

Ultimate Control and Expropriation of Minority Shareholders: New Evidence from Taiwan

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ABSTRACT

This paper provides further evidence to identify the ultimate controlling structure and the degree of expropriation of minority shareholders of listed companies in Taiwan. Compared with previous research, we focus on analyzing the control (voting) and cash flow rights owned by the controlling shareholder. We further distinguish two opposite effects of the controlling shareholders: the positive incentive effect and negative entrenchment effect. The findings of this paper indicate that Claessens et al. (2000) underestimate the control rights and cash flow rights of controlling shareholders and the proportion of family controlled companies in Taiwan due to insufficient disclosure of ultimate ownership structure. We adopt a simultaneous equation model to examine the relationship between the degree of expropriation of minority shareholder and corporate value. Based on our empirical results, we suggest that the deviation of control from cash-flow rights and the degree of collateralization of the stock held by controlling shareholders are two important variables in measuring the expropriation of minority shareholders. The two measurements also have a negative relationship on corporate value, supporting the negative entrenchment effect. In addition, the more cash flow rights owned by the controlling shareholder lead to higher corporate value, supporting the positive incentive effect. Finally, we suggest the regulations covering disclosure of ownership structure should adopt the concept of the ultimate control. That is, companies should provide the complete information for investors to trace and identify who owns the most votes in the companies and how many votes the controlling shareholder owns to distinguish the positive incentive effect and negative entrenchment effect of controlling shareholders.

1. INTRODUCTION

Previous studies (La Porta et al., 1999; Claessens et al., 2000) have revealed interesting information on the patterns of ultimate corporate ownership around the world. It is expected that more research in this area on an individual country basis should be done in order to provide further insight in this area. The concentration of ownership in the hands of controlling families as well as the overlapping of ownership and management of listed companies in Taiwan present further data to explore ownership behavior, which has been examined in many other studies and other countries.¹

The benefits of controlling shareholders must be grounded in whether they have enough financial incentives to reduce their willingness to expropriate outside investors. Cash flow ownership of the controlling shareholder is an important source of such incentives. La Porta et al. (2002) verified the positive incentive effect of a controlling shareholder's cash flow ownership. The greater the controlling shareholder's cash flow investment, the greater the losses he (she) could suffer if the firm's value should be damaged. Besides, more cash flow rights owned by the controlling shareholder lead to higher corporate value.

Concentrated ownership might do harm to corporate value. Shleifer and Vishny (1997) argued that 'as ownership gets beyond a certain point, the large owners gain nearly full control and prefer to use firms to generate private benefits of control that are not shared by minority shareholders'. La Porta et al. (1999) suggested that when large shareholders effectively control corporations, they might try to exploit their positions and seek personal benefits at the expense of minority shareholders. In some instances, the controlling shareholders may simply steal corporate assets outright. In other instances, the controlling shareholders may sell corporate assets to other firms they control at below market prices. In addition, the expropriation may take the form of diverting business opportunities to other firms so that controlling shareholders can derive better private benefit, installing unqualified family members in managerial positions, or overpaying executives (La Porta et al., 2000).

¹ Zingales (1994), Kunz and Angel (1996), Rydqvist (1996), Taylor and Whittred (1998), and Smith and Amoako-Adu (1999) documented evidence of concentrated ownership by families in the European, Canadian, and Australian markets. La Porta et al. (1999), and Claessens et al. (2000) also indicated that families accumulate the ultimate control of firms in twenty-seven wealthy economies and nine East Asian countries.

La Porta et al. (1998) and Claessens et al. (2000) reported a puzzling finding about Taiwan. La Porta et al. (1998) found the average control rights held by the largest shareholders in the U.S. and U.K. to be 20 percent and 19 percent respectively. The U. S. and U. K. are the countries with widely spread ownership structure. However, as for Taiwan, such a country with concentrated ownership structure, only 18 percent is found. Claessens et al. (2000) also reported similar figures in Taiwan, with average control rights held by the largest shareholders is of 18.96 percent; however, it is 30.33% in our findings. Furthermore, Claessens et al. (2000) did not correctly estimate the divergence of voting from cash flow rights in Taiwan. They reported the average cash flow rights owned by the ultimate owner in Taiwanese listed companies at about 16 percent and the average cash flow rights over voting rights at 0.83. However, our calculations for the above two figures were 21.7% and 0.71, respectively. We argue that the above apparently misestimated figures for the average voting rights held by the controlling shareholders in Taiwan resulted from inadequate Taiwanese disclosure rules which allow companies to conceal the real identities of owners and provide misleading data about a firm's ownership structure. Because of the misestimate, Claessens et al. (2002) do not find a significant relationship between ownership structure and corporate value in Taiwan. They found neither a positive incentive effect nor a negative entrenchment effect in Taiwanese listed companies.

Securities regulations in Taiwan require that listed companies disclose the identities of shareholders owning more than 10% of companies' stocks, and these shareholders have to declare the purpose and financial sources of their investments with the securities regulators. Subsequent transactions of these shares are also under regulatory restriction and disclosure requirement. Therefore, controlling shareholders and their family members have the incentive to spread their shareholdings among family members in order not to exceed 10%. They may also create privately-owned investment companies (or other nominal companies) to hold shares. As existing disclosure rules have not required listed companies to disclose the identity of owners of these investment companies, the ultimate ownership structure of listed companies may not be fully disclosed. Sometimes, the controlling shareholders may even use nominee accounts under their control to hold shares. Cross-shareholding provides another mechanism for controlling shareholders to strengthen their control of listed companies.

In addition, shareholders are allowed to use their shares as collateral to obtain loans from financial institutions in Taiwan, which will expand their control rights using the leverage effect. When the stock prices drop dramatically, the value of the

collateral will also decrease, so financial institutions will ask them to make up for the decrease. The controlling shareholders will then have motives to misappropriate firms' assets to uphold the share prices in order to avoid resulting personal losses from having to make up the collateral. In 1998 and 1999, almost thirty public traded companies experienced financial distress and even filed for bankruptcy because their controlling shareholders could not uphold the stock prices of these companies successfully even though they misappropriated all the capital of their controlling companies. Therefore, we argue that the higher the collateralized shares held by the controlling shareholders, the more severe the agency problem and the lower the corporate value. We developed the stock collateral degree of the controlling shareholders to gauge this kind of minority exploitation hypothesis in this research.

Although Claessens et al. (2002) treated cash flow rights and the deviations of control from cash flow rights as exogenous in exploring the relation between ownership structure and corporate value, whether the ownership structure is an exogenous or endogenous variable to the firm's value still remains controversial (Morck et al., 1988; McConnell and Servaes, 1990; Demsetz and Lehn, 1985; Kole, 1996; Cho, 1998; Chen and Steiner, 2000).² We utilized simultaneous equations regression (three-stages least squares method, 3SLS) instead of OLS in order to more accurately measure the relationship between ownership structure (cash flow rights and the deviations of control from cash flow rights) and corporate value.

This research intends to provide further evidence to understand the ownership structure and the incentive effect of controlling shareholders in Taiwan in order to highlight the importance of sufficient information disclosure regulations in regard to the ownership structure research and corporate governance mechanism. This is carried out by using (1) examination of detailed data for a better understanding of corporate ownership structure; (2) analysis of the enhancement mechanism of corporate control by controlling shareholders and determinants of control effectiveness; and (3) estimation of the relation of cash flow rights and the deviation between control right and cash flow right followed Claessens et al. (2002) to its corporate value. (4) exploration

² Morck et al. (1988) and McConnel and Servaes (1990) treat ownership structure as exogenous in exploring the relationship between ownership structure and corporate value. However, Demsetz and Lehn (1985) argue that ownership structure is endogenously determined in equilibrium. Kole (1996) provided evidence of a reversal of causality in the ownership-corporate value relation, suggesting that corporate value could be a determinant of ownership structure rather than being determined by ownership structure. Cho (1998) indicated that investment affected corporate value, which, in turn, affected ownership structure, not vice versa. Chen and Steiner (2000) argued managerial ownership, analyst coverage, and firm valuation. were jointly determined within the system.

the relationship between the stock collateral degree of controlling shareholders and its corporate value.

The major empirical results indicate that previous research underestimate the ownership structure concentration of Taiwan due to the inadequate equity disclosure. The controlling shareholder can enhance the voting rights through multiple chains of ownership, such as cross shareholdings, pyramid, and even the shareholding of the nominal investment companies and other institutions under their control, and the above situations will not be reported publicly. We suggest that the disclosure of ownership structure should adopt the concept of ultimate control proposed by La Porta et al. (1999). That is, the disclosed ownership structure information should include the whole ownership structure chains and the shares information in order to trace and identify who owns the most votes in the companies and how many votes the controlling shareholders own.

Further, we found that there exists a significantly negative impact of the deviation of control from cash-flow rights upon firm value. The stock collateral degree of the controlling shareholder also has a significantly negative influence on firm value. We suggest that the deviation of control from cash-flow rights and the stock collateral degree of the controlling shareholders are two important variables in measuring the expropriation of minority shareholders. Even more importantly, the cash flow rights owned by the controlling shareholder are positively associated with corporate value.

