Corporate Governance and IPO Performance of Family Firms — Empirical Evidence from Chinese Listed Family Firms

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ABSTRACT

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Ailin Shi

Initial public offering (IPO) underpricing is a common financial phenomenon in capital markets. Previous literature shows that family-controlled firms are less underpriced than other firms when they go public for capital. Throughout China's 40 years of reform and opening up, private firms have played an important role in the market, and most of them are family-owned and family-managed businesses. Today, many Chinese first-generation entrepreneurs have reached retirement age, and second-generation family members have taken over their firms. In this paper, we explore two aspects of corporate governance: family participation and second-generation involvement. We use family ownership and percentage of family directors to measure family participation. Our empirical research indicates that the degree of family participation is significantly negatively correlated with the IPO underpricing of family firms. Moreover, our findings suggest that, when the second generation serves as chairmen or CEOs in their family businesses, the IPO underpricing is lower than with other family firms.

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1. Introduction

Throughout China's 40 years of reform and opening up, the Chinese government has launched a series of policies to encourage the development of private enterprises, which has enabled private businesses to rapidly increase to 27 million by the end of 2017. Most of these private enterprises are controlled and managed by families. Until the end of 2017, a total of 1,374 family firms were listed on the stock exchange in Mainland China. These facts demonstrate that private firms have gradually become an indispensable proportion of China's economy. In recent years, the research about family businesses has attracted the attention of an increasing number of scholars.

Meanwhile, initial public offering (IPO) performance has also been a hot topic in the financial field. A significant number of previous research studies indicate that IPO underpricing appears in the global stock market, but their explanations vary. The theories that scholars use to explain IPO underpricing include information asymmetry, market sentiment, underwriter reputation, corporate governance and legal environment. However, scholars generally agree that the IPO underpricing rate is a reflection of the efficiency of IPO valuation.

Considering that existing studies mainly use the sample of all Chinese listed firms to explore IPO underpricing, we combine the above two popular issues to focus on the IPO performance of Chinese family firms. According to the agency theory, agents may harm the principals' interests for their own benefit. The interests of shareholders are closely related to the interests of enterprises; for instance, shareholders' goal is to maximize the market value added by firms. However, managers want to ensure companies are not run poorly in order to keep their jobs (Easterbrook, 1984). This conflict of interest between investors and managers means managers may pursue their own benefits by sacrificing the interest of the enterprise. In family firms, the members of the largest shareholder families usually participate in business operations. Thus, this type of agency cost would be reduced in family firms. Family firms are more reliable for outsider investors and less underpriced when they go to public.

Globally, many family firms are facing a succession problem. Especially, many family firms in

China were founded twenty or thirty years ago. Most founders of these firms have entered retirement age, so many second-generation family members have inherited or are inheriting firms from founders. Hence, in this research, we will focus heavily on how second-generation involvement affects IPO underpricing. In this paper, we explore how corporate governance impacts the IPO underpricing rate of listed family companies by examining empirical studies. The measurements of corporate governance include the family participation and the involvement of the founders' next generation. We use family ownership and the percentage of family members sitting on the board to measure the degree of family participation. In terms of the second generation, we first consider whether their involvement in the family business have an impact on IPO underpricing. Furthermore, we compare how appointing a second-generation chairman or CEO to replace a founder versus appointing a non-family member chairman/CEO affects the IPO underpricing rate.

The structure of the remaining research is as follows. In Section 2, we present the extant literature review and propose the hypotheses to be tested. Section 3 presents the empirical methodology and the definition of the variables. We focus on a descriptive summary of the data in Section 4 and present the regression analysis in Section 5. Our conclusions are shown in Section 6.

2. Literature review

2.1 Introduction

This part presents a literature review about the corporate governance and IPO underpricing of family firms. It is divided into two sections. The first section is a theoretical review, which creates the theoretical base for the research. The family business governance and agency theory; family business corporate governance and social emotional wealth; and explanations of IPO underpricing are reviewed. The second section is the review of empirical research about IPO underpricing in the world. We first review some research on family businesses and IPO underpricing from different countries and then review existing research on the second-generation participation in company management.

2.2.Theoretical review

2.2.1 Family business governance and agency theory

According to agency theory, companies face two types of agency problems. The first one is the agency problem between managers and shareholders, which is caused by the separation of ownership and control. Managers will sacrifice the interests of shareholders to pursue personal goals, such as on-the-job consumption, creating a business empire and so on (Jensen & Meckling, 1976). The first type of agency problem is more common in countries where the controlling shareholder has a lower shareholding ratio and where the shareholding is dispersed, such as the United States. The second type of agency problem is the conflict of interest between the controlling shareholder and the minority shareholders (Shleifer & Vishny, 1997). Due to the separation of cash flow rights and voting rights, the controlling shareholders will realize their own interests at the expense of the interests of small and medium shareholders. The second type of agency costs mainly occurs in emerging market countries with weak investor protection.

In general, the conflict of interest between the controlling shareholder of the family business and

the minority shareholders may be more serious than the agency problem between the manager and the shareholders. However, with respect to Chinese family businesses, an in-depth analysis needs to be conducted in conjunction with specific institutional backgrounds. Most of China's family-owned enterprises are in the first generation—meaning the founders are in control of the firm—and there has not been a large-scale phenomenon of founders passing control to the second generation (Liu, Wang, Tang, Zhu & Ni, 2006). The founder's position means that the company's goal is long-term stability. The founder hopes that the enterprise can be passed on as family wealth. Under such corporate goals, the founders of family enterprises are more inclined to pay attention to the long-term value of the company than other firms. It could weaken the motives behind the controlling shareholders' interests. Thus, the second type of agency cost is reduced. In this way, the IPO underpricing rates of family-managed enterprises are more likely to be lower.

Jenson and Mecking (1976) define a principal–agent relationship as one or more people (i.e., principals) hiring someone else (i.e., an agent) to perform tasks on behalf of the principal, including the contractual relationship of granting the agent the appropriate decision-making power. The basis of agency theory derives from the conflict of interest between the principal and the agent. Due to inconsistent interests between parties, if both parties seek to maximize their own interests, agents would arguably not always aim to maximize the interests of the principals, and agents tend to pursue their own utility. At the same time, "information asymmetry" exists between the principal and the agent. The agent holds the "private information"; the principal is at a disadvantage of information and often cannot observe the behavior of the agent, resulting in "reverse selection," "moral hazard," and other opportunistic behaviors that impair the interests of the principal. The principal may adopt a method of appropriately motivating the agent and subjecting the supervision of the agent to the deviant behavior, limiting the disagreement between the agent and the agent's own interests. This results in "agent costs" that include three parts: principal supervision expenditure, agent guarantee cost and residual loss.

Further, Jensen and Meckling (1976) argue that the value of the company is positively related to

the proportion of ownership in management. For example, agency costs decrease as the proportion of management ownership increases. Fama and Jensen (1983) theorize that, if the same individual has ownership and management rights, the need for external shareholders to conduct high-cost supervision would be reduced, thus increasing the value of the company. Therefore, these scholars argue that the agency costs would be low or even zero in companies managed by the owners.

Many scholars have extended the above conclusions to family firms. Dalton and Daily (1992) believe that family business is the most effective organizational form because of the low degree of separation of ownership and control. Hill and Snell (1989) also suggest that agency costs are reduced in family businesses because of the low degree of separation of ownership, control and management rights. Therefore, from the perspective of agency theory, due to the consistency of goals and interests of owners and managers, the agency costs of the family business are reduced, and the performance of the family business is improved.

