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FAMILY-CONTROLLED CHINESE LISTED CORPORATIONS AND EARNINGS MANAGEMENT

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Abstract

This study analyzes ownership and control of a shared family corporation listed on the Shanghai Stock Exchange. The study provides two competing theories of the effect of family control on earnings management: the entrenchment effect and the alignment effect. Under the first, the earnings credibility of the company is weakened because non-controlling interests are expropriated by the controlling family owners. Under the second, a highly concentrated ownership gives a controlling family owner strong voting and cash flow rights. If the controlling owner extracts high levels of private benefits, the share price will be discounted. The empirical results are consistent with two explanations.

Keywords: Family control, Earnings management, Control rights, Cash flow rights.

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1. Introduction

The effect of family control of publicly held corporations is a growing field of interest in accounting and finance literature. This paper investigates the association between family control of Chinese public corporations and earnings management. Family control is an important ownership structure. Many corporations are family-owned businesses around the world. For instance, even among the Standard and Poor 500 and Fortune 500 corporations, which are the least likely to be family-owned, one third have been found to be family businesses (Shleifer &Vishny,1986; Anderson & Reeb, 2003). Family control gives rise to a special and somewhat unique ownership structure for public corporations. Anderson and Reeb (2003) argues that family members of the business represent a special class of shareholders that hold undiversified portfolios and often control senior management positions.

Recent literature based on large corporations in the U.S. and the U.K. suggests that, although family control is associated with higher earnings quality (e.g. Wang, 2006; Ali et al., 2007), the extent of earnings management remains an open issue for family-controlled corporations. This study extends the existing literature by investigating whether family ownership provides effective monitoring of earnings management in corporations operating in institutional environments which differs from those of U.S. and U.K. corporations. Specifically, China is an increasingly influential emerging economy and now holds the second largest economy in the world, and it has many family-controlled firms. However, the first Chinese family-controlled

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corporation was not permitted to be listed on the stock market until 1992.[1]Indeed, from the 1950s to the 1980s, privately owned businesses were totally banned by the Chinese Central Government. Still, even though the history and the life of many Chinese family corporations are not long, as a critical part of a transitional economy with a unique institutional background, these Chinese family-controlled corporations offer an interesting research setting providing new insights for the overall corporate governance literature.

One of the fundamental characteristics of publicly held corporations is the separation of ownership from control, which induces the principal agency problem between managers and shareholders (Type I agency problem) (Berle &Means, 1932). In addition, the agency problem is also likely to arise between majority shareholders and minority shareholders (Type II agency problem) (Morck &Yeung, 2003). Scholars have mixed opinions regarding these agency problems among public family-controlled corporations. On one hand, some (Watts &Zimmerman, 1986; Christie & Zimmerman, 1994; Bushman & Smith, 2001; Wang, 2006; Jiraporn & DaDalt, 2007) argue that accounting earnings are used to mitigate agency problems by aligning the interests of majority shareholders and minority shareholders. This is sometimes, also called the alignment effect. In the case of family controlled corporations, this credits the view that families are long-term investors committed to the success of the corporation in which they invest. Efficient contracting and monitoring mechanisms exist between shareholders and managers (Ball et al., 2000a, 2000b, 2003; Wang, 2006).

On the other hand, majority shareholders are motivated to expropriate minority shareholders' interests (Fama & Jensen, 1983; Bebchuck et al., 2000;Fan & Wong, 2002; Francis et al., 2002; Cheung et al., 2006). This sometimes, is called the entrenchment effect. The traditional view is that corporations with concentrated ownership are less efficient because controlling shareholders impose significant costs to the corporation and undertake sub-optimal operating activities at the expense of other shareholders' interests. One more source of entrenchment is potentially the greater information asymmetry between controlling shareholders and other shareholders. For example, Francis et al. (2002) argue that the transparency of accounting disclosure is low because of the information asymmetry within concentrated corporations. As a result, for family controlled corporations, family members have both the incentive and the opportunity to manipulate earnings for private interests. This second argument is consistent with the argument that Type II agency problem is more common among family controlled corporations.Therefore, the degree of ownership concentration can affect the nature of contracts and create apparently different agency problem. The overall effect of family control on earnings management depends on whether the Type I or Type II agency problem dominates.

Ownership concentration is not typical in U.S. and U.K. However, studies (e.g. La Porta et al., 1999; Claessens et al., 2002) have found that many Asian corporations[2] are predominantly controlled by a single block holder. Existing literature indicate that the positive alignment effect relates to the share of cash flow rights held by control shareholders and that the negative entrenchment effect relates to the share of control rights held by block holders. If Asian corporations exhibit more divergence between cash flow rights and control rights than U.S. and U.K. corporations (La Porta et al., 1999), this study would help reveal effects of family control on earnings management that are difficult to tell based on the U.S. or U.K. samples.

[1] The name of the first Chinese family-owned corporation permitted to be listed on Shenzhen Stock Exchange (SZSE) is Shen Hua Yuan.

[2]For example, Hong Kong, Indonesia, Japan, South Korea, Singapore and Thailand

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Using data from the Shanghai Stock Exchange (SSE,) all 1007A-share corporations for the period 2010-2014, this paper finds that, on average, family controlled corporations are associated with higher earning management compared with non-family corporations. More importantly, this study finds that the control rights held by controlled families are positively associated with earnings management, which is consistent with the entrenchment effect argument while the cash flow rights of controlling families are negatively associated with earnings management, which is consistent with the alignment effect argument. Type II agency problem dominates the overall effect of family control on earnings management. The results are robust to alternative measurements of abnormal accrual, different cut-off points in classifying the family-controlled corporation, and family ownership measured by the percentage of ordinary shares.

This study adds to a growing body of research on earnings management and ownership structure (Fan &Wong, 2002; Francis et al., 2002; Ding et al., 2007), and more broadly to corporate governance literature. Among the growing concern about earnings management in Chinese corporations, this study provides insights into earnings management within a unique ownership context. Understanding how family control affects earnings management providing potential benefits to both Chinese domestic investors and investors outside of China. Finally, this study documents evidence challenging the view that family control enhances earnings quality and thus, have less incentives to manage reported earnings opportunistically than non-family corporations.

The remainder of this paper is organized as follows: Sections 2 introduces the institutional environment of the study. Section 3 develops the study's hypothesis, and Section 4 presents the empirical models. Section 5 reports the sample and descriptive statistics. The empirical results are presented in Section 6. Section 7 concludes the paper.

2. Institutional Environment of the Study

The differences in the institutional and cultural environments among different countries have been highlighted (La Porta et al., 1998). The legal framework of western industrialized countries (e.g. U.S. and U.K.) is based on common law, but China's legal framework is based on continental law. Significant differences apparently exist between the Chinese business environment and the business environment of those industrialized countries, especially with the regard to corporate governance.

It is commonly accepted that the economic success of China is the result of its economic reform, which is progressively turning a planned economic system into a market economic system. One of the remarkable characteristics in the reform is the privatization of some state-owned entities (SOEs). The growing number of family corporations listed on the Chinese stock market is a typical reflection of the private sector's development in China. Though the first family-controlled corporation did not appear until 1992, by the end of 2014, there were more than 1000 Chinese family corporations listed on the Chinese stock market and overseas stock markets. [3]Furthermore, the development of corporate governance among Chinese corporations is just two decades old and the governance structure is built upon an "individual network system"*(Guan Xi)*. The trust and communication are based on informal relationship rather than formal written

[3] Source: Forbes (www.forbeschina.com/review/201409/0037397.shtml)

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contracts. As a result, the appointment of family members to the corporate boards and family control of the business is considered a common place in China.

In China, most listed family corporations are still operated by the first generation of founding families. Only 9.9% of family-controlled corporations have been transferred to the second generation of the founding family.[4] Families generally oversee the development of the business from its inception, and family control should be able to give the business a potential advantage of having strong leadership and cohesive senior management teams that are formed by family members. Family ownership plays a critical role in the decision-making process.

However, the complexity of family ownership structure among Chinese family corporations is not clearly revealed. More often than not, other shareholders in a family corporation are either affiliated corporations or nominal investment entities associated with the controlling family. Families often increase their dominance in the business through arrangements where those nominal investment entities or holding corporations under their control also hold equity in the family corporation. In many cases, nominee accounts are used to hold more shares than those are disclosed. Cross-holding and pyramidal-holding are used to strengthen their control.