2. ULTIMATE CONTROL AND OWNERSHIP STRUCTURE IN TAIWAN

Concentration of ownership constitutes a basis for corporate control. La Porta et al. (1998) reported the existence of highly concentrated ownership structure in the ten largest non-financial corporations across forty-nine developed as well as developing countries. La Porta et al. (1999) further investigated the issue of ultimate corporate control in twenty-seven wealthy economies. Although the controlling shareholders are occasionally the state, it is family members that frequently make up the majority shareholders. Claessens et al. (2000) adopted a similar approach to develop the ultimate control patterns in nine East Asian countries. Their empirical results indicated that large families reign over more than half of the East Asian corporations.

The interweaving and indivisible relationships between wealthy families and busi-

ness firms has long been prevalent in Taiwan. Families usually constitute the basis of a firm's business development starting from its inception. Family controlled business has the advantage of strong leadership and a cohesive management team formed by the family members. Even after a company becomes publicly listed and traded, family ownership or control still plays a dominant role in the corporate decision-making process. Yeh et al. (2001) reported that 51.44% of listed companies in the Taiwan Stock Exchange are family controlled, using a 20% cutoff criterion. They further found that 57.6% of Taiwan-listed family controlled companies have more than half of the board seats held by controlling shareholders and their family members. In addition, Claessens et al. (2000) investigated the means of enhancing corporate control, including deviation from one-share-one-vote, pyramidal structure, cross-shareholding, and participation in management by controlling shareholders, and measured the values of the above four mechanisms in nine East Asian economies. They reported the magnitudes of all the variables in Taiwan are close to the average of their nine sample countries.

In Taiwan, listed companies are required to disclose the identities of shareholders owning more than 10% of companies' stocks, and these shareholders not only have to declare the purpose and financial sources of their investments with the securities regulators, but also must report the subsequent transactions. Therefore, controlling shareholders and their family members have the incentive to spread their shareholdings among family members in order not to exceed 10%. Yeh et al. (2001) found that the controlling families of the Taiwanese publicly listed and traded companies might lever their control over companies through the following three sources. (1) the shares directly owned by family members; (2) the cross shareholding of listed companies in the same family controlled group and the indirect shareholding through pyramidal structure; and (3) the shareholding of the nominal investment companies and other institutions under their control.

Take the Formosa Plastics Group as an example. It is composed of four listed companies: Formosa Plastics, Nan-Ya Plastics, Formosa Chemicals and Fiber, and Formosa Taffeta. As of 1994 and 1995, the founder, Yung-ching Wang together with his family members owned 12.97% of Nan-Ya Plastics. Other listed companies controlled by Mr. Wang, namely, Formosa Plastics and Formosa Chemicals and Fiber also held 4.93% and 4.75% of Nan-Ya's shares, too. Two nominal investment companies, Chin's International Investment Co. and Wan-Shoon International Investment Co. owned 3.63% and 4.56% of Nan-Ya respectively. Through Chang Gung Univer-

sity and Chang Gung Hospital, Mr. Wang again controlled another 4.16% and 0.77% of Nan-Ya. Thus the shares of Nan-Ya ultimately controlled by Wang's family summed up to 35.77%.

On the other hand, institutional investors have rather limited ownership in Taiwan's listed companies. Financial institutions' ownership of listed companies in the 1990s was around 4 to 5 percent. A regulatory limit has been imposed on the percentage of ownership that banks and insurance companies can hold in public companies. As a result, financial institutions have not been able to become active participants in corporate governance. Domestic investment trust or mutual funds have owned about 1 to 2 percent of shares since 1990. From 1991 to 1998, the government ownership decreased from 15.5% to 4.3%, resulting from the privatization of state-owned companies during this period. As to foreign investors, their aggregate ownership has increased to 7.4% in 1998, including individual and institutional investors.

3. RESEARCH METHOD

3.1 Data and sample

The data in this research included the listed companies of the Taiwan Stock Exchange that have issued prospectuses for 1997 and 1998. The data excluded those companies that had not become listed prior to 1997 and those in the financial sector due to their unique operational and financial characteristics. The information of the ownership structure and family ties were collected from prospectus and the "Business Groups in Taiwan", published by China Credit Information Services LTD, a databank company that has been in business for more than two decades. Financial data is compiled from the Taiwan Economic Journal Inc., which is the electronic data bank corporation which provides the financial information of Taiwan listed companies.

A sample of 251 listed companies is used in this study. The sampled companies constituted about 64.6% of 390 non-financial companies. Their market capitalization value was NT\$4,773 billions, about 77.3% of total non-financial companies' value. The average market capitalization value per firm was about NT\$20.4 billions. Using the exchange rate at the year end of 1998, the average size of the sample companies in this study was about US\$633 million, similar to the category of mid-sized companies defined in La Porta et al. (1999). In the study done by Claessens et al. (2000), their sampled data for Taiwan had 141 companies, about 36.9% of 382 total listed com-

panies in the Taiwan Stock Exchange, and about 66% of total market capitalization value.

La Porta et al. (1999) were pioneers in the investigation of the importance of ultimate control. They meticulously traced the chain of ownership either in direct or indirect ways to determine the ultimate owner, i.e., the person with the most voting rights. According to their definition, the direct ownership was the shares directly owned by the ultimate owner, and the indirect ownership trace was via calculating the shares held by other legal entities that were obviously owned or controlled by the ultimate owner. This study adopted an approach similar to that used in La Porta et al. (1999) to trace the ultimate control.

We further divided the samples into widely held companies and companies with ultimate owners based the methodology proposed by La Porta et al. (1999). A widely held corporation is defined as a corporation in which none of the owners had significant control rights. When a company has one shareholder that controlled shares (include direct and indirect control rights) exceeding the cutoff point, that company is defined to have an ultimate owner.³ Ultimate owners are further identified into five categories: a family or an individual, the State, a widely held financial institution including a bank or insurance company, a widely held corporation, or miscellaneous, such as a cooperative, or foreigner (such as international joint ventures where the foreign company is the largest shareholder).⁴

3.2 Control rights and cash flow rights (ownership)

According to Claessens et al. (2000), the ownership is simply defined by cash flow rights. In contrast, the control, defined by voting rights, can be highly leveraged through pyramiding schemes or cross shareholding, which creates a divergence in cash flow and voting rights. This study follows the concept of ultimate control proposed

³ A shareholder has an x% indirect control over firm A if (1) he/she controls directly firm B which, in turn, directly control x% of the votes in firm A; or (2) he/she controls directly firm C which, in turn controls firm B (or a sequence of firms leading to firm B each of which has control over the next one, i.e. they form a control chain.) which, in turn, directly controls x% of the votes in firm A.

⁴ State control is a separate category because it is a form of concentrated ownership in which the State uses firms to pursue political objectives, while the public pays for the losses (Shleifer and Vishny 1994). La Porta et al. (1999) also give widely held corporations and widely held financial institutions separate ownership categories because it is unclear whether the firms they control should be thought of as widely held or having an ultimate owner. A firm controlled by a widely held corporation or financial institution can be thought of either as widely held, since the management of the controlling entity is not itself accountable to an ultimate owner, or as controlled by that management. For these reasons (and because bank ownership is of independent interest), La Porta et al. (1999) separated these categories.

by La Porta et al. (1999) and meticulously traces the chain of ownership. We sum the direct and indirect voting rights of the shareholders and then identify the ultimate owners, the ones with the greatest control rights (the largest shareholders). The direct voting rights are counted based on shares registered in the name of the ultimate owner (including their family members). The indirect voting rights are based on shares held by entities that in turn are controlled by the ultimate owner.

A study of the separation of ownership and control requires data on both the cash flow and voting rights. We calculate this using the complete chain of ownership. In most cases, the ultimate owner of Taiwanese listed companies has several control rights chains through which to control the votes in a company. We follow the notion of Claessens et al. (2000), “suppose that a family owns 11% of the stock of publicly traded Firm A, which in turn has 21% of the stock of Firm B. The same family owns 25% of Firm C, which in turn has 7% of the stock of Firm B. Looking at the control rights, we would say that the family controls 18% of Firm B, or the sum of the weakest links in the chains of voting rights. In contrast, we would say that the family owns about 4% of the cash flow rights of Firm B, or the sum of the products of the ownership stakes along the two chains.” We make a distinction between cash flow and voting rights using information from each firm in the pyramidal structure and the cross-shareholdings among these firms.

It is common for the controlling shareholders of Taiwan listed companies to enhance their control over a company through nominal investment companies and other entities. We determine whether these controlling shareholders control these nominal investment companies and other entities according to the “Business Groups in Taiwan”, a database of listed companies’ news and company prospectuses. These nominal investment companies and other entities are founded by controlling shareholders or companies under the same group. However, if the nominal investment companies and other entities are private companies or organizations, it is unable to collect the complete ownership structure of them. Therefore, we suppose two extreme situations in the following analysis. (1) The controlling shareholders directly control these nominal investment companies and other entities. In other words, the capital of the nominal investment companies and other entities completely came from the controlling shareholders (cash¹⁰⁰). (2) The controlling shareholders indirectly control the nominal investment companies and other entities. This means that the controlling shareholders do control those companies through a pyramidal structure or cross shareholdings without paying any capital (cash⁰). We take the Family of Yung-Ching Wang controlling

the Formosa group as an example to explain the calculation of control and cash flow rights in Appendix.

