS regression results of impacts of founding-family control on cost of bank loans for firms with different levels of information opacity. The dependent variable is *Rate 2*, calculated as the sum of interest expense and capitalized interest divided by total liabilities (Zou and Adams, 2008). Columns (1), (3), (5), and (7) are for high transparent firms; Columns (2), (4), (6) and (8) are for low transparent (or opaque) firms. Founding family firm dummy and all other control variables are defined in Table 1. *P*-values based on standard errors corrected for heteroskedasticity using White (1980) are reported in parentheses.

* Indicate significance at the 10% level.

** Indicate significance at the 5% level.

*** Indicate significance at the 1% level.

Table 8. OLS regression analyses on impacts of corporate information opacity on the relation between founding-family control and cost of bank loans.

Dependent variable	Rate 1	Rate 1	Rate 1	Rate 1	Rate 2	Rate 2	Rate 2	Rate 2
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Constant	-1.977	-2.918	-1.945	-3.010	3.345	-1.951	2.986	-1.402
	(0.277)	(0.173)	(0.304)	(0.411)	(0.159)	(0.478)	(0.215)	(0.726)
Founding family	-0.449*	-0.276**	-0.484**	-0.461**	-0.710***	-0.473***	-0.631***	-0.604***
	(0.055)	(0.037)	(0.011)	(0.045)	(0.010)	(0.000)	(0.005)	(0.004)
Small auditor	0.334**				0.451**			
	(0.042)				(0.045)			
Founding family *	0.247**				0.480**			
Small auditor	(0.046)				(0.026)			
NegAnalyst		0.024**				0.102***		
		(0.040)				(0.000)		
Founding family *		0.043**				0.069**		
NegAnalyst		(0.036)				(0.037)		
NegVolume			29.678***				31.359***	
			(0.000)				(0.001)	
Founding family *			18.898**				18.877**	
NegVolume			(0.022)				(0.040)	
Forecast error				1.112*				0.489**
				(0.054)				(0.036)
Founding family *				6.981*				4.981**
Forecast error				(0.059)				(0.050)
Firm size	-0.151**	-0.182**	-0.172**	-0.011	-0.237***	-0.079	-0.171*	-0.171
	(0.035)	(0.020)	(0.026)	(0.828)	(0.009)	(0.420)	(0.076)	(0.230)
Leverage	0.171	0.172	0.189	1.051*	0.266***	0.272***	0.292***	2.193***
	(0.181)	(0.179)	(0.145)	(0.061)	(0.001)	(0.001)	(0.000)	(0.000)
PPE	0.024***	0.024***	0.022***	0.043***	0.036***	0.034***	0.035***	0.050***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Performance	-0.129***	-0.129***	-0.129***	-0.412**	-0.128***	-0.127***	-0.127***	-0.362**
	(0.000)	(0.000)	(0.000)	(0.025)	(0.000)	(0.000)	(0.000)	(0.044)
CAPEX	-1.515	-0.978	-1.031	-1.439	-5.409***	-3.447***	-4.637***	-2.423*
	(0.123)	(0.312)	(0.291)	(0.257)	(0.000)	(0.003)	(0.000)	(0.079)
Current ratio	-0.571***	-0.566***	-0.558***	-0.497***	-0.646***	-0.629***	-0.619***	-0.476**
	(0.000)	(0.000)	(0.000)	(0.005)	(0.000)	(0.000)	(0.000)	(0.011)
Sales	-0.120**	-0.113**	-0.089*	-0.055	-0.088	-0.073	-0.048	-0.109
	(0.015)	(0.020)	(0.070)	(0.748)	(0.242)	(0.327)	(0.529)	(0.488)
Tunneling	0.026***	0.025***	0.028***	0.072**	0.013*	0.011*	0.013**	0.068**
	(0.000)	(0.000)	(0.000)	(0.026)	(0.061)	(0.094)	(0.041)	(0.044)
Board size	-0.378	-0.348	-0.263	-0.120	-0.475	-0.349	-0.299	-0.022
	(0.126)	(0.159)	(0.291)	(0.831)	(0.189)	(0.327)	(0.405)	(0.969)
Independence	0.005	0.004	0.008	0.002	0.017	0.016	0.023	0.008
	(0.590)	(0.667)	(0.404)	(0.907)	(0.259)	(0.267)	(0.115)	(0.691)
Political	0.021	0.032	0.018	0.324*	0.111	0.148	0.133	0.190
	(0.837)	(0.749)	(0.858)	(0.099)	(0.393)	(0.256)	(0.300)	(0.243)
Official rate	0.341***	0.410***	0.201**	0.770***	0.830***	1.062***	0.539***	0.875***
	(0.000)	(0.000)	(0.037)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of obs.	3380	3380	3335	1853	3380	3380	3335	1853
R-square	0.979	0.979	0.979	0.416	0.966	0.966	0.966	0.476