A Chinese listed company has a two-tier board structure, which is not usual in other countries. The Code of Corporate Governance for Listed Companies in China (2002) (The Code) requires that listed corporations appoint at least one third independent non-executive directors on the board of directors and must formulate a supervisory board with at least three members. Two controversial viewpoints on the effects of two-tier boards on earnings management have been found based on prior literature. One view, perhaps the majority view, argues that the settings of two-tier boards can reduce agency costs and allow shareholders to monitor managers more effectively (Lipton &Rosenblumt, 1991). According to Lipton and Rosenblumt (1991), companies with two-tier boards are less concerned with or affected by current earnings and are therefore better able to oversee management's behavior than unitary boards. In contrast, opponents argue that the two-tier boardroom structure would entrench managers and employees at the expense of shareholders. Supervisors, allied with senior managers, may utilize their relationship to secure the short-term interests and keep quiet even as the company reports overstated profits to the public investors (Edwards et al., 2000).

One might assume that two-tier boards should be able to take related responsibility and accountability in ensuring reliability of reported financial information. However, it seems that Chinese family corporations have little pressure to appoint outside directors and supervisors because of the strengthened family control. In addition, others point out that the supervision of the supervisory board is a mere formality. For example, Tam (1995) has surveyed China's governance system and the results show that supervisory boards in Chinese listed corporations are purely nominal structures and unable to perform their duties. The presence of non-family professionals may not be effective as expected by China Securities Regulatory Commission (CSRC) but they have implications for CSRC to improve the corporate governance practices.

[4] Source: Forbes (www.forbeschina.com/review/201409/0037397.shtml)

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3. Theoretical Background and Hypotheses

Prior literature provides a mixed picture on agency issues among majority shareholders, minority shareholders and managers. Shleifer and Vishny (1997) argue that large shareholders have incentives to maximize their own benefits at the cost of other shareholders. However, they also find that large shareholders may exert greater monitoring on management. Demsetz and Lehn (1985) find evidence that controlling shareholders have strong incentives to mitigate agency problems and maximize corporate value. Concentrated ownership aligns the interests of controlling shareholders and the interests of other shareholders. Anderson et al. (2009) suggest that founders and heirs in publicly traded family corporations exploit opacity to extract private interests at the expense of minority shareholders.

The relationship between family ownership and earnings management potentially fits in the realm of agency theory, in which family members may have conflicts with managers or other shareholders. It has been suggested that traditional shareholder-manager agency conflict (Type I agency problem) is mitigated within listed family-controlled corporations (Ball et al., 2000a, 2000b, 2003; Villalonga &Amit,2006; Wang, 2006; Ali et al., 2007).First of all, family members have a strong incentive to monitor managers since they typically hold undiversified portfolios and primarily invest in their owned business. Second, family members have strong intention to be involved in their business, which enable them to better monitor managers. Third, family members have long-term investment horizons and therefore they diminish possible myopic decisions by managers. Given these characteristics, in family controlled corporations, managers have lower incentives to use earnings management to conceal opportunistic behavior to the detriment of family shareholders. However, the controlling position of the family may leave them with substantial power to siphon funds to private interests at the expense of other shareholders (Anderson &Reeb,2003). This gives rise to Type II agency problem: the conflict interests between the controlling family and the non-controlling shareholders. Existing theories indicate that family control affects reported earnings in two competitive aspects: aligning the interests between family shareholders and other shareholders or extracting other shareholders' interests by family shareholders.

3.1 Alignment Effect and Family Ownership

The alignment effect is based on the notion that the interests of controlling families and other shareholders are better aligned because of the large blocks of shares held by family members and their long-term commitment to the business. Family members' wealth is closely tied to the corporation's value. Long-term orientation and reputation protection discourage family corporations from opportunistically managing earnings. Earnings management is more likely to be short-term oriented and perhaps detrimental to attract long-term investors. Stronger monitoring mechanisms are observed in the boards of directors of family controlled corporations (Anderson & Reeb, 2003; Wang, 2006; Jaggi et al., 2009; Beltratti et al., 2011). The strong monitoring mechanisms therefore motivate family members to communicate more effectively with other shareholders and creditors.

The convergence of shareholders' interests suggests the idea that in settings where corporations have controlled family ownership, families usually designate their friendsas managers. The interests between controlling shareholders and those managers will gradually converge as family ownership increases. The shareholders depend less on simulative compensation plans based on

earnings to monitor non-family managers. Alignment effect claims that when family members hold large blocks of shares, the incentive to manipulate earnings is relatively weaker, which support the premise that family ownership and earnings management is negative.

In China, family business are quite successful. For instance, the Liang family established Sany Heavy Industry Co. Ltd., presently the largest Chinese construction equipment manufacturer, reported annual net profit of 0.71 billion CNY ($1.16 billion) (2014 financial year). The Liang family is one of the richest families in China, and the family continues to be the largest shareholder group. Therefore, both academic and anecdotal evidence exists supporting an alignment effect in which family-controlled business creates motivation to mitigate earnings management and maximize the wealth of all shareholders.

3.2 **Entrenchment Effect and Family Ownership**

The entrenchment effect claims that the more concentrated the ownership, the more serious information asymmetry and agent problems exist between controlling shareholders and minority shareholders (Fama & Jensen, 1983; Morck et al., 1988; McConnell & Servaes, 1990; Shleifer & Vishny, 1997; La Porta et al., 1999; Sánchez-Ballesta & García-Meca, 2007). The entrenchment effect implies that family members, as controlling shareholders, may extract private benefits at the cost of minority shareholders. For example, because the controlling shareholders have the power to make decisions but do not bear the entire cost, they could make sub-optimal investment decisions to maximize their personal interests rather than maximizing the corporate value (Bebchuck et al., 2000).

Expropriation of the interest from non-controlling shareholders is not uncommon in China. For example, Wan Fu Sheng Ke Agriculture Development Co. Ltd., based in Hu Nan province, China, is a rice production and process corporation run by a local Chinese family. In 2012, it was accusedof inflating 40 million CNY ($6.67 million) profits and keeping other shareholders uninformed about production suspension for over three months (SZSE, 2012). This is recent anecdotal evidence that family business in China can have an agency problem. Therefore, both the academic and anecdotal evidence show that a positive relationship between family ownership and earnings management may be observed.

Overall, the agency theory and related evidenceprovide a mixed picture on the relationship between earnings management and family ownership. Therefore, further study on existing literatureis valuable in examining the relationship between ownership structure and earnings management.

3.3 **U-Curve Viewpoint**

Prior studies have examined the relationship among ownership, agency costs, discretionary accruals, and corporate performance (e.g. Jensen & Meckling, 1976; Mork et al., 1988; McConnell & Servaes, 1990; Shleifer & Vishny, 1997; Yoe et al., 2002; Sánchez-Ballesta & García-Meca, 2007). Over the subsequent decades, U.S. and other developed countries introduced corporate governance regulation to reduce the agency problem that afflicts publicly held corporations. Nowadays, most of these companies are run by professional managers but financed by diverse shareholders. Initially, Jensen and Meckling (1976) argue that agency costs are reduced with increased managerial ownership because managers are more attentive to

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corporate value when they themselves are shareholders. However, many studies (e.g. Morck et al., 1988; Shleifer & Vishny, 1997) also found that when managerial ownership already is substantial, further managerial ownership is associated with increased agency costs. In other words, when the managerial ownership increases to a curtain point, it reduces the efficiency of the corporate governance mechanisms. The relationship between agency costs and managerial ownership presents a U-curve (Figure 1 , please see the appendix).

This initial point of view was developed extensively by scholars that focused on the relationship between ownership structure and earnings management (e.g. Qi et al., 2000; Tian, 2001; Fan &Wong, 2002; Ding et al., 2007; Firth et al., 2007). For example, Fan and Wong (2002) examined the relationship between ownership structure and how informative reports of accounting earnings were among seven Asian countries[5]. They found that highly concentrated ownership has a negative effect on earnings management. That is, the controlled owner has both the ability and incentive to utilize reporting polices and limits information content for self-interest purposes. In addition, Fan and Wong (2002) indicate that their findings are inconsistent when applied to U.S. or U.K. corporations. This is explained away by concentrated ownership in East Asia as compared to diffused ownership in the U.S. and the U.K. Their findings are consistent with the argument that this study has observed above. When ownership is diffused, agency problems stem from the conflicts of interests between outside shareholders and professional managers (Type I Agency Problem). However, when the ownership is concentrated to a certain level at which an owner obtains effective control, the nature of the agency problem shifts to conflicts between the controlling owner and minority shareholders (Type II Agency Problem).