3.3 Means of enhancing control

3.3.1 Pyramidal structure (PYR)

Pyramidal structure is defined as the controlling shareholder exercises control through at least one publicly-traded company (La Porta et al., 1999). For the existence of pyramidal structure, we set $PYR=1$, otherwise, $PYR=0$.

3.3.2 Cross-shareholding (CRS)

Cross-shareholding is defined as "...if the firm both has a controlling shareholder and owns shares in its controlling shareholder or in firm that belongs to her chain of control,...". For the existence of cross-shareholding, $CRS=1$, otherwise, $CRS=0$.

3.3.3 Participative management (MGT)

$MGT=1$ if the ultimate owner serves as the chairperson of the board or the general manager of the controlling companies, otherwise, $MGM=0$.

3.3.4 Stock collateral ratio (SCR)

Stock collateral ratio refers to the ratio of stock collateralized by board directors, top management, and shareholders with more than 10% of shares to their total shareholdings. The average year-end balance of 1997 and 1998 is used for analysis.

3.4 Performance and corporate characteristic variables

3.4.1 Industry-adjusted Proxy Q

Market performance is used as dependent variable. Tobin's Q is a frequently used measure for a company's market performance (Morck et al., 1988; McConell and Servaes, 1990; and Cho, 1998). However, as Tobin's Q requires information of replacement cost of corporate assets, which is not available from the Taiwan Stock Exchange, this study uses proxy Q as a substitute. In order to control for industry effect, the average of the industry to which the firm belongs is then subtracted from the proxy Q of each company.⁵

⁵ The Taiwan Stock Exchange mandates that companies provide a prospectus when they plan to offer seasoned equity, recapitalize the paid-in capital from retained earnings, or issue corporate bonds.

Proxy Q = (Market Value of Equity + Book Value of Debts)/Book Value of Assets

Industry-adjusted Proxy Q = Proxy Q – Industrial Average

3.4.2 Corporate characteristic variables

In order to have a better understanding on the effect of the ownership characteristics of controlling shareholders on corporate value, this study applies the following control variables: (1) Corporate market value (LMV): We adopted the log market value of outstanding common stocks. This variable is related to the intangible assets of a company, reflecting a company's performance. Thus, this variable is used to control operating performance and corporate size. (2) Corporate age (LAGE): Corporate age reflects the reputation of a company to some extent. Therefore, the log value of a company's age at end of 1998 is used as a control measure. (3) R&D and advertising expenditure (RDAD): Prior research (McConnel and Muscarella, 1985; Chan et al., 1990) suggested that investment, such as R&D and advertising, will increase corporate value. Therefore, the percentage of R&D and advertising expenditure to net sales is used as a control variable. (4) Debt ratio (DEBT): This is the ratio of total debt divided by total assets based on their respective book values. Morck et al. (1988) indicated this variable has information content on the effect of tax shields. This study uses this ratio to control the effect of financial leverage on corporate performance. (5) Shareholding by the second largest shareholders (SEC): SEC = 1 if the second largest shareholder owns more than 3%,⁶ otherwise, SEC = 0. (6) Earnings before interest and tax (EBIT): This is the average of the ratio between earnings before interest and tax, and total asset over the past five years.

The average of the year-end data for 1997 and 1998 is used for analysis except the age of company. The mean and median of proxy Q were 1.746 and 1.498 respectively. The mean and median ages of sampled companies were 25 and 26, respectively. The mean and median debt ratios were 41.52% and 41.5%, respectively. The mean and median R&D and advertising expenses were 2.05% and 1.16%, respectively.

⁶ When the second largest family or an independent institution owns more than 3% of the shares and holds at least one seat on the board, we consider the company to be monitored by a second largest group. The so-called independent institution includes (1) governmental agencies, (2) other unrelated companies, mutual funds or financial institutions and (3) foreign investors. The reason we use 3% as the benchmark in this study is due to the Taiwan Company Code. The Taiwan Company code allows a shareholder with more than 3% of shareholding to have certain rights, such as (1) requiring the board to hold an extra-shareholder meeting, (2) requiring the Court to assign an examiner to check the financial statements and property listings, (3) appealing to the court for discharging the board member duties, etc..

4. DATA ANALYSIS

4.1 Basic statistical characteristics

Table 1 presents some basic statistics of the control rights and cash flow rights of the largest shareholders for listed companies in Taiwan Stock Exchange. Table 1 shows that the average of control rights of the largest shareholders is 30.33%, with a median of 30.84%. This is significantly higher than the 18.86% and 20%, respectively, found in Claessens et al. (2000). It is also interesting to note that in Claessens et al. (2000), the median and the third quartile of control rights were 21.28% and 21.96%, respectively. About one quarter of their sampled companies (about 23 out of 92 firms) had a control right within this narrow band (0.68%), which is rather unusual.

Further, if the capital of nominal investment companies and other related entities completely came from the largest shareholders, the mean cash flow rights of the largest shareholders (Cash¹⁰⁰) would be 25.92%, with a median of 25.47%. In this case, the difference between control rights and cash flow rights is 4.41%, and the cash flow rights are about 85.3% of control rights. In addition, if the largest shareholders control those nominal investment companies and other related entities through pyramidal structure or cross shareholdings without paying any capital, the mean cash flow rights owned by the largest shareholders (Cash⁰) would be 17.49%, with a median of 12.59%. In that case, the difference between control rights and cash flow rights is about 12.84%, and the cash flow rights are about 57.3% of control rights.

Table 2 presents the information in regard to the control mechanisms by controlling shareholders. It can be seen that, among 251 sampled companies, 40.1% of them adopt cross-shareholding, while 23.9% of companies use a pyramidal structure. And 90.1% of companies have their largest shareholders serve either as board chairperson or general manager, while 47.8% have their largest shareholders serve as both board chairperson and general manager. In contrast to the figures reported by Claessens et al. (2000), in only 8.6% of their sample companies, the largest shareholders use a cross-shareholding mechanism to enhance their control. It is common in Taiwan that the controlling shareholders may use corporate resources to set up subsidiaries and let the subsidiaries acquire their parent companies' or other subsidiaries' shares. Cross-shareholding is thus developed in a sophisticated manner. Public disclosure rules have

Table 1 Separation of Cash Flow and Control (Voting) Rights in Taiwanese Listed Corporations – Comparison with Claessens et al. (2000)

Table 1 presents some basic statistics on the control rights and cash flow rights of the largest shareholders for listed companies in Taiwanese listed companies, from the results of this paper and Claessens et al. (2000).

Variables	Mean	Sta. Dev.	Q1	Median	Q3
This Study (251 companies)					
Control (%)	30.331	16.262	15.885	30.84	41.2
Cash ¹⁰⁰ (%)	25.918	16.645	11.105	25.47	38.042
Cash ⁰ (%)	17.487	15.43	4.594	12.59	27.56
Cash ¹⁰⁰ /Control	0.853	0.241	0.762	1.00	1.00
Cash ⁰ /Control	0.573	0.361	0.235	0.597	1.00
Claessens et al. (2000) (92 companies)					
Control (%)	18.96	8.57	10.00	20.00	20.00
Cash (%)	15.98	8.76	10.00	14.42	19.27
Cash/Control	0.832	0.198	0.700	0.975	1.00

not been well established to provide sufficient information to identify the ultimate owners in this structure. We therefore argue that the statistics provided by Claessens et al. (2000) in regard to the percentage of sample companies using the cross-shareholding mechanism are underestimated.

From Table 2, 23.9% of our sample companies have a pyramidal structure, whereas, versus 49% of the sample companies in Claessens et al. (2000). The difference between these two studies might result from the sample composition. The conglomerate companies tend to use a pyramidal structure to control their subsidiaries more than other companies do. We think that the Claessens et al. (2000) sample has more conglomerate organizations than ours, because the market capitalization value of their 141 sample companies accounted for 66% of total Taiwan listed companies', while the value of our 251 sample companies was only 77% of the total.

In addition, Table 2 also indicates that Taiwan listed companies are more likely to adopt the cross-shareholding approach to cement their control over subsidiaries than do the other nine countries in East Asia. Furthermore, the percentage of controlling shareholder also being either board chairperson or general manager is larger than for the other nine East Asian countries.

Table 2 The methods of Enhancing Control – Comparison with Claessens et al. (2000)

We compare the average of the methods to enhance control rights by the results of this study and Claessens et al. (2000). “Chair or CEO” equals one if the controlling shareholders serve as chairman or CEO; otherwise zero. “Chair and CEO” equals one if the controlling shareholders serve both as chairman and CEO at the same time; otherwise zero.

	Cross-shareholding	Pyramid	Chair or CEO	Chair and CEO
This study–Taiwan	0.401	0.239	0.912	0.478
Claessens et al.–Taiwan	0.086	0.490	0.798	—
Claessens et al.–East Asia	0.101	0.387	0.571	—

4.2 Ultimate ownership

La Porta et al. (1999) and Claessens et al. (2000) adopt 10%, 20% and 30% cutoff criteria to determine the ownership structure. Table 3 also takes this approach and provides comparative data for further analysis.

