A Study on the Relationship between Family Shareholding and Company's Operating Performance - Evidences from a Small Open Economy

Jian-Fa Li[1], Ni-Chen Chang[2], Katherine A. Li[3]

Abstract

Our study is to investigate how the ownership structure and financial aspects of family-controlled firms influence their operating performance. The interests of major shareholders are aligned, this could positively impact the company's operating performance. Conversely, dominant shareholders might entrench themselves in a way that doesn't necessarily benefit the operating performance. The presence of a second largest shareholder acts as a check and balance on the first largest shareholder. We reveal an inverted U-shaped relationship between the shareholding ratio of foreign institutional investors (SRFII) and operating performance. It suggests that as SRFII increases, operating performance initially improves but might decline after reaching a certain threshold. This finding highlights the importance of maintaining balance in SRFII to ensure alignment of interests between company leadership and the company's overall goals. Excessive foreign ownership could potentially lead to divergent interests that may not be aligned with the company's best interests. We also find that higher equity pledge ratio among key leadership roles might adversely affect operating performance. Pledged shares could restrict decision-making flexibility and potentially lead to conflicts of interest. These findings shed light on the complex dynamics within family-controlled firms, particularly how ownership structure and financial arrangements could influence operational outcomes.

Keywords: *Family-Controlled Firms, Corporate Governance, Family Ownership Structure, Operating Performance.*

Introduction

Berle and Means (1932) observed that U.S. corporation law in the 1930s enforced the separation of ownership and management rights. This meant that shareholders had to relinquish part of their ownership to managers, who then also gained ownership rights in

addition to their managerial authority. Morck et al. (1988) found that as managers' shareholding in a company increased, they gained significant voting power, potentially leading to decisions that prioritize their interests over those of shareholders, thereby increasing agency costs. Family-controlled firms typically have ownership and management rights concentrated within the family. This centralized control could reduce agency problems compared to companies with dispersed ownership among unrelated shareholders.

Dyer (1989) highlighted that while family ownership could mitigate certain agency costs, it also introduces other complexities and potential agency challenges due to the unique dynamics within family-controlled firms. The involvement of foreign institutional investors in ownership adds another layer of complexity. Liao (2012) pointed out that foreign institutional investors increasingly influence emerging economies' corporate governance, potentially affecting the dynamics of family-controlled firms.

Family-controlled firms in many countries account for more than 70% of the total companies, and they play an important role in increasing economic benefits and providing employment opportunities. Family governance is quite common in Taiwanese companies. According to research by Claessens et al. (2000), Taiwanese listed companies about 80% of them are controlled by families. Due to the centripetal force of family members, the family-controlled firms could easily expand its territory quickly, but also because ownership and management rights are integrated. If the family members is the largest shareholder of the company, family-controlled firms could make quicker decisions due to streamlined governance structures, which could be advantageous in competitive markets. When family members control the company, family

[1] Department of Finance, Chaoyang University of Technology, Taichung, Taiwan; Address: 168 Jifong E. Rd., Wufong District, Taichung, 41349, Taiwan; jfli@cyut.edu.tw. (Corresponding author)
[2] Department of Finance, Chaoyang University of Technology, Taichung, Taiwan; s10316072@gmail.com.
[3] Department of Finance and Business Economics, University of Washington, Seattle, USA; li.kath2002@gmail.com.

members might lack professional qualifications or experience, leading to suboptimal management decisions and their decisions might prioritize family interests over company performance, leading to potential conflicts. In addition, family members have the power to make company decisions, and promotion positions are often based on the family name. Members are given priority, making it difficult for talented non-family members to get ahead, affecting talent retention and recruitment. Although family governance has potential and substantial benefits. At the same time, it also causes many problems and disadvantages in business operations. Therefore, the impact of family governance and family ownership structure on family-controlled firms operations is worthy of discussion.

In summary, the interplay between ownership structure (family vs. non-family), managerial control and external ownership (foreign institution) could significantly shape governance, agency costs and ultimately the operating performance of family-controlled firms. Understanding these relationships is crucial for effective corporate governance and performance management in family-controlled firms. Therefore, the present study aims to explore how the interests of family shareholders and foreign institutional investors might align or conflict within family-controlled firms and how this interaction affects operating performance. By leveraging rigorous empirical analysis and considering real-world implications, our study could make a significant contribution to both academic discourse and practical decision-making in the field of corporate governance and family-controlled firm management.

The remaining of the present study are organized in the following manner. The next section is literature review on ownership structure, agency problems and financial indicators for measuring operating performance. Section 3 establishes hypotheses and empirical models exploring the impact of the ownership structure and financial aspects of family-controlled firm on operational performance. Section 4 presents and discusses the empirical findings and section 5 concludes the present study.

Literature Review

Definition of Family-Controlled Firm

Miller et al. (2007) defined a family-controlled firm is not just any firm owned by a family; rather, it's a company where family members hold substantial ownership or managerial positions, and where succession planning plays a crucial role in determining who leads the business across different generations of the family. Based on Hamilton & Kao (2017) and other literatures, the definition of a family-controlled firms in Taiwan is defined as one where a specific family (especially the founder's family) holds significant equity ownership, controls more than half of the voting rights on the board of directors and has direct family representation on the board. This definition emphasizes the family's direct influence and control over large enterprises in Taiwan, highlighting the dominant role of family-controlled firms in the country's economic landscape.