2.2.2 Family business corporate governance and social emotional wealth

Unlike other types of businesses, family businesses are seen as a combination of an economic goal-oriented enterprise system and a non-economic goal-oriented family system. While pursuing economic goals, family businesses are also pursuing non-economic goals, such as social emotional wealth (SEW) (Gómez-Mejia, Haynes, Núñez-Nickel, Jacobson & Moyano-Fuentes, 2007). SEW is seen as a non-wealth-oriented gain from the family business with the family's control over the business (Gómez-Mejia et al., 2007), such as meeting the needs of belonging (Kepner, 1983), exercising power (Schulze, Lubatkin & Dino, 2003), maintaining family values (Handler, 1990), maintaining family control and inheritance, and preserving family social capital (Arregle, Hitt, Sirmon & Very, 2007). SEW is an important element for family business governance and strategic decision-making, and family businesses are more likely to make decisions based on SEW rather than economic interests (Gómez-Mejia et al., 2007).

IPO is the ideal tool for analyzing the trade-off between the economic utility and non-economic

utility of family businesses (Leitterstorf & Rau, 2014). At the time of an IPO, shareholders can obtain high economic benefits by selling new shares at a higher price, but can also sell shares at a price lower than expected in order to protect non-economic interests. Through IPO underpricing, family businesses can achieve some non-economic benefits: reducing the risk of IPO failure (Welch, 1992) and reducing litigation risk (Ibbotson, 1975) to protect the reputation of family businesses (Lowry & Shu, 2002). On the other hand, IPO underpricing helps family businesses reduce the ownership concentration of non-family shareholders and maintains family control, while protecting the family's reputation and optimizing the ownership structure are important aspects of protecting family business SEW (Chrisman & Patel, 2012). Based on the purpose of protecting the social emotional wealth, family businesses may be willing to sell shares at a higher discount than non-family businesses.

2.2.3 Explanations of IPO underpricing

Through reviewing the literature about the reasons for IPO underpricing, we find that the explanations include information asymmetry, market sentiment, underwriter reputation, corporate governance, legal environment and so on.

The theory of information asymmetry (Rock, 1986) argues that IPOs expect the underpricing rate to increase as the risk of the company's value increases. Beatty and Ritter (1986) explaine this proposition based on the "winner's curse" model. An investor who collects company value information is equivalent to purchasing a call option that is executed when the real value of the IPO company exceeds the strike price (i.e., the issue price). The value of a call option increases as the risk of the underlying stock increases. The higher the risk of an IPO company, the more investors choose to become informed investors. The increase in informed investors will exacerbate the "winner's curse" problem and increase the IPO expectation of underpricing (Rock, 1986).

IPO companies can use their intermediary means to transfer their intrinsic value to the market, such as employing high-reputation underwriters and high-reputation auditors, with venture

capital participation; select high-quality managers (Chemmanur & Paeglis, 2005) to reduce the incentive for investors to actively explore information; reduce information asymmetry between investors; and reduce the IPO underpricing rate. Based on the long-term stable development and intergenerational inheritance, family-involved enterprises are more motivated than non-family firms to transmit information about their true value to the market. Therefore, companies with family management are more inclined to determine the issue price according to market conditions and the actual operating quality of the company.

Based on the risk avoidance of underwriters, Baron (1982) explores the information asymmetry between underwriters and listed companies. He holds that underwriters know the capital market better than listed companies, so companies need the help of underwriters during the IPO process. Underwriters tend to undervalue the IPO offer price to improve the probability of IPO success so that their reputation will not be harmed by an IPO failure. Uniformed investors require higher compensation for risk than information advantage investors and prefer to choose highly reputable underwriters, who are usually considered to have low underwriting risk. In that way, high-reputation underwriters often have high IPO underpricing (Carter & Manaster, 1990). However, Ding and Pukthuanthong (2009) find that high-ranking underwriters could help firms valuate IPO offer price more accurately and thus have lower IPO underpricing rate.

Based on the perspective of the market sentiment, Miller (1977) argues that investors in the market might have different expected returns and risks for a risky asset. In the secondary market, there may be investors who have high expectations for listed companies, and their frantic buying may lead to IPO underpricing.

2.3 Practical review

2.3.1 Research on family business, company performance and IPO underpricing

Some research has found correlation between family business and firm performance or IPO underpricing. McConaughy, Matthews and Fialko (2001), for instance, use the agency theory framework to test the impact of founding family control on company performance, capital

structure and value. They explore the relationship between corporate control and corporate value, and the results show that companies controlled by the founding family have higher value, more efficient operations and less debt than other companies.

Hearn (2011) conducts a study with 63 IPO companies in North Africa. He finds that, with the increase in the proportion of family members on the board and the dispersion of family control, the IPO underpricing rate decreased.

Jaskiewicz et al. (2005) conduct a study on the long-term stock market of IPOs in Germany and Spain between 1990 and 2000. They find that, after three years of listing, investors achieved an average return of -32.8% in Germany and -36.7% in Spain. In these two countries, then, the IPO performance of non-family businesses is not very good. However, for the entire sample, the larger the company, the better the IPO performance. In family business management, the long-term stock market performance is positively correlated with great family involvement and negatively correlated with young age of the company.

Cirillo et al. (2004) studied the relationship between the value of Italian family-managed businesses and the value of IPOs. Based on company data listed between 2000 and 2011, the researchers quantified the value of IPOs from the perspective of external investors and conducted a robust check on long-term performance. In the management framework, the authors examine demographic elements of the research, such as the status of the family firms, and family involvement in governance. They find that family business status has a positive impact on IPO value, with larger household participation corresponding to higher IPO values.

Yu and Ying (2012) use the Hong Kong Stock Exchange IPOs as a sample to compare the IPO underpricing rates between family businesses and other private companies. They find that larger IPO underpricing was associated with stronger family involvement and was more likely to spread ownership among family members. In addition, they find that family businesses attract oversubscription by choosing higher IPO underpricing, avoiding the formation of external large shareholders, reducing external supervision and reducing external obstacles. These findings, notably, also supports the “avoid supervision hypothesis” proposed by Brennan and Frank

(1997).

China's IPO family companies generally have a situation in which a founding natural person or founding family is a controlling shareholder. In the context of weak investor protection, compared with other private enterprises whose founders supervise managers as major shareholders, family members who chose to participate in management can more effectively reduce the agency cost (Weng, Wang & Lu, 2014). At the same time, compared with other enterprises, the family-involved enterprise more effectively reveal the intrinsic value of the company (the "certification role") to the market, which reduces the information asymmetry and thus reduces the IPO underpricing rate.

According to Jaskiewicz et al.'s (2005) findings, although family ownership alone has no significant effect on stock prices, strong household participation is positively correlated with long-term IPO performance. This result supports Jensen and Meckling's (1976) theory of interest convergence. Similarly, Caselli and Gatti (2006) found that, in Italian family businesses, the higher the degree of family participation, the more likely a company is to have a positive impact on the long-term stock market performance of the family business IPO.

However, the results of a few empirical studies are different, possibly because of the existing SEW. Leitterstorf and Rau (2014) believe that family businesses are willing to sacrifice economic gains to maintain their non-economic utility. Therefore, if family businesses underestimate the SEW that helps protect them, they often sacrifice IPO benefits by choosing higher IPO underpricing than non-family businesses. Leitterstorf and Rau (2014) studies samples based on 153 German IPOs and supported this hypothesis. They find that, on average, the IPO underpricing rate of family businesses was 10 percentage points higher than that of non-family businesses.

Lian et al. (2016) analyze the relationship between family control and IPO underpricing based on SEW and the behavioral agency theory, and explored how the family's internal control willingness (family shareholding and family involvement) and external social prestige (family political status and family honors) impact IPO underpricing decisions. They draw the following

conclusions: (1) Compared with non-family enterprises, family enterprises show a higher level of IPO underpricing in consideration of maintaining social and emotional wealth. (2) With the increase of family control willingness (family shareholding level and membership involvement), the family protects the SEW, and motivation is strengthened, which in turn results in a higher IPO underpricing. (3) The external social reputation of the family strengthens the IPO underpricing, especially as the family's political status increases, and the influence of SEW is strengthened, prompting the family to bear a higher IPO underpricing rate.

