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Article

Family-Concentrated Ownership in Chinese PLCs: Does Ownership Concentration Always Enhance Corporate Value?

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Abstract: In this paper we investigate the relationship between family ownership structure and corporate value across a sample of 1314 firm-year observations of China's family publicly listed companies (PLCs), from 2004 to 2008. We find a significant inverse-U-shaped relationship between the controlling family's ultimate cash-flow rights and corporate value; as measured by Tobin's Q. That is, as family-ownership concentration increases, corporate value first increases and then decreases. This finding refreshes our understanding of the relationship between family-ownership concentration and corporate value in emerging economies such as found in China. We corroborate prior findings that when controlling families hold excess control over cash-flow rights, corporate value is significantly lowered, while multiple large shareholders structure is significantly associated with higher corporate value. In addition; board independence is found to significantly improve corporate value in the context of family-concentrated ownership. We also test for potential endogeneity between family ownership and corporate value and find our results to be robust.

Keywords: China; corporate value; family concentrated ownership; family firms; ultimate ownership structure

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1. Introduction

Since China's economic reform began in 1978, China has become the largest and fastest-growing emerging economy in the world (Allen *et al.* [1]). During the past three decades, China's economic reform has seen declining state ownership and rising private sector ownership (Ding *et al.* [2]). As the private sector has developed substantially, the Chinese stock market has been increasingly listing family-controlled firms. However, research has provided little understanding about family ownership in Chinese publicly listed companies (PLCs). In this study, we explore empirically the governance effect of family-concentrated ownership in China's unique institutional context. In particular, we describe and compare the ultimate ownership structures in Chinese state-owned and family PLCs, and then analyze the relationship between family ownership structure and corporate value in Chinese family-controlled PLCs.

Concentrated ownership is common throughout the world (Claessens *et al.* [3], Faccio and Lang [4], La Porta *et al.* [5]), especially in emerging economies, such as found in China. On one hand, minority shareholders may show free-ride behaviors, but large shareholders have the incentive and voting power to collect information, monitor the management, and, thus, improve corporate value (Grossman and Hart [6], Jensen and Meckling [7]). On the other hand, large shareholders have a general interest and enough control to pursue their own benefits at the expense of minority shareholders (Alsan and Kumar [8], Shleifer and Vishny [9]), especially when large shareholders with relatively smaller shares, nevertheless, control the firms through control-enhancing mechanisms, such as a pyramid structure, cross-holding, and dual-class shares (Adams and Ferreira [10], Lin *et al.* [11,12], Johnson *et al.* [13], Friedman *et al.* [14]). As ownership concentration increases, large shareholder's interests may become more aligned with minority shareholder interests and, thus, reduce the likelihood and degree minority shareholders would be expropriated (Claessens *et al.* [3], Dyck and Zingales [15]). That is, ownership concentration and corporate value may have a positive linear relationship (La Porta *et al.* [5], Claessens *et al.* [3]).

However, in practice, many of China's controlling families use their high ownership to expropriate minority shareholders, ultimately reducing corporate value. Controlling families respond, not only to firm-level imperatives, but also to country/region level institutions. In particular, emerging economies, such as China's, are in the process of economic reform. Their formal institutions are in transition, and legal system for protecting investors and enforcing protections are still weak and uneven. In this special institutional context, controlling families have low cost and little risk of being captured for expropriating minority shareholders and are, thus, prone to pursue their own utility at the expense of minority shareholders, causing serious conflicts of interests. High ownership is accompanied by high voting rights. Without effective power balance from other large shareholders, high ownership does not always align controlling family interests with minority shareholder interests in emerging economies. Hence, family-ownership concentration and corporate value should have a non-monotonic relationship rather than a simple linear relationship (Bai *et al.* [16], De Miguel *et al.* [17], Morck *et al.* [18], Tian and Estrin [19], Yeh *et al.* [20]). However, thus far, we know little about relationships for ultimate family-ownership structure in China.

Accordingly, we use a panel data set of 1,314 firm-year observations from Chinese family-controlled PLCs from 2004 to 2008. Consistent with our argument and prediction, we find

strong evidence of a significant nonlinear inverse-U-shaped relationship between ultimate family ownership and corporate value in China. As the level of ultimate family ownership increases, corporate value, as measured by Tobin's Q, first increases and then decreases. That is, family-concentrated ownership has two competing effects: interest-alignment and entrenchment. The level of family ownership determines which effect dominates.

Similar to prior findings (e.g., La Porta *et al.* [5], Yeh *et al.* [20], Yeh [21]), we find that diverging control and cash-flow rights significantly and negatively affect corporate value. Meanwhile, of several other governance mechanisms, we find that only multiple large shareholders structure and strong board independence conditions are significantly associated with higher corporate value. These findings suggest that in the context of concentrated ownership, multiple large shareholders and independent directors provide the power and balance to play an effective governance role in restricting the controlling family's expropriation activities. Nevertheless, other governance mechanisms, such as management ownership and CEO duality, play a limited role (Berglöf and Pajuste [22], Claessens and Fan [23], Morck *et al.* [24]). As a result, our findings have important implications for corporate governance practice in China and other emerging market economies.

We make three main contributions to the literature. First, we enrich the growing map of ultimate ownership structures around the world by describing and comparing in detail ultimate corporate ownership structures between China's family-owned and state-owned PLCs and between PLCs in China and in other East Asian Economies (Claessens *et al.* [25], Faccio and Lang [4], La Porta *et al.* [26]). Second, because evidence is mixed regarding the influence of family ownership on firm performance/value (e.g., Anderson and Reeb [27], Andres [28], Goergen [29], Morck *et al.* [30]), we argue that family ownership and corporate value have a non-monotonic relationship rather than a simple linear relationship, and then find strong and robust corroborating evidence from a sample of data from China's family-controlled PLCs. Thus, we contribute to the literature by suggesting that the level of family-ownership concentration changes the dominant interest-alignment and entrenchment effects of family-concentrated ownership. Third, we find that traditional governance mechanisms are inadequate in the context of concentrated ownership. Instead, different governance mechanisms, such as multiple large shareholders and independent directors, are required to resolve conflicts of interests between the controlling families and minority shareholders.