From Panel A of Table 3, based on the 10% cutoff criterion, it can be seen that family ownership constitutes the majority of ultimate corporate control; about 82.5% of our sample companies are classified as family controlled companies. In the study by Claessens et al. (2000), the family controlled companies at the 10% cutoff criterion constitute 65.6% of total companies. Claessens et al. (2000) reported that 10.4% of the sample are controlled by financial institutions, which appears to be inconsistent with banking regulations in Taiwan and may overestimate the influence of financial institutions in corporate ownership. The banking regulations in Taiwan prohibit any financial institution from investing in more than 5% of the shares of any non-financial related business.

Besides, only 2.78% of companies are controlled by widely-held corporations in our study, versus 18.1% of companies in Claessens et al. (2000). It is likely that nominal investment companies controlled by the largest family shareholders are considered non-related to the ultimate owners due to insufficient disclosure in Claessens’ data, thus concealing the ultimate ownership. Further, there are six companies whose largest controlling shareholders are foreign corporations in our sample, while Claessens et al. (2000) excluded these companies.

Panel A of Table 3 only considers the existence of a single large shareholder at the 10% cutoff criterion. By using the 20% cutoff criterion, Panel B adopts the “joint venture” ownership structure as suggested in La Porta et al. (1999). In this structure, a company can have more than one ultimate owner. In addition to the largest shareholder, the second largest shareholder should have more than 10% of shares and have at least one director on his behalf on the board.

There are two controlling shareholders in a few Taiwanese listed companies. For example, the major two shareholders own 19.87% and 19.33% of shares in Zig Sheng Company, and 22.04% and 18.15% in Inventec Corporation. We found that there are 15 listed companies (6% of our total sample companies) in which the second largest shareholding exceeds 10%, with one board seat.

From Table 3, it can be seen that even if the criterion for ultimate ownership is raised from a 10% to a 20% cutoff, family still constitutes the majority of corporate ownership. At the 20% cutoff criterion, 58.2% of total companies are family-controlled, higher than the 48.2% shown in the study by Claessens et al. (2000). As for control by a widely-held corporation or financial institution, the data in this study show they constitute 2.8% and 0%, respectively, while the data in Claessens et al. (2000) show 17.4% and 5.2%, respectively. It is likely that Claessens et al. (2000) may underestimate the percentage of family-controlled shares, since many family-controlled nominal investment companies are classified as financial institutions or are unrelated to ultimate family owners due to insufficient data.⁷

At the 30% cutoff criterion, Panel C indicates that 40.2% of companies are family controlled, 5.6% of companies are joint ventures, 2.4% of companies are controlled by a widely-held corporation, and 2% of companies are state controlled. Therefore, it is clear that family-controlled companies are the dominant form of ultimate ownership at various cutoff criteria in Taiwan.

Table 4 compares family ownership in different countries and takes 10% and 20% as cutoff criteria. The figures reported by Claessens et al. (2000) are based on the average value of their nine East Asian countries' sample. The market values of our samples are close to the medium-size companies in the twenty seven wealthy economies with poor protection of shareholders surveyed by La Porta et al. (1999).

⁷ It is worth noting that some figures reported by Claessens et al. (2000) are quite unreasonable (see in Table 6). For example, the proportion of family controlled at the 10% cutoff criterion is smaller than at the 20% cutoff criterion in Indonesia, Hong Kong, Malaysia, the Philippines, Thailand, and Singapore.

Table 3 Control of Listed Companies in Taiwan – Comparison with Claessens et al. (2000)

We compare the ultimate control type of Taiwanese listed companies by the results of this study and Claessens et al. (2000). Panel A reports the results by using a 10% cutoff point to determine whether a company has an ultimate controller. Panel B uses a 20% cutoff point, while Panel C uses a 30% cutoff point. In Panels B and C, we add a control type “Joint Ventures” suggested by La Porta et al. (1999).

A. 10% cutoff								
	No. of sample	Widely held	Family	State	Financial	Widely held corporation	Foreign	
This study	251	23	207	8	0	7	6	
Proportion	100%	9%	82.5%	3.2%	0	2.78%	2.5%	
Claessens et al.	141	2.8%	65.6%	3%	10.4%	18.1%	0	
B. 20% cutoff								
	No. of sample	Widely held	Family	State	Financial	Widely held corporation	Foreign	Joint ventures
This study	251	75	146	5	0	7	3	15
Proportion	100%	29.9%	58.2%	2%	0	2.8%	1.1%	6%
Claessens et al.	141	26.2%	48.2%	2.8%	5.3%	17.4%	0	0
C. 30% cutoff								
	No. of sample	Widely held	Family	State	Financial	Widely held corporation	Foreign	Joint ventures
This study	251	123	101	5	0	6	2	14
Proportion	100%	49%	40.2%	2%	0	2.4%	0.8%	5.6%
Claessens et al.	141	73%	18.4%	2.8%	1.4%	4.3%	0	0

At the 10% cutoff criterion, this study indicates that there are 82.5% family controlled companies among Taiwan listed companies. This is higher than the other two studies in Table 4. Moreover, at the 20% cutoff criterion, the proportion of family controlled is 58.25% in Taiwan. It is close to but higher than both the 52.59% in the study of nine East Asian countries by Claessens et al. (2000) and the 50.47% in the study of medium-size companies with poor shareholder protection by La Porta et al. (1999). From the respects of ultimate control pattern and the mechanisms of enhancing corporate control for controlling shareholders, the Taiwan listed companies provide a typical exemplar from La Porta et al. (1999) and Claessens et al. (2000).

Table 4 The Comparison of Family Ownership of Different Countries – 10% and 20% cutoffs

Table 4 compares family ownership of different countries and takes 10% and 20% as cutoff criteria. We compare the results of this study, Claessens et al. (2000) and La Porta et al. (1999).

	Countries	Sample period	10%	20%
This study	Taiwan	1997–98	82.5%	58.2%
Claessens et al. (2000)	Nine East Asian countries	1996	53.32%	52.59%
La Porta et al. (1999) medium-sized firms	Twenty-seven wealthy countries	1995	52.52%	45.15%
	Poor shareholders protection – fifteen countries	1995	53.8%	50.47%

4.3 Enhancement mechanism by controlling shareholders

Controlling shareholders can use four mechanisms to enhance their control of a company, including pyramidal structure, cross-shareholding, serving as board chairperson and general manager, and stock collateral. The use of stock collateral allows the controlling shareholders to obtain financial credit and use this credit to acquire additional shares, enhancing their control.

To investigate the extent of control by controlling shareholders, it is necessary to know how many shares are needed to exercise control. Yeh et al. (2001) reported that the average critical control percentage is 15.3% (the third quartile is 19.01%) based on their sample of 208 Taiwan-listed companies in the years of 1994 and 1995. They utilized the voting probability model proposed by Cubbin and Leech (1983) to calculate the critical control percentage. Thus, if the ultimate owner owns more than 20%, it is sufficient to exercise control, which is also consistent with the criterion used in Claessens et al. (1999) in defining different categories of corporate control. Table 5 also uses a 20% cutoff criterion for classifying control structures.

From Table 3B, under the 20% cutoff criterion, 29.9% of sample companies (75 companies) will be classified as widely held companies, and 58.2% of sample companies (146 companies) are classified as family controlled companies. Beside the widely held and family controlled companies, other companies including companies with an ultimate controller are widely held companies, government, financial institutions, for-

Table 5 Enhancement Mechanism by Controlling Shareholders

We divide our sample into family-controlled, other control, and widely-control (WHC) companies. Then we compare the averages of ownership structure and the mechanism of enhancing control rights among the three groups.

Ultimate control	Family control	Other control	WHC
Sample No.	146	30	75
Control (%)	38.34%	39.29%	11.15%
Cash ¹⁰⁰ (%)	31.687%	38.479%	9.66%
Cash ⁰ (%)	19.39%	35.856%	6.25%
Cash ¹⁰⁰ /Control	0.808	0.971	0.894
Cash ⁰ /Control	0.5	0.898	0.584
Cross-shareholding	0.479	0.23	0.32
Pyramid structure	0.288	0.23	0.147
Participative management	0.534	0.43	0.387
Stock collateral ratio (%)	32.82%	5.694%	27.86%

eign companies, and joint venture, etc., which are classified as ‘other ultimate control structure’. There are relatively few companies classified as having other ultimate control structures in our sample.

In Table 5, we compare the deviation of control from cash flow rights of the family controlled companies and corporations with other ultimate type of control structure. Table 5 indicates that for family controlled companies, the control rights and cash flow rights diverge more than for other types of ultimate control structures. The average control rights owned by the controlling shareholders of the family controlled companies and those with other types of control structure are 38.34% and 39.29%, respectively. In contrast, the average control rights owned by the largest shareholders are only 11.15% for the widely-held corporations. In regard to cash flow rights, the Cash¹⁰⁰ and Cash⁰ of family controlled companies are 31.687% and 19.39% (cash over control right ratios are 0.808 and 0.500, respectively), and the Cash¹⁰⁰ and Cash⁰ of other types of control structure are 38.479% and 35.856% (cash over control right ratios are 0.971 and 0.898, respectively).

