Investor protection and corporate governance in family firms: Evidence from China

Abstract: This paper examines the impact of investor protection on the governance arrangements of family businesses by using a unique and detailed family-firm data set in China's stock markets for the period 2000-2009. Our findings show that provincial variations in the quality of law enforcement in China shapes the different forms of family governance arrangements in family firms. We find that family firms with strong legal protection of shareholders have more concentrated ownership and greater participation of family management, with less control-enhancing machanisms. Moreover, such relations are more pronounced in family firms hiring an outsider-CEO than in family firms managed by a family member. This paper contributes to our understanding of the relations between investor protection and ownership concentration and between investor protection and the preservation of family management in China's context for the first time and also sheds lights on the relavent studies in other emerging countries, especially those sharing the similar characteristics with China in family governance and legal development.

Keywords: investor protection, corporate governance, family firms, China

1 Introduction

Emerging economies are typically characterised by an absence of effective formal institutions for investor protection, resulting in weak governance environment (Mitton, 2002; Allen et al., 2005). To survive in the adverse political and institutional environment, family firms locating in different regions tend to seek alternative ways to safeguard their interests in the absence of formal institutional protection, one of which is presumed to be family governance (La Porta et al., 2002; Burkart et al., 2003; Lins, 2003).

The law and finance literature has provided evidence that legal protection can help to shape the internal governance mechanisms in family firms, such as ownership concentration and management preservation. Some studies suggest that ownership structure is negatively associated with the quality of legal protection for investors (La Porta et al., 1999; Shleifer and Wolfenzon, 2002; Wu et al., 2009), showing that ownership concentration and investor protection are substitutes. Burkart, Panunzi and Shleifer (2003) examine the relationship between the quality of investor protection and the decision to

keep control including ownership rights and managerial power in the family. Their findings show a negative relationship between investor protection and ownership concentration, as well as between investor protection and the preservation of family management.

Other studies find an opposite result, suggesting that strong legal protection of shareholder rights can predict higher shares holding by controlling shareholders (Castillo and Skaperdas, 2005). Burkart and Panunzi (2006) state that the relations between legal protection and ownership concentration is not necessarily uniform but depends on how legal protection interacts with monitoring. If legal rules pertaining to the rights of shareholders are substitutes for monitoring, in which the large shareholder's monitoring can counteract the manager's extraction, weaker legal protection would allow large shareholders to reduce their shares in order to restore the manager's incentives. In this case, legal protection is considered as a complement to ownership concentration and the relationship between the two is positive. Aganin and Volpin (2003) empirically find similar evidence of a positive relation between legal protection and ownership concentration in Italian corporations during the period 1947-1987.

The above studies suggest that legal protection of shareholders affects organizational routines (Boyer and Hollingsworth, 1997) and helps to determine the strategic choices facing organizations in emerging economies (Peng et al., 2003; Young et al., 2008). Since ownership, control, and management structure are generally considered to be the attributes of family firms (Villalonga and Amit, 2006; Mroczkowski and Tanewski, 2007), such view raises some questions of whether legal protection for investors is expected to shape the controlling family's decisions on the three elements of internal corporate governance mechanisms in emerging economies. And if so, dose the relationship between investor protection and family governance tend to be positive or negative?

In this paper, we attempt to address these questions by examining the impact of investor protection on family governance arrangements including family ownership, control, and management of family firms listed in China's stock exchanges during the period 2000-2009. China provides an ideal case for this analysis for three reasons. First, China's evolution of legal rules protective of investors follows a similar pattern to other emerging countries. Since the 1990s, China and other emerging countries, such as Eastern Europe and the former Soviet republics, have gone through a fundamental transition toward market-based economies from central planning systems, leading to the similar institutional evolution of legal systems (Peng and Heath, 1996). Thus, China's experience

may provide lessons and insights on the way family business develops in other emerging countries.

Second, the governance environment in China is to a large extent captured by the interactions between the local governments and national legal institutions (Xia and Fang, 2005).[1] Therefore, although with the same regulation of the written legal rules at the national level, family firms in individual regions are exposed to different degrees in the effectiveness of legal enforcement and informal alternative mechanisms in China (Chen et al., 2005; Fan et al., 2007; Wu et al., 2009). Compared to conventional studies which tend to create omitted-variables and aggregation biases due to the use of cross-country samples, investigating regional (provincial) variations in the quality of law enforcement within one country is considered more fruitful (Wu et al., 2009).

Third, the increasingly important role played by Chinese family firms in the economy provides laboratory-like environment to examine family-firm issues in China's capital market development (Zhou et al., 2010). Additionally, family management is certainly prevalent among Chinese family firms. The data from our sample firms show that family firms in which family members either act as directors or managers account for 78% of all listed family firms and 65% are directly managed by family members taking in the position of Chairman or CEO. The prevalence of family management in China therefore allows us to take an in-depth comparison of the role of family Vs professional managers on family firms.

This paper contributes to this growing literature in the following ways. We make two methodological innovations. First, we improve upon the relatively crude measures of family firms in the literature. The conventional measures of Chinese family firms usually defined as consisting of a crude classification of the non-state-owned firms (e.g. Chen et al., 2005), or an approach that does not take account of the multiple circumstances in which the company is controlled by more than one individual or family (e.g. Su and Zhu, 2003). In this paper, we extend the conventional approaches by proposing finer-grained criteria for the definition of family firms, thereby lowering the risk that nonfamily firm features may be inclined to distort the results.

Second, we use an upper quartile score as a breakpoint of the level of investor protection, which tends to be a more accurate indicator of the higher quality of legal

[1] The effectiveness of law enforcement is a part of investor protection initially measured by La Porta et al. (1998). In this paper, the level of law enforcement is defined by a broader concept - the quality of governance environment in which a listed company has its base to operate. The exact definition of governance environment will be provided in Section 2.2.

protection of shareholder rights than the median score commonly used in conventional studies. This approach is expected to mitigate the risk that the relatively crude criterion for investor protection might distort the results.

Based on these methodological innovations and our empirical analysis, we find that family governance arrangements are to some extent shaped by legal protection for shareholders within different local jurisdiction in China. To illustrate, the study shows that family firms operating in a more protective governance environment will have more concentrated ownership rights, more management positions occupied by family directors or managers, and less use of control-enhancing instruments such as pyramids. The positive relationship between ownership concentration and the quality of investor protection is consistent with Aganin and Volpin (2003) and Castillo and Skaperdas (2005), but provides opposite evidence to the commonly accepted view in the literature that ownership concentration is a substitute for investor protection.

We also investigates the interaction effects of family managers and investor protection on family governance mechanisms. Our analysis finds that companies having a family CEO in place have more significant ownership rights and higher level of family management, with less use of control-enhancing mechanisms than family firms led by a hired CEO. However, the positive relations between investor protection and family ownership, and between investor protection and family management, as well as the negative relation between investor protection and family control we have found are more significant in family firms having an outsider as CEO. One possible explanation is that due to the lower level of conflicts between the family owner and family managers, the family tends to count on more internal corporate governance arrangements rather than to depend on the quality of external investor protection to make strategic and operating decisions.

Our findings provide new evidence on the positive relations between investor protection and ownership concentration, and between investor protection and the preservation of family management in China. It also sheds lights on the relevant studies in other emerging economies, especially those sharing similar characteristics with China in terms of family governance and legal development.

The reminder of this paper is organised as follows. Section 2 lays out the research design, including sample selection, data sources, and panel-data models and variables. In Section 3 we report the statistics summary. Section 4 discusses the main results, and is followed by the robustness check presented in Section 5. Conclusion is provided in Section 6.