If effective control has a significant influence on agency relationship, it is necessary to further address the relationship among control (represented by voting rights), ownership (represented by cash flow rights), and the two types of agency problem.

3.4 **Divergence between Control and Ownership**

The divergence between control and ownership is created if ownership structure is pyramidal, with cross-holding or dual-class shares (Stulz, 1988). Control is often enhanced beyond ownership through these ownership arrangements. For instance, one consequence of the divergence between control and ownership is that the controlling owners become entrenched with high levels of control, while the low equity ownership level provides only a low degree of alignment between the controlling owner and other shareholders. The controlling owner in this situation can extract wealth from the corporation but only bear a fraction of the cost. The separation of control and ownership creates agency costs between controlling owners and other owners (Bebchuk et al.,2000).This study offers a Chinese family corporation: You Network Technology Co. Ltd, as an example to illustrate this point.

The entrepreneur controls Youyou Network Technology Co Ltd. by three control chains (Figure 2). Voting rights in the three control chains are: $CON_1 = \min(99\%, 29.4\%) = 29.4\%$, $CON_2 = \min(61.94\%, 12.95\%) = 12.95\%$, $CON_3 = \min(76.26\%, 4.17\%) = 4.17\%$, respectively. Therefore, the family member, Mr. Wang owns control rights of 46.52%[6].However, cash flow rights along

[5] Hong Kong, Indonesia, Malaysia, Singapore, South Korea, Taiwan, and Thailand
[6] $CON = \sum CON_i = CON_1 + CON_2 + CON_3 = 46.52\%$

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the three chains are: $OWN_1 = 99\% \times 29.4\% = 29.1\%$, $OWN_2 = 61.94\% \times 12.95\% = 8.02\%$, $OWN_3 = 76.26\% \times 4.17\% = 3.18\%$, respectively. Mr. Wang's cash flow rightsare 40.3%[7]. With a pyramidal ownership structure, the actual control rights of the family member are higher than the ownership. There is discreteness between control and ownership. In our instance, the discreteness is 1.15[8]. Given this ownership structure, it costs the control owner $40.3 for every $100 expropriated from the listed corporation.[9] Clearly, if share pyramids is used to strengthen control, it might exacerbate the entrenchment problem of controlling owners. The entrenchment problem created by the controlling owner is similar to the managerial ownership entrenchment problem discussed above.

However, once the controlling owner obtains substantial control, any increase in the cash flow rights might mitigate the entrenchment because the owner's higher cash flow rights mean that it will cost more to divert the cash flows for private gain. For example, if it assumes that the owner in the above example owns 90% cash flows rights, it would cost $90 for every $100 expropriated from the entity. The high ownership can also serve as a credible commitment that the controlling owner is willing to build a reputation for not expropriating minority shareholders (Gomes, 2000). Families' wealth is closely linked to the continued welfare and performance of its business. Minority shareholders know that if controlled family significantly extracts high levels of private interests, it will discount the share price accordingly. Therefore, concentrated ownership has an incentive alignment effect: increasing an owner's share ownership beyond a certain level improves the alignment of interests between the controlled owner and minority shareholders and the entrenched effect is overcome.

Agency theory and the literature provide mixed viewpoints about the effects of family ownership on earnings management. It can be seen that below a certain level of family ownership where divergence between control and ownership is significant, family members may expropriate the wealth from minority shareholders, supporting the entrenchment hypothesis. When the family ownership exceeds a specific percentage and the divergence between control and ownership is negligible, however, shareholders are aligned, supporting the alignment hypothesis.The relationship between family ownership and earnings management is, therefore, predicted to be an invert U-curve (Figure 2; please see the appendix). Hypothesis 1 stated as follows:

H1: The degree of earnings management is systematically associated with family ownership.

4. Description of Models

4.1 Measurement of Earnings Management

Given the difficulty in observing earnings management directly, prior literature investigated the manipulation of operating accruals for opportunistic earnings management. The distinction between normal operating accruals and abnormal operating accruals is significant. Generally, normal operating accruals are used to reflect corporation's condition and performance and therefore are not easily manipulated. However, abnormal operating accruals represent

[7] $OWN = \sum OWN_i = OWN_1 + OWN_2 + OWN_3 = 40.3\%$
[8] $DIS = CON/OWN = 1.15$
[9] This process is also called tunneling.

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managers' interventions into financial reporting process. Therefore, this paper uses abnormal accruals as a proxy for earnings management.

The most frequently used methods to separate abnormal accruals from normal accruals are developed by Jones (1991) (the Jones Model) and Peasnell et al. (2005) (the Modified Jones Model). Both models involve estimating parameters for normal accrual activity by using a regression model that estimates a measure of total accruals on proxies for normal business activities. Estimated normal accrual parameters are then combined with event-period data to generate estimated abnormal accrual activities. The major difference between Jones Model and Modified Jones Model is that the later incorporates the change in total accounts receivables in estimating abnormal accruals. Modified Jones Model is considered to be more powerful in detecting sales-based earnings management than the Jones Model (Dechow et al., 1995). To maximize the sample size and avoid the survivorship bias problem inherent in the time-series approach (Becker et al., 1998; Peasnell et al., 2005), this paper estimates abnormal accruals using the Modified Jones model.

In accordance with Modified Jones estimation procedures, this paper applies two-stage regression analysis to estimate abnormal accruals. In the first stage, total accruals are regressed on proxies for normal business activities for each sample with time-series data prior to the event in order to generate estimated normal accrual parameters. In the second stage, estimated parameters are used with event-period data to estimate the abnormal accruals. Estimated parameters in the first stage are generated by the following cross-sectional Ordinary Least Square (OLS) regression:

$$\frac{TA_{ik,t}}{A_{ik,t-1}} = \beta_{1k,t}\frac{1}{A_{ik,t-1}} + \beta_{2k,t}\frac{\Delta REV_{ik,t}}{A_{ik,t-1}} + \beta_{3k,t}\frac{PPE_{ik,t}}{A_{ik,t-1}} + \varepsilon_{ik,t}(1)$$

where $TA_{ik,t}$ is total accruals for corporation in industry k in year t, $A_{ik,t-1}$ is total asset in the year t-1, $\Delta REV_{ik,t}$ is the change in revenue, $PPE_{ik,t}$ is the gross property, plant and equipment, $\beta_{1k,t}$, $\beta_{2k,t}$, and $\beta_{3k,t}$ are regression coefficients, and $\varepsilon_{ik,t}$ (assumed i.i.d.) is the error term.
The total accruals (TA_{it}) for each corporation are calculated with the following equation:

$$TA_{it} = NP_{it} - OCF_{it}(2)$$

whereNP_{it} is the reported net profits for corporationi in the year t, and OCF_{it} is the operating cash flows obtained directly from the cash flows statement for corporationi in the year t.

For each industry-year ik, t in the sample, abnormal accruals ($AA_{ik,t}$) is then calculated as follows:

$$AA_{ik,t} = \frac{TA_{ik,t}}{A_{ik,t-1}} - \left(\hat{\beta}_{1k,t}\frac{1}{A_{ik,t-1}} + \hat{\beta}_{2k,t}\frac{\Delta REV_{ik,t} - \Delta REC_{ik,t}}{A_{ik,t-1}} + \hat{\beta}_{3k.t,}\frac{PPE_{ik,t}}{A_{ik,t-1}}\right)(3)$$

where $\hat{\beta}_{1k,t}$, $\hat{\beta}_{2k,t}$, and $\hat{\beta}_{3k,t}$ are OLS regression estimates of $\beta_{1k,t}$, $\beta_{2k,t}$, and $\beta_{3k,t}$ respectively, and obtained from equation (1).