The rest of this paper is structured as follows. Section 2 briefly introduces the ultimate ownership structures of Chinese PLCs. Section 3 drives our testable hypotheses. Section 4 describes the data set and variables. Section 5 presents regression results. Section 6 concludes.

2. Ultimate Ownership Structures of Chinese PLCs

In 1978, China undertook economic reform to turn its central-command economic system into a market economy. Since then, China has become the world's largest and fastest-growing emerging economy (Allen *et al.* [1]). During the past three decades, China's economic reform has led to the decline of state ownership and the rise of private sectors (Ding *et al.* [2]).

In the early 1990s, the Chinese government launched SOEs reform to clarify former SOEs' property rights, improve their corporate governance, and promote their operating performance. To restructure and renovate former SOEs, especially to help SOEs raise funds, the Chinese government established

the stock market. As a result, many former SOEs were restructured to form joint stock companies. However, central or local governments still control former-SOE joint stock companies (Ding *et al.* [2]). To decentralize control rights from the State to firm managers who specialize in managing state assets no longer diluted by state ownership in case of losses, the government usually owns the listed companies through a pyramidal structure consisting of one to several intermediate companies, generally non-listed, solely government-owned SOEs (Fan *et al.* [31], Watanabe [32]). That is, Chinese state-owned PLCs commonly feature pyramidal ownership structures with weak divergence between ultimate cash-flow and control rights (see column B in Table 1).

Table 1. Summary of ownership structures in family listed companies around East Asia.

Column A: Ultimate Ownership and Control Structure in East Asian Corporations (the Largest Shareholder)					
Country/Region	Mean (Median)			No. of obs.	Sample Period
	Cash flow rights	*Control rights*	*Ratio of cash flow rights to control rights*		
Japan	6.90 (4.00)	10.33 (9.71)	0.60 (0.60)	1117	1996
Korea	13.96 (10.10)	17.78 (20.00)	0.86 (1.00)	211	1996
Singapore	20.19 (20.00)	27.52 (29.35)	0.79 (0.800)	211	1996
Indonesia	25.61 (24.00)	33.68 (30.19)	0.78 (0.86)	178	1996
Malaysia	23.89 (19.68)	28.32 (29.72)	0.85 (1.00)	238	1996
Philippines	21.34 (19.22)	24.36 (21.00)	0.91 (1.00)	99	1996
Thailand	32.84 (30.00)	35.25 (39.52)	0.94 (1.00)	135	1996
Taiwan	15.98 (14.42)	18.96 (21.28)	0.83 (0.98)	92	1996
Hong Kong	24.30 (18.67)	28.08 (19.64)	0.88 (1.00)	330	1996
Column B: Ultimate Ownership and Control Structure in Mainland China (the Largest Shareholder)					
Total	39.14 (37.84)	44.42 (44.46)	0.85 (1.00)	880	
State-owned firms	43.02 (42.70)	46.77 (47.49)	0.91 (1.00)	718	2004
Family firms	21.92 (21.18)	34.01 (29.52)	0.62 (0.60)	162	
Total	36.91 (35.05)	42.52 (41.76)	0.84 (1.00)	937	
State-owned firms	40.76 (39.65)	44.75 (45.11)	0.90 (1.00)	754	2005
Family firms	21.07 (20.29)	33.34 (29.49)	0.62 (0.60)	183	
Total	31.27 (29.41)	37.28 (36.10)	0.82 (1.00)	991	
State-owned firms	35.32 (33.70)	39.45 (39.62)	0.89 (1.00)	723	2006
Family firms	20.34 (18.58)	31.42 (27.85)	0.63 (0.65)	268	
Total	31.98 (29.72)	37.76 (36.77)	0.83 (1.00)	1043	
State-owned firms	35.22 (33.75)	39.33 (39.12)	0.89 (1.00)	729	2007
Family firms	24.44 (21.79)	34.10 (30.59)	0.70 (0.75)	314	
Total	32.68 (30.55)	38.74 (38.02)	0.83 (1.00)	1124	
State-owned firms	35.36 (33.80)	39.81 (39.62)	0.88 (1.00)	737	2008
Family firms	27.59 (24.75)	36.68 (33.77)	0.73 (0.80)	387	
Total	34.19 (32.02)	39.96 (38.91)	0.83 (1.00)	4975	
State-owned firms	37.94 (36.55)	42.03 (41.74)	0.89 (1.00)	3661	2004–2008
Family firms	23.75 (21.39)	34.20 (29.89)	0.67 (0.70)	1314	

See Table 2 for the definitions of variables.

As economic reform has deepened in China, many private firms have emerged to become increasingly important to the rapid economic development. In 1992, with the first private-owned company listed on the Chinese stock market, a small but increasing number of private-owned firms, especially family-controlled firms, have been listed on the Chinese stock market (Ding *et al.* [2], Fan *et al.* [31]). For example, by the end of 2008, the Chinese stock market had about 387 family-controlled PLCs, about 34.43% of the total number (1124) of non-financial listed companies (see column B in Table 1). To create internal capital markets and thus relieve financial constraints, entrepreneurs/families also control these PLCs through pyramids. However, entrepreneurs/families usually lack full ownership of the intermediate companies, along the pyramids, resulting in huge divergence between their ultimate control and cash-flow rights (Fan *et al.* [31]).

Although China's state-owned and family-owned PLCs commonly have pyramidal structures, ultimate ownership structures differ. As column B of Table 1 shows, state-owned PLCs have much higher ultimate-ownership concentration than do family-owned PLCs. In state-owned PLCs, the largest shareholder's ultimate control and cash-flow rights diverge much less than they do in family-owned PLCs, as indicated by the ratio of ultimate cash-flow rights to control rights. Column A of Table 1 also shows that in ten countries/regions of East Asia, the ratio of controlling families' ultimate cash-flow rights and control rights, a reverse estimator of the divergence between ownership and control, is the second lowest in mainland China (0.67) with the lowest in Japan (0.60). This indicates common and serious disproportional ownership in Chinese family-owned PLCs, and indicates serious possible conflicts of interests between controlling families and minority shareholders (Friedman *et al.* [14]).