2 Research design

2.1 Sample and data

Our analysis consists of a panel of 13,365 firm-year observations from 1,624 non-financial companies listed in the Shanghai and Shenzhen Stock Exchange in China during the period 2000-2009. Banks and insurance companies are excluded due to the difficulty in computing agency costs (ROA). By closely examining the ownership and management composition of each particular company, the full sample is broken down into two sub-samples, yielding 2,924 family-firm observations and 10,441 nonfamily-firm observations. The year of 2000 is chosen as the start point of time period because the number of private listed companies has soared since 2000 in China's stock markets. In effect, we find very few observations before 2000.

A family firm in this paper is, by definition, one ultimately owned by a family or an individual. The criterion to identify the ultimate owner is based on a shareholder (the state, an institution, a family or an individual) having a 5% ultimate control rights greater than the second largest shareholder in a listed company. The introduction of the "Listed Companies Information Disclosure Regulations" issued by the China Securities Regulatory Commission (CSRC) on 30th Jan 2007 specifies that shareholders having more than 5% stakes in a listed company and any transfer of these shareholders' holdings must be disclosed in its public announcements or reports. In this context, a shareholder retaining 5% stakes greater than the others can thus be expected to have material influence over this company. A detailed description of this definition is provided in a companion paper (Zhou et al., 2010).

Data on family ownership and financial variables are mainly sourced from GTA database, and double-checked by annual reports, prospectus, and interim announcements of listed companies. All related public reports or announcements are obtained from two official websites – the Shanghai Stock Exchange (SSE) and the Shenzhen Stock Exchange (SZSE).

2.2 Governance environment index

We construct an index of governance environment (GENVIRON) as an indicator of the quality and effectivenss of law enforcement in China's provincial jurisdictions. In the literature, the level of law enforcement has been often measured by the effectiveness of the national government, credit markets and judicial system, etc (La Porta et al., 1998; Pistor et

al., 2000; Wang et al., 2008; Wu et al., 2009). We thus define the quality of law enforcement by a broader concept - the quality of governance environment in which a listed companie has its base to operate- and evaluate it by four specific measures: (1) Government *corruption* (GOVERN); (2) *Development of financial market* (FINANCE); (3) *Development of market intermediaries* (INTERMEDIARY); and (4) *Efficiency of the judiciary* (JUDICIARY).

Data on the four measures are sourced from *NERI INDEX of Marketization of China's Provinces 2009 Report* compiled by Fan et al. (2010). The NERI index aims to assess the marketizaiton process of individual provinces in mainland of China from 1999 to 2007,[2] and has been widely applied in recent literature, such as Chen et al.,(2005), Li et al. (2006), Wang et al.(2008) and Wu et al. (2009). The value of each measure is computed by the three-year average from 2005 to 2007.[3] Appendix A.1 and A.2 present the definition of indicators of GENVIRON and the detailed results, respectively.

2.3 Variables

Dependent variables

Dependent variables are captured by three sets of variables to indicate family ownership, control, and management, respectively.

Family ownership variable is measured as CASHFLOW, the shares held by the family (including all family members). The calculation of cash-flow rights and control rights held by the family follows the method introduced by La Porta et al.(1999) and developed by Faccio and Lang (2002) and Claessens et al.(2002).

Family control is characterised by the presence of control-enhancing instruments that allow the excess of control rights over cash-flow rights (Barontini and Caprio, 2006). Hence, control variables in this paper contain (1) EXCESSCONTROL, the difference between the family's control rights and cash-flow rights; and (2) PYRAMIDS, equalling one when the family exercises control over a listed company through at least one other company, and zero otherwise.

Management variable is captured as FAMILYRATIO, the number of family members (including the founder and his or her relatives) serving as directors or managers [4] divided

[2] The sample of the NERI index excludes Hong Kong and Macau.

[3] Fan et al. (2010) state that the aggregate score of NERI index is evident to be little different between that computed by Principal Component Analysis and arithmetic average.

[4] In Chinese family firms, taken our sample in 2008 for example, the executive-directors who are active in the positions of firm management account for 30% of family directors. Therefore it is difficult to separate the

by the total number of senior management that refers to directors, supervisors, the Chief Executive Officer (CEO), the Vice General Managers, the Assistant General Managers, the Secretary of the Board and the Chief Financial Officer (CFO). Following Gomez-Mejia et al. (2003), the founder's relatives refer to his or her father, mother, sister, brother, son, daughter, spouse, in-laws, aunt, uncle, niece, nephew, cousin.

Explanatory variables

The extent of investor protection within different local regimes is measured by the governance environment index. This index is used to examine the impact of investor protection on family governance in the multivariate analyses.

Additionally, a dummy variable is applied to indicate the high or low level of investor protection. The dummy equals one, indicating rich investor protection, if the value of governance environment of a particular province is above the upper quartile score (25%) across 31 provinces, and zero otherwise. This approach differs from the conventional studies in which the median score is commonly used as a breakpoint for the degree of investor protection, such as Maury (2006) and Yu and Pan (2008).

Control variables

Recent studies show that business affiliates sustained by their association with a same family would either benefit (Faccio et al., 2001; Granovetter, 2005; Luo and Chung, 2005) or suffer from this interfirm relationship (Khanna and Palepu, 2000). We thus use SYSTEM to control for this potential effect, which equals one when the firm is under the same family's control as at least one other listed firm in the same year, and zero otherwise. Other control variables are specified, including SALE, the ratio of annual operating revenue to total assets; SIZE, the natural log of annual total assets; LEVERAGE, the ratio of liabilities to total assets; AGE, the number of years since the initial public offerings (IPO) of the firm. We also use industry dummies and industry-adjusted ROA to control for industry effects, and year dummies to control for time effects.

impact of family directors from the management. In essence, as suggested by Caspar et al. (2010), a strong board, in a family firm, is featured by a deep and active participation in top-executive management.

2.3 Empirical models

To individually examine the impact of investor protection on family ownership, control, and management, we apply the following regression panel-data models accordingly by using the above-described variables:

$$CASHFLOW_{i,t} = \alpha + \beta_1 GENVIORN_i + \beta_2 SYSTEM + \beta_3 SALE_{i,t} + \beta_4 SIZE_{i,t} + \beta_5 LEVERAGE_{i,t} + \beta_6 AGE_{i,t} + \varepsilon_{i,t} \quad (1)$$

$$EXCESSCONTROL_{i,t} = \alpha + \beta_1 GENVIORN_i + \beta_2 SYSTEM + \beta_3 SALE_{i,t} + \beta_4 SIZE_{i,t} + \beta_5 LEVERAGE_{i,t} + \beta_6 AGE_{i,t} + \varepsilon_{i,t} \quad (2)$$

$$PYRAMIDS_{i,t} = \alpha + \beta_1 GENVIORN_i + \beta_2 SYSTEM + \beta_3 SALE_{i,t} + \beta_4 SIZE_{i,t} + \beta_5 LEVERAGE_{i,t} + \beta_6 AGE_{i,t} + \varepsilon_{i,t} \quad (3)$$

$$FAMILYRATIO_{i,t} = \alpha + \beta_1 GENVIORN_i + \beta_2 SYSTEM + \beta_3 SALE_{i,t} + \beta_4 SIZE_{i,t} + \beta_5 LEVERAGE_{i,t} + \beta_6 AGE_{i,t} + \varepsilon_{i,t} \quad (4)$$

As the main explanatory variable- GENVIRON- is time-invariant, we use the random effects (RE) models for the estimates of the governance environment variable. The RE models include industry dummies to control for industry effects. Since the precise form of the time effect is unknown, time dummies are not included in the RE models here in order to mitigate the distortion that the unfixed time effect bring to the estimates (Petersen, 2009). Time dummies are included in regressions in the robustness test.