Literatures on corporate governance

Structure of Ownership and Agent Problem

Adolf & Gardiner (1932) highlighted a fundamental shift in the dynamics of corporate governance. They observed that the separation of ownership and management rights in modern corporations led to the emergence of agency costs. They underscored the challenges that arise in corporate governance due to the separation of ownership and management. The phenomenon of agency costs highlights the need for effective mechanisms to align the interests of shareholders and managers and to reduce the potential for conflicts and inefficiencies within corporations. There are three following main arguments regarding ownership structure and company operating performance.

Convergence of Interest Hypothesis

Jensen & Meckling (1976) firstly pointed out that higher manager shareholding can align managerial interests with those of shareholders, as managers have more to lose if the company performs poorly. This can incentivize managers to work harder to improve company performance. Additionally, concentrated

equity ownership among large shareholders can lead to effective monitoring of managers, thereby enhancing overall company performance. Oswald & Jahera (1991) added to this by suggesting that when operating managers have significant equity ownership, their interests become more aligned with shareholders', which can help reduce agency costs and ultimately benefit the company's operating performance. Kole & Lehn (1997) underscored the role of external shareholders in monitoring companies, particularly in environments with fewer regulatory constraints. Increased external shareholder involvement, including serving as directors, could enhance corporate governance and accountability. Fan & Wong (2002) argued that in countries with more concentrated ownership structures, the agency problem associated with controlling shareholders can impact the correlation between a company's operating value and its stock price. It highlights how ownership structure can influence market dynamics and shareholder interests. Each of these perspectives contributes to understanding how ownership concentration and governance mechanisms can shape company behavior and performance, reflecting the complexities of corporate governance in different contexts.

Entrenchment Hypothesis

The entrenchment hypothesis proposed by Jensen & Ruback (1983) raises important questions about the alignment of managerial incentives with shareholder interests. It underscores the potential risks associated with managerial entrenchment and the implications for corporate governance and shareholder rights. This theory has been influential in shaping discussions around executive compensation, corporate governance practices, and shareholder activism aimed at promoting accountability and value creation.

Equity Structure Irrelevance Hypothesis

Demsetz & Lehn (1985) found out that ownership structure doesn't significantly impact operating performance regarding the relationship between ownership concentration and financial ratios in companies. The assertion that changes in managers' shareholdings would not affect a company's value significantly and that ownership concentration isn't strongly related to operating performance challenges some conventional beliefs. It raises questions about how ownership dynamics, such as voting rights and control of directors, influence company operations and investor perceptions.

Corporate Governance

Morck et al. (1988) found a positive correlation when managerial shareholding was below 5%, an inverse relationship between 5% and 25%, and then a return to a positive correlation when managerial shareholding exceeded 25%. This nuanced relationship suggests that there might be optimal levels of managerial ownership that align with improved company performance. Demsetz & Villalonga (2001) further explored how ownership structure influences operating performance by considering the alignment between internal stockholders (like managers) and external market expectations. Their findings suggested that managers may adjust their performance expectations and behaviors based on their ownership stakes, potentially impacting company operations and future performance outcomes. These studies collectively indicated that ownership structure can indeed influence company performance but in a complex and multifaceted manner. The optimal level of managerial ownership and the alignment of internal and external expectations are critical factors to consider when assessing the impact of ownership on operating performance. Gao et al. (2011) showed that better corporate governance is associated with higher corporate performance. This relationship underscores the importance of governance practices in driving company success and value creation.

Equity Structure and Agency Problems of Family-Controlled Firms

McConnell & Servaes (1990) suggested that there's a non-linear relationship where initially, increasing insider's shareholding might negatively impact operating performance, possibly due to conflicts of interest or lack of external oversight. On the other hand, Steiner (1996) found the evidence that while large shareholders might have incentives to monitor managers, higher ownership levels could lead to control issues and potential asset plundering, which could also negatively affect company's operating performance. This showed that the impact of insider or large shareholder ownership on company's operating

performance could be influenced by various factors and isn't necessarily straightforward. However, Fama & Jensen (1998) argued that higher concentration of shareholder ownership tends to lead to increased agency costs, which could ultimately reduce the company's value. This perspective suggested that when ownership is concentrated in the hands of a few, there might be less effective monitoring of management, potentially leading to behaviors that are not aligned with maximizing shareholder value. Additionally, Claessens et al. (2000) highlighted the prevalence of family-controlled and group firms in Southeast Asian countries, where a significant portion of equity is held by a small number of large shareholders. This concentration of ownership often results in family members or appointed managers holding key positions within these companies. In Taiwan specifically, a substantial percentage of listed companies have sole controlling shareholders, indicating a high level of control by a single entity or family. This concentrated ownership structure could influence corporate governance and decision-making processes within these companies.

Gomez-Mejia et al. (2001) had shown that in family-controlled companies, the practice of selecting managers or directors from within the family can create barriers for outsiders seeking to participate in the company's operations. This insider-focused approach might limit external perspectives and potentially lead to decisions that prioritize family interests over broader corporate performance, thus impacting the company's operational effectiveness negatively. On the other hand, Yeh et al. (2001) found a non-linear relationship between family control and operating performance. They argued that most shareholders with control are able to significantly influence the company's decision-making processes. Interestingly, Yeh et al. (2001) also suggested a positive relationship between family control and performance when controlling families hold less than 50% of the company's board seats. This finding implies that a balanced level of family influence on the board might contribute positively to company performance, but excessive control could potentially lead to adverse outcomes.