Based on the agency theory and SEW factors, Jain and Shao (2014) assess the impact of investment policy choices after IPOs and their economic consequences on family firms versus non-family businesses. Their results show that family businesses are under-invested in liquidity, total investment spending and R&D spending after IPOs, compared to similar non-family businesses. On the other hand, family businesses have insufficient investment in over-investment capital expenditures and acquisition expenditures compared to non-family businesses with dispersed but unfocused ownership structures. In addition, although the increase in R&D spending will reduce the shareholder value of the family business, the acquisition expenditure does the opposite.

Zhang (2014) uses the family-owned enterprises listed on the China Small and Medium-sized Board as a sample to analyze whether investors concern about the risk of family business control rights. He divides family firms into two groups according to the level of family involvement. He finds that investors gave higher prices to companies with high family control rights on the first day of listing. For companies with low levels of family involvement, investors are not concerned about family control risks. This study reflects Chinese investors' complex attitudes regarding the risk of family business control. When the control of the actual controller family is very large, it will bring certain risks. But Chinese investors do not see this as a risk，they are more inclined to regard family business control as an opportunity for value discovery and give the company a higher valuation when the actual controller family is involved in the senior management. He uses IPO underpricing rate on the first listing day as the measurement of investors' attitude towards

the firm. However, in China stock market, new shares usually reach the upper limit for several consecutive days, the performance on the first listing day cannot reflect the true information of investors' valuation about new shares. Moreover, he does not consider the difference characteristics in family members may have different impact on IPO underpricing.

2.3.2 Research studies focused on participation of family second generation in company management

From the perspective of corporate heritage, the participation of second-generation family members in business management is usually the succession of the enterprise with the second generation being a successor to the enterprise, and this is usually the transitional stage of the family business. Regarding the involvement of second-generation family members, many studies have found that second-generation family participation has a significant impact on business performance, but the studies reach different conclusions.

Burkart et al. (2003) study the inheritance of family business. They consider professional managers to be better than the second-generation successors of enterprises, so the second-generation family participation is likely to reduce the performance of enterprises. Other scholars have also concluded that second-generation family participation in corporate control will reduce corporate performance (Bertrand, Johnson, Samphantharak & Schoar, 2008).

Based on data from 1,818 Japanese listed companies between 1990 and 1998, Saito (2008) studies the performance of companies controlled by Japanese founding families. His research showed that family ownership became fragmented after the founders retired, leading to changes in corporate governance. In nearly half of family businesses, ownership and management are separated when the founder retires. Saito (2008) also finds that family businesses controlled and managed by the heirs of the founders did not perform as well as non-family businesses.

Villalonga and Amit (2006) study the relationship between U.S. family businesses and Tobin's q. They conclude that, when the founder was CEO, the companies were doing better than non-family businesses, but that the company values decline when the second-generation family

members become CEOs. Morck et al. (2000) find that, in Canada, the financial performance of heir-controlled family businesses was poor. Bloom and Reenen (2007) also find that poor enterprise governance practices are seen more often in family businesses run by the second generation of the founders in the family firms of France, Germany, the UK and the United States. On the other hand, the participation of family descendants in business management shows that the family has more investment in the enterprise and therefore will seek longer-term development of the enterprise. When the proportion of family members' ownership has control, the family interests are consistent with the overall interests of the company (Kellermanns & Eddleston, 2004). In the second generation of family management companies, the second-generation family members are often more energetic than the elder generations. The second generation often boldly innovates and supports the innovation of the enterprise, essentially injecting fresh blood into the enterprise, which will benefit the sustainable development and innovation of the family business (Zahra, Neubaum & Larrañeta, 2007).

Zhang(2018) explores the impact of family membership heterogeneity on corporate IPO underpricing. He divides family relationships into close relationships (couples, fathers and sons) and loose relationships (brothers, complexes, and pan-relatives). His results show the following: (1) There may be two or more families in a loosely owned family business. Family members pursue their own family interests while pursuing the common interests of all families. They may fight for their own family interests and cause internal conflicts. Therefore, they may be more concerned with short-term financial wealth with lower altruism, lower cohesiveness and higher internal conflicts, thus showing higher IPO underpricing. (2) In order to maximize shareholder interests, loose family-owned enterprises may actively manage media information behavior and increase IPO underpricing through media reports.

Some scholars have also studied the impacts of different family generations on the performance of firm. Some family business scholars believe that, with the entry of a new generation of companies, ownership becomes fragmented and the interaction between family members becomes a more complex dynamic (Kellermanns & Eddleston, 2004). Further, some researchers

believe that the founder passes the business to the second generation mostly to ensure the long-term positioning, sustainable development and firm commitment to the future of the company (Miller & Breton-Miller, 2005). The first-generation families often try to improve the business of their family heirs, which leads to a lower level of conflict and thus improved financial performance. Through a series of studies, Sonfield and Lussier (2004) find that the second and subsequent generations of the family are more likely than the first generation to have conflicts and disagreements among family members. In general, the first-generation entrepreneurs often show greater entrepreneurial orientation, such as creating new business opportunities (Gómez-Mejia et al., 2007), which means that they have more productivity and create remarkable benefits of opportunity, as compared to new generations (Scholes, 2010). Family control, then, seems to generally have a positive effect on company performance. However, McConnaughy et al.'s (2001) research on American home businesses shows that the company's performance under the management of its founders is actually above average. But when the second generation manages the company, it did not get such a result.

Barontini and Caprio (2006) use data from 675 listed companies in 11 countries to investigate the relationship between ownership structure and corporate performance in continental Europe. Although family-controlled companies have a large separation between control and cash flow rights, their results do not support the assumption that family control hinders company performance. Companies controlled by founders and companies controlled by second generations who are non-executive directors but are members of the board of directors have much higher valuations and operating results. When a second-generation family member assumes the position of CEO, family-controlled companies are statistically indistinguishable from non-family businesses in terms of valuation and performance.

2.4 Hypotheses

From above, according to the agency theory, since the interests of owners and managers in a family business are more likely to be consistent, the principal–agent relationship between

shareholders and management in a family business is alleviated, and the agency cost is reduced, thus reducing the uncertainty of corporate value. Unlike other types of businesses, family businesses are seen as a combination of an economic goal-oriented business system and a non-economic goal-oriented family system. Family firms are pursuing both economic and non-economic objectives, such as SEW (Gómez-Mejia et al., 2007). Thus, IPO is an ideal tool to analyze the tradeoff between economic utility and non-economic utility of family enterprises (Leitterstorf & Rau, 2014). According to the information asymmetry theory, the information asymmetry between the issuer and the investor is a key factor affecting the IPO underpricing rate. The greater the pre-event uncertainty of the value of new shares, the higher the degree of underpricing. Based on the needs of long-term stable development and intergenerational inheritance, the enterprises under family management are more motivated than non-family businesses to convey the information of the real value of the enterprise to the market. Therefore, compared to X, the enterprises under family management are more inclined to determine the issue price according to the market situation and the actual operation quality of the company. These theoretical studies provide a theoretical basis for the study of this paper.

A large number of practical studies shows that some correlation exists between corporate governance of family enterprises and IPO underpricing, and even the participation of the second generation of families in management has different impacts on the family enterprises. As the family-business organizational structure model exists widely in the world, it is also an indispensable part of China's private economy. This paper intends to study the relationship between corporate governance and IPO underpricing of Chinese family firms, including the influence of family management and the involvement of the second generation. All the above-mentioned empirical studies provide ideas and directions for the research conducted in this paper.

Based on the literature reviewed and collated in this paper, by summarizing the conclusions of scholars' research, we explore the following hypotheses.