3 Statistics summary

3.1 Distribution of family firms

Table 1 reports the number and percentage of family firms in China's stock markets during the period 2000-2009. In 2000, there were only 68 listed companies realised as family firms according to our definition, representing less than 7% of listed companies in China's stock markets. By the end of 2009, the number of family firms has soared to 551, accounting for 33.93% of the full sample. Although the percentage of family firms is slightly lower than that in the U.S. or German stock markets,[5] it represents an 8 times increase since 2000, indicating an explosive jump of the development of family firms in China.

[5] Anderson and Reeb (2003) and Villalonga and Amit (2006) show that family firms represent 35.0% and 38.0% of the U.S. listed firms, respectively, while Andres (2008) finds that the share of family firms is 37.5% in German stock markets.

Table 1 Number and percentage of family firms in 2000-2009 [a]

Year	All listed firms	Family firms	Nonfamily firms	Family firms (% of total)[b]
2000	1,044	68	976	6.51
2001	1,124	94	1,030	8.36
2002	1,186	135	1,051	11.38
2003	1,246	183	1,063	14.69
2004	1,337	275	1,062	20.57
2005	1,336	305	1,031	22.83
2006	1,397	365	1,032	26.13
2007	1,498	446	1,052	29.77
2008	1,573	502	1,071	31.91
2009	1,624	551	1,073	33.93
Total	13,365	2,924	10,441	21.88 (average)

Notes: [a] The full sample comprises 13,365 firm-year observations from 1,624 companies listed in China's stock markets during 2000-2009. After filtering five outliers, the sample of all firms and family firms comprises 13,360 and 2,920 observations, respectively. As the number of outliers is too small to change the descriptive statistics much, the unfiltered results are presented here.

[b] Family firms (% of total) are computed as the number of family firms divided by the total number of firms in each year.

On closer examination of the distribution of family firms in Figure 1, it is obvious that there is a much higher incidence of family-managed firms, as opposed to outsider-managed firms in Chinese stock markets. In particular, outsider-managed category includes 628 observations, representing only 21.48% of family firms, which demonstrates that the persistence of family management is more popular. In family-managed category, family firms in which the founder or his family occupies the positions of Chairman or CEO are dominant: 84.63% versus 15.37% belonging to family-involved group with family members only acting as directors or managers. Further, the table in Figure 1 shows that the incidence of family firms in which the founder himself/herself severing as Chairman is almost 8 times higher than that of firms led by a descendant- or relative-Chairman. This finding suggests the majority of Chinese family firms are experiencing the first-generation stage of development and are indeed relatively young.

Figure 1 Distribution of family firms

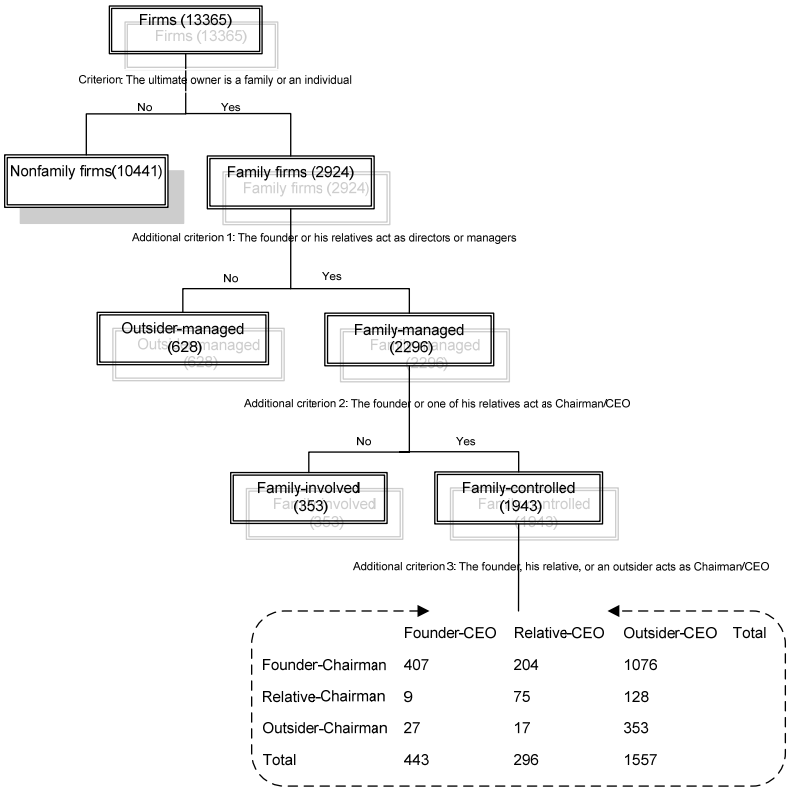

Table 2 shows the industry distribution of family firms and nonfamily firms. A closer look at the CSRC industry codes reveals that family firms are not uniformly distributed across all industries. At one extreme are 11 industries in which there are no family firms. At other extreme are other wholesale trade (H09), real estate broker (J09), professional, scientific research and services (K20), sanitation, health care, nursing services (K37) as well as other communication and cultural (L99), which are composed entirely of family firms. Family firms also tend to prevail in at least eight industries, such as textiles (C11), livestock (A05), other fibre products manufacturing (C13), instrumentation and culture, office machinery manufacturing (C78), communications and equipment manufacturing (G81), decoration (E05), communication services (G85) and printing (C35).[6] This variance of distribution highlights the importance of controlling for industry in the regression analysis.

Table 2 Industry distribution of firms by CSRC standard industry classification code (2001) [a]

CSRC Code	Industry description	All firms	Family firms	Nonfamily firms	Family firms in Industry (%)[b]
A01	Agriculture	14	4	10	28.57
A03	Forestry	6	1	5	16.67
A05	Livestock	7	4	3	57.14

[6] This examination is computed on industries with at least five firms.