Since the analysis does not depend on the direction of the accruals but on the magnitude of the accruals, this paper thus uses absolute value of abnormal accruals (ABS_AA) as the proxy for the combined effect of income-increasing and income-decreasing earnings management. Other studies using the samemeasure are Warfield et al., 1995, Becker et al., 1998, Bartov et al., 2000, Klein, 2002 and Firth et al., 2007. In addition, equation (1) is estimated in each industry

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measured by Standard Industry Classification (SIC) code and requires at least 30 observations in each industry regression.

4.2 **Experimental Variables**

Prior studies on ownership structures focus primarily on direct ownership. This is not sufficient to characterize the relationship between ownership structure and earnings management if corporations are associated with complicated indirect ownership. This study focuses on both direct and indirect ownership (ultimate ownership).[10]Following Bunkanwanicha et al. (2013), family corporations are defined as where the founder and/or a member of their family by either blood or marriage own at least 20% of control rights directly and indirectly in a company over the sample period. Direct ownership is either held by the founder and/or their family members and indirect ownership is held by other institutions that the family owns.A binary variable (Family Control) is coded one if it is a family corporation, and coded zero otherwise.Key testing variables in this study are control rights (Control_Right) and cash flow rights (Cashflow_Right). This study follows the method introduced by La Porta et al. (1999) and Claessens et al. (2000) to trace the ultimate controlling shareholders in corporations with pyramidal ownership structure. Cash flow rights are calculated as the sum of the products of the ownership percentage along the control chains where control rights are the sum of the minimum ownership percentage along the control chains. The difference between the control rights and cash flow rights is defined as discreteness (Discreteness). According to thefamily corporation definition, the sample of 2704company-year observations is divided into two subsamples that include 687 family controlled observations and 2017 non-family controlled observations.

4.3 **Research Models**

To test the relation between family ownership and earnings management, this study constructs two principal cross-sectional pooled regression models. Model (1) is constructed based on full sample and is used to differentiate the impact on earnings management between family corporations and non-family corporations. Model (1) is as follows:

$$\text{ABS_AA}_{it} = \alpha_0 + \delta_1 \text{Family_Control}_{it} + \gamma_1 \text{BOARD}_{it} + \gamma_2 \text{INDEPENDENT_BOARD}_{it} + \gamma_3 \text{SUPERVISORY}_{it} + \gamma_4 \text{INDEPENDENT_SUPERVISORY}_{it} + \gamma_5 \text{CFO}_{it} + \gamma_6 \text{ROE}_{it} + \gamma_7 \text{LEV}_{it} + \gamma_8 \text{GROWTH}_{it} + \gamma_9 \text{SIZE}_{it} + \gamma_{10} \text{AGE}_{it} + \varepsilon_{it} \quad \text{Model (1)}$$

where:ABS_AA is the absolute value of abnormal accruals;Family_ Control is family members holding at least 20% of control rights directly and indirectly. A binary variable is coded one if it is a family corporation, and coded zero otherwise; BOARD is board size, measured by the total number of board members;INDEPENDENT_BOARD is the proportion of independent directors out of the total number of board members;SUPERVISORY is the size of supervisory board, measured by the total number of supervisory board members; INDEPENDENT_SUPERVISORY is the proportion of independent members out of the total number of supervisory board members; CFO is the net cash flow from operations scaled by lagged total assets;ROE is the return on net assets, measured by total net income divided by total equity;LEV is the financial leverage, measured by total liabilities divided by total assets; GROWTH is the growth rate by

[10] CSRC defines the ultimate shareholder as the largest shareholder who have the determining voting rights and who is not controlled by anyone else.

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sales;SIZE is natural log of total assets;AGE indicates corporation ages since listed; and ε_{it} is the error term.

Following prior literature (Beker et al., 1998; Reynolds &Francis, 2000; Cheng &Warfield, 2005; Firth et al., 2007; Prencipe & Bar-Yosef, 2011), variables are included for the operating cash flow (CFO), profitability (ROE), risk for liquidation (LEV), growth opportunities (GROWTH), and corporation size (SIZE). In addition, a corporation listed age(AGE) is controlled because older companies are less likely to be family owned (Anderson & Reeb, 2003) and this is consistent with China's background.

As discussed in Section 2, corporate governance, such as the size of boards, the role of independent directors and supervisors, plays a critical role to monitor and control managers' opportunistic behavior. Therefore, this study controls for the size of two-tier boards (BOARD and SUPERVISORY) and board independence (INDEPENDENT_BOARD and INDEPENDENT_SUPERVISORY) in order to segregate the effect of family and non-family ownership.

The coefficient on Family_Control (δ_1) tests the impact of family ownership on earnings management compared with non-family controlled corporations. A significant positive estimate will indicate that family corporations are more frequent to manage earnings than non-family corporations. Nevertheless, if the estimate on δ_1 is negative, it implies that family corporations are less likely to manage earnings than other types of corporations.

In turn, Model (2) is constructed based on family corporations and is used to test the impact of family ownership on earnings management. Model (2) is as follows:

$$ABS_AA_{it} = \alpha_0 + \delta_1 Control_Right + \delta_2 Cashflow_Right_{it} + \delta_3 Discreteness_{it} + \delta_4 Pyramidal_Structure_{it} + \gamma_1 BOARD_{it} + \gamma_2 INDEPENDENT_BOARD_{it} + \gamma_3 SUPERVISORY_{it} + \gamma_4 INDEPENDENT_SUPERVISORY_{it} + \gamma_5 CFO_{it} + \gamma_6 ROE_{it} + \gamma_7 LEV_{it} + \gamma_8 GROWTH_{it} + \gamma_9 SIZE_{it} + \gamma_{10} AGE_{it} + \varepsilon_{it} \quad \text{Model (2)}$$

Where:Control_Rightis the sum of the minimum ownership percentage along the chains of control;Cashflow_Rightis the sum of the products of the ownership percentage along the chains of control;Discretnessis the degree of divergence, measured by control rights divided by cash flow rights; and Pyramidal_Structureis a binary variable is coded one if family ownership structure is pyramidal, and coded zero otherwise. All other variables are as previously defined. The coefficients on Control_Right (δ_1), Cashflow_Right (δ_2), Discretness (δ_3) and Pyramidal_Structure (δ_4) are expected to be significantly different from zero. A positive (negative) estimate on δ_i will be evidence that family corporations are associated with more (less)earnings management than nonfamily corporations. Model (2) can be further divided into four sub-models. Each sub-model contains one test variable.

5. Construction of Data

5.1 Sample Selection

The sample used in this paper consists of all A-share corporations listed on the Shanghai stock exchange from 2010 to 2014. In 2004, CSRC announced that all Chinese listed corporations

need to identify their ultimate owners and controlling chains in their annual reports. However, Chinese non-tradable share reform could not be completed until the end of 2007 and corporations' ownership structure is less likely to change until 2008 due to the post-reform lock up period for 1-3 years. Therefore,this paper uses the sample of observations from 2010 to 2014, which is the largest sample this study could obtain.

The datawas collected from annual reports published on the Shanghai stock exchange. This study excludes all corporations from the financial industry because they have unique accounting standards and capital structures. All ST, PT, and delisted corporations in the sample periods are excluded because those corporations have strong intension to manipulate earnings in order to avoid delisting.[11]Corporations transferred from family to non-family or from non-family to family are excluded because those corporations' ownership structures are significantly changed for special purposes. This study also excludes corporations whose relevant data are missing and incomplete.

Table 1 (please see the appendix), panel A describes the number of all identified A-share corporations listed on the Shanghai stock exchange from 2010 to 2014. After excluding corporations that are in the financial industry, corporations are ST, PT or delisted and corporations with significant ownership restructure, 703 corporations are identified as sample companies. Among these sample corporations, 190 corporations are identified as family corporations. This study obtains company-year annual reports from the Shanghai stock exchange for five year period from 2010 to 2014 for 703 corporations identified in panel A of Table 1 (please see the appendix). The data selection process for the final analysis is reported in Table 1 (please see the appendix), panel B. This study starts with 3515 company-year observations. To obtain the data for abnormal accrual analysis, this study deletes185 observations because there are not enough observations (less than 30) in the same industry. 578 observations with missing values are also deleted. To avoid outlier effects, observations of top and bottom 1% of the dependent variables (48 observations) are excluded. The outliers wouldaffect the results in the regression analyses because some coefficients on test variables become insignificant if extreme variables are included in the regressions.After these screening, 2704 observations remain for final analysis. 687 observations are identified as the family samples.