Due to different ultimate ownership structures for state-owned and family-owned PLCs in the Chinese stock market, previous findings on ownership concentration and corporate value/performance relationships drawn from samples combining Chinese state-owned and family-owned firms would be problematic and unconvincing (e.g., Bai *et al.* [16], Tian and Estrin [19], Wei *et al.* [33]). As a result, we focus on Chinese family-owned PLCs to gain more knowledge about ultimate family ownership structures and draw convincing comparable results regarding relationships between family-concentrated ownership and corporate value in China.

3. Hypotheses Development

Unlike cases of diffuse ownership, universal large shareholders can help resolve traditional agency problems between shareholders and managers, but would also cause conflicts of interests between majority shareholders and minority investors (Grossman and Hart [6], Jensen and Meckling [7], Shleifer and Vishny [9,34]). In other words, family-ownership concentration has two competing effects: interest-alignment and entrenchment (Claessens *et al.* [3], Dyck and Zingales [15]).

Under low family-ownership concentration, entrenchment effect will be very weak so that conflicts of interests between controlling families and minority shareholders would generate relatively low costs. As controlling families would lack the voting rights to expropriate minority shareholders, interest-alignment effects may turn to be pronounced. As early as 1980, some degree of ownership concentration was suggested to help resolve problems of free-riders in monitoring managers (Grossman and Hart [6]). In contrast, small investors often "vote with their feet" when a firm is performing poorly, so block shareholders (*i.e.*, controlling families in this study) have enough voting

power and incentives to collect information and monitor managerial opportunistic behaviors and then help resolve traditional agency problems between shareholders and managers (Andres [28], Grossman and Hart [6], Jensen and Meckling [7], Shleifer and Vishny [9,34]). In emerging economies, such as in China, this interest-alignment effect of family-concentrated ownership may be much more pronounced. Conflicts of interests between shareholders and managers is much more serious in emerging economies because of poor legal systems, uneven enforcement (North [35]), and developing corporate governance.

However, under highly concentrated family ownership, controlling families may expropriate firm resources for their own utility at the expense of minority shareholders. As high ownership concentration enables controlling families to manipulate and even appoint management, they can more easily pass privately beneficial decisions/proposals at the expense of overall corporate value. Meanwhile, high ownership concentration means that minority shareholders or coalitions of minority shareholder are weak in the power balance, and thus have no effective restrictions to counter self-beneficial behaviors. In other words, high family-ownership concentration may have a dominant entrenchment effect; controlling families and minority shareholders have serious interest conflicts with resulting poor corporate value. In emerging economies with weak institutions, the entrenchment effect will be more marked. For instance, in China, controlling families usually have outright firm control and management through pyramidal structures (Fan *et al.* [31]), making them much more powerful and able to use their super voting rights to appropriate the profits of companies lower on the tier.

Combining the interest-alignment and entrenchment effects of family-concentrated ownership, we suggest that as family ownership concentration gradually increases, corporate value first increases and then decreases, reflecting an inverse-U-shaped relationship between family ownership and corporate value. Those observations generated our first testable hypothesis:

Hypothesis 1: *An inverse-U-shaped relationship will occur between family-concentrated ownership and corporate value.*

Ultimate ownership structure also leads to the divergence of control and cash-flow rights. In Chinese state-owned PLCs, the government often directly/indirectly controls 100% of ownership (Watanabe [32]; also see the data in Table 1), however, in Chinese family-controlled PLCs, controlling families usually use pyramidal structures to control listed firms with relatively small ownership, so that control and ownership sharply diverge (Fan *et al.* [31]). Thus, ultimate ownership structures in Chinese family-controlled PLCs are distinct in the separation of control and ownership. Under this practical background, controlling families have much incentive to tunnel the lower-tier listed firm's profits and resources because other shareholders will bear the major tunneling costs, but expropriation provides exclusive benefits (Aslan and Kumar [8], Faccio *et al.* [36], Friedman *et al.* [14]). Thus, the major portion of the costs of tunneling will be born by controlling families and minority investors have worsened interest conflicts and increased agency costs (Claessens *et al.* [3], Lin *et al.* [11,12], Yeh *et al.* [20], Yeh [21]). As a result, aligned with prior studies (Claessens *et al.* [3], Dyck and Zingales [15], La Porta *et al.* [5]), the huge divergence between controlling families' ultimate control and cash-flow rights would reduce corporate value, leading to our second testable hypothesis:

Hypothesis 2: *The more divergence between controlling families' ultimate control rights and cash-flow rights, the lower will be corporate value.*

4. Research Design

4.1. Sample and Data

For our sample set, we gathered data regarding family-controlled PLCs in the 2004 to 2008 Chinese stock market. We defined companies as family-controlled PLCs if families or individuals were the largest PLC shareholders, with no less than 10% of ultimate control rights (Le Breton-Miller and Miller [37]). Second, the China Securities Regulatory Commission (CSRC) required Chinese PLCs to disclose details of control chains until 2003. Only a few PLCs disclosed this information in the first year, thus, we took 2004 as our initial sample year and selected firm-year observations from 2004 to 2008. Third, the government always treats the financial industry as a special domain and requires the industry to comply with very stringent legal requirements, thus, we eliminated all financial companies. Finally, to minimize outlier influences, we deleted firms also listed on other overseas markets, firms with issued debt more than asset value, firms that are under Special Treatment (ST), and firms with missing data. We finally obtained a five-year panel data set of 1314 firm-year observations. Firms in each sample year for 2004 to 2008 numbered 162, 183, 268, 314, and 387, respectively. In this study, we followed CSRC's *Guidelines for Classification of Listed Companies* (A through M) to classify our sample industry, including all but the financial industry.

We obtained financial data from the China Stock Market & Accounting Research (CSMAR) database designed and developed by GTA Information Technology, a major provider of China data. We hand-collected data about PLC control chains from PLC annual reports disclosed on the CRSC-appointed CNINFO website.

