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# *Does the Role of Relatives on Ownership Structure Affect Firm Value?*

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## *Abstract*

**Motivation:** This paper's motivation is to provide valuable information on the issue of firm value for both enterprises and investors, finding additional factors which may strongly affect firm value but have been rarely discussed, and revealing precious results to fill a gap in present literature.

**Premise:** Due to the importance of ownership structure and firm value to a firm, this paper investigates whether firm value would be affected by the shareowners' relatives, which has been seldom explored comprehensively in the existing literature.

**Approach:** By utilizing the data of Taiwan Stock Exchange-listed firms, this paper first applies panel data models and then Petersen regression models for further investigation to enhance the robustness of the empirical results.

**Results:** This paper reveals that the shareholding of directors' relatives positively relates to firm value, but the shareholding ratio of managers' relatives influences firm value negatively. Even in the opposite direction, relatives' shareholdings of the firm members do prominently impact firm value.

**Conclusion:** This paper shows that a firm should manage the board and ownership structures properly in order to enhance a firm's value. Additionally, investors should evaluate the board and ownership structures of a firm before investing.

**Consistency:** This paper illustrates that board and ownership structures are crucial determinants for firms to operate with financial success. By selecting firms with well-designed board and ownership structures, investors may decrease the risk of loss and reduce the investment uncertainty.

**Keywords:** firm value, ownership structure, shareholding of relatives

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## INTRODUCTION

The importance of board and ownership structures to firm value has been extensively studied for over a decade (Demsetz and Villalonga 2001; Singh and Davidson 2003; Welch 2003; Garg 2007; Kapopoulos and Lazaretou 2007; Fauzi and Locke 2012). In essence, the board plans and administers the activities of a firm and plays a vital role in maintaining an effective firm management (Basyith, Fauzi, and Idris 2015). There are plenty of papers exploring the relationship between board structure and firm value, but with no integrated conclusion. For instance, many studies show that board composition is positively connected with firm financial performance because a larger board raises the percentage of independent directors, which may ensure a better performance (Callen, Klein, and Tinkelman 2003; Kiel and Nicholson 2003; Sheridan and Milgate 2005; Adams and Mehran 2012; Shukeri, Shin, and Shaari 2012). In contrast, lots of researchers find that board composition is inversely related to firm value when the benefits of larger boards' monitoring are offset by problems associated with the increased asymmetric information, and higher coordination costs, which reduce effective monitoring (Barnhart and Rosenstein 1998; Liang and Li 1999; Mak and Kusnadi 2005; Cheng 2008). Furthermore, several scholars reveal that there is no significant relationship between board structure and performance (Hermalin and Weisbach 1991; Bhagat and Black 2001; Chen et al. 2005).

With regard to ownership structure, Zhuang (1999) argues that ownership structure has the ability to shape the corporate governance system in any given country. However, until now, the relevance of ownership structure and firm value has not been found with consensus academically either. One strain of scholars claims that ownership structure influences firm performance positively (Claessens et al. 1999; Short and Keasey 1999; Krivogorsky 2006; Cho and Kim 2007). Fauzi and Locke (2012) also reveal that boards of directors, board committees, and managerial ownership are of positive and significant impact on firm performance. On the contrary, some papers show that ownership structure is negatively correlated to firm performance because excessive managerial ownership may allow managerial consumption of perquisites and reduce successful bidding by outside agents, thus reducing the firm value (Xu and Wang 1999; Villalonga and Amit 2006; Abor and Biekpe 2007; Lefort and Urzúa 2008; Belkhir 2009). In addition, the conclusion of no correlation between ownership structure and firm performance is reported by some other researchers (Cho 1998; Dalton et al. 2003; Nuryanah and Islam 2011).

As for the relatives of shareowners, Burkart, Panunzi, and Shleifer (2003) point out that most of the firms in the world are controlled by their founders or the founders' families and heirs. Therefore, we regard the firms owned by families and their relatives as family firms. In the meantime, we find many studies discussing the relationship between family firms and firm values in the academic research. For example, Sacristán-Navarro, Gómez-Ansón, and Cabeza-García (2011) reveal that family *ownership* does not influence profitability, but instead family *control* seems to matter. Kuan, Li, and Chu (2011) argue that family businesses are complex because they must consider the needs as well as the desires of the family owners, and the impact of corporate governance fluctuates between family-controlled and non-family-controlled firms. In general, firm per-

formance is hurt by the asymmetrical distribution of voting power among family and non-family blockholders (Fattoum-Guedri, Guedri, and Delmar 2018).