A07	Fishery	4	3	1	75.00
A09	Agriculture, forestry, Livestock and fishery services	3	2	1	66.67
B01	Coal mining	18	1	17	5.56
B03	Oil and natural gas mining	2	0	2	0.00
B05	Ferrous metals mining and dressing	2	0	2	0.00
B07	Nonferrous metals mining and dressing	8	1	7	12.50
B50	Mining Services	2	1	1	50.00
C01	Food processing	31	12	19	38.71
C03	Food manufacturing	10	3	7	30.00
C05	Beverage manufacturing	26	5	21	19.23
C11	Textiles	42	24	18	57.14
C13	Clothing and other fiber products manufacturing	21	12	9	57.14
C14	Leather, fur, feather and products manufacturing	2	1	1	50.00
C21	Wood processing and bamboo, rattan, palm and grass products	4	4	0	100.00
C25	Furniture manufacturing	3	2	1	66.67
C31	Paper and paper products	26	9	17	34.62
C35	Printing	6	5	1	83.33
C37	Cultural sporting goods manufacturing	4	4	0	100.00
C41	Oil processing and coking	15	6	9	40.00
C43	Chemical materials and chemical products manufacturing	109	31	78	28.44
C47	Chemical fibre manufacturing	25	6	19	24.00
C48	Rubber manufacturing	8	2	6	25.00
C49	Plastics manufacturing	19	11	8	57.89
C51	Electronic components manufacturing	50	21	29	42.00
C55	Household electronic appliances manufacturing	17	4	13	23.53
C57	Other electronic equipment manufacturing	12	7	5	58.33
C61	Non-metallic mineral products	60	14	46	23.33
C65	Ferrous metal smelting and rolling processing	30	3	27	10.00
C67	Non-ferrous metal smelting and rolling processing	37	10	27	27.03
C69	Fabricated metal products	22	9	13	40.91
C71	Ordinary machinery manufacturing	44	14	30	31.82
C73	Special equipment	64	23	41	35.94
C75	Transport equipment	73	18	55	24.66
C76	Electrical machinery and equipment manufacturing	62	29	33	46.77
C78	Instrumentation and culture, office machinery manufacturing	12	8	4	66.67
C81	Pharmaceutical	86	39	47	45.35
C85	Biological products	17	4	13	23.53
C99	Other manufacturing	20	8	12	40.00
D01	Electricity, steam, hot water production and supply	57	2	55	3.51
D03	Gas production and supply	3	1	2	33.33
D05	Tap water production and supply	6	0	6	0.00
E01	Civil engineering construction	33	7	26	21.21
E05	Decoration	5	4	1	80.00
F01	Rail transport	3	0	3	0.00
F03	Road transport	6	0	6	0.00
F07	Water transport	13	0	13	0.00
F09	Air transport	6	0	6	0.00
F11	Auxiliary transport	32	3	29	9.38

F19	Other transport	2	0	2	0.00
F21	Warehousing	3	1	2	33.33
G81	Communications and equipment manufacturing	37	22	15	59.46
G83	Computers and equipment manufacturing	7	3	4	42.86
G85	Communication services	7	5	2	71.43
G87	Computer application services	50	25	25	50.00
H01	Food, beverages, tobacco and household goods wholesale trade	11	1	10	9.09
H03	Energy, materials and machinery and electronics equipment, wholesale trade	5	1	4	20.00
H09	Other wholesale trade	1	1	0	100.00
H11	Retail	62	21	41	33.87
H21	Commercial brokerage and agencies	22	3	19	13.64
J01	Real estate development and management	104	37	67	35.58
J05	Real estate management	4	1	3	25.00
J09	Real estate broker	1	1	0	100.00
K01	Public facilities services	9	3	6	33.33
K20	Professional, scientific research and services	2	2	0	100.00
K30	Catering	3	2	1	66.67
K32	Hotel and guesthouse accommodation	9	3	6	33.33
K34	Tourism	14	1	13	7.14
K37	Sanitation, health care, nursing services	1	1	0	100.00
K39	Rental services	1	0	1	0.00
K99	Other social services	3	2	1	66.67
L01	Publishing	3	0	3	0.00
L10	Radio, Film and Television	5	0	5	0.00
L20	Information dissemination services	4	1	3	25.00
L99	Other communication and cultural	2	2	0	100.00
M	Miscellaneous	65	31	34	47.69
Total		1,624	551	1,073	33.93

Notes: [a] The full sample comprises 1,624 companies listed in China's stock markets in the year of 2009.
[b] Family firms in Industry is computed as the number of family firms divided by the total number of firms in each industry.

3.2 Descriptive statistics of variables

Table 3 reports the descriptive statistics of main variables used in this paper. Panel 3A shows means, standard deviations, minimum and maximum values of variables of the family-firm sample except dummy variables. Panel 3B provides the number and percentage of family firms in which the ultimate control involves the presence of pyramids or systems. Panel 3C further divides the full family-firm sample into two subsamples of family firms having a family CEO and family firms hiring an outsider as CEO, and presents the results of Independent-Sample T test of mean differences between the two groups.[7]

[7] Due to the meaningless calculation of means of dummy variables, it is of no interest to adopt Independent-Sample T tests of mean differences for PYRAMIDS and SYSTEM between family- and outsider-CEO family firms.

Panel 3A shows that the controlling family in the family-firm sample on average holds cash-flow rights of 25.5% with a minimum value of 0.5% and a maximum value of and 87.1%. This mean value is relatively higher than in most of East Asian corporations, such as Japan, Korea, Malaysia, Philippines, Singapore and Taiwan (Claessens et al., 2000),[8] and also higher than in the U.S. companies (Anderson and Reeb, 2003).[9] The excess of control rights over cash-flow rights has a mean value of 10.1%. The number of family directors or managers divided by the number of senior management is 8.3% on average and 46.2% at the maximum, which supports the argument of the prevalence of family management in Chinese family firms.

As seen in Panel 3B, for 69.6% of the companies in the family-firm sample, the ultimate control involves the use of a pyramidal structure, suggesting that pyramiding is widely spread in the companies owned by a family or an individual in China. This proportion is the highest among all nine East Asian companies reported by Claessens et al.(2000). Additionally, 14.4% of family firms are under the control of the same family or individual, implying that Chinese companies exhibit a relatively lower incidence of systeming than pyramiding in the ultimate control structure, and the "system" so far has not been built up on China's stock markets.

Panel 3C takes a closer look at the descriptive statistics of family- and outsider-CEO firms. The analysis shows that family firms with a family CEO retain more concentrated cash-flow rights, 33.5% on average, significantly higher than firms hiring a professional CEO with 22.8% on average. In terms of control-enhancing mechanisms, family-CEO firms have less control in the excess of ownership rights and also a lower incidence of pyramiding as opposed to outsider-CEO firms (7.2% versus 11.1% and 54.7% versus 74.6%, respectively) and the mean difference in the excess of control rights over cash-flow rights between the two groups of firms is statistically significant at 1% level. For family management, the mean percentage of family directors or managers in firm management is 14.1% in family-CEO companies. This mean proportion is 7.8% larger than in comparable firms, and the mean difference is statistically significant at 1% level.

To recapitulate, family- and outsider-CEO family firms differ significantly in the concentration of cash-flow rights, the separation of ownership and control, the use of

[8] Claessens et al. (2000) explore the ownership structure of corporations in nine East Asian countries. In their examination, the controlling shareholders hold the smallest cash-flow rights in Japanese companies, only 6.90% on average, while Thai companies display the most concentrated cash-flow rights with 32.84% among the nine countries.

[9] Anderson and Reeb (2003) observe that families own 18% of the companies' equity in the S&P500 companies from 1992 to 1999.

pyramids in the ultimate control, and the involvement of family members acting in management. These differences we identified indicate a distinct role played by a family or hired CEO in family firms, and it is thus important to distinguish between the two groups of family firms in our analysis.