4.2. Variable Description

Since Tobin's Q is a widely used measure of valuation for listed companies, we followed this tradition and took Tobin's Q to measure the dependent variable: corporate value. Following previous researches (Wei *et al.* [33], Tian and Estrin [19]), we calculated *Tobinq* as the ratio of the market value of equity plus the book value of debt over the book value of total assets. However, Chinese PLC stock is classified as tradable and non-tradable. Illiquidity discounts of 70%–80% present a problem for pricing non-tradable stock (Chen and Xiong [38]). Referring to Bai *et al.* [16], we multiplied the tradable stock price by 30% and 20%, respectively, to use as the price of non-tradable stock and, thus, acquired another two measures for corporate value: *Tobin70* and *Tobin80*, respectively. As a whole, we used three alternative measurements for corporate value in this study: *Tobinq*, *Tobin70*, and *Tobin80*.

The independent variables are the controlling family's ultimate cash-flow rights and the divergence between the controlling family's ultimate control and cash-flow rights, denoted by *family ownership* and *wedge of control and ownership,* respectively. Pyramidal ownership structure is predominant in the Chinese stock market (Fan *et al.* [31]), so we cast back the firm's control chains and used La Porta *et al.*'s [5] method to calculate controlling families' ultimate cash-flow and control rights. Specifically, we computed controlled families' ultimate cash-flow rights as the sum of the product of the equity stakes along the control chains. The ultimate control rights were computed as the sum of the minimum voting stakes along the control chains. Then, *wedge of control and ownership* was measured as the

ratio of the controlling family's ultimate control rights and cash-flow rights (Faccio and Lang [4]). Table 2 presents the definitions of other governance variables and control variables.

Table 2. Definition of variables.

Variable	Definition
Tobinq	A proxy of Tobin's Q as the adjusted market value of the firm. It is calculated as the ratio of the market value of common stock plus the book value of total debt over the book value of total assets.
Tobin70	A proxy of Tobin's Q adjusted for the illiquidity discount issue of non-tradable stock. It is calculated as the ratio of the market value of tradable and non-tradable stock plus the book value of total debt over the book value of total assets. The market price of non-tradable stock is proxied by 30 percent of the price of tradable stock.
Tobin80	A proxy of Tobin's Q adjusted for the illiquidity discount issue of non-tradable stock. It is calculated as the ratio of the market value of tradable and non-tradable stock plus the book value of total debt over the book value of total assets. The market price of non-tradable stock is proxied by 20 percent of the price of tradable stock.
Family ownership	The controlling family's ultimate cash-flow ownership. It is computed as the sum of the product of all the equity stakes along the control chains.
Family control	The controlling family's ultimate control rights. It is computed as the sum of the minimum voting stakes along the control chains.
Wedge of control and ownership	The divergence between control and cash-flow rights. It is measured as the ratio of controlling families' ultimate control and cash flow rights.
Multiple large shareholders	Multiple Large Shareholders. It is proxied by a dummy variable that takes the value one if the percentage of the second largest shareholder's ownership is no less than 5%.
Independent directors	The proportion of independent directors on the board of directors.
Management ownership	The sum of proportion of voting stakes by top managers and directors.
CEO duality	A dummy variable that takes the value one if the CEO is the chairman or a vice chairman of the board of directors.
Firm size	Firm Size. It is calculated as the log of total assets.
Firm age	Firm age. It is calculated as the log of years since focal firms listed on the stock market exchange.
Firm leverage	Firm Leverage. It is calculated as the sum of the book value of short term and long term debt deflated by the book value of total assets.
Tangible assets	Assets Tangibility. It is calculated as tangible assets over total assets.
ROA	Profitability. It is measured as the ratio of earnings before interest and tax (EBIT) and the book value of total assets.
Sales growth	Growth in Sales. It is calculated as percentage change in sales year-on-year.
Year indicators	Dummy variables that indicate the acquired companies' fiscal years. The year 2004 is the excluded category.
Industry indicators	Dummy variables that indicate the acquired companies' industrial types. The agriculture, forestry, animal husbandry, and fishing sector are the excluded categories.

4.3. Empirical Model Specification

To test our two hypotheses relative to the relationships between family ultimate ownership structure and corporate value, we used the following regression model:

$$y_{it} = \beta_0 + \beta_1(\text{family ultimate ownership structure}) + \beta_2(\text{other governance variables}) + \beta_3(\text{control variables}) + \beta_4(\text{industry dummies}) + \beta_5(\text{year dummies}) + \varepsilon_{it} \quad (1)$$

where y_{it} = corporate value was measured as *Tobinq*, *Tobin70*, and *Tobin80*. Family ultimate ownership structure refers to two variables: controlling families' ultimate cash-flow rights (*family ownership*) and the divergence of controlling families' ultimate control and cash-flow rights (*wedge of control and ownership*). Other governance variables include *multiple large shareholders*, *independent directors*, *management ownership*, and *CEO duality*. The control variables comprise *firm size*, *firm age*, *firm leverage*, *tangible assets*, *ROA*, and *sales growth*.

For our five-year panel data set, we used the fixed effects method to estimate our regression models. Ultimate family ownership structure changed substantially over the sample period, and by nature, the fixed effects model requires longitudinal variation in the data (Andres [28]). Therefore, this equation can identify fixed effects. In addition, we used fixed-effects IV regression models to address endogeneity issues between family-ownership structure and corporate value.

5. Empirical Results

5.1. Descriptive Results

Table 3 presents the descriptive statistics of the data and shows that the average corporate value, measured by *Tobinq*, was 2.22, much lower than 2.99 (in Bai *et al.* [16]), 2.92 (in Wei *et al.* [33]), and 2.68 (in Tian and Estrin [19]). The latter three studies included both family and state-owned PLCs in their samples, which suggests that family-owned PLCs have much lower corporate value than do state-owned PLCs in China. Meanwhile, controlling families' ultimate cash-flow rights averaged about 23.8%, and their ultimate control and cash-flow rights averaged 2.06, indicating that Chinese family-controlled PLCs have high ownership concentration and largely diverging ultimate control and cash-flow rights. Of the total sample firms, 70.7% had more than one large shareholder with no less than 5% ownership. On average, about 35.8% of directors were independent, much lower than that in developed Western countries. In the sample firms, top managers owned an average of only 2.1% of their companies' shares. Only 18.0% of the CEOs were also either chairmen or vice chairmen of the board of directors, much lower than 35% when both family and state-owned PLCs were included (in Bai *et al.* [16]). This result means that Chinese state-owned PLCs much more frequently have dual CEOs and (vice) chairmen on their boards of directors.