To sum up, we argue that ownership structure and firm value are two of the most crucial issues for a firm. Thus, we conduct this paper with the goal of demonstrating the relevance of firm value and ownership structure. Our motivation for achieving this goal is twofold. First, we endeavor to provide valuable information on this issue for both enterprises and investors. Second, we would like to find additional factors, such as shareholdings of owners' relatives, which might have an extreme effect on firm value, but is seldom explored comprehensively in the existing literature.

After reviewing the relevant literature aforementioned, we find that many studies focus on how the shareholding ratios of directors and managers, as well as the pledge ratio of directors, affect firm value. However, the relationship between the shareholding ratio of owners' relatives and company performance is rarely discussed. We realize that many directors and top managers take in their relatives to hold shares in order to dilute the concentration of shareholding, which might prevent the firm from appearing to be controlled by only a few people, and consequently, attract investors. Therefore, this paper examines whether the relatives of board members and managers influence firm value by employing the data of Taiwan Stock Exchange-listed firms.

We report several valuable findings in this study. First, the shareholding of directors' relatives is positively related to firm value, which is consistent with the positive impact of directors' shareholding on firm value. Second, the shareholding ratio of managers' relatives influences firm value negatively. We infer that the increase of shareholding of managers' relatives is linked to information leakage from the firm, thereby resulting in firm value weakened. Third, in terms of other variables employed, firm value is impacted positively by the shareholdings of top ten shareholders, independent directors, and asset turnover ratio, but is negatively related to board size and debt ratio. These results are rather consistent with the relevant literature and are valuable for investors to make investment decisions.

This study may contribute to the existing literature in several aspects. First, to the best of our understanding, we might be the pioneer to comprehensively examine whether firm value is affected by the role of relatives on ownership structure, and this might fill a gap in the existing literature. Second, our revealed findings might provide valued information for both enterprises and investors. The opposite outcomes for these two types of relatives to firm value might result from the different interests of theirs. In sum, the shareholding ratios of relatives in terms of board members and managers could be important elements for evaluating the future values of firms.

The rest of this paper is organized as follows:

- The literature review and hypotheses proposed are presented next.
- Following that, the data and methodology employed in this study are introduced.
- The section that follows presents the empirical results and analysis.
- The final section provides the concluding remarks.

## LITERATURE REVIEW AND HYPOTHESES PROPOSED

To familiarize ourselves with relevant studies, we conducted a survey related to firm value, ownership structure in terms of relatives, ownership structure in terms of relatives and firm value, as well as financial statements and firm value in this study.

### Firm Value

Firm value, the main objective for corporates, is regarded as an important element for firms and investors. In general, we consider that firm value could be affected by several aspects. Morck, Shleifer, and Vishny (1988) report that managers owning share percentage between 0 and 5 percent will make decisions in the interest of management and the firm's owners. Nevertheless, beyond 25 percent of the share, managers are likely to act toward their own perquisite, which leads to board entrenchment. Moreover, Brick and Chidambaran (2010) point out that prior performance, firm characteristics, and governance characteristics are important determinants of board activity which have positive impacts on firm value. In addition, Pérez-González and Yun (2013) claim that risk management has real consequences on firm outcomes, while Krause and Tse (2016) argue that proper risk management would increase firm value and reduce cash flow volatility. Besides, Gupta, Mortal, and Yang (2018) find that entrepreneurial orientation to firm value enhancement is economically meaningful. Jiang et al. (2017) demonstrate that efficiency is positively related to firm value. Li et al. (2018) show that improving transparency and accountability would boost firm value. However, Lins (2003) reveals that firm values are lower when a management group's control rights exceed its cash flow rights, while firms with greater agency and monitoring problems exhibit a negative association between Tobin's  $q$  and derivative usage (Fauver and Naranjo 2010).

With regard to corporate governance, Basyith, Fauzi, and Idris (2015) report that, apart from the independent commissioner and audit committee, variables including board of directors, managerial ownership, and blockholders significantly affect firm performance. Moreover, board size has a strong negative impact on profitability, Tobin's  $q$ , and share returns (Yermack 1996; Eisenberg, Sundgren, and Wells 1998; Upadhyay, Bhargava, and Faircloth 2014). The negative relation is strongest for large firms, which tend to have larger boards (Guest 2009; O'Connell and Cramer 2010). In general, board membership is recommended at eight or nine (Lipton and Lorsch 1992), and any additional benefits from augmented monitoring gained by additional membership will offset the costs associated with slow decision making, the effort problem, and easier control by the CEO (Jensen 1993). Furthermore, Black and Kim (2012) claim that outside directors and audit committees are widely considered to be central essentials of good corporate governance. Joh and Jung (2012) point out that independent directors are correlated with higher firm value when the firm has lower information transaction costs, suggesting that the monitoring role of independent directors is limited when transferring firm-specific information is costly.