This table presents OLS regression results of the impacts of borrowing firms' information opacity on the relation between founding-family control and cost of bank loans. Columns (1) to (4) use *Rate 1* as the dependent variable and columns (5) to (8) use *Rate 2* as the dependent variable. For each dependent variable, we run four regressions to test impacts of four measures of information opacity and the interactive impacts between founding-family control and information opacity on cost of bank loans. The definitions of *Rate 1*, *Rate 2*, *Founding family dummy*, information opacity, and all other control variables are given in Table 1. *P*-values based on standard errors corrected for heteroskedasticity using White (1980) are reported in parentheses.

* Indicate significance at the 10% level.

** Indicate significance at the 5% level.

*** Indicate significance at the 1% level.

Table 9. Market development and impact of corporate information opacity on the relation between founding-family control and cost of bank loans.

Dependent variable	Rate 1	Rate 1	Rate 1	Rate 1	Rate 2	Rate 2	Rate 2	Rate 2
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Constant	-0.565	-1.615	-0.342	-0.799	5.242**	0.620	4.686**	0.049
	(0.759)	(0.437)	(0.854)	(0.839)	(0.030)	(0.811)	(0.043)	(0.900)
Founding family	-0.323**	-0.243*	-0.690***	-0.629***	-0.597**	-0.402***	-0.567**	-0.634***
	(0.048)	(0.053)	(0.003)	(0.007)	(0.024)	(0.004)	(0.036)	(0.007)
Market	-0.060*	-0.061**	-0.054**	-0.020*	-0.110***	-0.117***	-0.137***	-0.032*
	(0.058)	(0.033)	(0.035)	(0.077)	(0.005)	(0.001)	(0.000)	(0.072)
Small auditor	0.365**				0.420*			
	(0.014)				(0.064)			
Founding family * Small auditor	0.610*				1.960*			
	(0.089)				(0.053)			
Founding family * Small auditor	-0.194*				-0.190*			
* Market	(0.071)				(0.053)			
NegAnalyst		0.028*				0.095***		
		(0.060)				(0.000)		
Founding family * NegAnalyst		0.039*				0.390**		
		(0.061)				(0.019)		
Founding family * NegAnalyst		-0.020*				-0.038**		
* Market		(0.079)				(0.020)		
NegVolume			28.770***				31.896***	
			(0.000)				(0.000)	
Founding family * NegVolume			60.900**				34.376*	
			(0.014)				(0.059)	
Founding family * NegVolume			-60.614**				-54.699*	
* Market			(0.033)				(0.055)	
Forecast error				1.784*				2.177**
				(0.071)				(0.037)
Founding family * Forecast error				11.894*				8.894**
				(0.056)				(0.033)
Founding family * Forecast error * Market				-0.684*				-0.452*
				(0.061)				(0.084)
Firm size	-0.092	-0.127	-0.113	-0.083	-0.299***	-0.161*	-0.226**	-0.197
	(0.209)	(0.115)	(0.148)	(0.559)	(0.001)	(0.100)	(0.021)	(0.174)
Leverage	0.171	0.173	0.188	0.169	0.265***	0.271***	0.292***	1.429***
	(0.187)	(0.183)	(0.152)	(0.664)	(0.001)	(0.000)	(0.000)	(0.003)
PPE	0.019***	0.019***	-0.018***	0.025***	0.030***	0.030***	0.030***	0.031***
	(0.000)	(0.000)	(0.000)	(0.003)	(0.000)	(0.000)	(0.000)	(0.000)
Performance	-0.129***	-0.129***	-0.129***	-0.434**	-0.127***	-0.127***	-0.127***	-0.376**
	(0.000)	(0.000)	(0.000)	(0.021)	(0.000)	(0.000)	(0.000)	(0.046)
CAPEX	-1.958**	-1.355	-1.629*	-1.203	-5.527***	-3.621***	-5.057***	-1.726
	(0.038)	(0.146)	(0.081)	(0.346)	(0.000)	(0.001)	(0.000)	(0.186)
Current ratio	-0.611***	-0.603***	-0.596***	-0.728***	-0.719***	-0.696***	-0.685***	-0.708***
	(0.000)	(0.000)	(0.000)	(0.005)	(0.000)	(0.000)	(0.000)	(0.006)
Sales	-0.182***	-0.173***	-0.155***	-0.041	-0.213***	-0.196***	-0.176**	-0.006
	(0.000)	(0.000)	(0.001)	(0.754)	(0.004)	(0.007)	(0.018)	(0.961)
Tunneling	0.022***	0.022***	0.024***	0.086**	0.004	0.003	0.006	0.083**
	(0.000)	(0.000)	(0.000)	(0.020)	(0.512)	(0.685)	(0.334)	(0.034)
Board size	-0.279	-0.252	-0.184	-0.159	-0.529	-0.438	-0.318	-0.098
	(0.279)	(0.322)	(0.475)	(0.809)	(0.149)	(0.224)	(0.377)	(0.881)
Independence	0.007	0.006	0.009	-0.006	0.021	0.022	0.022	0.006
	(0.480)	(0.538)	(0.357)	(0.797)	(0.184)	(0.160)	(0.173)	(0.779)
Political	0.020	0.026	0.019	0.167	0.101	0.136	0.120	0.092
	(0.840)	(0.784)	(0.842)	(0.392)	(0.484)	(0.343)	(0.393)	(0.637)
Official rate	0.373***	0.446***	0.225**	0.853***	0.898***	1.115***	0.681***	0.928***
	(0.0000)	(0.000)	(0.015)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of obs.	2745	2745	2713	1373	2745	2745	2713	1373
R-square	0.987	0.987	0.987	0.533	0.976	0.977	0.978	0.546