The actual controller and management personnel of family firms are motivated to maintain

long-term development and leave their companies to the next generation of their families; thus, those in control would not sacrifice long-term benefits to pursue short-term advantages. In addition, the level of information asymmetry between owners and managers is lower than in non-family firms. Family firms are supposed to transmit more positive signals to outside investors. However, a few research studies suggest that family firms are willing to lower the IPO offer price to increase their SEW. Here, we hypothesize the following：

Hypothesis 1: The IPOs of family firms are less underpriced than other private firms.

Greater family ownership and percentage of family directors make the controlling family members have more decision-making power that deepens their influence on the family business and ties their interests more closely to those of the family firms. This condition can reinforce the investors' confidence in the IPOs of these family firms. Hence, we hypothesize the following:

Hypothesis 2: Greater ownership by controlling family members reduces the IPO underpricing of the family firm.

Hypothesis 3: A greater percentage of family members sitting on the board of directors decreases the IPO underpricing of the family firm.

The founders provide favorable platforms and opportunities for their family's next generation. In the process of participating in the management, the second-generation family members are also influenced by their antecessors and would continue the style of the family business. Meanwhile, they are also injecting fresh blood into the family business to make family firms more energetic and effective.

Hypothesis 4: The involvement of the second generation can reduce underpricing of a family firm IPO.

We tend to explore whether the second-generation family members have a more significant effect on IPO underpricing when they assume more important positions in family firms and compare them with founders and non-family-member chairmen/CEOs. Differences in the appointment of chairmen and CEOs may affect the IPO underpricing of family firms. The founders usually have a wealth of relevant industry experience and are more likely to be prestigious within the family

company. Sometimes, the second generations are not willing to inherit or are not capable of inheriting their family businesses, so these firms need to hire professional managers to help families run their businesses. However, the loyalty and orientation of non-family-member chairmen/CEOs are more likely to be suspected, which could reduce investor confidence in family firms.

Hypothesis 5a: The second-generation family members as CEOs or chairmen can reduce IPO underpricing.

Hypothesis 5b: When the CEOs or chairmen are non-family members, the IPOs of family firms are more underpriced.

Hypothesis 5c: If the founders of family firms are still serving as chairmen or CEOs at the time of the IPOs, these firms' IPOs are less underpriced.

3. Methodology

In this paper, the objective is to explore how corporate governance influences the IPO underpricing of family firms. The dependent variable of this research is IPO underpricing. Chinese regulation stipulates that the stock price of listed firms cannot increase more than 44% of the IPO offer price on the first day of listing; almost all companies will reach this limit on that day. Thus, we use the closing price of the 21st day after listing date instead of the first-day closing price to calculate the IPO underpricing rate. This definition of IPO underpricing is consistent with previous international IPO studies, which usually measure the IPO initial return in a matter of weeks (Ding & Pukthuanthong, 2009). The IPO underpricing rate is computed as

$$Underpricing = \frac{P_C - P_0}{P_0} \times 100\%$$

where P_c is the closing price on the 21st trade day after the IPO, and P_0 is the initial offer price of issuers' stock.

In order to test the hypotheses we presented in Section 2, we use the following independent variables:

The first independent variable is ***Family Firm***. ***Family Firm*** is a dummy variable; it is equal to one if the company meets our definition of family firm and zero otherwise.

The second independent variable is the ***Family Ownership***. We define ***Family Ownership*** as the percentage of shares that are owned by the actual controller family before IPO events. The third independent variable is the ***Percentage of Family Directors***. We calculate this percentage as the number of family members sitting on the board divided by the number of members on the board. These two variables can be seen as measurements of the family decision-making power for the family-owned business.

The fourth independent variable is the ***2nd Generation Involvement.*** If the founders' next-generation family members hold positions on the board of directors or other senior managers***, 2nd Generation Involvement*** equals one; otherwise, it equals zero.

The other independent variables are about the appointment of the chairman and CEO. If the founder of a family firm still holds the post of chairman and/or CEO, the ***Founder Chairman/CEO*** equals one; otherwise, it equals to zero. ***2nd Generation Chairman/CEO*** is a dummy variable equal to one if the founder's next-generation family member has inherited the position of chairman and/or CEO and zero if otherwise. If the family firm hires a non-family member as chairman and/or CEO, the dummy variable ***Non-Family Member Chairman/CEO*** equals one; otherwise, it equals zero.

The existing literature suggests that many factors may affect the IPO underpricing rate. According to existing studies, the determinants of IPO underpricing include firm age, IPO size, underwriter ranking, NAV and economic recession. Here, we use some control variables to measure the specific firm's financial situation and the macroeconomic condition, which are as follows:

The first IPO control variable is ***Firm Age***. The variable is calculated by the difference between a firm's founding year and its IPO year. Investors tend to believe that older family firms have a long-term orientation, and the age of the family firm is a market signal that can reduce investor uncertainty when an old family firm goes to issue a public offer.

Secondly, we control for ***Log of IPO Proceeds***, which is one of the most common determinants of IPO underpricing. Investors usually consider that larger firms to be more reliable and less risky than smaller firms. Therefore, the IPO size is expected to have a negative correlation with the IPO underpricing rate (Ding & Pukthuanthong, 2009; Beatty & Ritter, 1986).

The third IPO control variable is ***Underwriter Top 10***. Underwriters with higher rank are capable valuating the IPO offer price better than other underwriters. In addition, high-quality firms tend to select high-ranked security companies to underwrite their IPOs. According to the ranking of underwriters based on the underwriter sales in China for nearly 10 years, if the IPO underwriter is in top 10 of this list, the dummy variable ***Underwriter Top 10*** equals one; otherwise, it equals zero.

Then, we control for ***NAV***, which is the net asset value per share realized before the IPO. ***NAV*** is

commonly used to measure a firm's current asset and liability position. Higher ***NAV*** per share could give investors a positive signal. It is expected to be negatively associated with IPO underpricing.

Moreover, we also control for ***Lottery***, which is a percentage of allocation based on online application. This indicator reflects to what degree primary market investors recognize the company. The lower the success rate, the greater the demand for the company's stock. A low success rate also means that the valuation of new shares is lower than investor expectations.

The last control variable is used to reflect the macroeconomic condition. In 2016, new regulations about reduction of shares and trading curb were introduced in Mainland China. In addition, Chinese stock market crashed in the end of 2015 and the first half of 2016. The IPO underpricing of private firms in 2016 is 420%, which is obviously higher than the rates in other years. Therefore, we use variable ***2016 Year Dummy*** to capture the effect. When the IPO takes place in 2016, the variable equals one; otherwise, it equals zero. Moreover, the difference in industries may have different influence on IPO underpricing. According to the industry classification code of the listed firms, we develop our results using industry fixed effect in all of our regressions.