Furthermore, the importance of firm value could be represented by stock performance and stakeholders. For stock performance, previous studies show that the price of a firm's common stock tends to decrease when the firm issues

new public securities (Billett, Flannery, and Garfinkel 1995), which might cause a firm's value to diminish. Bertoni, Meoli, and Vismara (2014) argue that board independence is a critical factor in the valuation of IPO firms, which supports both the value-creation and value-protection roles of the board of directors. Furthermore, Nguyen, Duong, and Singh (2016) discover a positive relation between stock liquidity and firm value. With regard to stakeholders, Jiao (2010) claims that stakeholder welfare is associated with positive valuation effects. However, Konijn, Kräussl, and Lucas (2011) report that there is a negative correlation between Tobin's  $q$  and blockholder dispersion. As for customer satisfaction, O'Sullivan and McCallig (2012) find that customer satisfaction has a positive impact on firm value. In general, customer satisfaction positively and significantly moderates the earnings–firm value relationship.

### Ownership Structure in Terms of Relatives

Paniagua, Rivelles, and Sapena (2018) point out that there are two significant ownership-related features affecting financial performance: ownership dispersion and ownership costs. Certain scholars argue that firm ownership dispersion is an important component of financial performance. For example, Fama and Jensen (1983) discuss the concept of entrenchment, or the adverse effect of a high share of management ownership driven by short-term opportunism. Anderson and Reeb (2003) argue that family influence can provide competitive advantages which cause family firms to outperform non-family firms.

As mentioned earlier, Burkart, Panunzi, and Shleifer (2003) find that most firms in the world are controlled by their founders or the founders' families and heirs. Such family ownership is nearly universal among not only privately held firms but also publicly traded firms. In Western Europe, South and East Asia, the Middle East, Latin America, and Africa, the vast majority of publicly traded firms are family controlled (La Porta, Lopez de Silanes, and Shleifer 1999; Faccio and Lang 2002). Even some of the largest publicly traded firms in the United States and the United Kingdom, such as Wal-Mart and Ford Motor, are controlled by families. In addition, Claessens, Djankov, and Lang (2000) find that, with the exception of Japan, more than 50 percent of all publicly traded firms in several East Asian countries are controlled by families and that the top 15 families control significant shares of the country's wealth.

More evidence about family firms are found by researchers. For example, family firms, on average, tend to be smaller than non-family firms, have lower performance and weaker governance structures, and are often concentrated in older, as well as more regulated, industries (Morck, Stangeland, and Yeung 1998; Claessens et al. 2002; Bertrand and Schoar 2006). Aguilera and Crespi-Cladera (2016) reveal that powerful and dominant shareholders have incentives to monitor and supervise managers properly. In general, large shareholders have stronger incentives than managers to act in the interest of the corporation as they control corporate operations. Moreover, Mullins and Schoar (2016) demonstrate that family firms and widely held firms are different, not only in their explicit governance structures, but also in terms of the softer factors that affect management effectiveness, such as the way they set up their operations or their business philosophy.

In sum, founders and their families are more likely to retain control to provide the firm with a competitive advantage which thereby benefits all shareholders. Families are more likely to maintain control when the efficient scale is small, the need to monitor employees is high, and investment horizons are long (Villalonga and Amit 2010).

### **Ownership Structure in Terms of Relatives and Firm Value**

There is a growing acceptance of the view that a corporate board is an essential mechanism in promoting corporate governance, firm performance, and firm value (Chen 2015). Moscatello (1990) also points out that the concentration of shares in family management hands leads to a strong sense of mission, well-defined long-term goals, a capacity for self-analysis, and the ability to adapt to major changes without losing momentum. Nevertheless, the relationship between board composition and firm financial performance is inconclusive (Paniagua, Rivelles, and Sapena 2018).

Many studies demonstrate that family firms have better performance than non-family firms (Khanna and Palepu 2000; Anderson and Reeb 2003; Sraer and Thesmar 2007; Mehrotra et al. 2013). Chen and Hsu (2009) claim that family influence for a firm is central in Asian countries. McConaughy, Matthews, and Fialko (2001) argue that firms controlled by the founding family have greater value, are operated more efficiently, and carry less debt than other firms. Kowalewski, Talavera, and Stetsyuk (2010) find an inverted U-shaped relationship between the share of family ownership and firm performance. They also reveal that firms with family CEOs are likely to outperform their counterparts that have non-family CEOs. Lee (2006) argues that family firms tend to experience higher employment, revenue growth over time, and profits. Moreover, firm performance is improved when founding family members are involved in management. Morck, Shleifer, and Vishny (1988) claim that Tobin's  $q$  first increases, then declines, and finally rises slightly as the ownership of the board of directors rises.