This table presents OLS regression results of the effect of market development on the impact of corporate information opacity on the relation between founding-family control and cost of bank loans. The sample period in this table is 2004–2009, the period for which the market development index is available. *Market* is an index that measures the overall level of marketization in the province in which a firm is headquartered (Fan et al., 2011). Higher index values indicate higher level of marketization. All other variables are defined in Table 1. Columns (1) to (4) use *Rate 1* as the dependent variable and columns (5) to (8) use *Rate 2* as the dependent variable. *P*-values based on standard errors corrected for heteroskedasticity using White (1980) are reported in parentheses.

* Indicate significance at the 10% level.

** Indicate significance at the 5% level.

*** Indicate significance at the 1% level.

Table 10. Property rights and impact of corporate information opacity on the relation between founding-family control and cost of bank loans.

Dependent variable	Rate 1	Rate 1	Rate 1	Rate 1	Rate 2	Rate 2	Rate 2	Rate 2
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Constant	-0.976	-2.025	-0.674	-0.849	4.383*	0.547	4.024*	-0.046
	(0.608)	(0.346)	(0.726)	(0.828)	(0.071)	(0.837)	(0.088)	(0.991)
Founding family	-0.331*	-0.232*	-0.370**	-0.585***	-0.566**	-0.345**	-0.483**	-0.595***
	(0.071)	(0.060)	(0.04)	(0.009)	(0.033)	(0.012)	(0.030)	(0.008)
Legal	-0.006*	-0.008*	-0.006*	-0.002	-0.016***	-0.021***	-0.012**	-0.003*
	(0.079)	(0.056)	(0.082)	(0.107)	(0.009)	(0.000)	(0.040)	(0.078)
Small auditor	0.386***				0.427*			
	(0.008)				(0.059)			
Founding family * Small auditor	0.220*				0.578*			
	(0.085)				(0.091)			
Founding family * Small auditor	-0.006				-0.020**			
* Legal	(0.141)				(0.041)			
NegAnalyst		0.029*				0.097***		
		(0.054)				(0.000)		
Founding family * NegAnalyst		0.028*				0.111**		
		(0.058)				(0.045)		
Founding family * NegAnalyst		-0.001				-0.004*		
* Legal		(0.225)				(0.056)		
NegVolume			26.951***				30.337***	
			(0.001)				(0.004)	
Founding family * NegVolume			16.383				34.232*	
			(0.109)				(0.092)	
Founding family * NegVolume			-0.482*				-0.934**	
* Legal			(0.092)				(0.050)	
Forecast error				1.697*				2.097**
				(0.096)				(0.036)
Founding family * Forecast error				8.850*				7.610**
				(0.087)				(0.021)
Founding family * Forecast error				-0.553*				-0.131
* Legal				(0.075)				(0.111)
Firm size	-0.091	-0.127	-0.104	-0.088	-0.297***	-0.154	-0.235**	-0.202