More specifically, to derive more insightful knowledge about ultimate family-ownership structure in Chinese PLCs, we summarized yearly statistics for family-ownership structure over the sample period of 2004 to 2008. Table 4 shows the results indicating that controlling families' ultimate cash-flow rights decreased yearly, from 2004 to 2006, but markedly increased from 2007 to 2008. However, controlling families' ultimate control and cash-flow rights diverged increasingly each year in the first three years, but substantially decreased in the last two years. For example, controlling families reaches their lowest average ultimate cash-flow rights of 20.3% in 2006 but the highest of 27.6% in 2008, while their ultimate control and cash-flow rights have their highest average ratio of 2.37 in 2006 but their lowest of 1.78 in 2008. Thus family ownership structure in Chinese PLCs changed substantially

during the sample period of 2004 to 2008. This change predominantly tended toward the weakening divergence of control and cash-flow rights.

Table 3. Results of descriptive statistics.

Variable	Number	Mean	SD	Min	P25	Median	P75	Max
Tobinq	1314	2.222	1.503	0.311	1.293	1.737	2.534	12.400
Tobin70	1314	1.641	1.035	0.311	1.014	1.295	1.837	10.839
Tobin80	1314	1.558	0.979	0.311	0.970	1.231	1.719	10.620
Family ownership	1314	0.238	0.150	0.005	0.119	0.214	0.314	0.797
Wedge of control and ownership	1314	2.062	1.917	1.000	1.059	1.430	2.257	26.656
Multiple large shareholders	1314	0.707	0.455	0	0	1	1	1
Independent directors	1314	0.358	0.049	0.000	0.333	0.333	0.375	0.600
Management ownership	1314	0.021	0.076	0.000	0.000	0.000	0.000	0.692
CEO duality	1314	0.180	0.385	0	0	0	0	1
Firm size	1314	21.068	0.888	18.157	20.452	20.994	21.645	24.288
Firm age	1314	1.929	0.635	0.000	1.609	2.079	2.398	2.833
Firm Leverage	1314	0.493	0.183	0.009	0.371	0.500	0.625	0.994
Tangible assets	1314	0.292	0.173	0.001	0.164	0.274	0.403	0.916
ROA	1314	0.060	0.088	−0.778	0.032	0.059	0.094	0.950
Sale growth	1314	0.276	1.119	−0.945	−0.012	0.152	0.361	29.817

See Table 2 for the definitions of variables.

Table 4. Summary statistics for family ownership structure in Chinese publicly listed companies (PLCs).

Year	Variable	Number	Mean	SD	Min	P25	Median	P75	Max
	Family ownership	162	0.219	0.137	0.011	0.113	0.212	0.279	0.742
2004	*Family control*	162	0.340	0.129	0.104	0.261	0.295	0.444	0.742
	Wedge of control and ownership	162	2.245	1.901	1.000	1.183	1.660	2.439	13.491
	Family ownership	183	0.211	0.127	0.006	0.112	0.203	0.268	0.742
2005	*Family control*	183	0.333	0.130	0.104	0.249	0.295	0.416	0.742
	Wedge of control and ownership	183	2.287	2.412	1.000	1.181	1.678	2.439	26.656
	Family ownership	268	0.203	0.130	0.005	0.105	0.186	0.270	0.678
2006	*Family control*	268	0.314	0.127	0.100	0.225	0.279	0.392	0.802
	Wedge of control and ownership	268	2.373	2.527	1.000	1.125	1.538	2.500	22.413
	Family ownership	314	0.244	0.149	0.014	0.138	0.218	0.326	0.797
2007	*Family control*	314	0.341	0.143	0.103	0.229	0.306	0.427	0.797
	Wedge of control and ownership	314	1.919	1.508	1.000	1.014	1.327	2.032	10.026
	Family ownership	387	0.276	0.170	0.011	0.146	0.248	0.381	0.765
2008	*Family control*	387	0.367	0.160	0.104	0.238	0.338	0.468	0.959
	Wedge of control and ownership	387	1.779	1.334	1.000	1.000	1.250	1.943	10.870
	Family ownership	1314	0.238	0.150	0.005	0.119	0.214	0.314	0.797
Total	*Family control*	1314	0.342	0.143	0.100	0.233	0.299	0.434	0.959
	Wedge of control and ownership	1314	2.062	1.917	1.000	1.059	1.430	2.257	26.656

See Table 2 for the definitions of variables.

Table 5 shows the correlation coefficients between main variables included in regression models, illustrating that the absolute values of correlation coefficients are much smaller than 0.5 except for the coefficients among our three alternative corporate value measurements. Hence, multicollinearity does not appear to be a significant problem in this study.

Table 5. Pearson correlation coefficients (excluding industry and year indicators).