Table 3 Descriptive statistics of main variables

Panel 3A: Summary statistics of variables				
Variable	Mean	Std. Dev.	Min	Max
GENVIORN	6.080	1.540	2.320	9.620
GOVERN	8.100	1.980	0.000	10.640
FINANCE	7.480	1.860	3.560	11.490
INTERMEDIARY	5.330	1.630	2.280	10.000
JUDICIARY	3.410	1.830	0.210	8.250
CASHFLOW	0.255	0.166	0.005	0.871
EXCESSCONTROL	0.101	0.094	0	0.475
FAMILYRATIO	0.083	0.072	0	0.462
SALE	0.605	0.504	0	5.71
SIZE	20.827	1.004	16.120	24.460
LEVERAGE	0.701	2.541	0.000	96.960
AGE	7.448	4.447	1	20
Panel 3B: Summary statistics of dummies				
	0		1	
	Number	Per cent	Number	Per cent
PYRAMIDS	888	0.304	2032	0.696
SYSTEM	2,494	0.854	426	0.146
Panel 3C: Summary statistics by family/outsider CEO				
	Family CEO	Outsider CEO	Differ. of means	*t*-statistic
Number of observations	739	2181		
CASHFLOW	0.335	0.228	0.107	14.638***
EXCESSCONTROL	0.072	0.111	-0.039	9.917***
PYRAMIDS	0.547	0.746	-0.199	
FAMILYRATIO	0.141	0.063	0.078	24.129***
SYSTEM	0.038	0.182	-0.144	
SALE	0.634	0.596	0.038	-2.029**
SIZE	20.909	20.799	0.110	-2.862***
LEVERAGE	0.524	0.761	-0.237	3.087***
AGE	5.69	8.04	-2.35	12.544***

Notes: Descriptive statistics of the governance environment index are computed on a cross-sectional sample of 31 provinces in China. Descriptive statistics of other variables are computed on the family-firm subsample which comprises 2,920 observations after filtering four outliers. Dummies in Panel 3B are computed by the number and percentage of observations equalling the column heading to the observations of the family-firm sample. Dummies in Panel 3C and 3D are computed by the percentage of observations equalling one to the observations of family/outsider CEO subsample. Asterisks denote statistical significance at the 10% (*), 5% (**), or 1% (***) level, respectively.

4 Results and discussion

4.1 Categorical analysis

To examine the effects of investor protection on family ownership, control, and management, we first use a dummy variable of investor protection to split the full family-firm sample into two subsamples – family firms operating in regimes with inferior investor

protection and family firms with superior investor protection. Then, the three sets of variables indicating family ownership, control, and management, as well as control variables are compared between the two groups of family firms, respectively. Panel 4A displays the results.

Overall, the analysis shows that family firms locating in regimes with a more protective governance environment are predominate: 58.12% versus 41.88% of family firms within a less protective governance environment. Then the analysis finds that the two groups of family firms differ significantly in family ownership, control, and management. Specifically, it shows that family firms with strong investor protection hold more concentrated cash-flow rights, 28.3% on average, compared to family firms with weak protection having 21.7% of cash-flow rights on average. For 74.2% of the latter group of companies, the ultimate control is captured by the use of a pyramidal structure, in which the number is lower in provinces with stronger investor protection (66.3% on average). Following this, the excess of control rights over cash-flow rights is significantly higher in family firms that are better protected than comparable companies. Further, 17.7% of family firms locating in less protective regimes are under the control by the same family or individual, while only 12.3% in more protective regimes. For family management, better protected family firms have larger involvement of family members in management at 9.5%, as opposed to comparable firms at 6.6%.

The above findings first demonstrate a negative relation between the quality of investor protection and the use of control-enhancing mechanisms. As the use of these mechanisms are assumed to reflect the family's incentives and abilities to appropriate private benefits of control (Bebchuk et al., 1999; La Porta et al., 1999), the expropriation, exposed to weak legal protection of shareholders, is less likely to be detected and constrained by laws. In this regard, for family firms within a less protective governance environment, the family would thus magnify both the incentive and power to extract at the expense of minority shareholders by exercising control-enhancing mechanisms.

On the other hand, the analysis finds that both ownership concentration and involvement of family management are positively related to investor protection, which are inconsistent with the conventional prediction in the literature, likewise La Porta et.al (1998), Shleifer and Wolfenzon (2002) and Burkart et al. (2003). Such relations can be explained as follows.

The regimes with better investor protection are likely to have more efficient government, easier access to finance, more efficient courts and judiciary. A more

protective governance environment would predict both a reduction to the operation costs of family firms and also a rise in the expropriation costs for the controlling shareholders. To this end, the family would have greater intention to make efforts to run the business well rather than to "tunnel" it. It would provide the company with more cash-flow investment and involvement of family management, and meanwhile limit the use of control-enhancing mechanisms such as pyramids. Alternative explanation for this finding is given by Castillo and Skaperdas (2005) who propose that better protection of shareholders can intensify the competition between owners and managers, thereby giving rise to the appropriative costs associated with the owner-manager agency conflict. To counteract the negative effects of law and its changes, shareholders would commit to a lower extent of appropriation by holding more shares of the company. Thus, this finding can also reflect the positive relationship between legal protection and ownership concentration as for instance Aganin and Volpin (2003) note in Italian corporations.

In addition, in family firms operating in more protective regimes, the larger preservation of family management also indicate that to achieve the same extent of extraction the family would take more covert mechanisms such as in the form of delegating family managers to replace the use of control-enhancing mechanisms. This is expected to be a response to the relatively high expropriation costs in regimes with better legal protection of shareholders.

Panel 4B further divides the family-firm sample into two subsamples – family firms having a family CEO and family firms with a hired CEO – to investigate the interaction effects of family managers and investor protection on family governance arrangements. As seen in this panel, both subsamples show that family firms in a more protective governance environment have significantly higher cash-flow rights and more participation of family management, as opposed to family firms with inferior protection of shareholders. This is consistent with the results reported in Panel 4A.

Further, the analysis shows that, although the mean values of cash-flow rights and family management ratio in family-CEO firms are on average higher than those in outsider-CEO group, the mean difference of ownership concentration and family management between regimes with better and poorer investor protection is more significant in outsider-CEO family firms. To illustrate, our analysis shows that, for ownership concentration, the mean difference between the regimes is significant at 1% in outsider-led family firms, while at 5% in family-led firms. The outsider-CEO group also has a much larger *t*-statistics of mean difference of family management: 7.314 versus 2.651

in family-CEO group. This finding suggests that the arrangements of the controlling family on ownership concentration and management composition are to some extent subjected to the changes of investor protection, but such effects might not be uniform between family- and outsider-CEO family firms.

Another notable result is that, the positive mean difference in the separation of ownership and control between regimes with weak and strong legal protection only survives in family firms hiring an outsider CEO: the mean difference is 0.009 and significant at 5% level in outsider-CEO firms; it is however -0.007 and insignificant in family-CEO firms. This finding suggests that, for family firms having a hired CEO in place, the controlling shareholder would adjust his/her incentives of extraction of the private benefits of control through the form of pyramid structures in the light of the strength of investor protection. In other words, in outsider-CEO family firms, the controlling family would intensify the extraction at the expense of minority shareholders when legal protection of shareholders is relatively weak. In contrast, the incidence of the control-enhancing mechanisms is of no difference in family-CEO firms regardless of the quality of legal protection of shareholders.