Filatotchev et al. (2005) found no significant relationship between family shareholding (ownership structure) and the operating performance of family-controlled companies. It suggested that the level of family ownership alone may not be a decisive factor in determining company's operating performance. Miller & Breton-Miller (2006) found lower agency costs and managerial attitudes among family leaders and majority owners can lead to improved company's operating performance. However too much concentration or dispersion of family ownership/control can negatively affect financial performance. It implied optimal levels of family involvement and control are important for maximizing company's operating performance. Jara-Bertin et al. (2008) have shown the evidence that increasing control rights of the largest shareholder (often a family member) is associated with increased value in family-controlled companies. It implied strong family control can positively influence company value and performance, emphasizing the significance of concentrated control in family-controlled firms. Sciascia & Mazzola (2008) showed that there is no relationship between family participation in ownership and performance.

Kuo & Wang (2017) highlighted that increasing the shareholding of family members has a positive impact on financial performance. This impact is mainly due to the direct shareholding of family members, and there is a non-linear relationship between shareholding of family member and financial performance; while family members holding important management positions has a positive impact on financial performance; increasing the shareholding of institutional investors has a positive impact on operational performance, and domestic institutional investors have a stronger impact on accounting performance than foreign institutional investors; the greater the degree of equity deviation, the greater the impact on the operating performance of family-controlled companies. the more adverse effects there are.

Definition of Operating Performance and Related Literature

Financial indicators for Measuring Operating Performance

In many literatures, many financial ratios were used to represent a company's operating performance, such as ROE, ROA, debt ratio and Tobin's Q, etc. Fisher & McGowan (1983) even believed that Tobin's Q is an important indicator for measuring the discounted value of a company's future cash flows. Shepherd (1986) believed that to use Tobin's Q to measure a company's operating performance, the premise should be that the stock price could reflect the company's true value, that is, the securities market should be efficient. Morck et al. (1988) proposed that Tobin's Q has taken into account the time value. The larger Tobin's Q is, the higher the investor's evaluation of the company's value. Research shows that Tobin's Q first increases and then decreases as the insider shareholding ratio increases. Finally, it rose slightly, showing a nonlinear relationship, verifying that both the interest convergence hypothesis and the predatory hypothesis exist among companies.

Barnhart & Rosenstein (1998) showed that although outside directors' shareholdings were not significant, there was a curvilinear relationship with Tobin's Q, while inside directors' shareholdings were positively related to Tobin's Q. In addition, the judgment of company's insiders such as directors, supervisors, managers and major shareholders on the increase or decrease of their own shareholdings would also be affected by the company's expected future stock price. However, due to the Securities and Exchange Law's restrictions on shareholding transfer declarations, and six regulations such as the prohibition of short-term trading within the month prevent timely decision-making based on stock prices. Therefore, in practice, it is reasonable to use Tobin's Q as a decision-making consideration for changes in insider's shareholdings. China Credit Information Bureau (2018) proposed that the main changes in corporate value are due to the size, time and uncertainty of free cash flow creation, which could be measured by corporate profitability and long-term growth rate. Profitability reflects free cash flow. The size and uncertainty of the flow, and the long-term growth rate reflect the growth momentum of the company's free cash flow in different periods. These two are financial indicators that measure the value of the company and shareholders' equity.

Financial Indicators Affecting the Operating Performance of a Family-Controlled Firm

Anup & Nagarajan (1990) found that the more equity is concentrated in the hands of certain large shareholders, the greater the incentive for large shareholders to monitor management in order to increase company value. Anderson & Reeb (2003) showed that family businesses have significantly better accounting and market performance than non-family businesses and when family ownership increases. The corporate operating performance showed a trend of first increasing and then decreasing. Filatotchev et al. (2005) found that family-controlled firms are significantly positively related to operating performance.

Research Methodology

Development of Hypotheses

McConnell & Servaes (1990) found that insider's shareholding in a company exhibits a non-linear relationship with operating performance. Initially, as insider's shareholding increases, operating performance tends to improve. However, beyond a certain critical threshold, further increases in insider's shareholding could lead to a decline in operating performance. This suggests that while insider's ownership could align interests with shareholders and enhance accountability, excessive insider's control might impede operational efficiency or innovation.

Yang (1998) indicated a negative correlation between the proportion of insider ownership and operating performance. This finding contrasts with those of McConnell & Servaes (1990) and suggested that higher levels of insider's ownership might not always translate to improved operating performance. The reasons for this negative correlation could be multifaceted, including potential conflicts of interest or reduced managerial discretion. Chen (2012) concluded that when large shareholders hold higher shares, the company's operating performance demonstrates a significant positive correlation. This suggests that substantial ownership by major shareholders could be associated with improved financial and market performance metrics.

Isakov & Weisskopf (2009) found that large shareholders could sometimes act in their own interests at the expense of company value. Therefore, the shareholding percentage of the largest shareholder could indeed influence how business decisions are made and thus impact operating performance. Hamadi (2010) found that while large shareholders (presumably including the second largest) generally have a positive impact on operating performance, the specific influence of the second largest shareholder may not be significant. Nonetheless, considering the findings of Isakov & Weisskopf (2009) that the second largest shareholder could potentially mitigate the negative impact of the largest shareholder's actions.

Based on the above, we propose the following hypotheses:

Hypothesis 1: The shareholding ratio of the largest shareholder has an impact on the operating performance of family-controlled firms.

Hypothesis 2: The shareholding ratio of the second largest shareholder has an impact on the operating performance of family-controlled firms.