Variable	**1**	**2**	**3**	**4**	**5**	**6**	**7**
1 *Tobinq*	1.000	-	-	-	-	-	-
2 *Tobin70*	0.958 ***	1.000	-	-	-	-	-
3 *Tobin80*	0.939 ***	0.998 ***	1.000	-	-	-	-
4 *Family ownership*	0.114 ***	0.027	0.008	1.000	-	-	-
5 *Wedge of control and ownership*	−0.072 ***	−0.062 **	−0.059 **	−0.513 ***	1.000	-	-
6 *Multiple large shareholders*	0.094 ***	0.053 *	0.043	−0.101 ***	0.025	1.000	-
7 *Independent directors*	0.043	0.046 *	0.046 *	0.100 ***	−0.047 *	−0.091 ***	1.000
8 *Management ownership*	0.093 ***	0.050 *	0.040	0.252 ***	−0.135 ***	0.083 ***	0.018
9 *CEO duality*	0.046 *	0.034	0.032	0.053 *	0.014	−0.002	0.093 ***
10 *Firm size*	−0.257 ***	−0.199 ***	−0.184 ***	0.030	0.030	−0.183 ***	−0.033
11 *Firm age*	−0.060 **	0.040	0.062 **	−0.334 ***	0.134 ***	−0.150 ***	−0.007
12 *Firm Leverage*	−0.219 ***	−0.144 ***	−0.126 ***	−0.090 ***	0.061 **	−0.082 ***	−0.041
13 *Tangible assets*	−0.045	−0.034	−0.032	−0.135 ***	0.140 ***	−0.040	−0.072 ***
14 *ROA*	0.210 ***	0.183 ***	0.175 ***	0.200 ***	−0.059 **	0.013	−0.017
15 *Sale growth*	0.018	0.010	0.008	0.102 ***	−0.026	0.003	0.010
Variable	**8**	**9**	**10**	**11**	**12**	**13**	**14**
8 Management ownership	1.000	-	-	-	-	-	-
9 *CEO duality*	0.272 ***	1.000	-	-	-	-	-
10 *Firm size*	−0.111 ***	−0.062 **	1.000	-	-	-	-
11 *Firm age*	−0.428 ***	−0.117 ***	0.122 ***	1.000	-	-	-
12 *Firm Leverage*	−0.176 ***	−0.132 ***	0.302 ***	0.266 ***	1.000	-	-
13 *Tangible assets*	−0.017	0.022	−0.010	−0.064 **	−0.015	1.000	-
14 *ROA*	0.123 ***	0.010	0.173 ***	−0.149 ***	−0.192 ***	−0.070 **	1.000
15 *Sales growth*	−0.003	0.005	0.041	−0.024	0.036	−0.033	0.092 ***

***, **, * denote significance at the 0.01, 0.05, and 0.10 levels, (two tailed test).

5.2. Regression Results

Table 6 reports the results of fixed-effects (within) regressions of family ownership on our three corporate value measures of *Tobinq*, *Tobin70*, and *Tobin80*. In Models 1 and 2 we used *Tobinq* as the measure of corporate value, Models 3 and 4 used *Tobin70*, Models 5 and 6 used *Tobin80*. In all models, we included control variables (e.g., *Firm size*, *Firm age*, *Firm leverage*, *Tangible assets*, *ROA*, *Sale growth*) commonly used in studies of corporate value, as well as year dummy variables and industry dummy variables.

Table 6. Results of fixed-effects (within) regression.

Variable	*Tobinq*		*Tobin70*		*Tobin80*	
	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**
Family ownership	0.620	1.942 ***	−0.223	0.918 *	−0.344	0.771
	(1.16)	(2.66)	(−0.58)	(1.76)	(−0.94)	(1.55)
Family ownership squared	-	−5.587 ***	-	−4.823 ***	-	−4.713 ***
	-	(−2.65)	-	(−3.20)	-	(−3.28)
Wedge of control and ownership	−0.041	−0.008	−0.044 *	−0.016	−0.044 **	−0.017
	(−1.28)	(−0.25)	(−1.94)	(−0.67)	(−2.05)	(−0.75)
Multiple large shareholders	0.252 **	0.268 **	0.103	0.117	0.081	0.095
	(1.97)	(2.10)	(1.12)	(1.28)	(0.93)	(1.09)
Independent directors	2.016 **	1.980 **	2.029 ***	1.999 ***	2.031 ***	2.002 ***
	(2.30)	(2.26)	(3.23)	(3.20)	(3.39)	(3.36)
Management ownership	1.012	1.067	0.402	0.449	0.314	0.361
	(0.81)	(0.86)	(0. 45)	(0.51)	(0.37)	(0.43)
CEO duality	0.057	0.053	0.034	0.031	0.031	0.028
	(0.44)	(0.41)	(0.37)	(0.33)	(0.35)	(0.31)
Firm size	−0.688 ***	−0.662 ***	−0.517 ***	−0.495 ***	−0.493 ***	−0.471 ***
	(−5.10)	(−4.91)	(−5.35)	(−5.14)	(−5.35)	(−5.13)
Firm age	0.065	0.005	0.466 **	0.415 *	0.524 **	0.473 **
	(0.21)	(0.02)	(2.14)	(1.91)	(2.52)	(2.29)
Firm leverage	−0.062	−0.219	0.366	0.231	0.427	0.295
	(−0.15)	(−0.54)	(1.27)	(0.80)	(1.56)	(1.07)
Tangible assets	−0.356	−0.378	−0.278	−0.297	−0.267	−0.285
	(−0.88)	(−0.94)	(−0.96)	(−0.103)	(−0.97)	(−1.04)
ROA	2.508 ***	2.390 ***	1.797 ***	1.696 ***	1.696 ***	1.596 ***
	(4.60)	(4.38)	(4.60)	(4.35)	(4.55)	(4.30)
Sales Growth	−0.026	−0.018	−0.033	−0.026	−0.034 *	−0.027
	(−0.93)	(−0.65)	(−1.61)	(−1.27)	(−1.74)	(−1.39)
Intercept	14.960 ***	14.379 ***	10.510 ***	10.010 ***	9.878 ***	9.387 ***
	(5.40)	(5.20)	(5.31)	(5.07)	(5.23)	(4.98)
No. of obs.	1314	1314	1314	1314	1314	1314
No. of firms	465	465	465	465	465	465
F value	43.91 ***	42.85 ***	44.83 ***	44.04 ***	44.42 ***	43.68 ***
R^2	0.581	0.585	0.586	0.591	0.584	0.589
Ajusted R^2	0.332	0.337	0.340	0.347	0.336	0.344

(i) ***, **, and * denote significance at the 0.01, 0.05, and 0.10 levels, (two tailed test); (ii) T-statistics are provided in parentheses; (iii) See Table 2 for the definitions of variables.