Family controlled companies also consistently apply various control mechanisms to enhance their control more than ‘other types of control structure’. There are 47.9%,

and 28.8% of family controlled companies adopting the cross-shareholding and pyramid approaches, respectively. Furthermore, 95.9% of the listed companies have their controlling shareholders serving as either board chairman or general manager. Also, the collateralized percentage of family controlled companies is 32.82%. These percentages are higher than those of other companies.

In order to understand the factors affecting the control rights, this study classifies the sampled companies by their cash flow rights into four groups and conducts regression analysis on control mechanisms and control rights. The results are shown in Table 6, which indicates, in all classified groups, that the coefficients for pyramidal structure and cross-shareholding are positive at a significant level. This suggests that a pyramidal structure and cross-shareholding can indeed enhance corporate control by the controlling shareholders, given that they invest certain cash flows. For family controlled companies, the results are the same.

In summary, the controlling shareholders of listed companies in Taiwan generally apply the pyramidal structure and cross-shareholding mechanisms to enhance their control of companies they invest in. These mechanisms also lead to substantial deviation of control and cash flow rights. In addition, controlling shareholders also rely on serving as board chairperson or/and general manager to increase their control.

5. EXPROPRIATION OF MINORITY SHAREHOLDERS AND CORPORATE VALUE

In order to investigate whether the effect of ownership structure on corporate value is exogenously or endogenously determined, this study uses simultaneous equation regression (3SLS, three-stage least squares method) to find out relation between the degree of deviation of control from cash flow rights and corporate value. The 3SLS model is developed as follows:

$$\frac{\text{Cash}}{\text{Control}} = f(\text{Proxy Q, PYR, CRS, MGT, SEC, LAGE, LMV, EBIT}); \quad (1)$$

$$\text{Proxy Q} = f(\text{Cash/Control, SEC, RDAD, DEBT, LMV}), \quad (2)$$

where PYR is for pyramidal structure, CRS is cross-shareholding, MGT is serving board chairperson and general manager by controlling shareholders, SEC is second

Table 6 The Factors Affecting the Control Rights – Total Sample

In order to understand the factors affecting the control rights, this study classifies the sampled companies by their cash flow rights into four groups and conducts regression analysis on control mechanisms and control rights. Panel A reports the effect of pyramidal structure and other variables on control rights, and Panel B reports the effect of cross shareholding and other variables on control rights in the four groups divided by cash flow rights.

A. Pyramidal structure and other variables				
Dependent variable: Control				
Factors	Classifies the sample by cash flow rights into four groups			
	Min~Q ₁	Q ₁ ~Med	Med~Q ₃	Q ₃ ~Max
Intercept	25.819 (2.076)**	-0.86 (-0.068)	28.588 (3.191)***	33.934 (2.484)**
Pyramidal structure	13.338 (6.316)***	12.952 (6.367)***	5.181 (2.586)**	14.676 (3.25)***
Second largest shareholders	0.377 (0.181)	-2.715 (-1.348)	-0.482 (-0.299)	-2.699 (-0.944)
Stock collateral ratio	-0.052 (-1.372)	0.0467 (1.52)	-0.013 (-0.49)	0.0246 (0.526)
Log corporate age	0.462 (0.219)	2.013 (0.835)	1.043 (0.564)	4.787 (1.753)*
Log market value	-1.833 (-1.842)*	1.433 (1.48)	0.213 (0.278)	-0.0218 (-0.019)
Adjusted R^2	42.10%	49.19%	9.86%	13.93%
F value	9.87	12.425	2.269	3.007
P value	0.0001	0.0001	0.0608	0.0178
B. Cross-shareholding and other variables				
Dependent variable: Control				
Factors	Classifies the sample by cash flow rights into four groups			
	Min~Q ₁	Q ₁ ~Med	Med~Q ₃	Q ₃ ~Max
Intercept	24.24 (1.951)*	-1.974 (-0.127)	33.029 (3.773)***	34.999 (2.423)**
Cross-shareholding	13.73 (6.781)***	8.259 (3.343)***	5.099 (3.308)***	9.422 (2.538)**
Participative management	-1.25 (-0.556)	-1.647 (-0.678)	-1.5 (-0.991)	2.793 (0.957)
Second largest shareholders	0.315 (0.155)	-2.125 (-0.758)	-0.613 (-0.399)	-1.946 (-0.62)
Stock collateral ratio	-0.016 (-0.411)	0.041 (1.088)	-0.036 (-1.441)	0.034 (0.673)
Log corporate age	-2.692 (-1.278)	1.452 (0.491)	-0.042 (-0.023)	4.15 (1.456)
Log market value	-0.816 (-0.794)	1.73 (1.181)	0.162 (0.219)	-0.18 (-0.146)
Adjusted R^2	44.59%	25.31%	16.55%	6.88%
F value	9.182	4.332	2.918	1.764
P value	0.0001	0.0013	0.0158	0.1233

*: significant at 10% level; **: significant at 5% level; ***: significant at 1% level.

largest shareholders. These variables are dummy variables. LAGE is for the log of company's age, LMV for the log of company's market value, EBIT for the earnings before interest and tax, RDAD for R&D and advertising expenditure, and DEBT for debt ratio. This model assumes the ratio of cash flow rights to control right (hereafter, cash-control rights ratio) and Proxy Q are endogenously determined.

The cash flow rights of controlling shareholders can be determined in two approaches, Cash¹⁰⁰ and Cash⁰. Therefore, in equations (1) and (2), the cash-control rights ratio has two results. In addition to the complete sample, the analysis is also conducted by classifying sampled companies into three groups of family control structure, other ultimate control structure and widely held companies. The results are shown in Tables 7, 8, 9 and 10.

Table 7 reports the results of 3SLS of all sample companies. The models of cash flow and Proxy Q, reported in the first two columns of Table 7, indicate that the largest shareholders have lower cash flow rights if they use the method of cross-shareholding. The coefficients of CRS are -7.84 and -5.64 , both reaching the 5% significance level. This suggests that the cross-shareholding approach can enhance the control of the largest shareholders. In the model using the cash-control rights ratio and Proxy Q, for the largest shareholders with pyramidal structure and cross-shareholding, their cash-control rights ratio is smaller. Both the coefficients of CRS and PYR are smaller than zero and both reach the 5% significance level. This suggests these largest shareholders can lower their cash flow rights given a certain level of control right, or they can enjoy higher control right given certain cash flow rights. In the Industry-adjusted Proxy Q regression equation, when cash flow rights or the cash-control rights ratio become larger, the interests of controlling shareholders and minority tend to converge. Then the expropriation of small shareholders by the largest shareholders will be smaller, and the corporate value will be higher. The coefficients of cash flow rights and the cash-control rights ratio are larger than zero, and both reach 5% significant level. On the other hand, if the largest shareholders use pyramidal structure or cross-shareholding to increase their control, they can lower their cash flow rights, leading to a more severe agency problem. This will result in more expropriation of minority shareholders and lower corporate value. These empirical results are consistent with the findings in Claessens et al. (1999). Our findings also suggest that cash flow rights and the cash-control rights ratio will affect corporate value. We therefore argue that the deviation of control from that cash flow rights of the controlling shareholders is a proper measure of the wealth expropriation of minority shareholders.

Table 7 The Expropriation of Minority Shareholders and Corporate value – The Results of 3SLS (Total Sample)

To investigate whether the effect of ownership structure on corporate value is exogenously or endogenously determined, this study uses simultaneous equation regression (3SLS, three-stage least squares method) to determine the relation between the degree of deviation of control from cash flow rights and corporate value. The dependent variables are CASH¹⁰⁰, CASH⁰, CASH¹⁰⁰/CON, and CASH⁰/CON. We first analyze the entire sample. The 3SLS model is developed as follows:

$$\begin{aligned} (\text{Cash/Control}) &= f(\text{Proxy Q, PYR, CRS, MGT, SEC, LAGE, LMV, EBIT}) \\ \text{Proxy Q} &= f(\text{Cash/Control, SEC, RDAD, DEBT, LMV}) \end{aligned}$$