Huang et al. (2013) found that the shareholding ratio of directors and supervisors positively correlated with company's operating performance. This implies that when directors and supervisors have higher shareholdings in the company, they are more likely to be incentivized to act in the company's best interests, which can lead to improved operating performance. Li Kunzhang et al. (2014) explored that the shareholding ratio of supervisor had a significant positive impact on certain operating performance. This suggests that higher shareholding by supervisors can be associated with better company's operating performance, possibly due to increased oversight and alignment of interests with shareholders. Wang (2017) demonstrated a positive relationship between shareholding by these key stakeholders and company's operating performance, particularly in traditional industries. This indicates that higher ownership stakes among directors and supervisors can lead to improved operational outcomes. Based on these findings, we propose the following hypothesis:

Hypothesis 3: The shareholding ratio of directors and supervisors has an impact on the operating performance of family-controlled firms.

Chen et al. (2013) showed that share collateralization by directors and supervisors would reduce company's operating performance, even if the company has good operating performance. The governance mechanism still could not reduce the damage caused by the pledge of shares held by directors and supervisors, so the share collateralization by directors and supervisors is negatively related to the company's operating performance. Therefore, we propose the following hypothesis to be tested:

Hypothesis 4: The company's operating performance could correlate with the share collateralization by directors and supervisors

Khanna & Palepu (2000) and Young et al. (2008) found that foreign institutional investors play a crucial role in monitoring and influencing corporate strategies, particularly in emerging markets where domestic investors might not be as effective in these roles. Therefore, the present study proposes the following hypothesis based on this:

Hypothesis 5: The presence and extent of shareholding ratio of foreign institutional investors in family-controlled firms in emerging markets significantly influence their operating performance.

Empirical Model

The variables used in this study are carefully selected based on existing literature and data availability. In order to explore whether corporate governance variables and financial ratio variables have a significant impact on the operating performance of family-controlled firms, we established the following structure:

Tobin's Q = f (corporate governance, financial ratio, other control variables)   (1)

Where Tobin's Q represents the ratio of a firm's market value to the replacement cost of its assets. This ratio reflects the ratio of two different estimates of the value of a company and it is a function of 13 corporate governance variables using as explanatory variables and 5 control variables.

Eq. (1) could be rewritten in a form with a time series and cross-sectional specification as follows:

$$\text{Tobin's Q} = \alpha_i + \beta_{SRDS}SRDS_{i,t} + \beta_{SRDS2}SRDS_{i,t}^2 + \beta_{SRDR}SRDR_{i,t} + \beta_{SRDR2}SRDR_{i,t}^2$$
$$+ \beta_{SRFII}SRFII_{i,t} + \beta_{SRFII2}SRFII_{i,t}^2 + \beta_{SRID}SRID_{i,t} + \beta_{SRID2}SRID_{i,t}^2 + \beta_{SRLS}SRLS_{i,t}$$

$$+ \beta_{SRLS2}SRLS_{i,t}^2 + \beta_{SRM}SRM_{i,t} + \beta_{SRM2}SRM_{i,t}^2 + \beta_{SRSLS}SRSLS_{i,t}$$

$$+ \beta_{SRSLS2}SRSLS_{i,t}^2 + \beta_{SCRDS}SCRDS_{i,t} + \beta_{SCRDS2}SCRDS_{i,t}^2 + \beta_{SCRDR}SCRDR_{i,t}$$
$$+ \beta_{SCRDR2}SCRDR_{i,t}^2 + \beta_{SCRM}SCRM_{i,t} + \beta_{SCRMS}SCRMS_{i,t} + \beta_{SCRMS2}SCRMS_{i,t}^2$$
$$+ \beta_{BS}BS_{i,t} + \beta_{SIZE}SIZE_{i,t} + \beta_{CR}CR_{i,t} + \beta_{DR}DA_{i,t} + \beta_{EPS}EPS_{i,t} + \beta_{FI}FL_{i,t} + \beta_{NPAT}NPAT_{i,t} +$$
$$\varepsilon_{i,t} \qquad\qquad (2)$$

Where the subscript i ($i = 1, ..., N$) denotes the firm i in our sample. t ($t = 1, ..., T$) indicates the period. Our panel has 205 companies and 8 years. $\alpha 0$ is a intercept, representing the expected operating performance when all independent variables are zero. β. are coefficients measuring the impact of corporate governance variables, financial ratio variables and other control variables on operating performance. $\varepsilon i,t$ is an error term capturing unobserved factors affecting operating performance not accounted for by the independent variables.

Tobin's Q: Tobin's Q mainly refers to the ratio of a company's market value to its asset replacement cost. This ratio reflects the ratio of two different value estimates of a company. Brainard and Tobin (1968) proposed the definition of Tobin's Q as: Company The ratio of market value to replacement cost. The larger Tobin's Q is, the higher investors' evaluation of the company's value is. Tobin's Q = {(closing price of common stock at the end of each year × number of common shares outstanding) + (closing price of special shares at the end of each year × number of special shares outstanding) + [current debts - (current assets + long-term liabilities)]} ÷ Book value of total assets.

Corporate Governance Variables in a Family-Controlled Firm

Shareholding Ratio of Directors and Supervisors (SRDS): When directors and supervisors of a company hold significant equity in the company, they become more aligned with the company's performance and outcomes. If the equity interests of directors and supervisors increase, the company's operating performance will be more closely related to its own interests, which may lead to more effective supervision. SRDS = (number of shares held by directors and supervisors ÷ total number of shares) × 100%.