	(0.211)	(0.115)	(0.179)	(0.537)	(0.002)	(0.114)	(0.015)	(0.167)
Leverage	0.170	0.172	0.187	0.180	0.264***	0.271***	0.289***	1.437***
	(0.190)	(0.185)	(0.155)	(0.643)	(0.002)	(0.001)	(0.000)	(0.003)
PPE	0.019***	0.019***	0.018***	0.025***	0.031***	0.030***	0.030***	0.031***
	(0.000)	(0.000)	(0.000)	(0.003)	(0.000)	(0.000)	(0.000)	(0.000)
Performance	-0.129***	-0.129***	-0.129***	0.438**	-0.128***	-0.127***	-0.127***	-0.380**
	(0.000)	(0.000)	(0.000)	(0.019)	(0.000)	(0.000)	(0.000)	(0.042)
CAPEX	-2.103**	-1.506*	-1.746*	-1.203	-5.934***	-3.934***	-5.408***	-1.731
	(0.023)	(0.099)	(0.059)	(0.346)	(0.000)	(0.000)	(0.000)	(0.185)
Current ratio	-0.610***	-0.602***	-0.596***	-0.728***	-0.718***	-0.696***	-0.684***	-0.708***
	(0.000)	(0.000)	(0.000)	(0.005)	(0.000)	(0.000)	(0.000)	(0.006)
Sales	-0.182***	-0.173***	-0.156***	-0.034	-0.216***	-0.199***	-0.180**	-0.001
	(0.000)	(0.000)	(0.001)	(0.792)	(0.003)	(0.007)	(0.015)	(0.999)
Tunneling	0.022***	0.022***	0.025***	0.085**	0.005	0.003	0.007	0.081**
	(0.000)	(0.000)	(0.000)	(0.023)	(0.432)	(0.615)	(0.266)	(0.037)
Board size	-0.277	-0.246	-0.191	-0.133	-0.515	-0.402	-0.349	-0.074
	(0.282)	(0.334)	(0.463)	(0.840)	(0.161)	(0.264)	(0.336)	(0.911)
Independence	0.006	0.005	0.009	-0.007	0.019	0.020	0.024	0.005
	(0.545)	(0.592)	(0.372)	(0.760)	(0.223)	(0.193)	(0.124)	(0.818)
Political	0.026	0.030	0.022	0.180	0.104	0.137	0.126	0.104
	(0.786)	(0.756)	(0.819)	(0.359)	(0.468)	(0.339)	(0.369)	(0.595)
Official rate	0.377***	0.451***	0.246***	0.887***	0.921***	1.155***	0.678***	0.960***
	(0.000)	(0.000)	(0.008)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of obs.	2745	2745	2713	1373	2745	2745	2713	1373
R-square	0.987	0.987	0.987	0.533	0.976	0.976	0.978	0.547

This table presents OLS regression results of the effect of legal protection of property rights on the impact of corporate information opacity on the relation between founding-family control and cost of bank loans. The sample period in this table is 2004–2009, the period for which the property rights protection index is available. *Legal* is an index that measures the level of legal protection of property rights in the province in which a firm is headquartered (Fan et al., 2011). Higher index values indicate higher level of legal protection. All other variables are defined in Table 1. Columns (1) to (4) use *Rate 1* as the dependent variable and columns (5) to (8) use *Rate 2* as the dependent variable. *P*-values based on standard errors corrected for heteroskedasticity using White (1980) are reported in parentheses.

* Indicate significance at the 10% level.