In order to test the hypotheses in Section 2, this paper establishes the following four ordinary least square (OLS) regression models. The first model uses the sample of private firms, and the other three models are based on the family firms in the sample. The first model is used to examine whether IPOs of family firms are less underpriced than other private firms:

$$\begin{aligned} Underpricing = {} & \beta_0 + \beta_1 Firm\ Age + \beta_2 Log\ of\ IPO\ Proceeds + \beta_3 Underwriter\ Top\ 10 \\ & + \beta_4 NAV + \beta_5 Lottery + \beta_6 2016\ Year\ Dummy + \beta_7 Family\ Firm \end{aligned} \quad (1)$$

The second regression model is used to test the hypotheses about the influence of family on IPO underpricing, which includes family ownership and the percentage of family directors sitting on the board:

$$\begin{aligned} Underpricing = {} & \beta_0 + \beta_1 Firm\ Age + \beta_2 Log\ of\ IPO\ Proceeds + \beta_3 Underwriter\ Top\ 10 \\ & + \beta_4 NAV + \beta_5 Lottery + \beta_6 2016\ Year\ Dummy + \beta_8 Family\ Ownership \\ & + \beta_9 Percentage\ of\ Family\ Directors \end{aligned} \quad (2)$$

In order to test whether the involvement of second-generation family members affects IPO underpricing, we constructed the third regression model:

$$\begin{aligned} Underpricing = {} & \beta_0 + \beta_1 Firm\ Age + \beta_2 Log\ of\ IPO\ Proceeds + \beta_3 Underwriter\ Top\ 10 \\ & + \beta_4 NAV + \beta_5 Lottery + \beta_6 2016\ Year\ Dummy + \beta_8 Family\ Ownership \\ & + \beta_9 Percentage\ of\ Family\ Directors + \beta_{10} 2nd\ Generation\ Involvement \end{aligned} \quad (3)$$

Furthermore, we built the fourth regression model to test whether the IPO underpricing would be strongly affected when the second-generation family member served as the chairman or CEO. We compare the second generation with founders and non-family members to explore whether a significant difference exists between their influences:

$$\begin{aligned} Underpricing = {} & \beta_0 + \beta_1 Firm\ Age + \beta_2 Log\ of\ IPO\ Proceeds + \beta_3 Underwriter\ Top\ 10 \\ & + \beta_4 NAV + \beta_5 Lottery + \beta_6 2016\ Year\ Dummy + \beta_8 Family\ Ownership \\ & + \beta_9 Percentage\ of\ Family\ Directors + \beta_{11} 2nd\ Generation\ Chairman/CEO \\ & + \beta_{12} Non\text{-}Family\ Member\ Chairman/CEO + \beta_{13} Founder\ Chairman/CEO \end{aligned} \quad (4)$$

4. Data

To test the hypothesis on corporate governance and IPO underpricing of Chinese family firms, we analyze data from 2013 to 2017. The initial sample is the set of all private firms listed on the A-share market in Shanghai Stock Exchange and Shenzhen Stock Exchange for the IPOs in this period from The China Stock Market & Accounting Research (CSMAR) Database. After eliminating the firms with data miss, there are 850 private enterprises in the valid sample. In this research, we define a family firm as a firm that is owned or controlled by the family and where at least two family members are actually involved in the management or sitting on the board of directors for the business. This definition refers to the definition adopted by previous finance research (Villalonga & Amit, 2006; Ding & Pukthuanthong, 2009; Weng et al., 2014). According to the prospectuses of these listed private firms, we select the firms that clearly indicate the family relationship of directors on the board and senior management as the sample of family firms. This criterion resulted in a total of 509 family firms and 341 non-family private firms. We hand collected the information about corporate governance from prospectuses published in China Securities Regulatory Commission (CSRC), and the data on basic IPO information for listed private firms from CSMAR.

Table 1, 2 and 3 illustrate the descriptive statistics of IPO underpricing, independent variables and control variables we used in the model for the sample of private firms, non-family firms and family firms, respectively. The mean value of the interpreted variable *Underpricing* for private firms sample is 301.02%, which means the IPO underpricing commonly exists in private companies listed in China between 2013 and 2017. As shown in Table 2 and 3, the sample of 850 private firms demonstrated considerable difference in IPO underpricing between family firms and other non-family private firms. The mean value of IPO underpricing for family firms is equal to 279.60%, which is obviously smaller than the mean value of 333.01% for non-family private firms. However, the descriptive statistics of these control variables for family firms and non-family private firms are really similar. The mean firm age is about 13 years and the average log of IPO proceeds is near 3.50. More than 30% of private firms choose top-10 underwriters,

and the average percentage of allocation based on online applications of both family and non-family firms is less than 30%. Table 3 shows the variables that measure family participation; the average level of family ownership is 72.23%, and the average percentage of family members sitting on the board is near 30%. Thus, most family does not yet have absolute decision-making power. The founders' next-generation family members have been involved in their family businesses in 37% of companies, and more than one-third of these second-generation family members have held the position of chairman or CEO. While 99% of founders are still serving as chairman of the board or CEO, only 23% of family firms hire non-family members as their chairman or CEO, which indicates that most family firms still select these two important personnel from within the family.

Table 4 and 5 show the correlation coefficients of variables for private firms and family firms, respectively. Further, Table V shows that 21-day IPO underpricing has significant positive correlation with 2016 year dummy and non-family member chairman/CEO; however, it has significant negative association with family ownership, the percentage of family directors, and second-generation chairman/CEO. There is no clear evidence that the multicollinearity problem exists between independent variables. However, we still calculate the variance inflation factor (VIF) for each independent and control variable for every model. Generally, the larger the VIF value, the higher the probability that multicollinearity exists between independent variables. If the VIF of an independent variable exceeds 10, the issue of multicollinearity would affect the results of regression. In our research, the minimum VIF equals 1.019, and the maximum value is 3.056. All VIF statistics are far less than 10, which indicates that there is no serious multicollinearity problem in our regression models.

5. Empirical Results

The regression results of the OLS model are reported in model (1)(2)(3)(4) of Table 6, 7, 8 and 9. Through the White test, we found that heteroscedasticity exists in model (2)(3)(4). To eliminate the effect of heteroscedasticity, we also used the weighted least square regression model (5)(6)(7) by using the weight equal to the reciprocal of the absolute value of the residual from the OLS model. Moreover, we also calculated the Durbin-Watson statistic for all models used, which is between 1.847 and 1.890. These results are really close to 2, which mean that the residuals are independent and that no obvious autocorrelation was detected in our sample.

As reported in Table 6, when we control other variables, the coefficient of family firm dummy is -37.446, which is significantly negatively correlated to IPO underpricing at the 1% significance level. This result strongly supports Hypothesis 1 in Section 2, which means family firms are less underpriced than other private firms when they go public for capital.

In Table 7, the coefficient of both family ownership and the percentage of family directors are highly and negatively significantly associated with IPO underpricing, which implies that one percent increase in family ownership decreases underpricing by 7% and that one percent increase in the percentage of family members sitting on the board declines underpricing by 3.79%. This evidence is consistent with Hypotheses 2 and 3. Family firms with greater family ownership and percentage of family directors tend to have a lower IPO underpricing rate.

In terms of the participation of the second generation, the coefficient of both model (3) and model (6) in Table 8 are not significant and close to zero. Several factors may cause this result. First, a family firm usually has fewer conflicts among the family members when the founder, rather than the next generation, controls it because of the founder's abundant experience in related industries and higher popularity in family. Moreover, when the second generations have not assumed the office of chairman or CEO, their influence on firms is still limited as they cannot decide the orientation of the family firm. These reasons may cause the involvement of the second generation to not significantly affect IPO underpricing.

In Table 9, the coefficient of the appointment of second-generation chairman/CEO in model (7)

equals -26.886 and is significantly negatively correlated to IPO underpricing. Hypothesis 5a is strongly supported by this evidence. Although the second generation may not have experienced starting an undertaking, they may have better educational backgrounds than the founders and develop the sense of responsibility and essential skills in the process of participating in family business. They would also be influenced by the founders' business concepts and pay attention to the long-term interests of the family firm. Moreover, when the second-generation family members serve in the most important position in the family enterprise, they have more ability to run the firm as they see fit. They are usually more vigorous and energetic than founders, and can boldly support business innovation. In contrast, the coefficient of appointment of non-family member chairmen/CEOs is highly and positively significant in models (4) and (7). This result indicates the IPO offer price of family firms that hire outside chairmen/CEOs are underpriced more than other family firms. It is consistent with Hypothesis 5b. This dynamic might exist because investors question whether non-family member chairmen/CEOs would sacrifice the long-term interest of the family firm to pursue short-term benefit during their tenure. In terms of founder chairman/CEO, the coefficient in model (7) is -31.697; however, it is not significant at the level of 10%. This is probably because founders still hold the post of chairman or CEO in more than 99% of our family firms sample. Only 6 family firms on our sample are not under the management of their founders. The number of family firms without a founder chairman/CEO is too small to support Hypothesis 5c. Thus, we try to compare the IPO performance of non-family firms with family firms that are under the control of second generation and without founders. We add a dummy variable ***2nd Generation Control*** into our regression and the results are showed in Table 10. The coefficient of 2nd generation control in model (9) is -33.343, which is significantly negative at the level of 10%. This result shows that the IPO underpricing rate is lower when the founders of family firms have inherited firms to their next generation than other non-family private firms. In general, most founders are still hold important positions in their family firms. From our results, the IPO underpricing is not significantly different between the family firms with or without founder chairman/CEO. When the founders' next generations are also serving as

chairman or CEO, the IPO offer price are less underpriced than those firm that hire non-family member chairman or CEO.