In contrast, a lot of researchers argue that the lower average rates of return and stock market valuation of family firms seem to be associated with the passing of control from the founder to the heirs (Pérez-González 2006; Bloom and Van Reenen 2007; Bertrand et al. 2008). Moreover, Haniffa and Hudaib (2006) reveal that concentrated shareholdings produce opposite results for Malaysian corporations. Accounting performance measures suggest better performance with concentrated ownership while the market perceives otherwise, implying that concentrated ownership is not ideal for an emerging market that tries to attract investors and encourages diffused shareholding. Besides, Prabowo and Simpson (2011) find that the proposition of family control, including family ownership and family involvement on the board, is negatively related to firm performance. However, the significant effect of family ownership disappears when family involvement on the board is taken into account, indicating that family ownership is more detrimental to firm performance whenever the family is highly involved in control decisions.

With the aforementioned review, we claim that there is a shortage of relevant studies focusing on the role of relatives on ownership structure. Hence, we

employ several factors to discuss this issue and propose hypotheses as shown below.

**Hypothesis 1:** *The shareholding ratio of directors' relatives would have positive effect on firm value.*

**Hypothesis 2:** *The shareholding ratio of managers' relatives would have positive effect on firm value.*

**Hypothesis 3:** *The pledge ratio of directors' relatives would have positive effects on firm value.*

## Financial Statements and Firm Value

With regard to financial statements, Yasser, Entebang, and Mansor (2015) argue that there is a significantly positive relationship between financial performance, including return on equity and profit margin, and three corporate governance mechanisms, which are the board size, the board composition, and the audit committee. The implication is that the board size should be limited and the board must be the right mixture of executive and non-executive directors. Geng, Bose, and Chen (2015) discover that financial indicators, such as net profit margin of total assets, return on total assets, earnings per share, and cash flow per share, act as chief roles in the prediction of deterioration in profitability. Cai and Zhang (2011) declare that employing high leverage has a significantly negative effect on stock prices. Borokhovich et al. (2004) claim that financial risk declines in firms with a relatively high current ratio. Moreover, firm value might be influenced by the issue of return on assets, which is regarded as the proxy for firm profitability (Allayannis and Weston 2001; Jin and Jorion 2006).

Based on the review of studies mentioned above, we argue that the variables related to corporate governance and financial statement are related to firm value. Therefore, we take these factors into account as controlling variables while exploring whether firm value would be affected by the relatives' shareholdings.

## DATA AND METHODOLOGY

### Data

We use the data of 4,431 firms listed on the Taiwan Stock Exchange (TWSE) from Taiwan Economic Journal (TEJ) during the period of 2013 to 2017 as our samples. The definitions of variables employed in this study are shown in Table 1.

In this paper, we apply Tobin's  $q$ —defined as the ratio of the market value of a firm to the replacement cost of its assets—that is book value (Chung and Pruitt 1994), to be the proxy for firm value because Tobin's  $q$  has been employed to explain a number of corporate phenomena including the relationship between managerial equity ownership and firm value.

In addition, although there are numerous control variables in the existing literature, including growth and liquidity of a firm, this paper focuses on the probability and leverage because we consider that better probability may increase firm value directly, while low leverage would decrease the liquidity issue of the firm. Besides, some studies also measure the relation between profitability

**TABLE 1. Definitions of Variables**

Variable	Definition
Tobin's q	(market values of equities + book values of liabilities) divided by total book values of assets
Return on assets	Total return divided by total assets
Return on equity	Total return divided by total equities
Shareholding ratio of directors' relatives	Total shareholdings of directors' relatives divided by total shares outstanding
Shareholding ratio of managers' relatives	Total shareholdings of managers' relatives divided by total shares outstanding
Pledge ratio of directors' relatives	Total pledged shares of directors' relatives divided by total shareholdings of directors' relatives
Directors' shareholding ratio	Total directors' shareholdings divided by total shares outstanding
Managers' shareholding ratio	Total managers' shareholdings divided by total shares outstanding
Directors' pledge ratio	Directors' pledged shares divided by total directors' shareholdings
Top ten shareholding ratio	Top ten shareholders' holdings divided by total shares outstanding
Board size	Total number of directors on the board
Independent directors	Total number of independent directors on the board
Net profit ratio	Net profit of all types incomes divided by total book values of sales
Debt ratio	Total book values of debts divided by total book values of assets
Assets turnover ratio	(total sales – property sales – investment incomes) divided by total book values of assets
Electronic dummy	Set to 1 for electronic firms; otherwise, set to 0
Firm size	ln (market value)

and firm value by using the ratio of return on assets (Allayannis and Weston 2001; Jin and Jorion 2006). In the same vein, we consider that return on equity could be the other ratio to present the profitability of a firm. Therefore, we utilize return on assets (ROA) and return on equity (ROE) to be the proxies for firm value in this paper.