Shareholding Ratio of Directors and Relatives (SRDR): Directors' shareholdings are linked to shareholdings of directors' relatives. When the number of shares on both parties is added together, the management rights might be excessively controlled, which might not have a good impact on the company. SRDR = (number of shares held by directors' relatives ÷ total number of shares) × 100%.

Shareholding Ratio of Foreign Institutional Investors (SRFII): Foreign institutional investors could overly intervene in the company's management rights in Taiwan, but they might have partial

ownership. Since foreign institutional investors would give priority to their own interests, they would have contradictions and conflicts with shareholders.

When bad news about a company spreads, it can lead to a decline in investor confidence and negatively impact the company's stock price. This situation can create opportunities for short sellers, who profit from the falling stock price, which would affect the company's operating performance. SRFII = (number of shares held by foreign legal persons ÷ total number of shares) × 100%.

Shareholding Ratio of Independent Director (SRID): In order to make the board of directors more objective in managing the company, in addition to the managing directors, there would also be independent directors when electing the board of directors to increase the independence of the managing directors, which is an important factor in the composition of the board of directors. This study uses the shareholding ratio of independent directors to explore the impact on company's operating performance. IDHS = (number of shares held by independent directors ÷ total number of shares) × 100%.

Shareholding Ratio of the Largest Shareholder (SRLS): Andrei & Vishny (1986) has shown that when a company's largest shareholder holds a significant stake (high shareholding ratio), they often have stronger incentives and capabilities to actively monitor the company's operations and management decisions. SRLS = (Total number of shares held by the largest shareholder ÷ total number of shares) × 100%.

Shareholding Ratio of Manager (SRM): In family-controlled firms, managers might be family members or not, but either way might have an adverse impact on the company due to their own interests or collusion with internal stakeholders. SRM = (number of shares held by the manager ÷ total number of shares) × 100%.

Shareholding Ratio of the Second Largest Shareholder (SRSLS): The role of the second largest shareholder as an anti-corruption watchdog implies that their interests are aligned with maintaining transparency and ethical practices within the company. This function is crucial for preventing any abuse of power or negative impact that might arise if the FLSR (holding the majority stake) were to exert undue influence. SRSLS = (total number of shares held by the second largest shareholder ÷ total number of shares) × 100%.

Share Collateralization Ratio of Directors' Relatives (SCRDR): Since the interests of directors and supervisors and their relatives are tied together in family-controlled firms. It means that the relatives of directors and supervisors are very likely to be one of the family members. If there has been a high share collateralization ratio indicates that it might be out of touch with the company's interests. SCRDR = (number of share collateralization by directors' relatives ÷ total number of shares) × 100%.

Share Collateralization Ratio of Directors and Supervisors (SCRDS): If directors and supervisors pledge their stocks to borrow money, it might be purely for financial management needs. If the ratio is not high, shareholders do not need to worry too much. However, when the company's operating performance is poor, the shareholding ratio of directors and supervisors declines, and CSRDS is relatively high. At this time, the interests of directors and supervisors might be out of touch with the interests of shareholders and the company as a whole, which might indirectly affect the company's operating performance. SCRDS = (number of share collateralization by directors and supervisors ÷ total number of shares) × 100%

Share Collateralization Ratio of Manager (SCRM): Since the manager is an insider of the company, if something happens to the company at the first time, the insider will know first, and the manager may not be a family member. This will cause the manager to only serve his own interests and be out of touch with the interests of the company, which will affect to the company's operational performance. SCRM = (number of share collateralization by the manager ÷ total number of shares) × 100%

Share Collateralization Ratio of Major Shareholder (SCRMS): In order to raise the stock price, major shareholders may pledge their stocks to the bank, borrow a large amount of funds, and then invest the funds in the stock market to drive up the stock price. Therefore, when the share collateralization ratio between major shareholders and directors and supervisors is too high or increases, you must be careful whether the major shareholders and management authorities will drain the company's working capital. SCRMS = (number of share collateralization by major shareholders ÷ total number of shares) × 100%

Board Size (BS): Directors with professional backgrounds could apply their professional knowledge to the company's business decisions. Therefore, when the number of directors is large, there would be a variety of professional backgrounds, which will help improve the company's performance. BS = log(number of board members)

Company Size (SIZE): Company size plays a significant role in shaping a company's ability to achieve economies of scale and enhance its overall value. Demsetz & Lehn (1985) used the natural logarithm of total assets at the end of the year as an indicator to measure company size. SIZE = ln(Total assets)

Financial Ratio Variables

Current Ratio (CR): A higher current ratio generally indicates a stronger ability to cover short-term debt obligations. This is because a higher ratio means that the company has more current assets relative to its current liabilities. CR = current assets ÷ current liabilities

Debt-to-Asset Ratio (DA): Morck et al. (1988) argued that the deductibility of interest expenses from corporate taxes creates a tax shield effect, which can influence managerial behavior and investment decisions. DR = total liabilities at the end of the period ÷ total assets at the beginning of the period.

Earnings Per Share (EPS): Earnings per share (EPS) is used to evaluate a company's profitability from the perspective of each outstanding share of its common stock. EPS = (Net profit after tax – Special stock dividend) ÷ Weighted average number of shares outstanding.