In terms of the impact of other control variables, log of IPO proceeds, which is a measurement of IPO size, and net asset value are significantly negatively correlated with IPO underpricing. That means the IPOs of bigger firms are more likely to be priced accurately. However, the coefficient of underwriter top 10 is negatively associated with IPO underpricing. This result is opposite to most previous studies (Beatty & Ritter, 1986; Ding & Pukthuanthong, 2009). Controlling for other factors, firm age does not always significantly impact IPO underpricing. The coefficient of 2016 year dummy variable is significantly positive. When the stock market environment is not optimistic, family firms seem to be willing to lower their IPO offer price to attract investors.

To test the robustness of our results, we conducted a market adjusted IPO underpricing after 21 trading days of IPOs as the proxy variable of underpricing. It is calculated as follows:

$$Underpricing\ (Market\ Adjusted)=\frac{1+Underpricing}{1+R_M}-1$$

where R_M is the 21-day market return after IPO. The calculation is as follows:

$$R_M=\frac{P_{M_{21}}}{P_{M_0}}-1$$

where P_{M_0} is the opening price of CSI 300 Index on the IPO date, and $P_{M_{21}}$ is the closing pricing of CSI 300 Index on the 21st trading day after IPO. The descriptive statistics analysis shows that the range of IPO underpricing after the market is adjusted is from -4.07% to 988.91%. Columns (1) and (2) in Table 10 show the results of corporate governance on market adjusted IPO underpricing based on OLS and WLS regression, respectively. Overall, the coefficients of variables are similar to the results in Table 9. The robustness of our results has been tested.

6. Conclusions

In this paper, the effect of corporate governance on IPO underpricing of family businesses is explored based on the empirical evidence from IPOs of Chinese listed firms over the period of 2013 to 2017. After our analysis, we have obtained three main conclusions.

First, we use the sample of 850 private firms (includes 509 family firms) to perform regression analysis and find that IPOs of family firms are lower than other private firms at the 1% significance level. This fact indicates that the private firms, which have at least two family members of the controlling families participating as senior management personnel, can show a positive signal about the intrinsic value of the business to outside investors. This signal could reduce information asymmetry between the issuer and investors, which would decline IPO underpricing.

In addition, based on the sample of 509 family firms, we found that the more the controlling family members participate in the business, the less the IPO underpricing would be. The family ownership and the percentage of family directors can be seen as reflections of the degree of family participation. The interests of family members are consistent with the interests of their companies, which motivates them to consider their strategies and orientation in the long run. Hence, family members are less likely to abandon the long-term interests of firms to gain immediate profits. These advantages make it easier for family firms to convey positive signals to uninformed investors to reduce IPO underpricing.

Finally, the more the second-generation family members participate in the control and management of the family, the lower the IPO underpricing of the family firm. When the second generation only serves as directors on the board or in other senior manager roles, they cannot have a great influence on the business and cannot significantly impact the IPO underpricing. However, when second-generation family members inherit the position of chairman or CEO from founders, the advantage of the second generation appears. Second-generation family members may have better educational backgrounds and may have experienced the training as

heirs. During the process of gradually participating in the management of their family businesses, the second-generation members often have cultivated a sense of responsibility and have learned essential knowledge and abilities. As younger managers, they are usually more energetic and bolder than former-generation managers. Second-generation members are also more likely to support innovation in business, which could benefit the long-term development of family firms. However, the appointment of non-family member chairmen or CEOs would increase the IPO underpricing rate due to inconsistent interests of non-family members and family firms. Employing non-family members as chairmen or CEOs of family firms could be a negative signal for investors in the market.

In conclusion, family relationship can be used as a tool and resource to help family businesses manage more effectively and reduce the cost of corporate supervision and management. Today, Chinese stock market investors are more optimistic about the second generation of family firms rather than non-family-member managers.

Notably, there are still some limitations for our paper. Firstly, we only choose the IPOs of private firms between 2013 and 2017. The data for IPOs in 2018 cannot yet be found in databases, and the financial reports of 2018 have not yet been published. Thus, we have not included the IPOs from 2018 in our sample. Secondly, we have not classified the second-generation family members of family firms according to their detailed characteristics (such as their age, educational background, working experience, etc.); thus, more in-depth influencing factors need to be found in the future.

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Appendix

Table 1 Summary of Statistics: Private Firm Sample

This table summarizes the characteristics for the private firm sample. The mean, minimum and maximum values for variable IPO underpricing, firm age, log of IPO Proceeds, underwriter top 10 dummy, NAV, lottery and 2016 year dummy are reported. The mean value of the dependent variables indicates that the IPOs in the sample have an underpricing rate of 301%.

Variables	**N**	**Min**	**Max**	**Mean**	**Median**	**Std. dev.**
Underpricing (%)	850	-6.72	871.28	301.02	233.81	218.01
Firm Age	850	1.00	35.00	13.34	13	5.24
Log of IPO Proceeds	850	3.00	4.85	3.48	3.43	0.23
Underwriter Top 10	850	0	1	0.31	0	0.46
NAV	850	1.19	14.37	4.86	4.53	1.96
Lottery	850	0.01	2.77	0.25	0.37	0.43
2016 Year Dummy	850	0	1	0.21	0	0.41

Table 2 Summary of Statistics: Non-Family Firm Sample

This table summarizes the characteristics for the private firm sample. The mean, minimum and maximum values for variable IPO underpricing, firm age, log of IPO Proceeds, underwriter top 10, NAV, lottery and 2016 year dummy are reported. The mean value of the dependent variables indicates that the IPOs in non-family firm sample have an underpricing rate of 333.01%.

Variables	**N**	**Min**	**Max**	**Mean**	**Median**	**Std. dev.**
Underpricing (%)	341	16.48	870.22	333.01	339.96	229.76
Firm Age	341	2.00	35.00	12.91	14	5.23
Log of Proceeds	341	3.00	4.34	3.44	3.48	0.23
Underwriter Top 10	341	0	1	0.29	0	0.46
NAV	341	1.19	14.37	4.85	5.3	1.90
Lottery	341	0.01	2.77	0.24	0.06	0.41
2016 Year Dummy	341	0	1	0.22	0	0.41

Table 3 Summary of Statistics: Family Firm Sample

This table summarizes the characteristics for the private firm sample. The mean, minimum and maximum values for variable IPO underpricing, firm age, log of IPO Proceeds, underwriter top 10 dummy, NAV, lottery and 2016 year dummy, family ownership, percentage of family directors, second generation involvement, second generation chairman/CEO, non-family member chairman/CEO and founder chairman/CEO are reported. The mean value of the dependent variables indicates that the IPOs in non-family firm sample have an underpricing rate of 280%.