	CASH ¹⁰⁰	CASH ⁰	CASH ¹⁰⁰ /CON	CASH ⁰ /CON
Intercept	34.1342 (1.4270)	42.7637 (2.579)**	0.8240 (3.879)***	1.4109 (4.166)***
Pyramidal structure	-6.0154 (-1.407)	-3.9694 (-1.342)	-0.2849 (-7.881)***	-0.1453 (-2.746)***
Cross-shareholding	-7.8407 (-2.207)**	-5.6399 (-2.294)**	-0.2314 (-7.926)***	-0.0842 (-2.250)**
Participative management	3.5070 (1.085)	2.3309 (1.042)	0.0041 (0.160)	-0.0288 (-0.888)
Second largest shareholders	-8.6200 (-2.582)**	-6.9275 (-2.990)***	0.0018 (0.058)	-0.0607 (-1.183)
Log corporate age	0.9451 (0.273)	1.2262 (0.513)	0.0142 (0.523)	0.0059 (0.0322)
Log market value	-0.6488 (-0.273)	-2.7175 (-1.648)	0.0158 (0.719)	-0.0828 (-2.245)**
EBIT	1.9880 (1.455)	1.6157 (1.705)*	-0.0044 (-0.363)	0.0324 (1.639)
Industry-adjusted Proxy Q	-23.3464 (-1.040)	-12.4698 (-4.567)***	-0.0171 (-0.084)	-0.0634 (-0.1870)
Industry-adjusted Proxy Q				
Intercept	-2.7434 (-4.432)***	-2.8889 (-4.567)***	-1.7399 (-3.448)***	-2.5626 (-4.221)***
CASH ¹⁰⁰	0.0308 (4.242)***			
CASH ⁰		0.0348 (4.387)***		
CASH ¹⁰⁰ /CON			0.5193 (2.225)**	
CASH ⁰ /CON				1.1855 (3.768)***
Second largest shareholders	0.2312 (2.058)**	0.2180 (1.972)**	0.0365 (0.402)	0.0407 (0.407)
R&D and Adv. expenditure	0.0292 (1.637)	0.0093 (0.527)	0.0045 (0.340)	0.0056 (0.522)
Debt ratio	-0.0108 (-3.160)***	-0.0087 (-2.485)**	-0.0120 (4.001)***	-0.0073 (-2.095)**
Log market value	0.2417 (4.694)***	0.2732 (5.073)***	0.1910 (4.404)***	0.2327 (4.665)***
R ²	0.2079	0.2345	0.3966	0.3170

*: significant at 10% level; **: significant at 5% level; ***: significant at 1% level.

Table 8 The Expropriation of Minority Shareholders and Corporate Value – The Results of 3SLS (Family-Controlled Companies)

To investigate whether the effect of ownership structure on corporate value is exogenously or endogenously determined, this study uses simultaneous equation regression (3SLS, three-stage least squares method) to find out the relation between the degree of deviation of control from cash flow rights and corporate value. The dependent variables are CASH¹⁰⁰, CASH⁰, CASH¹⁰⁰/CON, and CASH⁰/CON. We divided our sample into family-controlled companies and other control type companies. Table 8 shows the results of family-controlled companies. The 3SLS model is developed as follows:

$$\begin{aligned} (\text{Cash/Control}) &= f(\text{Proxy Q, PYR, CRS, MGT, SEC, LAGE, LMV, EBIT}) \\ \text{Proxy Q} &= f(\text{Cash/Control, SEC, RDAD, DEBT, LMV}) \end{aligned}$$

	CASH ¹⁰⁰	CASH ⁰	CASH ¹⁰⁰ /CON	CASH ⁰ /CON
Intercept	13.3652 (0.154)	-52.8896 (-0.306)	0.5796 (0.505)	-0.5220 (-0.156)
Pyramidal structure	-14.4114 (-1.584)	-11.421 (-0.652)	-0.3589 (-3.017)***	-0.2715 (-0.792)
Cross-shareholding	-14.2116 (-0.883)	-20.1928 (-0.623)	-0.2357 (-1.103)	-0.3117 (-0.499)
Participative management	1.1836 (0.069)	6.4082 (0.189)	0.0415 (0.183)	0.1467 (0.223)
Second largest shareholders	-8.6829 (-0.641)	-12.1577 (-0.448)	-0.0344 (-0.190)	-0.1398 (-0.267)
Log corporate age	3.6170 (0.286)	14.3224 (0.582)	0.0223 (0.137)	0.2157 (0.453)
Log market value	2.1247 (0.286)	4.1363 (0.276)	0.0390 (0.391)	0.0548 (0.189)
EBIT	0.9763 (0.354)	1.7928 (0.326)	-0.0006 (-0.015)	0.0119 (0.112)
Industry-adjusted Proxy Q	-26.2416 (-0.278)	-78.5209 (-0.419)	-0.2604 (-0.207)	-1.2241 (-0.336)
Industry-adjusted Proxy Q				
Intercept	-1.6086 (-2.835)***	-2.1209 (-3.114)***	-1.3561 (-2.479)**	-2.0348 (-2.779)***
CASH ¹⁰⁰	0.0150 (2.842)***			
CASH ⁰		0.0190 (2.718)***		
CASH ¹⁰⁰ /CON			0.4989 (2.229)**	
CASH ⁰ /CON				0.7569 (2.253)**
Second largest shareholders	0.0179 (0.175)	0.0375 (0.357)	-0.0571 (-0.592)	-0.0184 (-0.184)
R&D and Adv. expenditure	-0.0156 (-0.744)	-0.0330 (-1.534)	-0.0093 (-0.466)	-0.0273 (-1.283)
Debt ratio	-0.0038 (-1.383)	-0.0017 (-0.703)	-0.0049 (-2.033)**	-0.0025 (-0.997)
Log market value	0.1398 (2.715)***	0.2001 (3.234)***	0.1277 (2.540)**	0.1942 (2.980)***
R ²	0.1418	0.1396	0.2554	0.1464

*: significant at 10% level; **: significant at 5% level; ***: significant at 1% level.

Table 9 The Expropriation of Minority Shareholders and Corporate Value – The Results of 3SLS (Other Control Structures)

To investigate whether the effect of ownership structure on corporate value is exogenously or endogenously determined, this study uses simultaneous equation regression (3SLS, three-stage least squares method) to find out the relation between the degree of deviation of control from cash flow rights and corporate value. The dependent variables are CASH¹⁰⁰, CASH⁰, CASH¹⁰⁰/CON, and CASH⁰/CON. We divided our sample into family-controlled companies and other control type companies. Table 8 shows the results of other control type companies. The 3SLS model is developed as follows:

$$\begin{aligned} (\text{Cash/Control}) &= f(\text{Proxy Q, PYR, CRS, MGT, SEC, LAGE, LMV, EBIT}) \\ \text{Proxy Q} &= f(\text{Cash/Control, SEC, RDAD, DEBT, LMV}) \end{aligned}$$

	CASH ¹⁰⁰	CASH ⁰	CASH ¹⁰⁰ /CON	CASH ⁰ /CON
Intercept	17.8444 (0.663)	8.6797 (0.267)	0.9768 (3.849)***	0.7621 (1.511)
Pyramidal structure	-10.2081 (-1.677)	-13.7757 (-1.818)*	-0.0911 (-1.556)	-0.2090 (-1.714)
Cross-shareholding	-10.1562 (-1.509)	-11.6798 (-1.425)	-0.1312 (-2.017)*	-0.1921 (-1.453)
Participative management	-0.4315 (-0.085)	0.2882 (0.046)	-0.0649 (-1.274)	-0.0469 (-0.446)
Second largest shareholders	-5.6473 (-0.840)	-0.1829 (-0.023)	0.0252 (0.402)	0.1775 (1.417)
Log corporate age	-2.7471 (-0.471)	-1.8538 (-0.256)	-0.0334 (-0.581)	-0.0280 (-0.235)
Log market value	4.1594 (1.545)	4.3167 (1.328)	0.0178 (0.709)	0.0248 (0.497)
EBIT	-0.1076 (-0.108)	0.4201 (0.346)	0.0056 (0.594)	0.0221 (1.159)
Industry-adjusted Proxy Q	-8.3744 (-0.794)	-13.6158 (-1.076)	-0.1004 (-1.032)	-0.2669 (-1.387)
Industry-adjusted Proxy Q				
Intercept	-2.6972 (-1.931)**	2.5816 (-1.876)*	-5.5763 (-2.538)**	-3.4725 (-2.062)
CASH ¹⁰⁰	0.0149 (0.610)			
CASH ⁰		0.0138 (0.651)		
CASH ¹⁰⁰ /CON			4.1004 (1.796)*	
CASH ⁰ /CON				2.0081 (1.328)
Second largest shareholders	0.2717 (0.710)	0.2320 (0.628)	-0.0223 (-0.063)	-0.0813 (-0.189)
R&D and Adv. expenditure	-0.0154 (-0.218)	-0.0251 (-0.319)	-0.0077 (-0.111)	-0.0274 (-0.305)
Debt ratio	-0.0367 (-2.407)**	-0.0383 (-2.317)**	-0.0419 (-3.034)***	-0.0440 (-2.521)**
Log market value	0.3881 (2.858)***	0.3941 (2.835)***	0.3636 (2.764)	0.3869 (2.562)**
R ²	0.5387	0.4937	0.5415	0.4775

*: significant at 10% level; **: significant at 5% level; ***: significant at 1% level.