5.2 **Descriptive Statistics**

Table 2 (please see the appendix) summarizes descriptive statistics of the sample data. The average abnormal accruals (ABS_AA) are 0.06 for all samples and 0.07 for family samples. This is not unusual because family corporations tend to be smaller. Consistent with Table 1 (please see the appendix) figure, 27% of total sample are identified as family corporations (Family_Control). On average, the family control right (Control_Right) is 42%. The high control concentration is not surprising, given the 20% control rights restriction imposed on the sample. The cash flow rights patterns are similar to the control rights patterns. The average family

[11] Chinese listed corporations with financial distress are classified by CSRC as 'special treatment' (ST) or 'particular transfer' (PT) corporations for the purpose of protecting investor's interests. In particular, if a listed corporation reports negative profits for two consecutive years, it is designed as a ST corporation. If the corporation continues the loss for one more year, it is designated as a PT corporation. A PT corporation will be delisted if it cannot turn profitable within another financial year.

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ownership (Cashflow_Right) is 29%. Note particularly that the average family ownership is lower than the average family control right, indicating the divergence between control and ownership, which is 1.78 on average (Discretness). Among all family corporations, 50% is identified as pyramidal ownership structure (Pyramidal_Structure), suggesting half of Chinese family corporations use pyramidal structure to strengthen their control.

The board size (BOARD) and the ratio of independent directors (INDEPENDENT_BOARD)are similar between total samples and family samples. The family board size (8.98) is slightly smaller than overall (9.56). The average portion of independent directors in both overall sample and family sample is 37%, which is consistent with the requirement of the Code. The structure of supervisory board (SUPERVISORY and INDEPENDENT_SUPERVISORY) is also similar between total samples and family sample.The average ratio of independent supervisors is approximately zero, indicating most of Chinese corporations do not assign independent supervisors.On average, the size of the supervisory board (4.15) is significantly smaller than the size of the board of director (9.56). In addition, the average operating cash flow (CFO) and the average return on equity (ROE) is similar between the total sample and family sample. Relative to overall sample, family corporations present a lower leverage ratio (LEV), a significantly higher growth rate in sales (GROWTH), and a slightly smaller size (SIZE). Consistent with the discussion in Section 2, Chinese family corporations tend to be younger than others (AGE).

5.3 **Correlation**

Table 3 (please see the appendix) presents the correlations among variables in the full sample. The correlation results indicate that abnormal accruals (ABS_AA) are positively correlated to family control (Family_Control), the portion of independent supervisors (INDEPENDENT_SUPERVISORY), and the leverage (LEV). In comparison, abnormal accruals are negatively correlated with the size of board of director (BOARD), the portion of independent directors (INDEPENDENT_BOARD), the size of supervisory board (SUPERVISORY), the net cash flow from operations (CFO), return on equity (ROE), growth rate in sales (GROWTH), company size (SIZE), and company age (AGE).

Table 4 (please see the appendix) presents the correlations among variables in the family sample. The correlation results indicate that abnormal accruals are positively correlated tocontrol rights (Control_Right), the degree of divergence between control rights and cash flow rights (Discreteness), the pyramidal structure (Pyramidal_Structure), LEV, and GROWTH. In addition, the results indicate that abnormal accruals are negatively correlated to cash flow rights (Cashflow_Right), BOARD, INDEPENDENT_BOARD, SUPERVISORY, INDEPENDENT_SUPERVISORY, CFO, ROE, SIZE, and AGE.

6. Multivariate Results

This study examines the effects of family control on abnormal accruals using a panel data analysis. Since the data is in panel form, this study conducts the Hausman test to determine if the fixed effect or random effect is appropriate for the sample data. For both full sample and family sample, the results show that the null hypothesis is rejected (x^2=43.9 with a p-value of 0.00 for full sample; x^2=127.38 with a p-value of 0.00 for family sample). Fixed-effect model is thus used. To check the heteroscedasticity, this study uses Breusch-Pagan's heteroscedasticity test and the null hypothesis is rejected. This study corrects the estimated standard error for

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heteroscedasticity using the White estimator for variance and reports White-adjusted t-statistics for all the coefficients. Throughout this paper, the p-values on the independent variables are two-tailed values.

6.1 Family Control and Abnormal Accruals

The results in Table 5 (please see the appendix) show the effect of family control on abnormal accruals over all samples. All regression models are significant at $p < 0.001$. The adjusted R^2 values are 0.177 or higher. Model 1 represents the base model used in this study that has only control variables. The testing variable, Family_Control, is added in Model 2. The results show that the sign of the Family_Control coefficient is positive and statistically significant at $p < 0.001$, indicating that earnings management tends to be greater in family corporations than in nonfamily corporations. The magnitude of the coefficient (0.0131) indicates that, on average, family corporations report higher abnormal accruals than non-family corporations', which is equivalent to 30.3% of the net income.[12]It is clear that the higher abnormal accruals reported by family-controlled corporations have economically material effect on earnings if the standard 5% rule of thumb is used for economic materiality. Chinese family-controlled corporations therefore, report both statistically and economically significant higher abnormal accruals than nonfamily corporations.

The sign of coefficients on the control variables are generally consistent with predictions and prior literature, except for the ratio of independent supervisors (INDEPENDENT_SUPERVIOSRY).Specifically, the coefficient on INDEPENDENT_BOARD is negative and significant at $p < 0.1$ indicating the general setting in which a large proportion of independent directors are associated with lower abnormal accruals and better monitoring. However, the coefficients on BOARD areinsignificant, indicating that the size of board has little impact to constrain abnormal accruals. The coefficients on both SUPERVISORY and INDEPENDENT_SUPERVISORY are insignificant. These results show that the board of supervisors and independent supervisors do not serve to mitigate earnings management in China's corporate governance system. The findings reflect the situation that in China, supervisors affiliate with corporations' management or local government. As explained by Dahya et al. (2003), Chinese supervisors usually play the role of honored guests or friendly advisors, while few of them can play the monitoring role.

The coefficients on CFOand ROE are negative and significant at $p < 0.001$ and the coefficients on LEV are positive and significant at $p < 0.001$. These results are consistent with the notion that corporations in a better financial position have less intention to manipulate the earnings. The coefficients on SIZE and GROWTH are negative and significant at $p < 0.1$ or lower, indicating that large corporations and corporations with greater growth rate have lower abnormal accruals. The coefficients on AGE are insignificant, indicating the corporation's age has little impact on reported abnormal accruals.

[12] The average total assets are CNY23481 million and the average net income is CNY1015 million over the sample period. Therefore, family corporations report higher accruals equivalent to 30.3% $(0.0131 \times (23481/1015))$of the reported net income.

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6.2 Family Ownership Structure and Abnormal Accruals

The focus of Table 6 (please see the appendix) is the impact of family ownership structure on abnormal accruals. All regression models are significant at $p < 0.01$ or higher. The adjusted R^2 values are 0.072 or higher. Model 1 is the base model that has only control variables. The results in Model 2 and Model 6 show that the coefficients of Control_Right are positive and significant at $p < 0.1$ or lower, indicating the control rights are associated with higher abnormal accruals. According to the Model 2, whenthe family-control right increases by 1%, family corporations report higher abnormal accruals by an amount equivalent to 0.87% of the net income averagely.[13]The results suggest that the strengthened control beyond the minimum level of effective control increases the level of earnings management. This is consistent with the argument that controlling owners are entrenched with high levels of control. The results in Model 3 and Model 6 show that the coefficients of Cashflow_Control are negative and significant at $p < 0.001$. Specifically, when the family ownership increases by 1%, on average, family corporationsin the Model 3 report lower abnormal accruals by an amount equivalent to 1.17% of the net income.[14]Consistent with the prior argument, these results suggests that once the controlling owner obtains substantial control, any increase further in the cash flow rights (the ownership) mitigate the entrenchment. Additional ownership concentration aligns shareholders' interests and the entrenchment effect is overcome.