Financial Leverage (FL): It is used to measure a company's financial risk. The higher the financial leverage, that is, the greater the financial flexibility, which means the higher the fixed financial costs, the greater the impact of changes in net profit before interest and tax on changes in earnings per share. FL = earnings before interest and taxes÷ (earnings before interest and taxes - fixed interest expense)

Net Profit after Tax (NPAT): Net profit after tax is a crucial measure of a company's final profitability, reflecting the amount of profit earned after deducting all expenses, taxes, and interest payments. Sustaining a high level of NPAT over an extended period can be indicative of several positive factors related to a company's operational performance, which is very suitable for discussing the operating capabilities of family-controlled firms. NPAT = net revenue after tax ÷

operating revenue.

Empirical Results

Data

All data spanning from March 2011 to September 2018 were sourced from Taiwan Economic Journal database. Due to sample limitations, a total of 15 companies with inconsistent time series data were eliminated, leaving 205 family-controlled firms to explore their operations performance.

Descriptive Statistic

All data spanning from March 2011 to September 2018 were sourced from Taiwan Economic Journal database. Due to sample limitations, a total of 15 companies with inconsistent time series data were eliminated, leaving 205 family-controlled firms to explore their operations performance. Table 1 displays descriptive statistic for the variables employed in the model. In our sample companies, The shareholding ratio of the largest shareholder (SRLS), the shareholding ratio of the second largest shareholder (SRSLS), the shareholding ratio of directors (SRDS) and supervisors the shareholding ratio of directors' relatives (SRDR) are substantial gap between the maximum and minimum values. Family members who are directors but hold only a small fraction of shares have limited impact on the company's operations and decision-making processes. Family members who hold a majority of shares and are directors can exert considerable control over the company's

Table 1 Descriptive Statistics for the Variables Used in the Model

Variable	Mean	Standard Deviation	Variance	Minimum	Maximum
Tobin's Q	4.23	8.78	77.13	-57.27	62.67
SRDS	23.96	15.32	234.80	2.21	89.00
SRDR	1.51	2.72	7.38	0.00	19.13
SRFII	12.25	14.39	207.09	0.00	79.71
SRID	0.15	0.16	0.03	0.00	0.63
SRLS	18.02	12.27	150.56	1.40	66.27
SRM	0.96	2.52	6.36	0.00	39.26
SRSLS	8.11	5.73	32.80	0.83	40.00
SCRDR	4.40	15.09	227.58	0.00	98.20
SCRM	4.62	16011	259.39	0.00	100
SCRDS	11.56	17.79	316.65	0.00	99.99
SCRMS	4.00	16.75	280.55	0.00	100.00
BS	2.03	0.32	0.10	0.69	3.00
SIZE	7.22	0.67	0.44	5.01	9.54
CR	286.86	858.39	736830.60	15.36	25521.48
DA	45.80	18.81	353.76	1.08	98.31
EPS	1.14	2.49	6.18	-12.31	32.61
FL	1.28	9.20	84.71	-62.92	471.41
NPAT	-3.33	252.25	63630.32	-15528.20	483.19

decisions, potentially aligning the company's direction with the family's interests. The maximum and minimum values of share collateralization ratio of directors and supervisors(SCRDS) and the share

collateralization ratio of directors' relatives (SCRDR) are very different and are all much higher than the average. High share collateralization ratio could indicate financial risk or constraints within the company. It could potentially impact operational decisions and performance. Interest convergence hypothesis suggests that when directors and supervisors have a higher share collateralization ratio, they are motivated to ensure the company performs well to prevent the risk of losing share collateralization. Therefore, they actively work to enhance company's operating performance. On the other hand, profit robbery hypothesis posits that a higher share collateralization ratio might incentivize directors and supervisors to manipulate company operations to artificially boost stock prices or extract profits, potentially leading to poorer overall performance. The shareholding ratio of foreign institution investors (SRFII) ranges from 0% to 79.71% with a standard deviation of 14.39% highlights the diversity in foreign ownership among family-controlled firms. Foreign institution shareholders often bring unique perspectives and investment strategies that could influence the company's direction and operating performance.

As shown in Table 1, the significant gap between the maximum and minimum debt ratios (DA) within family-controlled firms suggests varying levels of financial leverage. While borrowing could be beneficial for investment if the return on invested capital exceeds the borrowing costs, excessive financial leverage can also increase operational risks. The average current ratio (CR) of about 287% indicates strong short-term liquidity for most family businesses, which is generally considered healthy. CR above 200% suggests less pressure to repay short-term debt. However, the minimum CR of about 15% highlights that some companies may struggle with short-term solvency issues, potentially indicating liquidity challenges. The minimum earnings per share (EPS) being negative suggests that some companies have negative earnings, indicating potential financial challenges or losses. The average EPS being around 1% indicates that, on average, each share can still be distributed as dividends despite potentially low profitability or losses. The wide range between the maximum and minimum financial leverage (FL) indicates varying degrees of financial risk and flexibility among family-controlled firms. A negative minimum FL suggests that the net profit before interest and taxes (EBIT) may be insufficient to cover interest expenses, potentially exposing the company to financial risks.