Table 10 The Expropriation of Minority Shareholders and Corporate Value – Adjusted Cash Flow Rights by Stock Collateral Ratio (Total Sample)

To investigate whether the effect of ownership structure on corporate value is exogenously or endogenously determined, this study uses simultaneous equation regression (3SLS, three-stage least squares method) to find out the relation between the degree of deviation of control from cash flow rights and corporate value. The dependent variables are $CASH^{100} \times (1-SCR)$, $CASH^0 \times (1-SCR)$, $CASH^{100} \times (1-SCR)/CON$, $CASH^0 \times (1-SCR)/CON$, and SCR. The 3SLS model is developed as follows:

$$(Cash/Control) = f(\text{Proxy Q, PYR, CRS, MGT, SEC, LAGE, LMV, EBIT})$$

$$\text{Proxy Q} = f(\text{Cash/Control, SEC, RDAD, DEBT, LMV})$$

	$CASH^{100} \times (1-SCR)$	$CASH^0 \times (1-SCR)$	$CASH^{100} \times (1-SCR)/CON$	$CASH^0 \times (1-SCR)/CON$	SCR
Intercept	40.7178 (2.990)***	44.3631 (3.541)***	0.9624 (2.399)**	1.3033 (2.699)***	6.8941 (0.116)
Pyramidal structure	-1.0677 (-0.565)	-1.0048 (-0.641)	-0.0700 (-1.356)	0.0014 (0.023)	8.4160 (0.915)
Cross-shareholding	-2.8743 (-1.719)*	-2.1919 (-1.551)	-0.0547 (-1.308)	0.0062 (0.151)	1.9311 (0.441)
Participative management	1.1034 (0.773)	0.4899 (0.427)	-0.0252 (-0.893)	-0.0048 (-0.144)	2.3663 (0.506)
Second largest shareholders	-4.5602 (-2.251)**	-4.1309 (-2.168)**	0.0435 (0.691)	0.0337 (0.437)	-3.3696 (-0.367)
Log corporate age	0.2193 (0.153)	0.1393 (0.125)	-0.0033 (-0.138)	-0.0082 (-0.334)	1.6002 (0.381)
Log market value	-2.2419 (-1.537)	-3.2073 (-2.339)**	-0.0357 (-0.787)	-0.0938 (-1.709)*	1.6401 (0.245)
EBIT	1.1024 (1.346)	0.8691 (1.132)	0.0292 (1.237)	0.0064 (0.215)	-2.6900 (-0.769)
Industry-adjusted Proxy Q	-0.6690 (-0.049)	2.4220 (0.188)	0.0568 (0.137)	0.4302 (0.843)	-12.6950 (-0.209)
Industry-adjusted Proxy Q					
Intercept	-2.5713 (-4.043)***	-2.7960 (-4.187)***	-1.9326 (-3.534)***	-2.5034 (-3.773)***	0.0047 (0.0006)
$CASH^{100} (1-SCR)$	0.0430 (4.324)***				
$CASH^0 (1-SCR)$		0.0480 (4.364)***			
$CASH^{100} (1-SCR)/CON$			1.3578 (3.440)***		
$CASH^0 (1-SCR)/CON$				1.9188 (3.971)***	
Stock collateral ratio					-0.0208 (-2.146)**
Second largest shareholders	0.1746 (1.494)	0.1741 (1.472)	-0.0943 (-0.854)	-0.0722 (-0.594)	-0.1380 (-0.949)
R&D and Adv. expenditure	-0.0002 (-0.014)	-0.0002 (-0.015)	0.0051 (0.598)	-0.0048 (-0.495)	-0.0100 (-0.592)
Debt ratio	-0.0057 (-1.394)	-0.0048 (-1.143)	-0.0056 (-1.442)	-0.0007 (-0.148)	-0.0015 (-0.236)
Log market value	0.2090 (3.845)***	0.2478 (4.363)***	0.1475 (2.983)***	0.1892 (3.362)***	0.0771 (1.078)
R^2	0.2808	0.2890	0.4029	0.3788	0.3483

*: significant at 10% level; **: significant at 5% level; ***: significant at 1% level.

In addition, Table 7 also indicates the existence of second largest shareholders providing a monitoring function. Although the largest shareholders' cash flow rights of companies with second largest shareholders is smaller than those without second largest shareholders (the impact of SEC to cash flow rights is significantly smaller than zero), the corporate value of the former group is higher due to the effect of monitoring provided by the second largest shareholders (the impact of SEC to Proxy Q is significantly larger than zero). For companies with higher EBIT in the past five years, the largest shareholders will tend to have higher cash flow rights. Debt ratio appears to have significant negative impact on corporate value, while company size has significant positive impact on corporate value.

We further divided the sample with ultimate owners into two groups, which are family control structure, and other control structure, and their empirical results are shown in Tables 8 and 9. Although cash flow rights and the cash-control rights ratio are positively related to corporate value in all three groups, the family control structure exhibits the most significant relationship. That is, for family controlled companies, when the cash flow rights or the cash-control rights ratio become smaller, the expropriation of minority shareholders will be higher and corporate value will be lower. As family controlled companies usually have their family members serve as directors or in top management positions, the potential damage of their expropriation on minority shareholders and corporate value will be higher. Further, the use of CASH¹⁰⁰ or CASH⁰ has similar results in our study.

As shareholders are able to use their shares as collateral to obtain loans from financial institutions in Taiwan, the largest shareholders may use this approach to acquire additional shares to enhance their control rights. However, when share prices drop, financial institutions will ask the borrowers to pay back the loan or put more shares up for collateral. If the shareholders are not able to comply with the demand by the financial institutions, their collateralized shares may be sold at a loss. To avoid personal loss, the largest shareholders may misuse their companies' resources to uphold the share prices or even siphon off corporate assets. Therefore, it is likely that the higher the amount of shares collateralized, the more severe the agency problem and the lower the corporate value. Table 10 provides further evidence for this argument (the impact of SCR to firm value is significantly smaller than zero). Furthermore, when the effect of collateralized shares on cash flow right is removed by multiplying $(1 - \text{collateral ratio})$, the adjusted cash flow rights and the cash-control rights ratio both exhibit positive impact on corporate value at a higher significance level than the results of Ta-

ble 7. Therefore we argue that the stock collateralized ratio of controlling shareholders is another proper measure of expropriation. We also classify the sample companies into family controlled structure, other ultimate control structure, and widely-held corporations to test the effects of both the adjusted cash flow rights and the cash-control rights ratio upon firm value. The results are similar to Table 10.

6. CONCLUSIONS

Security regulations and information disclosure requirements will definitely influence the ownership structure of publicly traded companies. The study of ownership structure and firm value might be misleading without considering the unique regulations of different countries. This research provides further evidence to identify the ultimate controlling structure and the degree of expropriation of minority shareholders of listed companies in Taiwan. We found that Claessens et al. (2000) apparently underestimate the average control rights of the largest shareholders as well as the percentage of family controlled companies in Taiwan due to the insufficient disclosure of equity information. In Taiwan, only those shareholders with more than 10% of shareholding are required to disclose equity related information, such as the identities, purpose and financial sources of their investment, as well as subsequent equity transactions, etc.. These disclosure regulations will motivate the larger shareholders to diversify their shareholding in order to avoid the disclosure, and conceal the real identities of owners, which result in misleading information about the ownership structure in Taiwan.

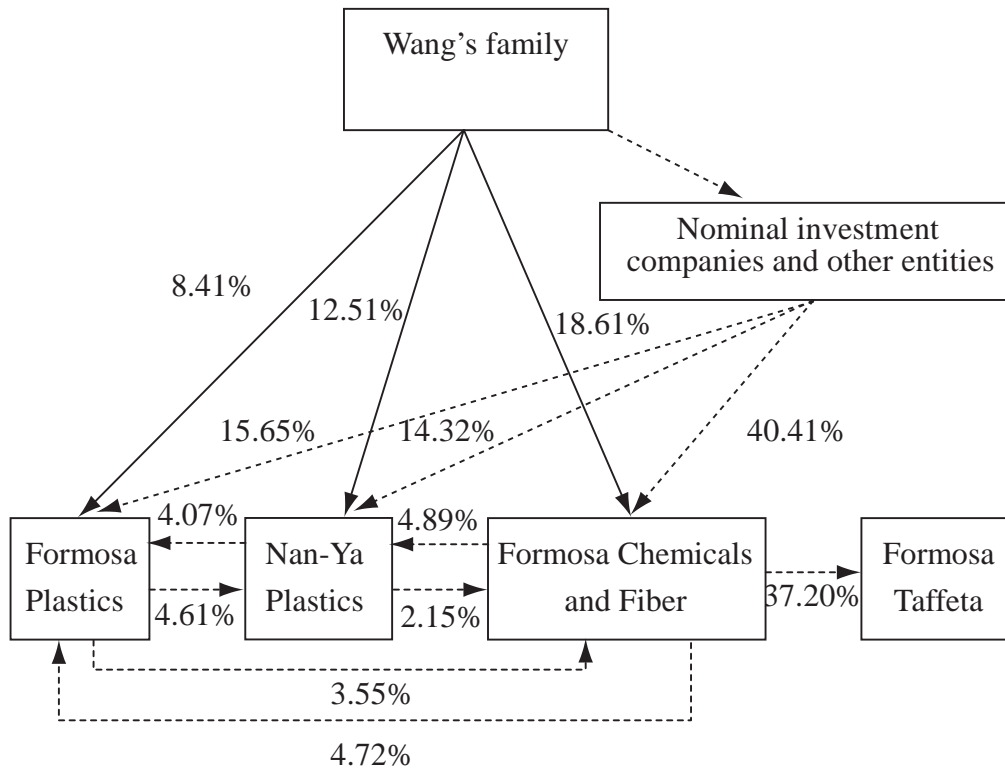
Expropriation of minority shareholders has been a concern in corporate governance. Different ownership structures provide different environments for preventing expropriation of minority shareholders. This study uses the data from listed companies in Taiwan to obtain further evidence on expropriation behavior. The findings imply higher cash flow rights are associated with higher market value, while deviation of control from cash flow rights reduces corporate value, especially for companies under family control. In addition, the higher the collateralization of stock shares of the controlling shareholders, the more severe the agency problem and the lower the corporate value. We suggest that the deviation of control from cash-flow rights and the degree of stock collateralization of the controlling shareholders are two important variables in measuring the expropriation of minority shareholders.