### Models

The model, shown below, is set to examine whether firm value would be affected by relatives' ownership structure after controlling corporate governance, financial statements, and other variables.

$$Y_{i,t} = \beta_0 + \beta_1$$

$$\text{Shareholding ratio of directors' relatives}_{i,t} + \beta_2$$

$$\text{Shareholding ratio of managers' relatives}_{i,t} + \beta_3$$

$$\text{Pledge ratio of directors' relatives}_{i,t} + \beta_4$$

$$\text{Directors' shareholding ratio}_{i,t} + \beta_5$$

$$\text{Managers' shareholding ratio}_{i,t} + \beta_6$$

$$\text{Directors' pledge ratio}_{i,t} + \beta_7$$



$$\begin{aligned}
& \text{Top ten shareholding ratio}_{i,t} + \beta_8 \\
& \text{Board size}_{i,t} + \beta_9 \\
& \text{Independent directors}_{i,t} + \beta_{10} \\
& \text{Net profit ratio}_{i,t} + \beta_{11} \\
& \text{Debt ratio}_{i,t} + \beta_{12} \\
& \text{Assets turnover ratio}_{i,t} + \varepsilon_{i,t} \\
& i = 1 \text{ to } 3
\end{aligned} \tag{1} - (3)$$

where

$Y_{i,t}$  is Tobin's q as  $i = 1$

Return on assets as  $i = 2$

Return on equity as  $i = 3$

In addition, we use variance inflation factor (VIF) tests to detect the existence of multicollinearity problems for the employed independent variables in the beginning and discover that all of the VIF values are less than 1.6, representing that multicollinearity concerns are not severe in this study.

## EMPIRICAL RESULTS AND ANALYSIS

### Descriptive Statistics

The descriptive statistics, including the number of observations, means, medians, standard deviations, minima, and maxima, as well as the variables involved in this study are presented in Table 2. We assess firm value by using Tobin's q, which is defined as the amount of market value of equities plus book values of liabilities, and then divided by book values of assets. Table 2 shows that most of the firms listed on the TWSE have good business performance since the average of Tobin's q is 1.37, greater than 1.0, meaning that the market value of assets is greater than the book value. We speculate that there are huge differences in the evaluation of the firms because of the widely ranged minimum and maximum values of Tobin's q.

With regard to the variables of financial statement, the average ROE is about 0.048 percent, while the minimum and maximum values are -19.11 percent and 1.28 percent, respectively. This consequence indicates that some of these firms might not have positive returns, which undoubtedly affects the values of firms. Additionally, the minimum and maximum values of net profit ratio (-12951.16 percent and 776.7 percent) also vary widely, implying that these firms have an enormous difference in profit-making capability, which could influence the firm's financial performance. Moreover, the mean of debt ratio is about 44 percent, meaning that some TWSE-listed firms make leverage by debt, which increases the interest payment and certainly affects the value of the firm.

As for the variables of board structure, we realize that most shares (over 22 percent) are held by the board members, while managers have a very low shareholding ratio (about 1 percent). Based on the statistics, we speculate that the board, for their own interests, might monitor managers more intensively,

expecting more profit, which consequently increases firm value. Nevertheless, the shareholding percentage of managers' relatives to managers (nearly 25 percent) is notably higher than the ratio of directors' relatives to directors (about 10 percent). This circumstance might encourage managers to operate the firm seriously, which is a positive driving force for firm value enhancement. Moreover, the mean number of board members is seven directors and the independent directors are about 20 percent of the board, which seems appropriate for the board combination.

Table 2 reports the means, medians, standard deviations, minima, and maxima of the dependent and independent variables. We explore how firm value would be affected by financial statement, board structure, and others as controlling variables.