Table 4 Impact of investor protection family ownership, control, and management

Panel 4A: Full family-firm sample				
	Governance environment			
Variable	Low (75%)	High (25%)	Diff. of means	*t*-statistic
Number of observations	1223	1697		
CASHFLOW	0.217	0.283	-0.066	-11.044***
EXCESSCONTROL	0.107	0.096	0.011	3.328***
PYRAMIDS	0.742	0.663	0.079	
FAMILYRATIO	0.066	0.095	-0.029	-11.313***
SYSTEM	0.177	0.123	0.054	
SALE	0.526	0.662	-0.136	-7.446***
SIZE	20.723	20.901	-0.178	-4.828***
LEVERAGE	0.668	0.726	-0.058	0.688
AGE	8.30	6.83	1.47	9.174***

Panel 4B: Family/outsider CEO subsample						
	Family CEO			Outsider CEO		
	Governance environment		Diff. of means	Governance environment		Diff. of means
Variable	Low (75%)	High (25%)		Low (75%)	High (25%)	
Number of observations	198	541		1025	1156	
CASHFLOW	0.312	0.344	-0.032 (2.132)**	0.198	0.254	-0.056 (8.791)***
EXCESSCONTROL	0.066	0.074	-0.007 (-1.087)	0.115	0.106	0.009** (2.279)
PYRAMIDS	0.535	0.551	-0.016	0.781	0.715	0.066
FAMILYRATIO	0.128	0.145	-0.017 (-2.651)***	0.054	0.071	-0.017 (-7.314)***

SYSTEM	0.056	0.031	0.025	0.201	0.166	0.035
SALE	0.570	0.657	-0.086 (-2.595)***	0.518	0.665	-0.147 (6.563)***
SIZE	20.725	20.976	-0.251 (3.567)***	20.723	20.866	-0.143 (-3.213)***
LEVERAGE	0.455	0.549	-0.094 (-0.881)	0.708	0.808	-0.100 (-0.858)
AGE	6.57	5.37	1.20 (3.260)***	8.63	7.52	1.11 (6.193)***

Notes: Dummies are computed by the percentage of observations equalling one to the observations equalling the column heading. Asterisks denote statistical significance at the 10% (*), 5% (**), or 1% (***) level, respectively.

4.2 Random effects models

Table 5 displays three panels of the RE estimation for the equations presented before. The sample of Panel 5A, 5B and 5C comprises all family firms, family- and outsider- CEO family firms, respectively.

Column 1 and 4 of Panel 5A estimate the effects of investor protection on family ownership and management, while Column 2 and 3 estimates the effects on the excess of family control over cash-flow rights and the use of pyramids. Column 1 and 4 show that the coefficient of investor protection is 0.020 in the cash-flow rights regression and 0.008 in the family management regression; it is both statistically significant at 1% level. This finding suggests that both the concentration of the family's ownership rights and preservation of family management are positively associated with local legal protection of shareholders, which is consistent with the categorical analysis in this paper. Additionally, investor protection has a negative and significant effect on pyramid structures (-0.113) and thus on the separation of ownership and control rights (-0.008). This result confirms that legal protection would limit the use of control-enhancing mechanisms, and also supports the argument that pyramiding is the principal instrument to enhance the family's control rights in the ultimate control structure.

Panel 5B and 5C provide further quantification of the interaction effects of family managers and investor protection on family governance arrangements. Panel B presents the results for family firms having a family CEO, while Panel 5C for family firms hiring a professional CEO. In Panel B, the coefficient of investor protection is recorded at 0.011, -0.003, -0.023 and 0.002 in the ownership rights, the separation of ownership and control, the pyramids, and the family management regression, respectively; the absolute value of the coefficient is relatively smaller than that recorded in Panel 5C (0.017, -0.009, -0.103 and 0.006, respectively). Notably, none of these coefficients is statistically significant in Panel B, while all are statistically significant in Panel 5C. This finding suggests that the effects of investor protection on family ownership, control, and management are more

pronounced in family firms hiring a professional CEO as opposed to family firms having a family CEO. It also helps to interpret the similar results reported in the categorical analysis, which shows that family-CEO firms have smaller significant mean difference of ownership concentration and family management, and nonsignificant mean difference of the excess of family control over ownership rights between the regimes with better and poorer investor protection.

One possible explanation is that as family managers are more likely to stay with the controlling family at the innermost circle to share high trust and mutual affection (Fei, 1992), family-CEO firms are expected to have a smaller conflict of interest between the family and the manager. In this regard, whether the choice is to run the business well or to tunnel it, the family tend to count on internal corporate governance mechanisms, such as retaining concentrated ownership rights and preserving more managerial power in the family, rather than to depend on the quality of external investor protection. In contrast, given a hired CEO in place, family firms are exposed to a more intense divergence of interests between the controlling family and the professional manager and also a conflict between this manager and other family managers. Therefore, to mitigate the appropriative costs associated with both kinds of conflicts, the family would adjust the decision-making on family governance subjected to the external protection of shareholders.

Our findings also uncover the possible dual effects of family managers. On one hand, the high trust and loyalty among family members would help to mitigate the owner-manager agency conflict that might be otherwise intensified in family firms hiring an outsider as CEO. On the other hand, due to the high trust among family members, family managers are inclined to have consistent interests with the controlling family other than with all shareholders. Because the controlling family has both the incentives and abilities to expropriate private benefits of control, the larger involvement of family management especially with a family CEO would facilitate and even magnify such expropriation. To this end, the preservation of family management also suggests a higher incidence of collusion between the family and family managers than between the family and their professional counterparts.

Table 5 RE estimation of governance environment on family ownership, control, and management

Panel 5A: Full family-firm sample				
	CASHFLOW	EXCESSCONTROL	PYRAMIDS	FAMILYRATIO
GENVIRON	0.020***	-0.008***	-0.113**	0.008***
	(4.43)	(-3.58)	(-2.54)	(5.12)
SYSTEM	0.011	0.009	0.329*	-0.013***
	(0.64)	(0.99)	(1.87)	(-2.80)

SALE	0.012*	-0.003	-0.289**	0.001
	(1.71)	(-0.53)	(-2.44)	(0.46)
SIZE	0.025***	0.008**	-0.145**	0.004
	(3.25)	(2.16)	(-2.17)	(1.54)
LEVERAGE	0.002**	0.001*	0.015	-0.000
	(2.29)	(1.86)	(0.57)	(-0.10)
AGE	-0.006***	-0.004***	-0.046***	-0.002***
	(-5.49)	(-5.49)	(-2.98)	(-3.35)
Industry dummies	Yes	Yes	Yes	Yes
Intercept	-0.299*	0.002	5.060***	-0.015
	(-1.89)	(0.03)	(3.45)	(-0.31)
Observations	2919	2919	2919	2919
Number of clusters (firm)	621	621	621	621
R-squared	0.097	0.020		0.111
Panel 5B: Family-CEO subsample				
	CASHFLOW	EXCESSCONTROL	PYRAMIDS	FAMILYRATIO
GENVIRON	0.011	-0.003	-0.023	0.002
	(1.03)	(-0.74)	(-0.28)	(0.78)
SYSTEM	0.036*	0.032	-0.551	0.014
	(1.66)	(1.47)	(-1.04)	(0.74)
SALE	0.042***	0.000	-0.142	0.010
	(2.62)	(0.04)	(-0.52)	(1.14)
SIZE	0.023	0.008	0.116	0.004
	(1.23)	(1.19)	(0.95)	(0.60)
LEVERAGE	0.006***	-0.000	-0.061	0.003***
	(2.94)	(-0.45)	(-0.86)	(2.73)
AGE	-0.014***	-0.004***	0.016	-0.002
	(-6.54)	(-2.77)	(0.64)	(-1.51)
Industry dummies	Yes	Yes	Yes	Yes
Intercept	-0.154	-0.087		0.028
	(-0.42)	(-0.64)		(0.20)
Observations	738	738	738	738
Number of clusters (firm)	245	245	245	245
R-squared	0.148	0.002		0.035
Panel 5C: Outsider-CEO subsample				
	CASHFLOW	EXCESSCONTROL	PYRAMIDS	FAMILYRATIO
GENVIRON	0.017***	-0.009***	-0.103*	0.006***
	(4.31)	(-3.57)	(-1.95)	(3.86)
SYSTEM	0.010	0.008	0.265	-0.010**
	(0.60)	(0.87)	(1.35)	(-2.20)
SALE	0.007	-0.003	-0.377***	0.002
	(0.93)	(-0.49)	(-2.81)	(0.48)
SIZE	0.026***	0.010**	-0.208***	0.003
	(3.16)	(2.32)	(-2.60)	(1.32)
LEVERAGE	0.002**	0.002**	0.018	-0.000
	(2.20)	(2.47)	(0.62)	(-1.25)
AGE	-0.003***	-0.004***	-0.095***	-0.002***
	(-3.01)	(-5.35)	(-4.70)	(-3.45)
Industry dummies	Yes	Yes	Yes	Yes
Intercept	-0.331**	-0.009	8.030***	-0.011
	(-1.98)	(-0.11)	(4.40)	(-0.22)
Observations	2181	2181	2181	2181
Number of clusters (firm)	480	480	480	480
R-squared	0.067	0.039		0.088

Notes: Asterisks denote statistical significance at the 10% (*), 5% (**), or 1% (***) level, respectively.