Most Suitable Panel Data Regression Model

Due to panel data consisting of both cross-sectional (variation across different family-controlled firms) and time series (variation over time) components, this type of data often presents challenges like heteroscedasticity (unequal variance of the error terms across entities) and autocorrelation (correlation of error terms over time). Ordinary least squares (OLS) estimators might not be suitable for panel data due to the presence of heterogeneity and autocorrelation. The estimated coefficients from OLS might not be the most efficient or unbiased estimators in the presence of such issues. However, the fixed effects model is a popular approach for panel data analysis that accounts for individual-specific effects by including dummy variables for each entity (a family-controlled firm) in the regression. This

Table 2 Results of Tests for Panel Data Model Applicability

	Model
F-test	161.72***
LM-test	41.113***
Hausman test	519.27***

Note: "***", "**", and "*"denote significance at the 1 %, 5%, and 10% levels, respectively.

model could help control for unobserved heterogeneity. The random effects model is another approach for panel data that assumes unobserved individual-specific effects are random and uncorrelated with the independent variables. F-test is used to compare the fixed effects model against the classical linear regression model. The rejection of the null hypothesis in favor of the fixed effects model indicates that it is a better fit for the data. (shown in Table 2). The LM test compares the random effects model against the classical linear regression model. Rejecting the null hypothesis (shown in Table 2) in favor of the random effects model suggests it is a more appropriate choice. Finally, we employ the Hausman Test to choose

between the fixed effects and random effects models based on whether the individual-specific effects are correlated with the independent variables. Rejection of the null hypothesis in this test supports the use of the fixed effects model (As in Table 2). Given the results of these model selection tests, we have opted to use the fixed effects model for your empirical analysis.

Empirical Results

Table 3 reports the regression results under the fixed- effect model of the impact of corporate governance and financial ratio on Tobin's Q. The coefficient of SRLS2 is statistically significant from zero at the significance level of 1% and positive. It identifies a U-shaped nonlinear relationship between the shareholding ratio of the largest shareholder (SRLS) and the operating performance. At a certain threshold (7.5% in our sample firms), an increase in the largest shareholder's shareholding ratio is associated with improved operating performance. Beyond this threshold, further increases in the SRLS might not continue to enhance operating performance, suggesting a diminishing or even negative effect. This aligns with Hypothesis 1. However, the shareholding ratio of the second largest shareholder (SRSLS) shows a consistently positive relationship with operating performance. (The coefficient of SRSLS is significantly positive with the significant level of 1% and the coefficient of SRSLS2 is not significant from zero). It implies that regardless of the specific percentage of shares held by the second largest shareholder, their presence contributes positively to operating performance. The reasoning behind the positive impact could be related to the monitoring role played by the second largest shareholder over the actions and decisions of the largest shareholder.

The interest convergence hypothesis proposed by Jensen & Meckling (1976) suggests that a higher shareholding ratio among directors, supervisors, major shareholders, and managers aligns their interests more closely with those of the company. According to this view, increased equity ownership among key stakeholders incentivizes them to make decisions that benefit the company, leading to improved performance. The interest convergence hypothesis implies that concentrated ownership among executives fosters accountability and motivation to act in the company's best interests. In contrast to the interest convergence hypothesis, the profit robbery hypothesis warns against excessively high shareholding ratios among top executives (Jensen & Ruback, 1983). This hypothesis suggests that when executives hold too much equity or control, they might prioritize their personal interests over those of the company. Excessive control by management could lead to agency problems, where small shareholders' rights are neglected, potentially harming company value and performance. Table 3 indicates an inverted U-shaped nonlinear relationship between the shareholding ratio of director and supervisor (SRDS) and operating performance (The coefficient of SRDS2 is statistically significant from zero at the significance level of 1% and negative). It means that up to a certain threshold (12.5% in our sample firms), an increase in SRDS is associated with improved operating performance. However, beyond this threshold, further increases in SRDS show a negative relationship with company's operating performance. This finding supports the notion of diminishing returns or potential agency problems at higher levels of SRDS. It suggests that while moderate levels of shareholding by directors and supervisors may enhance company's operating performance, excessive control or ownership concentration could lead to adverse effects on operating performance due to agency conflicts or misaligned incentives. Therefore, hypothesis 3 regarding the non-linear impact of director's and supervisor's shareholding on company operating performance is supported by the findings presented in Table 3.

There is no U-shaped relationship between share collateralization ratio of directors supervisors (SCRDS) and operating performance (the coefficient of SCRDS2 is not significant from zero). However, it appears that there is a negative relationship between SCRDS and the company's operating performance(the coefficient of SCRDS is statistically significant from zero and negative). It suggests that a higher SCRDS is associated with lower operating performance of the company. Share collateralization occurs when directors and supervisors use their shares as collateral for loans or other financial transactions. A higher share collateralization ratio might indicate financial stress or risk associated with the management team, which can negatively impact company operations and performance. The finding presented align with hypothesis 4.

Table 3 The Estimation of Fixed- Effect Model of the Impact of Corporate Governance and Financial Ratio on Tobin's Q

Variable	Coefficient	Standard Deviation	t statistic	p-value
SRDS	1E-01**	4E-02	2.57	0.01
SRDS²	-4E-03***	7E-04	-4.70	0.00
SRDR	-6E-02	1E-01	-0.49	0.62
SRDR ²	2E-02*	1E-02	1.98	0.05
SRFII	3E-01***	3E-02	9.42	< 2.2e-16
SRFII²	-3E-03***	6E-04	-4.76	0.00
SRID	8E-01	2E+00	0.40	0.69
SRID²	-4E+00	5E+00	-0.72	0.47
SRLS	-6E-02	7E-02	-0.87	0.38
SRLS²	4E-03***	1E-03	3.37	0.00
SRM	-4E-03	8E-02	-0.04	0.96
SRM²	-4E-03	3E-03	-1.30	0.19
SRSLS	4E-01***	6E-02	7.90	0.00
SRSLS²	1E-02	1E-02	1.47	0.14
SCRDR	6E-02***	2E-02	2.91	0.00
SCRDR²	-7E-04***	2E-04	-3.18	0.00
SCRDS	-4E-02***	2E-02	-2.66	0.01
SCRDS²	3E-04	2E-04	1.37	0.17
SCRM	7E-04	6E-03	0.11	0.91
SCRMS	-3E-02	2E-02	-1.12	0.26
SCRMS²	6E-05	3E-04	0.22	0.82
BS	-7E-01	5E-01	-1.36	0.17
SIZE	4E+00***	8E-01	4.70	0.00
CR	-2E-04	2E-04	-1.63	0.10
DR	-2E-01***	9E-03	-19.61	< 2.2e-16
EPS	8E-01***	4E-02	21.63	< 2.2e-16
FL	-3E-03	6E-03	-0.40	0.69
NPAT	2E-02***	2E-03	11.78	< 2.2e-16
R-squared＝0.23385 F-statistic：66.572				