The financial statement variables include:

- *Net profit ratio* defined as net profit of all types incomes divided by the total book values of sales
- *Debt ratio* defined as total book values of debts divided by the total book values of assets
- *Assets turnover ratio* defined as total sales excluding property sales and investment incomes divided by the total book values of assets

The board structure variables include:

- *Shareholding ratio of directors' relatives* defined as total shareholdings of directors' relatives divided by the total shares outstanding
- *Shareholding ratio of managers' relatives* defined as total shareholdings of managers' relatives divided by the total shares outstanding
- *Pledge ratio of directors' relatives* defined as total pledged shares of directors' relatives divided by the total shareholdings of directors' relatives
- *Directors' shareholding ratio* defined as total directors' shareholdings divided by the total shares outstanding
- *Managers' shareholding ratio* defined as total managers' shareholdings divided by the total shares outstanding
- *Directors' pledge ratio* defined as directors' pledged shares divided by the total directors' shareholdings
- *Top ten shareholders' ratio* defined as top ten shareholders' holdings divided by the total shares outstanding
- *Board size* defined as the total number of directors on the board
- *Independent directors* defined as total number of independent directors on the board

Electronic dummy is set to 1 for electronic firms; otherwise, set to 0.

**TABLE 2. Descriptive Statistics**

Variables	Obs	Mean	Median	Std. Dev.	Min.	Max.
Tobin's q	4431	1.3724	1.0913	1.0100	0.3926	25.6311
ROA	4431	0.0364	0.0363	0.0821	-0.9843	1.0654
ROE	4431	0.0481	0.0722	0.3804	-19.1107	1.2811
Shareholding ratio of directors' relatives	4431	2.4116	0.4100	5.7768	0	78.5500
Shareholding ratio of managers' relatives	4431	0.2978	0	1.6358	0	37.2200
Pledge ratio of directors' relatives	4431	3.3566	0	13.7941	0	100.0000
Directors' shareholding ratio	4431	22.1723	18.5600	15.3770	0	96.4600
Managers' shareholding ratio	4431	1.1578	0.2600	2.7110	0	44.4900
Directors' pledge ratio	4431	8.2331	0	16.1149	0	100.00
Top ten shareholders' ratio	4431	23.7003	21.3400	12.9563	0	94.2600
Board size	4431	7.7371	7.0000	2.4207	0	21.0000
Independent directors	4431	1.9400	2.0000	1.2368	0	6.0000
Net profit ratio	4431	-0.9638	5.5200	264.8030	-12,951.16	776.7000
Debt ratio	4431	44.2189	43.7500	19.8183	0.9000	99.7600
Assets turnover ratio	4431	0.8226	0.7300	0.5782	0	5.4600
Electronic dummy	4431	0.4484	0	0.4974	0	1.0000
Firm scale	4431	15.7317	15.5624	1.4190	11.6160	22.5068

## Empirical Results

Due to the firm-year observations employed in this study, we argue that panel data models might be more appropriate than traditional multiple regression models. In addition, due to the shortcomings of traditional panel data models proposed by Petersen (2009), we use the model proposed by Petersen for clutching the relative accuracy after taking into account the structure of the data.

### *Multiple Regression Models*

In Table 3, we employ Models (1) through (3) by exploring whether the dependent variables, including Tobin's q, ROA, and ROE would be affected by financial statement variables, including net profit ratio, debt ratio, and assets turnover ratio, and board structure variables including shareholding ratio of directors' relatives, shareholding ratio of managers' relatives, pledge ratio of directors' relatives, directors' shareholding ratio, managers' shareholding ratio, top ten shareholders' ratio, board size, and independent directors. The standard errors (SEs) of the estimated values are presented in parentheses below the estimated values. Models (1) through (3) show the results derived from by excluding 1 percent outliers on both sides. The t-statistics are based on the standard errors that are adjusted by heteroscedasticity (White 1980) in Models (1) through (3).

Table 3 shows that the shareholding ratio of directors' relatives is significantly positively related to ROA and ROE, indicating that a higher shareholding ratio of directors' relatives might bring out better monitoring, which could

enhance the performance and profit of the firm. However, since both pledge ratio of directors' relatives and directors' pledge ratio impact negatively to Tobin's q, ROA, and ROE, we speculate that the increase of these two ratios might surge the profitability of financial crisis.

In addition, although managers' shareholding ratio impacts firm value positively, the shareholding ratio of managers' relatives has a negative relation with firm value. We deduce that managers' relatives probably increase their shareholdings due to the inside information from managers, which can be a problem for firm transparency. As a result, firm value might be decreased gradually.

Table 3 also shows that board size and debt ratio are related to firm value negatively. We presume that large board size might result in a challenge for the efficiency of strategy making and high debt ratio could cause more interest expense, which reduces the profit of the firm. Consequently, these two issues lead the opposite way from firm value enhancement.