As Table 6 displays, when the regressions included only *Family ownership*, we found no significant relationship between family ownership and corporate value (see Models 1, 3, and 5 in Table 6). However, when we included *family ownership* and *family ownership squared* into the regressions at the same time, *family ownership* had positive and almost significant coefficients for our three corporate value measures, and *family ownership squared* had negative and significant coefficients at the 1% level (see Models 2, 4, and 6, in Table 6). These findings indicate that in China, a nonlinear inverse-U-shaped relationship, rather than a linear relationship, occurs between family-concentrated ownership and corporate value, consistent with hypothesis 1. Using the coefficients of *family ownership* and *family ownership squared* from Model 4 and taking *Tobin70* as the measure of corporate value, we got the turning point of the nonlinear inverse-U-shaped relationship. On the turning point, *family ownership* equals approximately 33.27%. This value implies that a positive relationship occurs between *family ownership* and *Tobin70* when controlling families' ultimate ownership is below 33.27%, the interest-alignment effect of family-concentrated ownership, but a negative relationship occurs between *family ownership* and *Tobin70* when the controlling family's ultimate ownership is no less than 33.27%, the entrenchment effect of family-concentrated ownership.

Our results are more or less consistent with previous research in Canada, family ownership was found to be negatively related financial performance (Morck *et al.* [30]). In another study, panel data on S&P 500 firms showed firm performance and family holdings to have a nonlinear but inverted-U-shape (Anderson and Reeb [27]). Panel data on 275 German listed companies showed family ownership to be significantly and positively related with accounting performance, but slightly significantly related with market valuation through a 10%-level nonlinear relationship (Andres [28]). Combining the evidence, we argue that low levels of family-concentrated ownership can help resolve agency problems between shareholders and managers, but high levels of family-concentrated ownership and thus outright control might allow owners to expropriate minority shareholders to maximize their own utility, especially in emerging economies, such as China's, where legal investor protections are poor. However, our findings sharply contrast with three studies on state shareholdings in China (Bai *et al.* [16], Wei *et al.* [33], Tian and Estrin [19]) that find a nonlinear-U-shaped relationship between state shareholdings and corporate value. Those differing results may occur mainly from different ownership state-owned and family-controlled structures in the Chinese stock market (see Table 1). Once again, to avoid drawing murky and inconsistent conclusions, future researchers focusing on the issues of Chinese corporate ownership structure should be aware that Chinese state-owned and family-controlled companies are vastly different.

In terms of the divergence of the controlling family's ultimate control and cash-flow rights, the *Wedge of control and ownership* coefficients were negative in all regression models, as Hypothesis 2 predicts. However, only some are statistically significant (see Models 3 and 5, in Table 6). As a whole, hypothesis 2 is weakly supported. That is, the divergence of controlling families' ultimate control and cash-flow rights may exacerbate the expropriation of minority shareholders and thus reduce corporate value in China, which coincides with prior studies (e.g., Claessens *et al.* [3], Lemmon and Lins [39], Lin *et al.* [11, 12], Maury [40], Yeh [21]).

In the context of concentrated-ownership structure, do traditional governance mechanisms play an effective governance role and affect corporate value? To answer that question, we examined the effects of four most-frequently mentioned governance variables on corporate value. As Table 6 shows, the

Multiple large shareholders variable was positively related to corporate value in all regression models, but only significantly related to corporate value, as measured by *Tobinq* (see Models 1 and 2). Overall, the results indicate that multiple large shareholders are associated with higher corporate value, consistent with previous empirical findings (Attig *et al.* [41], Maury and Pajuste [42]). The proportion of independent directors on the boards had positive coefficients in all regression models, which is significant at least at the level of 5%. Hence, our findings strongly indicate that board independence can play an effective governance role in preventing controlling families from expropriating minority shareholders, thus improving corporate value. More specifically, our findings suggest that although the independent director system has a short history in China, it is now mature enough to play an effective governance role as intended in Chinese PLCs. In addition, we found no significant effects of management ownership and CEO duality on corporate value, indicating that the two traditional governance factors do not affect corporate value. Taken as a whole, the role of traditional internal governance mechanisms is much limited in the context of concentrated ownership (Berglöf and Pajuste [22], Claessens and Fan [23], Morck *et al.* [24]).

Of the six control variables, the nature log of total assets (*Firm size*) was negatively associated with corporate value at the 1% level of significance in all regression models. This result corroborates previous findings (e.g., Bai *et al.* [16], Tian and Estrin [19], Wei *et al.* [33]) and indicates that smaller firms have higher corporate value in the Chinese stock market. Similar to prior evidences, *ROA* positively affects corporate value at the 1% level of significance in all regression models, suggesting that better accounting performance is associated with higher corporate market performance in Chinese family-controlled PLCs. However, our results show no signs of significant and consistent effects of *Firm age*, *Firm leverage*, *Tangible assets*, and *Sales growth* on corporate value in the Chinese stock market.

5.3. Analysis of Endogeneity of Family Ownership and Corporate Value

Our results potentially suffer from an endogeneity issue: our observed relationship between family ownership and corporate value might be the result of reversed causality. Ownership structures are firm-specific and affected by compensation plans, insider trading possibilities, and corporate takeovers (Demsetz and Lehn [43], Demsetz and Villalonga [44]), which indicates that firm performance/value affect the ownership structure. In our study, family ownership might be an endogenous variable. However, the argument for the endogeneity of family ownership is questionable. Many empirical findings (e.g., Andres [28], Gugler and Weigand [45], Holderness [46], La Porta *et al.* [26]) suggest that ownership structures, especially large shareholder ownerships, are relatively stable over time. Hence, it seems unlikely that large family shareholders will change their ownership quickly and frequently in light of the firm's temporary market valuation.

Despite the questionable argument of the endogeneity issue, we tested the robustness of our results by employing an IV-2SLS panel-data model; that is, fixed-effects (within) IV regressions. Specifically, the ultimate cash-flow rights of family-controlling shareholders (*family ownership*) are instrumented by lagged value in all regressions. Table 7 shows the regression results drawn by this method. After controlling for endogeneity, the inverse-U-shaped relationship between family ownership and corporate value was still significant for all three measures of corporate value: *Tobinq*, *Tobin70*, and

Tobin80. The results indicate that serious reversed causality may not occur between family ownership and corporate value. In other words, endogeneity of family ownership does not drive the inverse-U-shaped relationship between family ownership and corporate value drawn in this study.

Table 7. Results of fixed-effects (within) IV regression.