In turn, the effect of separation of control and ownership on earnings management is investigated. Discreteness created by pyramidal ownership structure should be inversely related to control-ownership divergence. To be consistent with the entrenchment effect and the alignment effect created by control and ownership concentrationrespectively, significant positive coefficients of Discreteness and Pyramidal_Structure should be observed. Consistent with the conjecture, the coefficients of Discreteness and Pyramidal_Structure in Model 4, 5, and 6 are positive and significant at $p < 0.1$ or lower. In terms of the magnitude, for example in Model 3, when the divergence increases 1%, family corporations report higher abnormal accruals by an amount equivalent to 0.03% of the reported net income.[15]

The signs of the coefficients on the control variables are, in general, consistent with the findings described in Table 5 (please see the appendix). Exceptions are the ratio of independent supervisors (INDEPENDENT_SUPERVISORY) and the growth rate in sales (GROWTH). Thecoefficients of INDEPENDENT_SUPERVISORY are negative and significant at $p < 0.05$ or lower, indicating a large proportion of independent supervisors in family-controlled corporations is associated with lower abnormal accruals. These results are consistent with the aim set by CSRC, which is that the independent supervisor strengthens the monitoring role of the supervisory board. The coefficients of GROWTH are positive and significant at $p < 0.1$ or lower, indicating a higher growth rate in sales is associated with higher level of abnormal

[13] The average total assets are CNY5932 million and the average net income is CNY304 million over the sample period. Therefore, family corporations report higher accruals equivalent to 0.87% $(0.0448\% \times (5932/304))$of the reported net income according to Model 2. The figure is 0.42% according to Model 6.

[14] Similarly, the average total assets are CNY5932 million and the average net income is CNY304 million over the sample period. Therefore, family corporations report lower accruals equivalent to 1.17% $(-0.0908\% \times (5932/304))$of the reported net income according to Model 3. The figure is 2.39% according to Model 6.

[15] Family corporations report higher accruals equivalent to 0.03% $(0.0014\% \times (5932/304))$of the reported net income according to Model 4.

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accruals. These results show that due tothe fast expansion, family owners intended to improve their performance by managing reported earnings.

In summary, when family owners effectively control their business, their control rights are positively related to the level of earnings management but their strengthened ownership are negatively related to the level of earnings management. In addition, the divergence between control and ownership creates an agency problem (Type II agency problem) between controlling owners and noncontrolling shareholders which is the entrenchment effect. But, the divergence can beovercome if the ownership is highly concentrated which is the alignment effect. The results also provide evidence that pyramidal ownership structure creates the divergence. Controlling family owners tend to employ such structure to protect their private interests.

6.3 Robustness Tests

To provide further evidence, this study conducts a series of additional regressions to investigate the relationship between the family control and earnings management. First of all, this study performs sensitivity tests by varying the family ownership's cut-off point from 20% to 25%, 30% and 50%. The regression results are robust to different cut-off points in classifying the family-controlled corporations.[16]

Second, this study replaces the Modified Jones Model on a cross-sectional basis with the performance-adjusted current accruals used in Chaney et al. (2011) as an alternative proxy for earnings management. The performance-adjusted current accrual method incorporates the return on assets (ROA) as a control for the impact of corporate performance as suggested by Kothari et al. (2005), and also includes inflation and the growth in real GDP as for the business cycle in each country. This study is based on Chinese capital market and thus only includes ROA in the calculation of abnormal accruals. The model listed below is used to replace the equation (1) in Section 4.

$$\frac{\mathrm{TA}_{\mathrm{ik,t}}}{\mathrm{A}_{\mathrm{ik,t-1}}} = \beta_{1\mathrm{k,t}} \frac{1}{\mathrm{A}_{\mathrm{ik,t-1}}} + \beta_{2\mathrm{k,t}} \frac{\Delta\mathrm{REV}_{\mathrm{ik,t}}}{\mathrm{A}_{\mathrm{ik,t-1}}} + \beta_{3\mathrm{k,t}} \frac{\mathrm{PPE}_{\mathrm{ik,t}}}{\mathrm{A}_{\mathrm{ik,t-1}}} + \beta_{4\mathrm{k,t}} ROA_{ik,t-1} + \varepsilon_{\mathrm{ik,t}}$$

The results are also robust with the respect to various alternative measures of abnormal accruals, providing support to the validity of the findings. The regression results are summarized in Table 7 (please see the appendix). For simplicity, Table 7 (please see the appendix) only reports the coefficients on the test variables. The coefficients on the control variables are comparable with those reported in Table 5 (please see the appendix) and Table 6 (please see the appendix) and therefore not reported. The coefficient of Family_Control in Model 1 is positive and significant at $p < 0.05$. This result further indicates that family controlled corporations have stronger tendency to practice earnings management than non-family corporations. Coefficients on Control_Right, Cashflow_Right, Discreteness, and Pyramidal_Structure are statistically significant at $p < 0.1$ or lower, comparable with those in Table 6 (please see the appendix). Those findings are the further evidence that the separation of control and ownership creates either entrenchment effect or alignment effect between controlling shareholders and other shareholders.

[16] These results are not reported in tables but are available upon request.

Finally, this study examines the relationship between family ownership based on the percentage of ordinary shares owned by family members and abnormal accruals. The results are still robust to alternative measures of abnormal accruals and are comparable with those in Table 5 (please see the appendix).

7. Summary and Conclusions

This study examines the potential impact of family control on earnings management. Agency theory states that the separation of ownership from control induces the agency problem between managers and shareholders (Type I agency problem) or the agency problem between majority shareholders and minority shareholders (Type II agency problem). Existing theories indicate that Type II agency problems dominate, and then family control affects reported earnings in two competitive ways: the entrenchment effect and the alignment effect. The entrenchment effect predicts that control families expropriate wealth from other shareholders through earnings management. The alignment effect predicts that control families' interests align the non controlling interests and thus mitigate earnings management. This study argues that the pyramidal ownership structure is used to strengthen the control but it causes the separation of control and ownership. Based on the existing theories, this study provides two explanations for this relationship. The first explanation is based on the controlling owner's entrenchment. The earnings credibility is weakened because minority shareholders' interests are expropriated by controlling shareholders. The ownership structure gives the controlling owners both the ability and incentive to manipulate earnings. The second explanation is related to the alignment effect. A highly concentrated ownership gives a controlling owner strong voting and cash flow rights. If the controlling owner extracts high levels of private benefits, it will discount the share price. Therefore, ownership concentration has an incentive alignment effect. The effective control improves the alignment of interests between controlling shareholders and other shareholders.

Using data from SSE during the period 2010-2014, this study documents evidence that in general, family owned corporations are associated with higher earnings management activities compared with nonfamily corporations. The empirical results are also consistent with the entrenchment and alignment arguments. The results are robust to alternative measurements of abnormal accruals and alternative definitions of family control.

This paper makes several contributions. First, it provides an analysis that contrasting with those in prior research focusing on U.S. and U.K. corporations. Specifically, prior research (e.g. Wang, 2006) demonstrates that family ownership would lower the incentives and opportunities to control earnings. However, this conclusion is not applicable to Chinese corporations. The degree of ownership concentration and pyramidal ownership structure among Chinese family corporations creates different agency problems. Compared to the diffused ownership structure in U.S. and U.K, Chinese family corporations have a high degree of ownership concentration and divergence of ownership and control. Therefore, the results of the study are generalized to those countries different from U.S. and U.K.

Second, this study contributes to literature related to corporate earnings management. Prior studies mainly focus on the impact of governance on earnings management, whereas this study extends the literature by investigating how ownership structure differ in family and non-family corporations and how reported earnings is impacted by corporate ownership structure under the controlling-minority shareholders agency conflict framework.

Third, understanding how family control affects earning management providing potential benefits to investors. That is, family control may or may not alleviate agency problems, which depends on the divergence of control and voting powers. An ownership structure with insignificant divergence is recommended because the conflicts are then naturally alleviated.

Finally, this study may have implications for economic reformers and regulators to understand how family control affects earnings quality. Blindly adopting international accounting standards and disclosure rules without considering the specialty of family corporations in China or other similar emerging markets will not efficiently improve the corporate governance.

There are three major limitations in this study. First, this study did not clear the turning point between the alignment effect and entrenchment effect. Second, like other studies examining the consequences of ownership structure (e.g. Fan &Wong, 2002; Francis et al., 2002), potential endogeneity is a concern. For example, family owners may choose to quit by selling their shares if family corporations have potential problems. Third, it is possible that other institutional settings also affect the relationship between family corporations and earnings management, for instance, the existence of audit committee.