As for other controlling variables, firm scale has a positive impact on firm value. We infer that, for large firms, the higher shareholding ratio of the relatives might enhance the advantages in market developing and business maintaining for the firm. A corollary example: the lower shareholding ratio of the relatives might reflect poor results in firm performance and asset turnover rate.

### *Petersen Models*

In Table 4, we employ Models (1) through (3) by exploring whether the dependent variables including Tobin's q, ROA, and ROE would be affected by financial statement variables, including net profit ratio, debt ratio, and assets turnover ratio, and board structure variables, including shareholding ratio of directors' relatives, shareholding ratio of managers' relatives, pledge ratio of directors' relatives, directors' shareholding ratio, managers' shareholding ratio, top ten shareholders' ratio, board size, and independent directors. The standard errors (SEs) of the estimated values are presented in parentheses below the estimated values. Models (1) to (3) show the results derived from by excluding 1 percent outliers on both sides. The t-statistics are based on the standard errors that are adjusted by the two-way clusters that exist in each firm and year (Petersen 2009) in Models (1) through (3).

Table 4 shows almost the same results with Table 3. The shareholding ratio of directors' relatives is significantly and positively related to ROA and ROE, indicating that the relatives of directors expect better yields in the future in terms of high shareholding level. Therefore, firm value is enhanced. Besides, as for financial statement variables, Table 4 reveals that asset turnover ratio is significantly correlated to Tobin's q, ROA, and ROE, meaning that higher asset turnover ratio would increase firm value as well as rate of return. We interpret the finding probably due to the efficiency of business operation, which might generate profit and firm value consequently. On the contrary, debt ratio has a negative relation with Tobin's q, ROA, and ROE. We deduce that a firm with a high debt ratio might surge interest expense and even lift financial risk, which does not increase firm value.

In addition, similar to the result of Table 3, the pledge ratio of directors' relatives and directors' pledge ratio impact negatively to Tobin's q, ROA, and ROE, indicating that the higher directors' pledge ratio, the lower value of the

**TABLE 3. Multiple Regression Models**

	<b>Model (1)</b>	<b>Model (2)</b>	<b>Model (3)</b>
<b>Independent Variables</b>	<b>Tobin's q</b>	<b>ROA</b>	<b>ROE</b>
Shareholding ratio of directors' relatives	0.0025	0.0009***	0.0022***
	(0.0023)	(0.0001)	(0.0005)
Shareholding ratio of managers' relatives	-0.0227***	-0.0005	0.0018
	(0.0060)	(0.0004)	(0.0013)
Pledge ratio of directors' relatives	-0.0011*	-0.0000	-0.0001
	(0.0006)	(0.0001)	(0.0002)
Directors' shareholding ratio	0.0101***	0.0005***	0.0011**
	(0.0009)	(0.0001)	(0.0005)
Managers' shareholding ratio	0.0403***	0.0016***	0.0024
	(0.0089)	(0.0005)	(0.0019)
Directors' pledge ratio	-0.0031***	-0.0003***	-0.0001
	(0.0007)	(0.0001)	(0.0004)
Top ten shareholders' ratio	0.0092***	0.0005***	0.0009
	(0.0011)	(0.0001)	(0.0006)
Board size	-0.0361***	-0.0044***	-0.0056*
	(0.0065)	(0.0005)	(0.0031)
Independent directors	0.0492***	-0.0014	-0.0048*
	(0.0136)	(0.0010)	(0.0026)
Net profit ratio	0.0001	0.0000	0.0000
	(0.0001)	(0.0000)	(0.0000)
Debt ratio	-0.0094***	-0.0014***	-0.0039***
	(0.0010)	(0.0001)	(0.0010)
Assets turnover ratio	0.2212***	0.0299***	0.0691***
	(0.0244)	(0.0019)	(0.0073)
Electronic dummy	0.0107	-0.0165***	-0.0552***
	(0.0357)	(0.0027)	(0.0118)
Firm scale	0.1877***	0.0264***	0.0702***
	(0.0145)	(0.0012)	(0.0087)
Year dummy	Yes	Yes	Yes
Adj. R <sup>2</sup> /Wald $\chi^2$ (prob.)	0.165	0.3158	0.0999
Coefficient estimates	OLS	OLS	OLS
Standard errors	White	White	White

\*Significant values in statistics at the 1, 5, and 10 percent levels are denoted by \*\*\*, \*\*, and \*, respectively.

OLS, ordinary least squares

firm. We speculate that high directors' pledge ratio might be due to financial crisis of the directors, which definitely causes the decrease of firm value. Moreover, the shareholding ratio of managers positively affects firm value; however, shareholding ratio of managers' relatives is negatively influenced firm value.