5 Robustness test

Table 6 examines the robustness of main results reported in the categorical analysis to the use of alternative specification of the cut-off point for the level of investor protection. To be consistent with the conventional studies, the cut-off point for the degree of investor protection is considered as the median score of investor protection index. That is, for the high level of investor protection, a dummy variable equals one if the value of governance environment of a particular province is above the median score of the governance environment index across 31 provinces in China, and zero otherwise. In Panel 6A, we reinvestigate the mean differences of family ownership, control, and management between the regimes with better and poorer protection of shareholders. Panel 6B further explores the mean differences in family firms managed by a family or a hired CEO. The main results remain qualitatively unchanged.

Table 7 than addes time dummies to the use of the RE estimation to control for the time effects. The analysis finds that after controlling for the time effects, the main results hardly change. Panel 7A shows that for the full family-firm sample the coefficient of investor protection is signicantly positive in the cash-flow rights and the family management regression: 0.012 and 0.006, respectively. As for the family control vairables, the coefficient of investor protection is negative at -0.005 and significant at 5% level in the separation of ownership and control regression, and this coefficient is negative at -0.053, although not statistically significant, in the pyramids regression. In Panel 7B that comprises family firms in which a family member acts as CEO, none coefficient of investor protection is statistically significant in all five models, but this coefficient is significant in the ownership rights, the separation of ownership and control, and the family management regression in outsider-led family firms (see Panel 7C). This finding confirms that the effects of investor protection on family governance arrangements is mainly driven by professional managers.

Table 6 Impact of investor protection on family ownership, control, and management

Panel 6A: Full family-firm sample				
	Governance environment			
Variable	Low (0)	High (1)	Diff. of means	*t*-statistic
Number of observations	668	2252		
CASHFLOW	0.207	0.269	-0.062	-9.589***
EXCESSCONTROL	0.116	0.096	0.020	4.786***
PYRAMIDS	0.763	0.676	0.087	
FAMILYRATIO	0.068	0.087	-0.019	-6.983***
SYSTEM	0.162	0.141	0.021	
SALE	0.484	0.641	-0.157	-8.240***
SIZE	20.773	20.842	-0.069	-1.645*

LEVERAGE	0.619	0.726	-0.107	-1.639
AGE	8.32	7.19	1.13	6.444***

Panel 6B: Family/outsider CEO

	Family CEO			Outsider CEO		
	Governance environment		Diff. of means	Governance environment		Diff. of means
Variable	Low (0)	High (1)		Low (0)	High (1)	
Number of observations	100	639		568	1613	
CASHFLOW	0.280	0.344	-0.064 (-3.377)**	0.195	0.240	-0.045 (-6.751)***
EXCESSCONTROL	0.080	0.070	0.010 (1.059)	0.122	0.107	0.015 (3.413)***
PYRAMIDS	0.600	0.538	0.062	0.792	0.730	0.062
FAMILYRATIO	0.122	0.144	-0.022 (-2.453)**	0.058	0.065	-0.007 (-2.664)***
SYSTEM	0.070	0.033	0.037	0.178	0.184	-0.006
SALE	0.500	0.654	-0.154 (-3.619)***	0.481	0.636	-0.155 (-6.955)***
SIZE	20.878	20.914	-0.036 (-0.428)	20.755	20.814	-0.059 (-1.226)
LEVERAGE	0.504	0.527	-0.023 (-0.165)	0.639	0.804	-0.165 (-1.916)*
AGE	6.75	5.52	1.23 (2.573)***	8.60	7.85	0.75 (3.969)***

Notes: Asterisks denote statistical significance at the 10% (*), 5% (**), or 1% (***) level, respectively.

Table 7 RE estimation of investor protection on family ownership, control, and management

Panel 7A: Full family-firm sample

	CASHFLOW	EXCESSCONTROL	PYRAMIDS	FAMILYRATIO
GENVIRON	0.012***	-0.005**	-0.052	0.006***
	(2.92)	(-2.27)	(-1.09)	(3.75)
SYSTEM	0.012	0.007	0.094	-0.011**
	(0.73)	(0.77)	(0.49)	(-2.49)
SALE	0.007	-0.000	-0.269**	0.001
	(0.98)	(-0.06)	(-2.06)	(0.17)
SIZE	0.020***	0.011***	0.076	0.002
	(2.60)	(3.05)	(1.06)	(0.87)
LEVERAGE	0.002**	0.001**	0.020	-0.000
	(2.14)	(2.14)	(0.69)	(-0.20)
AGE	-0.017***	0.002**	0.049***	-0.005***
	(-12.77)	(2.32)	(3.01)	(-8.39)
Industry dummies	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes
Intercept	-0.148	-0.091	1.096	0.037
	(-0.98)	(-1.22)	(0.69)	(0.75)
Observations	2919	2919	2919	2919
Number of clusters (firm)	621	621	621	621
R-squared	0.172	0.073		0.118

Panel 7B: Family CEO sample

	CASHFLOW	EXCESSCONTROL	PYRAMIDS	FAMILYRATIO
GENVIRON	0.006	-0.001	-0.004	0.004
	(0.54)	(-0.19)	(-0.04)	(1.08)
SYSTEM	0.040*	0.027	-0.717	0.018
	(1.65	(1.10)	(-1.31)	(1.05)
SALE	0.038**	0.003	-0.241	0.012
	(2.25)	(0.32)	(-0.84)	(1.40)
SIZE	0.014	0.013**	0.229*	0.005

	(0.76)	(1.97)	(1.77)	(0.67)
LEVERAGE	0.005**	0.001	-0.039	0.003***
	(2.14)	(0.54)	(-0.53)	(2.69)
AGE	-0.022***	0.000	0.034	-0.002
	(-7.58)	(0.33)	(1.28)	(-1.57)
Industry dummies	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes
Intercept	0.031	-0.197	-4.247	0.041
	(0.09)	(-1.46)	(-1.49)	(0.29)
Observations	738	738	738	738
Number of clusters (firm)	245	245	245	245
R-squared	0.195	0.017		0.040
Panel 7C: Outsider CEO sample				
	CASHFLOW	EXCESSCONTROL	PYRAMIDS	FAMILYRATIO
GENVIRON	0.013***	-0.007***	-0.047	0.005***
	(3.29)	(-2.74)	(-0.78)	(3.17)
SYSTEM	0.011	0.006	0.110	-0.009**
	(0.67)	(0.71)	(0.48)	(-2.01)
SALE	0.002	0.001	-0.291*	0.000
	(0.27)	(0.10)	(-1.84)	(0.12)
SIZE	0.022***	0.013***	0.006	0.002
	(2.71)	(3.00)	(0.07)	(0.89)
LEVERAGE	0.002**	0.002**	0.022	-0.000
	(2.01)	(2.19)	(0.59)	(-1.17)
AGE	-0.013***	0.001	0.048**	-0.004***
	(-8.68)	(1.27)	(2.17)	(-6.77)
Industry dummies	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes
Intercept	-0.215	-0.094	4.09**	0.022
	(-1.33)	(-1.09)	(1.98)	(0.44)
Observations	2181	2181	2181	2181
Number of clusters (firm)	480	480	480	480
R-squared	0.117	0.083		0.096

Notes: Asterisks denote statistical significance at the 10% (*), 5% (**), or 1% (***) level, respectively.