Overall, this study contributes to the literature on ownership structure, earnings management and corporate governance. Prior studies have documented the relations between various corporate governance mechanisms and financial reporting (e.g. Fan &Wong, 2002; Francis, et al., 2002; Agrawal & Chadha, 2005; Anderson et al., 2009). This study adds to this stream of research by focusing on family control, an ownership structure that is common in emerging markets like China.

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Appendix:

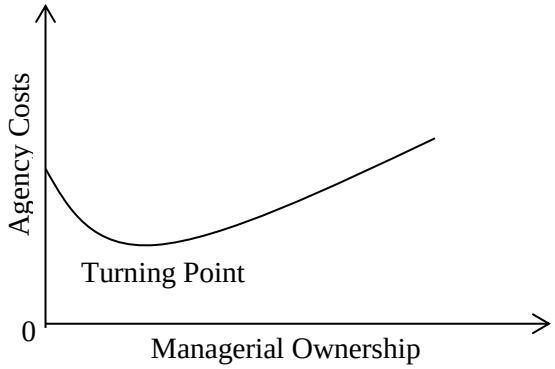

Figure 1

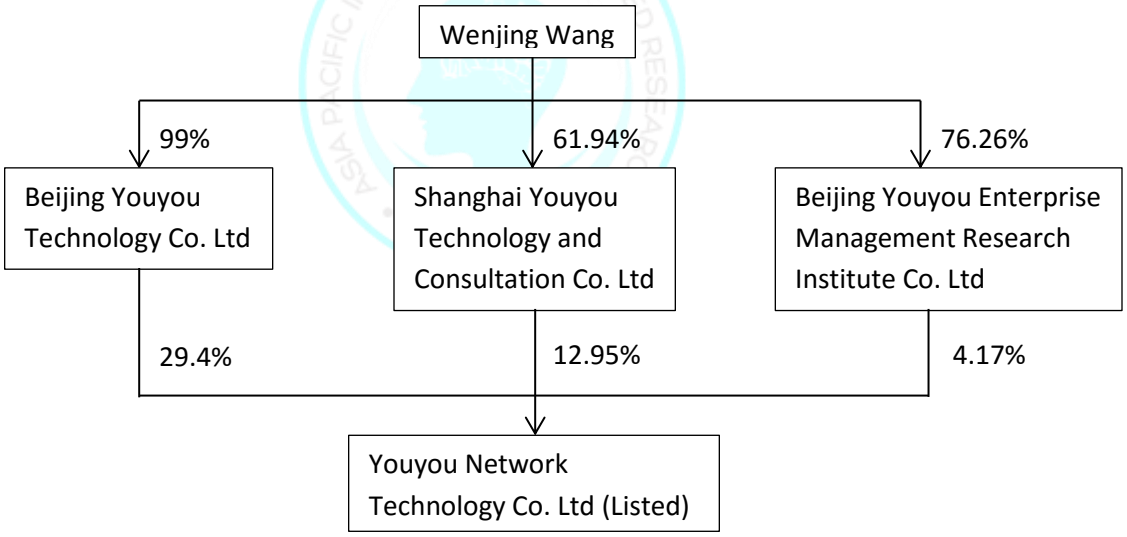

Figure 2
Source: Annual Report 2014, Youyou Network Technology Co Ltd.

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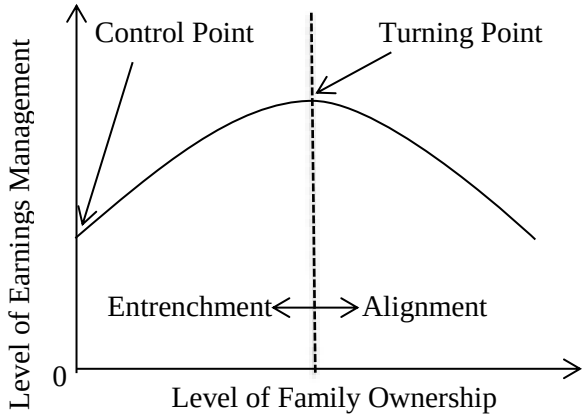

Figure 3

Table 1
Sample Description

Panel A: Family and non-family corporations from 2010 to 2014	
Number of A-share corporations listed on Shanghai stock exchange	1007
Less: financial institutions	(37)
Less: ST, PT and delisted corporations	(192)
Less: corporations that ownership is significantly changed	(9)
Less: corporations that annual reports are not available (new listed)	(66)
Number of corporations identified for further data analysis	703
Number of corporations identified as family corporations	190
Percentage of corporations identified as family corporations	27.03%
Panel B: Sample selection	
Initial full sample for corporations identified from panel A	3515
Less: observations less than 30 in one industry in each observation year	(185)
Less: observations with missing data on ownership and other variables	(578)
Less: top and bottom 1% of ABS_AA	(48)
Observations in the final analysis	2704
Number of observations identified as family sample	687
Percentage of observations identified as family sample	25.41%

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Table 2
Descriptive Statistics

	Total Sample (N=2704)					Family Samples (N=687)				
	Mean	Median	P25	P75	Std. dev.	Mean	Median	P25	P75	Std. dev.
ABS_AA	0.06	0.04	0.02	0.07	0.11	0.07	0.05	0.02	0.08	0.13
Family_Control	0.27	0.00	0.00	1.00	0.44	-	-	-	-	-
Control_Right	-	-	-	-	-	0.42	0.36	0.23	0.57	0.24
Cashflow_Right	-	-	-	-	-	0.29	0.25	0.16	0.41	0.18
Discretness	-	-	-	-	-	1.78	1.37	1.02	2.00	1.29
Pyramidal_ Structure	-	-	-	-	-	0.50	1.00	0.00	1.00	0.50
BOARD	9.56	9.00	9.00	11.00	2.11	8.98	9.00	8.00	9.00	1.89
INDEPENDENT_BOARD	0.37	0.33	0.33	0.40	0.06	0.37	0.33	0.33	0.40	0.06
SUPERVISORY	4.15	3.00	3.00	5.00	1.87	3.66	3.00	3.00	4.00	2.45
INDEPENDENT_SUPERVISORY	0.00	0.00	0.00	0.00	0.03	0.01	0.00	0.00	0.00	0.06
CFO	0.20	0.08	0.01	0.21	2.35	0.19	0.09	0.00	0.28	2.96
ROE	0.08	0.07	0.03	0.12	0.17	0.08	0.07	0.03	0.13	0.16
LEV	1.44	1.04	0.58	1.81	1.43	1.18	0.87	0.49	1.43	1.20
GROWTH	0.28	0.08	-0.03	0.20	6.06	0.65	0.08	-0.06	0.22	11.77
SIZE	22.51	22.30	21.59	23.28	1.38	21.98	22.05	21.26	22.71	1.09
AGE	12.44	13.00	10.00	16.00	5.21	11.48	12.00	9.00	15.00	5.56

Note: Variable definitions
ABS_AA = absolute value of abnormal accruals;
Family_ Control = family members hold at least 20% of control rights directly and indirectly. A binary variable is coded one if it is a family corporation, and coded zero otherwise;
Control_Right = the sum of the minimum ownership percentage along the chains of control;
Cashflow_Right = the sum of the products of the ownership percentage along the chains of control;
Discretness = the degree of divergence, measured by control rights divided by cash flow rights;
Pyramidal_Structure = A binary variable is coded one if family ownership structure is pyramidal, and coded zero otherwise;
BOARD = board size, measured by the total number of board members;
INDEPENDENT_BOARD = the proportion of independent directors out of the total number of board members;
SUPERVISORY = the size of supervisory board, measured by the total number of supervisory board members;
INDEPENDENT_SUPERVISORY = the proportion of independent members out of the total number of supervisory board members.

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CFO = the net cash flow from operations scaled by lagged total assets;
ROE = return on net assets, measured by total net income divided by total equity;
LEV = financial leverage, measured by total liabilities divided by total assets;
GROWTH = growth rate by sales;
SIZE = natural log of total assets;
AGE = corporation ages since listed;
P25 = 25th percentile;
P75 = 75th percentile.