Variables	**N**	**Min**	**Max**	**Mean**	**Median**	**Std. dev.**
Underpricing (%)	509	-6.72	871.28	279.60	212.80	207.27
Firm Age	509	1.00	34.00	13.63	13.00	5.22
Log of IPO Proceeds	509	3.05	4.85	3.50	3.48	0.23
Underwriter Top 10	509	0	1	0.33	0	0.47
NAV	509	1.28	14.31	4.87	4.54	2.00
Lottery	509	0.01	2.58	0.26	0.04	0.44
2016 Year Dummy	509	0	1	0.21	0	0.41
Family Ownership (%)	509	23.04	100.00	72.33	76.41	16.27
Percentage of Family Directors (%)	509	7.00	67.00	29.24	28.57	9.14
2nd Generation Involvement	509	0	1	0.37	0	0.48
2nd Generation Chairman/CEO	509	0	1	0.12	0	0.32
Non-Family Member Chairman/CEO	509	0	1	0.23	0	0.42
Founder Chairman/CEO	509	0	1	0.99	1	0.12

Table 4 Correlation Matrix of Variables: Private Firm Sample

This table provides the correlation matrix of *Underpricing*, *Firm Age*, *Log of IPO Proceeds*, *Underwriter Top 10*, *NAV*, *Lottery* and *2016 Year Dummy*, which is based on the private firm sample. *, ** and *** indicate significance at the level of 0.10, 0.05 and 0.01 respectively.

	Firm Age	Log of IPO Proceeds	Underwriter Top 10	NAV	Lottery	2016 Year Dummy	Family Firm Dummy
Underpricing (%)	-0.076*	-0.205**	-0.070*	-0.095**	-0.150**	0.263**	-0.120**
Firm Age		0.013	-0.052	0.024	-0.133**	0.020	0.067
Log of IPO Proceeds			0.107**	-0.115**	0.022	-0.002	0.125**
Underwriter Top 10				0.029	0.024	-0.049	0.035
NAV					0.047	-0.009	0.005
Lottery						-0.258**	0.026
2016 Year Dummy							-0.006

Table 5 Correlation Matrix of Variables: Family Firm Sample

This table provides the correlation matrix of *Underpricing*, *Family Ownership*, *Percentage of Family Directors*, *2nd Generation Involvement*, *2nd Generation Chairman/CEO* and *Non-Family Member Chairman/CEO*, which is based on the family firm sample. *, ** and *** indicate significance at the level of 0.10, 0.05 and 0.01 respectively.

	Family ownership (%)	Percentage of Family Directors (%)	2nd Generation Involvement	2nd Generation Chairman/CEO	Non-Family Member Chairman/CEO	Founder Chairman/CEO
Underpricing (%)	-0.672**	-0.448**	-0.050	-0.124**	0.068	-0.060
Family Ownership (%)		0.453**	0.012	0.043	0.007	0.090*
Percentage of Family Directors (%)			0.101*	0.136**	-0.015	0.005
2nd Generation Involvement				0.473**	0.058	-0.084
2nd Generation Chairman/CEO					-0.157**	-0.168**
Non-Family Member Chairman/CEO						-0.174**

Table 6 Regression Results of Private Firms on IPO Underpricing

Table 6 presents the results of OLS model (1) on private firm sample. The dependent variable is *Underpricing*, which is the 21-day underpricing rate. *Firm Age* is the difference between the firm's founding year and its IPO year. *Log of IPO Proceeds* is the logarithm of shares offered in IPO multiplied by its offer price. *Underwriter Top 10* is a dummy variable, which equals to one if the underwriter sale is in top 10 of China between 2008 and 2017. *NAV* is the net asset value before IPO. *Lottery* is the percentage of allocation based on online application. *2016 Year Dummy* equals to one if the IPO year is 2016. *Family Firm* equals to one if the firm meets our definition of family firm. *, ** and *** indicate significance at the level of 0.10, 0.05 and 0.01 respectively.

	Underpricing	
	(1)	VIF
Constant	1074.280***	
	(9.745)	
Firm Age	-3.469**	1.028
	(-2.581)	
Log of IPO Proceeds	-188.982***	1.043
	(-6.171)	
Underwriter Top 10	-15.249	1.019
	(-1.009)	
NAV	-12.065***	1.019
	(-3.370)	
Lottery	-43.796**	1.095
	(-2.598)	
2016 Year Dummy	127.095***	1.074
	(7.251)	
Family Firm	-37.446***	1.022
	(-2.616)	
Industry Fixed Effect	Yes	
N	850	
Adjusted R-squared	0.139	

Table 7 Regression Results of Corporate Governance on IPO Underpricing: Family Ownership and Family Members Sitting on the Board (%)

Table 7 presents the results of OLS model (2) and WLS model (5) on family firm sample. The dependent variable is *Underpricing*, which is the 21-day underpricing rate. *Firm Age* is the difference between the firm's founding year and its IPO year. *Log of IPO Proceeds* is the logarithm of shares offered in IPO multiplied by its offer price. *Underwriter Top 10* is a dummy variable, which equals to one if the underwriter sale is in top 10 of China between 2008 and 2017. *NAV* is the net asset value before IPO. *Lottery* is the percentage of allocation based on online application. *2016 Year Dummy* equals to one if the IPO year is 2016. *Family Ownership* is the percentage of total shares owned by controlling family before IPO. *Percentage of Family Directors* is the number of family members sitting on the board divided by the total number of board. *, ** and *** indicate significance at the level of 0.10, 0.05 and 0.01 respectively.

	Underpricing			
	(2)	VIF	(5)	VIF
Constant	1530.461***		1513.713***	
	(14.533)		(39.312)	
Firm Age	-0.953	1.024	-0.682*	1.657
	(-0.772)		(-1.967)	
Log of IPO Proceeds	-165.669***	1.029	-164.831***	1.099
	(-5.872)		(-15.570)	
Underwriter Top 10	22.732**	1.027	21.468***	2.032
	(1.653)		(4.782)	
NAV	-9.028***	1.022	-9.729***	1.087
	(-2.797)		(-6.980)	
Lottery	-28.957*	1.100	-33.093***	1.147
	(-1.918)		(-5.596)	
2016 Year Dummy	46.717***	1.137	44.435***	1.121
	(2.815)		(7.108)	
Family Ownership (%)	-7.087***	1.325	-7.037***	1.938
	(-15.730)		(-50.039)	
Percentage of Family Directors (%)	-3.794***	1.277	-3.539***	3.056
	(-4.818)		(-12.971)	
Industry Fixed Effect	Yes		Yes	
N	509		509	
Adjusted R-squared	0.520		0.916	

Table 8 Regression Results of Corporate Governance on IPO Underpricing: Second Generation Involvement

Table 8 presents the results of OLS model (3) and WLS model (6) on family firm sample. The dependent variable is *Underpricing*, which is the 21-day underpricing rate. *Firm Age* is the difference between the firm's founding year and its IPO year. *Log of IPO Proceeds* is the logarithm of shares offered in IPO multiplied by its offer price. *Underwriter Top 10* is a dummy variable, which equals to one if the underwriter sale is in top 10 of China between 2008 and 2017. *NAV* is the net asset value before IPO. *Lottery* is the percentage of allocation based on online application. *2016 Year Dummy* equals to one if the IPO year is 2016. *Family Ownership* is the percentage of total shares owned by controlling family before IPO. *Percentage of Family Directors* is the number of family members sitting on the board divided by the total number of board. *2nd Generation Involvement* is a dummy variable that equals to one if the founders' next generation hold a position on the board or other senior management personnel. *, ** and *** indicate significance at the level of 0.10, 0.05 and 0.01 respectively.