Variable	*Tobinq*		*Tobin70*		*Tobin80*	
	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**
(Instrumented) *Family ownership*	1.902	7.101 *	0.655	4.907	0.477	4.594
	(0.92)	(1.76)	(0.42)	(1.62)	(0.32)	(1.58)
(Instrumented) *Family ownership squared*	-	−17.160 *	-	−14.040 **	-	−13.590 **
	-	(−1.89)	-	(−2.06)	-	(−2.07)
Wedge of control and ownership	−0.069	0.202	−0.084	0.138	−0.086	0.128
	(−0.73)	(1.05)	(−1.20)	(0.95)	(−1.28)	(0.92)
Multiple large shareholders	0.393 **	0.466 **	0.221	0.280 *	0.196	0.253 *
	(2.11)	(2.32)	(1.58)	(1.86)	(1.46)	(1.75)
Independent directors	3.017 **	2.933 **	2.770 ***	2.701 ***	2.735 ***	2.668 ***
	(2.46)	(2.35)	(3.01)	(2.89)	(3.09)	(2.97)
Management ownership	−1.822	−1.464	−0.740	−0.447	−0.586	−0.302
	(−0.97)	(−0.76)	(−0.52)	(−0.31)	(−0.43)	(−0.22)
CEO duality	0.064	0.080	0.057	0.071	0.056	0.069
	(0.37)	(0.45)	(0.43)	(0.52)	(0.44)	(0.53)
Firm size	−0.866 ***	−0.812 ***	−0.624 ***	−0.579 ***	−0.589 ***	−0.546 ***
	(−3.68)	(−3.47)	(−3.53)	(−3.30)	(−3.46)	(−3.23)
Firm age	1.816 **	1.550 **	1.444 ***	1.227 **	1.391 ***	1.181 **
	(2.55)	(2.15)	(2.71)	(2.27)	(2.71)	(2.27)
Firm leverage	0.159	−0.340	0.478	0.071	0.524	0.129
	(0.30)	(−0.56)	(1.22)	(0.16)	(1.39)	(0.30)
Tangible assets	−0.907	−1.051 *	−0.744 *	−0.861 **	−0.720 *	−0.834 **
	(−1.62)	(−1.81)	(−1.77)	(−1.97)	(−1.78)	(−1.99)
ROA	2.446 ***	2.118 **	1.847 ***	1.579 **	1.761 ***	1.501 **
	(3.08)	(2.49)	(3.10)	(2.47)	(3.07)	(2.45)
Sales Growth	−0.002	−0.001	0.001	0.001	0.001	0.001
	(−0.05)	(−0.02)	(0.01)	(0.04)	(0.02)	(0.05)
Intercept	13.950 ***	12.180 ***	9.899 ***	8.601 ***	9.319 ***	8.090 **
	(3.23)	(2.75)	(3.05)	(2.59)	(2.99)	(2.53)
No. of obs.	821	820	821	820	821	820
No. of firms	333	332	333	332	333	332
Wald Chi2	6037.85 ***	5830.66 ***	6319.63 ***	6089.70 ***	6255.79 ***	6029.60 ***

(i) ***, **, and * denote significance at the 0.01, 0.05, and 0.10 levels, (two tailed test); (ii) Z-statistics are provided in parentheses; (iii) See Table 2 for the definitions of variables.

6. Conclusions

In this paper, we investigate the relationship between ultimate family-ownership structure and corporate value using a five-year panel data set of 1314 firm-year observations from China's

family-controlled PLCs from 2004 to 2008. Unlike previous studies that propose a simple linear relationship between ownership concentration and corporate value, we argue and find a nonlinear inverse-U-shaped relationship between family ownership and corporate value in China's emerging economy where minority shareholders have poor legal protection. More specifically, we study the relationships between controlling families' ultimate cash-flow rights and corporate value, and between the divergence of controlling families' ultimate control and cash-flow rights and corporate value.

We find significant and consistent results. First, we find that the relationship between the controlling family's ultimate cash-flow rights and corporate value, as measured by Tobin's Q, exhibits a significant nonlinear inverse-U-shaped pattern, known as the interest-alignment and entrenchment effects of family-concentrated ownership. That is, the left half of the inverse-U-shaped curve reflects the interest-alignment effect of family-concentrated ownership, while the right half reflects the entrenchment effect. Second, we find evidence of a significant and negative relationship between the divergence of control and cash-flow rights and corporate value, which is consistent with prior studies. Third, we corroborate previous findings that both multiple large shareholders and high board independence are significantly associated with higher corporate value, but other governance mechanisms such as management ownership and CEO duality do not have significant and consistent effects on corporate value. These findings suggest that in the context of concentrated ownership, some traditional governance mechanisms would be ineffective for reducing agency costs and improving corporate value. Finally, our robustness tests of potential endogeneity between family ownership structure and corporate value future suggest that our results are robust.

Our findings add to our understanding of the relationship between family ownership structure and corporate value. Specifically, family-concentrated ownership has two competing effects: interest-alignment and entrenchment. The level of family-ownership concentration determines which effect dominates. In other words, increased family-ownership concentration does not always enhance corporate value. Controlling family-ownership concentration plays its best governance roles at moderate levels. Moreover, in the context of family-concentrated ownership, both multiple large shareholders and high board independence can play effective governance roles by restricting controlling families from expropriating minority shareholders, thus, enhancing corporate value. In practice, our findings suggest regulators (e.g., CSRC in China) should particularly supervise potential expropriation of minority shareholders in family-owned firms where controlling families hold high concentrated ownership, without multiple large shareholders structure, and/or having low board independence. For outside investors, they should avoid investing in family-owned firms with above features.

Despite these theoretical contributions and practical implications, future research should mainly address two limitations of this study. First, besides family ownership, family management is the other side of coin in family-controlled firms. How family management may interact with family ownership in driving firm performance would be an important research question in the future. Second, since firm performance is a complex function of many factors, it deserves research attention to go a step further to explore specific channels through which family-concentrated ownership affects firm performance.

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Author Contributions

Both authors contributed equally to this paper.

Conflicts of Interest

The authors declare no conflict of interest.

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