Notes: "*** ", "**" and "*" denotes that it is different from zero at the significance level of 0.1 % , 1% and 5%, respectively.

As shown in Table 3, the shareholding ratio of foreign institutional investors (SRFII) exhibits an inverted U-shaped nonlinear relationship with operating performance (The coefficient of SRFII2 is statistically significant from zero at the significance level of 1% and negative.). It suggests that as SRFII increases up to a certain threshold (50% in the sample firms), the company's operating performance declines. The rationale behind this relationship is that while foreign investors might not directly intervene in company operations, their substantial ownership could impact stock price performance. As a company's operating performance deteriorates, foreign institutional investors might sell off their holdings, leading to downward

pressure on stock prices. Lower stock prices could further impact operating performance due to various factors like investor sentiment and market confidence, so it supports hypothesis 5.

In Table 3, there is a positive relationship between company size (SIZE) and operating performance (the coefficient of SIZE is statistically significant from zero). Larger company size, often indicative of scale and resources, is associated with better operating performance. Family-controlled firms tend to exhibit larger company sizes, which can contribute to improved operational efficiency and performance. This positive relationship supports the notion that larger companies may benefit from economies of scale, stronger market presence, and robust organizational structures, thereby enhancing operating performance.

The debt ratio (DA) has a negative relationship with the company's operating performance (the coefficient of DA is statistically significant from zero). A higher debt ratio implies a higher proportion of debt financing relative to equity financing within the company's capital structure. An increase in DA suggests additional borrowing, which can lead to higher financial leverage. Excessive debt and financial leverage could increase financial risk and interest expense, potentially impacting the company's profitability and operating performance negatively. Therefore, when the debt ratio is higher, the company's operating performance tends to decline due to increased financial risk and potential constraints on financial flexibility. Earnings per share (EPS) has a positive relationship with operating performance (the coefficient of EPS is statistically significant from zero). The level of earnings per share (EPS) is closely linked to stock price performance. A higher EPS generally signals better financial performance, which could attract investors and contribute to a rise in stock price.

Conclusions

The present study employs Tobin's Q to measure the operating performance of family-controlled firms, and explores the impact of the shareholding structure, share collateralization ratio and other variables on operating performance. The U-shaped relationship between observed with the shareholding ratio of the largest shareholder and the operating performance suggests that there might be an optimal level of control or influence by the major shareholder for maximizing company's operating performance. The finding aligns with theories about the potential drawbacks of excessive control or influence, which could lead to agency problems or inefficiencies. Moreover, the positive relationship identified with the shareholding ratio of the second largest shareholder highlights the significance of diversified ownership structures within a family-controlled firm. The second-largest shareholder's role in providing a counterbalance to the dominance of the largest shareholder underscores the importance of governance mechanisms to mitigate potential conflicts of interest and promote transparency and accountability. It contributes valuable insights into corporate governance dynamics within a family-controlled firm, which are often characterized by unique ownership and management structures. The role of different shareholders in influencing operating performance underscores the complexities involved in corporate decision-making and strategic direction within these firms.

The share collateralization of directors and supervisors has a negative relationship with operating performance, while the share collateralization ratio of directors' and supervisors' relatives has an inverted U-shaped nonlinear relationship with operating performance. It suggests a nuanced relationship between share collateralization and company's operating performance, particularly emphasizing the risks associated with excessive pledges by directors, supervisors, and their relatives. Effective governance practices and risk management strategies are crucial for maintaining a healthy balance between ownership commitments and operational effectiveness within organizations.

There is an inverted U-shaped nonlinear relationship between the shareholding ratio of foreign institutional investors and operating performance. When foreign institutional investors hold a moderate share of a firm's equity, they could bring in capital, expertise, and global market access that may positively impact operating performance. However, as their shareholding increases beyond a certain threshold, their influence on the firm's decision-making processes might become disproportionate, leading to potential conflicts of interest and inefficiencies. Foreign institutional investors typically could not directly intervene in the day-to-day

operations of a firm. However, their significant ownership stake gives them considerable influence over corporate governance decisions and strategic direction. In cases where there's poor operating performance, foreign institutional investors might react by selling off their shares, which could lead to stock price declines and further pressure on the company. This feedback loop between operating performance and stock price performance could create a challenging environment for companies with high levels of foreign institutional ownership. Managing this relationship becomes crucial for maintaining stability and optimizing long-term operating performance.

Finally, for family-controlled firms our findings also highlight key financial indicators-company size, debt ratio, and EPS - that significantly influence operating performance. Understanding and managing these factors effectively could contribute to sustained operational success and value creation within organizations. Firms should strive to maintain a healthy balance sheet, optimize capital structure, and leverage scale advantages to enhance operating performance and competitiveness in the marketplace.

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