Table 3
Variable Correlation (Full Sample)

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1. ABS_AA	1											
2. Family_ Control	.056***											
3. BOARD	-.007	-.166***										
4. INDEPENDENT_BOARD	-.026	-.03	.177***									
5. SUPERVISORY	-.007	-.146***	.329***	-.043**								
6. INDEPENDENT_SUPERVISORY	.068	-.067***	.061***	.029	.11***							
7. CFO	-.201***	.006	-.025	.02	.007	-.007						
8. ROE	-.2	.011	.007	.013	.01	.014	.032*					
9. LEV	.034*	-.104***	.091***	.03	.07***	-.034*	-.008	-.226***				
10. GROWTH	-.037*	.036*	-.015	.016	-.006	.006	.007	.008	-.007			
11. SIZE	-.016	-.227***	.27***	.142***	.218**	.178***	.029	.107***	.313***	-.015		
12. AGE	-.008	-.112***	-.131***	-.096***	-.049**	-.023	-.013	-.068***	.07***	.019	-.172***	1

Variable definitions (see notes in Table 2)
* Indicates significant at a level of 10%;
** Indicates significant at a level of 5%;
*** Indicates significant at a level of 1%.

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Table 4
Variable Correlation (Family Sample)

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. ABS_AA	1														
2. Control_ Right	.097**														
3. Cashflow_ Right	-.134***	.71***													
4. Discreteness	.027	-.097**	.406***												
5. Pyramidal_ Structure	.036	.252***	.232***	-.079**											
6. BOARD	-.052	.022	-.071*	-.003	-.049										
7. INDEPENDENT_ BOARD	-.08**	-.045	-.033	-.001	-.024	.282***									
8. SUPERVISORY	-.016	.0155	-.023	.048	.035	.177***	-.096**								
9. INDEPENDENT_ SUPERVISORY	-.035	-.029	.122**	-.08**	.063*	-.059	.029	-.023							
10. CFO	-.073*	.031	.043	.012	.023	.056	.002	.011	.007						
11.ROE	-.042	.075**	.082**	-.004	-.029	.071*	-.000	.017	.009	.04					
12. LEV	.096**	.073*	.125***	-.073*	.029	.03	-.008	.011	-.046	-.035	-.122**				
13. GROWTH	.254***	.049	.078**	-.039	-.01	.157***	-.018	.016	-.022	.112**	.16***	-.006			
14. SIZE	-.007	.154***	.147***	.028	.035	.219***	-.062	.063	.057	.03	.17***	.3***	.001		
15. AGE	-.017	-.235***	-.364***	.151***	.091**	-.178***	.006	.004	-.016	-.024	-.041	.127***	.03	-.16***	1

Variable definitions (see notes in Table 2)
* Indicates significant at a level of 10%;

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** Indicates significant at a level of 5%;
*** Indicates significant at a level of 1%.

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Table 5
Multivariate Analysis of Family Control and Abnormal Accruals

Dependent Variable: ABS_AA

		Model 1		Model 2	
Independent Variable	Expected Sign	Coefficient	P-value	Coefficient	P-value
Family_Control	?			0.0131	0.0090
BOARD	?	-0.0002	0.8414	-0.0005	0.6532
INDEPENDENT_BOARD	-	-0.0618	0.0801	-0.0600	0.0892
SUPERVISORY	?	-0.0002	0.8676	0.0000	0.9882
INDEPENDENT_SUPERVISORY	-	0.3013	0.3769	0.3045	0.7536
CFO	?	-0.0096	0.0000	-0.0096	0.0000
ROE	?	-0.1536	0.0000	-0.1526	0.0000
LEV	+	0.0097	0.0000	0.0097	0.0000
GROWTH	?	-0.0006	0.0759	-0.0006	0.0938
SIZE	-	-0.0090	0.0000	-0.0080	0.0000
AGE	?	-0.0004	0.4166	-0.0002	0.7281
Intercept	?	0.2167	0.0000	0.1872	0.0000
Adjusted R-squared		0.1773		0.1992	
F-statistic		23.4074		22.2708	
Prob(F-statistic)		0.0000		0.0000	
Number of observations		2704		2704	

Variable definitions (see notes in Table 2)

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Table 6
Multivariate Analysis of Family Ownership Structure and Abnormal Accruals

Dependent Variable: ABS_AA

		Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Independent Variable	Expected Sign	Coefficient (P-Value)	Coefficient (P-Value)	Coefficient (P-Value)	Coefficient (P-Value)	Coefficient (P-Value)	Coefficient (P-Value)
Control_Right	?		0.0448 (0.0344)				0.0214 (0.0989)
Cashflow_ Right	?			-0.0908 (0.0003)			-0.1227 (0.0000)
Discreteness	?				0.0014 (0.0641)		0.0052 (0.0104)
Pyramidal_ Structure	?					0.0112 (0.0904)	0.0051 (0.0581)
BOARD	?	-0.0055 (0.3529)	-0.0034 (0.2953)	-0.0029 (0.3399)	-0.0028 (0.3738)	-0.0057 (0.3263)	-0.0027 (0.3512)
INDEPENDENT_ BOARD	-	-0.2189 (0.0000)	-0.1979 (0.0001)	-0.1972 (0.0000)	-0.2025 (0.0000)	-0.2258 (0.0000)	-0.1973 (0.0003)
SUPERVISORY	?	-0.0011 (0.1793)	-0.0011 (0.3135)	-0.0008 (0.4264)	-0.0009 (0.3553)	-0.0010 (0.2106)	-0.0008 (0.4124)
INDEPENDENT_ SUPERVISORY	-	-0.0545 (0.0060)	-0.0430 (0.0273)	-0.0846 (0.0000)	-0.0529 (0.0025)	-0.0480 (0.0189)	-0.0876 (0.0000)
CFO	?	-0.0031 (0.0193)	-0.0020 (0.0003)	-0.0020 (0.0003)	-0.0021 (0.0002)	-0.0032 (0.0204)	-0.0019 (0.0003)
ROE	?	-0.0452 (0.0045)	-0.0069 (0.0844)	-0.0007 (0.0854)	-0.0118 (0.0364)	-0.0433 (0.0062)	-0.0003 (0.0994)
LEV	+	0.0115 (0.0025)	0.0104 (0.0284)	0.0086 (0.0754)	0.0110 (0.0164)	0.0114 (0.0029)	0.0088 (0.0713)
GROWTH	?	0.0005 (0.0832)	0.0278 (0.0385)	0.0272 (0.0418)	0.0284 (0.0413)	0.0005 (0.0917)	0.0273 (0.0397)
SIZE	-	-0.0047 (0.0998)	-0.0045 (0.0246)	-0.0033 (0.0313)	-0.0034 (0.0448)	-0.0044 (0.0224)	-0.0034 (0.0391)
AGE	?	-0.0003 (0.8008)	-0.0004 (0.6477)	0.0011 (0.2664)	-0.00002 (0.9770)	0.0004 (0.7085)	0.0011 (0.2605)
Intercept	?	0.0296 (0.5787)	0.0282 (0.6302)	-0.0050 (0.9318)	0.0323 (0.5889)	0.0221 (0.6532)	-0.0088 (0.8784)
Adjusted R-squared		0.0723	0.1294	0.1359	0.1830	0.0729	0.2335
F-statistic		2.2371	5.2267	5.6067	4.8577	2.1761	4.6755
Prob(F-statistic)		0.0072	0.0000	0.0000	0.0000	0.0075	0.0000
Number of observations		687	687	687	687	687	687

Variable definitions (see notes in Table 2)

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Table 7
Multivariate Analysis Based on Performance-Adjusted Current Accruals

Dependent Variable: ABS_AA						
Independent Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
	Coefficient P-Value	Coefficient P-Value	Coefficient P-Value	Coefficient P-Value	Coefficient P-Value	Coefficient P-Value
Family_Control	0.012 (0.017)					
Control_Right		0.039 (0.006)				0.019 (0.016)
Cashflow_Right			-0.077 (0.000)			-0.105 (0.000)
Discreteness				0.001 (0.075)		0.005 (0.024)
Pyramidal_ Structure					0.012 (0.041)	0.007 (0.031)
Adjusted R-squared	0.196	0.109	0.114	0.123	0.071	0.112
F-statistic	23.953	4.062	4.346	3.732	2.085	3.667
Prob(F-statistic)	0.000	0.000	0.000	0.000	0.001	0.000
Number of Observations	2704	687	687	687	687	687

Variable definitions (see notes in Table 2)