6 Conclusion

Given the overall inferior investor protection, especially the weak efficiency of the government and low reliability of the legal system that prevail in many emerging economies, family firms are inclined to seek alternative mechanisms other than formal institutional protection of their property rights to survive in the adverse political and institutional environment. Family governance as reflected in the combination of family ownership, control, and management, is expected to be one of these alternative mechanisms. To the end, this view raises a question of whether legal protection of shareholders can influence family governance arrangements in emerging markets.

To address the above question, we investigate the impact of investor protection on family governance arrangements including family ownership, control, and management of family firms listed in China's stock exchanges during the period 2000-2009, one of the fastest and largest emerging economies in the world. The analysis first finds that Chinese

family firms in general have more concentrated ownership rights and involve more use of pyramids in the ultimate control than the U.S. and other Asian corporations, and family management appears to be prevalent in Chinese family firms.

Second, by undertaking categorical and multivariate analyses, we find that the presence of family governance arrangements is to some extent shaped by the quality of local investor protection in China. To illustrate, both analyses show that family firms within a more protective governance environment would have more concentrated ownership rights, more involvement of family members in management, and less use of control-enhancing mechanisms such as pyramids. These arrangements can be explained by the lower operation costs and higher expropriation costs in regimes with better protection of shareholder rights. In this regard, the family would prefer to make efforts to run the business well by retaining more cash-flow investment and appointing more family managers to mitigate the owner-manager conflict, other than to tunnel the private benefits of control by the use of control-enhancing mechanisms. Apparently, the finding of the positive relationship between ownership concentration and investor protection shows that the significant ownership structure is a complement rather than a substitute for the inferior investor protection in China.

Meanwhile, the finding shows that family firms with superior legal protection of shareholders maintain the relatively high preservation of managerial power in the family. It suggests that if the family in such regimes still has a tendency to appropriate private benefits of control, the family is expected to take some convert mechanisms, such as appointing more family managers or directors, other than pyramiding in the ultimate control of family firms.

Finally, on further examination of family firms led by a family-CEO or an outsider-CEO, we find that family-CEO firms have more concentrated ownership rights and larger participation of family management, but less use of control-enhancing mechanisms than comparable firms. In addition, we find that the general impact of investor protection on family ownership, control, and management would be more significant in family firms with a hired CEO. These findings suggest that due to the higher trust among family members, family firms in which a family member acts as CEO have a smaller conflict between the controlling family and the manager, and the family would thus run the business by counting on internal corporate governance mechanisms such as exercising more concentrated cash-flow rights and more involvement of family management irrespective of the effectiveness of external investor protection. However, outsider-led

companies suffer from a more intense conflict of interest between the family and the manager and also a conflict of interest between the manager and other family managers, and the family thus tends to adjust the internal corporate governance arrangements in the light of the quality of investor protection. These findings also imply the possible dual effects of family managers. That is, the high trust and loyalty among family members would help to mitigate the owner-manager agency conflict which might be otherwise intensified in family firms with an outsider-CEO. Yet, the preservation of family management also indicates a higher incidence of collusion between the family and family managers than that between the family and hired managers.

This paper contributes to the growing literature in several ways. First, we make two methodological innovations. We introduce a significant improvement to the commonly used measures of both family firms and the cut-off point of the level of investor protection, which is expected to mitigate the risk that the relatively crude criteria of notions distort the results in the conventional studies. Then, based on these methodological innovations, we provide new evidence in the literature of the positive relationship between investor protection and ownership concentration as well as between investor protection and the preservation of family management in China's settings. This is expected to shed lights on the relevant studies in other emerging economies, especially those sharing similar characteristics with China in terms of family governance and legal development.

Appendix A.1. Definition of governance environment index

Indicator	Definition
GOVERN	Assessment of the relations between local government and market, including (1) the percentage of economic resources allocated by market; (2) the reduction of farmers' tax; (3) interference by the government; (4) the enterprises' other burden except tax; and (5) the scale of local government. Sourced from NERI index between 2005 to 2007
FINANCE	Assessment of the maturity of products market, including the competition of financial factor and marketization of credit allocation. Sourced from NERI index between 2005 to 2007
INTERMEDIARY	Assessment of the service conditions of lawyers and certified public accountants, and the assistance level of industry associations given to enterprises. Sourced from NERI index between 2005 to 2007
JUDICIARY	Assessment of the efficiency of judicial system and administrative executing departments. Sourced from NERI index between 2005 to 2007
GENVIRON	Average of the four indicators above.

Appendix A.2. Governance environment index of individual provinces in China

CODE	PROVINCE	GEVIRONMENT	GOVERN	FINANCE	INTERMEDIARY	JUDICIARY
AH	Anhui	6.93	9.83	7.46	6.26	4.15

BJ	Beijing	7.33	9.25	7.01	7.84	5.22
CQ	Chongqing	6.47	8.89	9.70	4.84	2.45
FJ	Fujian	7.37	10.09	8.54	5.79	5.05
GS	Gansu	4.43	6.91	5.33	4.21	1.28
GD	Guangdong	8.26	10.64	9.88	6.87	5.66
GX	Guangxi	5.33	8.94	6.76	3.62	2.01
GZ	Guizhou	4.09	6.68	6.01	3.46	0.21
HAN	Hainan	4.79	8.54	6.04	2.28	2.32
HEB	Hebei	6.63	8.69	7.93	5.97	3.91
HLJ	Heilongjiang	5.04	7.81	4.70	5.33	2.33
HEN	Henan	6.04	8.46	8.35	5.48	1.87
HUB	Hubei	6.24	9.06	7.18	5.57	3.15
HUN	Hunan	5.26	7.64	7.32	4.27	1.82
IM	Inner Mongolia	5.05	6.89	6.34	4.28	2.71
JS	Jiangsu	8.35	10.49	9.69	6.70	6.51
JX	Jiangxi	5.32	8.03	6.93	4.53	1.77
JL	Jilin	5.54	7.91	5.12	5.86	3.25
LN	Liaoning	6.81	8.53	9.25	5.64	3.80
NX	Ningxia	5.41	6.82	8.78	4.49	1.55
QH	Qinghai	4.07	5.49	4.96	2.81	3.01
SD	Shandong	6.94	8.76	9.74	4.66	4.61
SH	Shanghai	9.62	10.03	10.19	10.00	8.25
SX	Shanxi	5.46	6.94	7.74	5.95	1.20
SAX	Shanxi2	5.41	7.35	7.43	5.25	1.60
SC	Sichuan	6.73	9.47	7.69	5.12	4.65
TJ	Tianjin	7.07	8.83	7.45	7.32	4.70
TB	Tibet	2.32	0.00	3.56	2.59	3.15
XJ	Xinjiang	5.03	6.42	4.98	5.22	3.48
YN	Yunnan	6.10	7.72	8.19	5.25	3.25
ZJ	Zhejiang	8.96	10.00	11.49	7.66	6.70

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