From our empirical results under the inadequate equity information disclosure en-

vironment, we suggest that the regulations covering disclosure of ownership structure should adopt the concept of the ultimate control proposed by La Porta et al. (1999) in order to impede the expropriation of minority behavior. That is, the disclosed ownership structure information should include the whole ownership structure chain and the shares information in order to trace and identify who owns the most votes in the company and how many votes the controlling shareholder owns.

APPENDIX: Example of Ownership Structure

Taking the Formosa Plastics Group as an example to illustrate the control rights and cash-flow rights variables, it was founded by Mr. Yung-Ching Wang. It is composed of four listed companies: Formosa Plastics, the core and the first incorporated company; Nan-Ya Plastics, the largest one in terms of size; Formosa Chemicals and Fiber; and Formosa Taffeta. Figure A1 depicts the Wang Family’s ownership structure in the Formosa Plastics Group.



Note: The nominal investment companies and other entities, including Chin’s International Investment Co., Wan-shoon International Investment Co., Chang Gung University and Chang Gung Hospital.

Figure A1 The Ownership Structure of the Formosa Plastics Group

1. Control rights

For Na-Ya Plastics, Mr. Yung-Ching Wang and his brother, Mr. Yung-Zai Wang own 6.44% and 6.07% shares in their own names, i.e. by direct control. Formosa Plastics and Formosa Chemicals and Fiber also own 4.61% and 4.89% of Nan-Ya's shares, which are thus indirectly controlled by the Wangs. Two nominal investment companies, Chin's International Investment Co. and Wan-Shoon International Investment Co. own 3.52% and 4.42% of Nan-Ya respectively. Through other entities such as Chang Gung Hospital and Chang Gung University, the Wang family again controls another 2.35% and 4.03% of Nan-Ya. Thus the shares of Nan-Ya ultimately controlled by Wang's family sum up to 36.33%. By similar calculation, the control rights in Wang's Family in Formosa Plastics and Formosa Chemicals and Fiber are 32.85% and 64.72%. The detailed calculations of the control rights of the Wang Family (CON) follow:

$$\begin{aligned} \text{CON}_{\text{Nan-Ya Plastics}} &= (\text{direct shareholding}) + \text{shareholding through nominal investment company and} \\ &\quad \text{other entities} + [\text{indirect shareholding: (through Formosa Plastics)} + (\text{through} \\ &\quad \text{Formosa Chemicals and Fiber})] \\ &= 12.51\% + 14.32\% + 4.61\% + 4.89\% = 36.33\% \end{aligned}$$

$$\begin{aligned} \text{CON}_{\text{Formosa Plastics}} &= (\text{direct shareholding}) + \text{shareholding through nominal investment company and} \\ &\quad \text{other entities} + [\text{indirect shareholding: (through Na-Ya Plastics)} + (\text{through} \\ &\quad \text{Formosa Chemicals and Fiber})] \\ &= 8.41\% + 15.65\% + 4.07\% + 4.72\% = 32.85\% \end{aligned}$$

$$\begin{aligned} \text{CON}_{\text{Formosa Chem-Fib}} &= (\text{direct shareholding}) + \text{shareholding through nominal investment company and} \\ &\quad \text{other entities} + [\text{indirect shareholding: (through Formosa Plastics)} + (\text{through} \\ &\quad \text{Formosa Plastics})] \\ &= 18.61\% + 40.41\% + 3.55\% + 2.15\% = 64.72\% \end{aligned}$$

For Formosa Taffeta, Wang does not directly own the shares through a family member or any nominal investment company, but indirectly owns 37.2% of shares through Formosa Chemicals and Fiber. Thus the control rights of Wang's family in Formosa Taffeta are 37.2%. Under the 20% cutoff criterion, Formosa Plastics, Nan-Ya

Plastics, Formosa Chemicals and Fiber, and Formosa Taffeta are all thus classified as family-controlled companies.

2. Cash flow rights

(1) Suppose Wang's family invests 100% of the capital of these nominal investment companies and other entities (direct control)

Under this assumption, the direct control of Wang's family is 24.06% in Formosa Plastics, 26.83% in Nan-Ya Plastics, 59.02% in Formosa Chemical and Fiber, and 37.20% in Formosa Taffeta.

For Formosa Plastics, the direct shareholdings of Wang's family are 24.06%. Because the direct shareholdings of Wang's family in Nan-Ya are 26.83%, and the indirect shareholdings of Nan-Ya in Formosa Plastics are 4.07%, the cash flow rights of Wang's family in Formosa Plastics are 1.09% (26.83% multiplied by 4.07%). Similarly, the direct shareholdings of Wang's family in Formosa Chemicals and Fiber are 59.02%, and the indirect shareholdings of Formosa Chemicals and Fiber in Formosa Plastics are 4.72%, the cash flow rights of Wang's family in Formosa Plastics are 2.786%. The cash flow rights in Wang's family in these four companies (Cash¹⁰⁰) are as follows:

$$\text{CASH}_{\text{Formosa Plastics}}^{100} = 24.06\% + 0.2683 \times 4.07\% + 0.5902 \times 4.72\% = 27.94\%$$

$$\text{CASH}_{\text{Nan-Ya Plastics}}^{100} = 26.83\% + 0.2406 \times 4.61\% + 0.5902 \times 4.89\% = 30.825\%$$

$$\text{CASH}_{\text{Formosa Chem-Fib}}^{100} = 59.02\% + 0.240 \times 3.55\% + 0.2683 \times 2.15\% = 60.451\%$$

$$\begin{aligned} \text{CASH}_{\text{Formosa Taffeta}}^{100} &= 0.5902 \times 37.2\% + 0.2406 \times 0.0355 \times 37.2\% \\ &\quad + 0.2683 \times 0.0215 \times 37.2\% = 27.488\% \end{aligned}$$

(2) Suppose Wang's family invests 0% of the capital of these nominal investment companies and other entities (indirect control)

Under this assumption, the direct shareholdings of Wang's family in Formosa Plastics, Nan-Ya Plastics, Formosa Chemicals and Fiber are 8.41%, 12.51%, and 18.61%, respectively. According to the mentioned ownership, the cash flow rights

of Wang's Family in these four companies (Cash⁰) are calculated as follows:

$$\text{CASH}_{\text{Formosa Plastics}}^0 = 8.41\% + 0.1251 \times 4.07\% + 0.1861 \times 4.72\% = 9.798\%$$

$$\text{CASH}_{\text{Nan-Ya Plastics}}^0 = 12.51\% + 0.0841 \times 4.61\% + 0.1861 \times 4.89\% = 13.808\%$$

$$\text{CASH}_{\text{Formosa Chem-Fib}}^0 = 18.61\% + 0.0841 \times 3.55\% + 0.1251 \times 2.15\% = 19.178\%$$

$$\begin{aligned} \text{CASH}_{\text{FormosaTaffeta}}^0 &= 0.1861 \times 37.2\% + 0.0841 \times 0.0355 \times 37.2\% \\ &\quad + 0.1251 \times 0.0215 \times 37.2\% = 7.134\% \end{aligned}$$

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最終控制者的股權與財富剝奪傾向之研究

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摘 要

本文以台灣上市公司為樣本,分析最終控制者的股權結構與公司價值的關係。相較於過去的研究,我們詳細的區分最終控制者所擁有的投票權與現金流量權,並且將控制股東掌有公司經營權,分成二種對立效果:努力經營的正誘因效果與傷害公司價值的負侵佔效果。本文發現 Claessens 等人(2000)低估台灣上市公司控制股東投票權偏離現金流量權的幅度,上述結果可能是因為台灣上市公司對於最終控制者股權結構的資訊揭露並不完全所導致。我們使用聯立方程式模型分析控制股東財富剝奪傾向與公司價值的關係。實證結果發現控制股東投票權偏離現金流量權的幅度與質押比率是衡量控制股東財富剝奪傾向的兩個重要指標,且與公司價值呈現負向關係,支持傷害公司價值的負侵佔效果。再者,控制股東擁有愈多的現金流量權則公司價值愈高,支持努力經營之正誘因效果。最後,我們建議台灣上市公司在揭露股權資料時應採用最終控制(ultimate control)的觀念,上市公司應提供完整的資料給投資者,使投資者可以清楚分辨控制股東所擁有的投票權與現金流量權,藉以區分控制股東之正誘因效果與負侵佔效果。