With regard to the electronic dummy, because of the high competition worldwide, the electronic firms listed on TWSE have weakened their advantages recently, which generates the significant decline on ROA and ROE.

**TABLE 4. Petersen Models**

	<b>Model (1)</b>	<b>Model (2)</b>	<b>Model (3)</b>
<b>Independent Variables</b>	<b>Tobin's q</b>	<b>ROA</b>	<b>ROE</b>
Shareholding ratio of directors' relatives	0.0026 (0.0037)	0.0009*** (0.0003)	0.0021*** (0.0007)
Shareholding ratio of managers' relatives	-0.0226** (0.0089)	-0.0005 (0.0005)	0.0019 (0.0020)
Pledge ratio of directors' relatives	-0.0011 (0.0010)	-0.0000 (0.0001)	-0.0001 (0.0002)
Directors' shareholding ratio	0.0102*** (0.0015)	0.0005*** (0.0001)	0.0011** (0.0005)
Managers' shareholding ratio	0.0401*** (0.0135)	0.0016** (0.0006)	0.0025 (0.0026)
Directors' pledge ratio	-0.0031*** (0.0010)	-0.0003*** (0.0001)	-0.0001 (0.0005)
Top ten shareholders' ratio	0.0092*** (0.0019)	0.0004*** (0.0001)	0.0009 (0.0007)
Board size	-0.0361*** (0.0103)	-0.0044*** (0.0007)	-0.0055** (0.0028)
Independent directors	0.0452*** (0.0163)	-0.0010 (0.0011)	-0.0073** (0.0034)
Net profit ratio	0.0001 (0.0001)	0.0000 (0.0000)	0.0000 (0.0000)
Debt ratio	-0.0094*** (0.0019)	-0.0014*** (0.0001)	-0.0039*** (0.0013)
Assets turnover ratio	0.2238*** (0.0368)	0.0298*** (0.0039)	0.0697*** (0.0147)
Electronic dummy	0.0123 (0.0749)	-0.0166*** (0.0046)	-0.0542*** (0.0182)
Firm scale	0.1902*** (0.0239)	0.0263*** (0.0021)	0.0704*** (0.0120)
Year dummy	Yes	Yes	Yes
Adj. R <sup>2</sup> /Wald $\chi^2$ (prob)	0.1626	0.3151	0.0993
Coefficient estimates	OLS	OLS	OLS
Standard errors	Cluster F and T	Cluster F and T	Cluster F and T

\*Significant values in statistics at the 1, 5, and 10 percent levels are denoted by \*\*\*, \*\*, and \*, respectively.

## CONCLUSION

We examine the relevance of firm value, board structure, and ownership structure because we argue that board structure, ownership structure, and firm value are three main issues for a firm. After surveying the relevant literature, we find that many studies focus on how the shareholding ratios of directors and managers, as well as the pledge ratio of directors, affect firm value. However, the relationship between the shareholding ratio of owners' relatives and company performance is rarely discussed. We document that many directors and top man-

agers have their relatives hold shares in order to dilute the concentration of shareholding, which might prevent the firm from appearing to be controlled by only a few people, and consequently, attract more investors.

By using the firms listed on the Taiwan Stock Exchange as our sample, we reveal several important findings. First, the shareholding ratio of directors' relatives positively affects firm value consistent with the observation that the shareholding ratio of directors positively affects firm value. Second, the shareholding ratio of managers' relatives has a negative impact on firm value. We deduce that the increase of shareholding of managers' relatives might be in relation to information leakage, which might not be regarded as a positive signal, thereby weakening firm value. Third, we also reveal that firm value is impacted positively by the shareholdings of top ten shareholders, independent directors, and asset turnover ratio, but is negatively related to board size and debt ratio. These revealed results seem consistent with the relevant literature.

We argue that this study may contribute to the relevant literature as follows. First, to our understanding, we might be the first to examine how relatives of board members and managers impact firm value deliberately, which might fill a gap in the present literature. Second, our findings might provide valuable information for both enterprises and market participants. The opposite results for these two types of relatives to firm value might be due to the different interests of theirs. To sum up, we document that the shareholding ratios of relatives in terms of directors and managers could be essential factors for gauging the future values of firms.

In general, this study provides valuable implication in two aspects. First, for the corporate governance, relatives' shareholdings of the firm members do impact firm value in a different way, even in the opposite direction. To enhance the value, a firm should properly manage the board and ownership structures. Second, we suggest investors ensuring the board and ownership structures of a firm before investing. After all, board and ownership structures are crucial determinants for firms to operate with financial success. By selecting firms with well-designed board and ownership structures, investors may increase the probability of higher rates of return.

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