** Indicate significance at the 5% level.

*** Indicate significance at the 1% level.

Table 11. Instrumental variable regression analyses on interactive impacts of founding-family control and corporate information opacity on cost of bank loans

Dependent variable	Rate 1	Rate 1	Rate 1	Rate 1	Rate 2	Rate 2	Rate 2	Rate 2
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Constant	-2.209	-2.743	-2.667	-5.527	3.838	3.128	2.432	-2.615
	(0.226)	(0.144)	(0.172)	(0.159)	(0.111)	(0.204)	(0.329)	(0.402)
Founding family	-1.253***	-0.862***	-1.579***	-1.517***	-2.127***	-1.633***	-2.021***	-1.878***
(Instrumented)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Small auditor	0.475**				0.517**			
	(0.039)				(0.027)			
Founding family *	0.549**				0.697**			
Small auditor	(0.023)				(0.018)			
NegAnalyst		0.034**				0.114***		
		(0.026)				(0.000)		
Founding family *		0.092***				0.120***		
NegAnalyst		(0.003)				(0.005)		
NegVolume			26.503***				37.801***	
			(0.001)				(0.000)	
Founding family *			49.110***				47.284***	
NegVolume			(0.001)				(0.006)	
Forecast error				1.478**				0.743*
				(0.047)				(0.064)
Founding family *				11.868**				5.889***
Forecast error				(0.023)				(0.007)
Firm size	-0.173**	-0.182***	-0.178**	-0.018	-0.207**	-0.195**	-0.165*	-0.073
	(0.014)	(0.010)	(0.017)	(0.882)	(0.022)	(0.033)	(0.081)	(0.347)
Leverage	0.172	0.173	0.191	1.444*	0.270***	0.272***	0.297***	2.634**
	(0.174)	(0.171)	(0.143)	(0.066)	(0.001)	(0.001)	(0.000)	(0.013)
PPE	0.026***	0.025***	0.024***	0.038***	0.032***	0.032***	0.032***	0.045***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Performance	-0.129***	-0.129***	-0.128***	-0.345*	-0.127***	-0.127***	-0.127***	-0.417**
	(0.000)	(0.000)	(0.000)	(0.058)	(0.000)	(0.000)	(0.000)	(0.030)
CAPEX	-0.901	-0.564	-0.505	-1.094	-4.534***	-4.090***	-4.013***	-1.967*
	(0.372)	(0.576)	(0.614)	(0.359)	(0.000)	(0.001)	(0.001)	(0.094)
Current ratio	-0.577***	-0.574***	-0.570***	-0.525***	-0.647***	-0.644***	-0.628***	-0.523***
	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.003)
Sales	-0.109**	-0.109**	-0.102**	-0.010	-0.082	-0.081	-0.064	-0.011
	(0.018)	(0.018)	(0.030)	(0.916)	(0.265)	(0.265)	(0.387)	(0.900)
Tunneling	0.023***	0.024***	0.025***	0.059***	0.007	0.008	0.008	0.077***
	(0.000)	(0.000)	(0.000)	(0.001)	(0.285)	(0.221)	(0.206)	(0.001)
Board size	-0.468*	-0.409*	-0.381	-0.228	-0.664*	-0.587*	-0.512	-0.188
	(0.052)	(0.090)	(0.116)	(0.540)	(0.061)	(0.097)	(0.144)	(0.621)
Independence	0.008	0.007	0.010	0.003	0.019	0.019	0.024*	-0.002
	(0.431)	(0.450)	(0.299)	(0.816)	(0.204)	(0.209)	(0.089)	(0.907)
Political	0.063	0.066	0.071	0.036	0.174	0.177	0.202	0.094
	(0.525)	(0.507)	(0.476)	(0.796)	(0.211)	(0.199)	(0.140)	(0.504)
Official rate	0.418***	0.425***	0.469***	0.453***	0.664***	0.672***	0.697***	0.497***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of obs.	3380	3380	3335	1853	3380	3380	3335	1853
R-square	0.979	0.979	0.979	0.352	0.965	0.965	0.967	0.377

This table presents the second-stage results of the two-stage least squares (2SLS) instrumental variable (IV) regressions of the impacts of borrowing firms' information opacity on the relation between founding-family control and cost of bank loans. In this table, Founding-family dummy is instrumented with two instrumental variables (IV). The first IV is a dummy variable that equals 1 if the name of the firm at the time of IPO contains a personal name related to the founder(s) ("*Personal name*"). The second IV is a dummy variable that equals 1 if the firm has more than one founder ("*Multiple founders*"). Columns (1) to (4) use *Rate 1* as the dependent variable and columns (5) to (8) use *Rate 2* as the dependent variable. The definitions of *Rate 1*, *Rate 2*, corporate information opacity, and all other control variables are given in Table 1. *P*-values based on standard errors corrected for heteroskedasticity using White (1980) are reported in parentheses.

* Indicate significance at the 10% level.

** Indicate significance at the 5% level.

*** Indicate significance at the 1% level.