	Underpricing			
	(3)	VIF	(6)	VIF
Constant	1529.538***		1513.023***	
	(14.458)		(39.557)	
Firm Age	-0.936	1.042	-0.741**	1.289
	(-0.751)		(-2.357)	
Log of IPO Proceeds	-165.364***	1.040	-164.743***	1.115
	(-5.824)		(-15.516)	
Underwriter Top 10	22.701*	1.027	21.539***	1.488
	(1.649)		(4.281)	
NAV	-9.015***	1.024	-9.692***	1.120
	(-2.788)		(-7.053)	
Lottery	-28.980*	1.100	-33.069***	1.223
	(-1.917)		(-5.502)	
2016 Year Dummy	46.708***	1.137	44.906***	1.128
	(2.812)		(6.831)	
Family Ownership (%)	-7.089***	1.328	-7.048***	1.526
	(-15.703)		(-48.593)	
Percentage of Family Directors(%)	-3.785***	1.291	-3.573***	1.632
	(-4.776)		(-12.507)	
2nd Generation Involvement	-1.393	1.042	0.530	1.278
	(-0.103)		(0.114)	
Industry Fixed Effect	Yes		Yes	
N	509		509	
Adjusted R-squared	0.520		0.915	

Table 9 Regression Results of Corporate Governance on IPO Underpricing: The Appointment of Chairman/CEO

Table 9 presents the results of OLS model (4) and WLS model (7) on family firm sample. The dependent variable is *Underpricing*, which is the 21-day underpricing rate. *Firm Age* is the difference between the firm's founding year and its IPO year. *Log of IPO Proceeds* is the logarithm of shares offered in IPO multiplied by its offer price. *Underwriter Top 10* is a dummy variable, which equals to one if the underwriter sale is in top 10 of China between 2008 and 2017. *NAV* is the net asset value before IPO. *Lottery* is the percentage of allocation based on online application. *2016 Year Dummy* equals to one if the IPO year is 2016. *Family Ownership* is the percentage of total shares owned by controlling family before IPO. *Percentage of Family Directors* is the number of family members sitting on the board divided by the total number of board. *2nd Generation Chairman/CEO*, *Non-Family Member Chairman/CEO*, *Founder Chairman* are dummy variables that equal to one if the appointment of Chairman/CEO is second generation, non-family member and founder respectively. *, ** and *** indicate significance at the level of 0.10, 0.05 and 0.01 respectively.

	Underpricing			
	(4)	VIF	(7)	VIF
Constant	1561.292***		1532.344***	
	(12.796)		(29.286)	
Firm Age	-0.344	1.050	-0.282	1.370
	(-0.278)		(-0.644)	
Log of IPO Proceeds	-172.353***	1.058	-166.977***	1.673
	(-6.070)		(-15.860)	
Underwriter Top 10	19.503	1.034	19.948**	1.861
	(1.424)		(3.578)	
NAV	-8.747***	1.025	-9.920***	1.147
	(-2.726)		(-7.217)	
Lottery	-33.027**	1.109	-34.278***	1.156
	(-2.194)		(-6.108)	
2016 Year Dummy	42.840***	1.147	45.841***	1.742
	(2.591)		(6.821)	
Family Ownership (%)	-7.118***	1.338	-6.990***	1.743
	(-15.848)		(-39.898)	
Percentage of Family Directors (%)	-3.569***	1.302	-3.404***	1.981
	(-4.523)		(-11.466)	
2nd Generation Chairman/CEO	-32.619	1.121	-26.866***	1.235
	(-1.562)		(-4.083)	
Non-Family Member Chairman/CEO	39.001**	1.105	42.767***	2.013
	(2,487)		(7.540)	
Founder Chairman/CEO	-24.110	1.100	-31.697	1.029
	(-0.424)		(0.899)	
Industry Fixed Effect	Yes		Yes	
N	509		509	
Adjusted R-squared	0.528		0.923	

Table 10 Regression Results of Corporate Governance on IPO Underpricing: Second Generation Control

Table 10 presents the results of OLS model (8) and WLS model (9) on the sample of non-family private firms and family firms that under the control of second generations instead of the founders. *Firm Age* is the difference between the firm's founding year and its IPO year. *Log of IPO Proceeds* is the logarithm of shares offered in IPO multiplied by its offer price. *Underwriter Top 10* is a dummy variable, which equals to one if the underwriter sale is in top 10 of China between 2008 and 2017. *NAV* is the net asset value before IPO. *Lottery* is the percentage of allocation based on online application. *2016 Year Dummy* equals to one if the IPO year is 2016. *2nd Generation Control* equals to one when a family firm is controlled by the second generation and the founders are not served as chairman or CEO. *, ** and *** indicate significance at the level of 0.10, 0.05 and 0.01 respectively.

	Underpricing			
	(8)	VIF	(9)	VIF
Constant	1030.036***		1008.092***	
	(5.659)		(14.315)	
Firm Age	-5.205**	1.033	-5.419***	1.657
	(-2.318)		(-6.326)	
Log of IPO Proceeds	-167.091***	1.081	-160.695***	1.099
	(-3.293)		(-7.478)	
Underwriter Top 10	-42.433	1.039	-49.572***	2.032
	(-1.646)		(-4.439)	
NAV	-13.172**	1.029	-14.101***	1.087
	(-2.135)		(-6.403)	
Lottery	-30.014	1.103	-35.548***	1.147
	(-1.018)		(-2.613)	
2016 Year Dummy	133.428***	1.084	126.145***	1.121
	(4.622)		(8.195)	
2nd Generation Control	-47.808	1.056	-33.343*	1.938
	(-0.526)		(-1.712)	
Industry Fixed Effect	Yes		Yes	
N	509		509	
Adjusted R-squared	0.520		0.916	

Table 11 Regression of Corporate Governance on IPO Underpricing (Market Adjusted)

Table 11 presents the results of OLS and WLS model on family firm sample. The dependent variable is *Underpricing (Market Adjusted)*, which is the 21-day market-adjusted underpricing rate. *Firm Age* is the difference between the firm's founding year and its IPO year. *Log of IPO Proceeds* is the logarithm of shares offered in IPO multiplied by its offer price. *Underwriter Top 10* is a dummy variable, which equals to one if the underwriter sale is in top 10 of China between 2008 and 2017. *NAV* is the net asset value before IPO. *Lottery* is the percentage of allocation based on online application. *2016 Year Dummy* equals to one if the IPO year is 2016. *Family Ownership* is the percentage of total shares owned by controlling family before IPO. *Percentage of Family Directors* is the number of family members sitting on the board divided by the total number of board. *2nd Generation Chairman/CEO*, *Non-Family Member Chairman/CEO*, *Founder Chairman* are dummy variables that equal to one if the appointment of Chairman/CEO is second generation, non-family member and founder respectively. *, ** and *** indicate significance at the level of 0.10, 0.05 and 0.01 respectively.

	Underpricing (Market Adjusted)			
	(1)	VIF	(2)	VIF
Constant	1519.746***		1499.178***	
	(12.797)		(30.531)	
Firm Age	-0.050	1.050	-0.098	1.061
	(-0.041)		(-0.256)	
Log of IPO Proceeds	-168.480***	1.058	-163.733***	1.458
	(-6.096)		(-17.799)	
Underwriter Top 10	20.915	1.034	20.723***	1.318
	(1.569)		(4.558)	
NAV	-8.932***	1.025	-9.354***	1.355
	(-2.861)		(-7.845)	
Lottery	-33.812**	1.109	-33.904***	1.463
	(-2.308)		(-10.206)	
2016 Year Dummy	45.428***	1.147	45.432***	1.204
	(2.822)		(8.094)	
Family Ownership (%)	-6.845***	1.338	-6.676***	1.574
	(-15.658)		(-37.278)	
Percentage of Family Directors (%)	-3.616***	1.302	-3.444***	1.338
	(-4.708)		(-11.445)	
2nd Generation Chairman/CEO	-34.396*	1.121	-31.757***	1.560
	(-1.692)		(-6.321)	
Non-Family Member Chairman/CEO	33.970**	1.105	33.763***	1.443
	(2.226)		(5.685)	
Founder Chairman/CEO	-22.437	1.100	-35.355	1.020
	(-0.405)		(-1.037)	
Industry Fixed Effect	Yes		Yes	
N	509		509	
Adjusted R-squared	0.529		0.883	