Agency Costs of Controlling Shareholders’ Share Collateral with Taiwan Evidence

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Abstract

Controlling shareholders’ share collateral is a new source of the deviation of cash flow rights and control rights leading to minority shareholder expropriation. However, controlling shareholders’ share collateral is not forbidden and has not received particular restriction leading to its popularity in the capital markets. Neglecting the potential agency costs resulting from controlling shareholders’ share collateral would hurt the interests of creditors and minority shareholders. We need legal regulation on controlling shareholders’ share collateral to reinforce corporate governance mechanism to protect the interests of creditors and minority shareholders.
In the modern corporation structure, the ownership and control of corporations are separated. Under the separation of ownership and control, Jensen and Meckling (1976) argue that in a well-diversified corporation, the managers of the corporation, who simply own partial ownership of the corporation, may consume more perquisites and engage in activities that favor themselves rather than the shareholders. Jensen and Meckling refer to this as the agency problem between the managers and the shareholders.

Traditional agency theory is prevalent in a well-diversified economy. However, La Porta, Lopez-de-Silanes, and Shleifer (1999) examine corporate ownership around the world and indicate that except in economies with very good shareholders protection such as the U.S., few firms are well-diversified. Rather, these firms outside U.S. are typically controlled by families. The controlling families can monitor the managers for their own benefits and thus also protect the interest of the minority shareholders from being expropriated by managers. That is, the controlling shareholders or controlling families reduce the agency problems between managers and shareholders. In this case, the ethical problems related to managers’ bad attitudes toward the shareholders are alleviated. Nevertheless, Shleifer and Vishny (1997), Claessens, Djankov, and Lang (2000), La Porta, Lopez-de-Silanes,
Shleifer, and Vishny (2000) argue that even though managers’ bad attitudes toward shareholders can be alleviated by the presence of controlling families, the minority shareholders are subject to the expropriation from the “controlling shareholders” instead. Minority shareholders are expropriated by controlling shareholders rather than by managers. The deviation of cash flow rights and control rights can lead to the controlling shareholders’ expropriation on the minority shareholders. That is, controlling shareholders’ ethical problems arise from the deviation of controlling shareholders’ cash flow rights and their control rights. La Porta, Lopez-de-Silanes, and Shleifer (1999) suggest that the expropriation on the minority shareholders from the controlling shareholders should be emphasized and deserves investors’ attention.

How come the controlling shareholders’ cash flow rights deviate from their control rights? Shleifer and Vishny (1997), La Porta, Lopez-de-Silanes, and Shleifer (1999), Bebchuk, Kraakman, and Triantis (2000), and Claessens, Djankov, Fan, and Lang (2002) point out that the controlling shareholders accumulate their control rights through pyramids, cross-holding, and dual class equity. In a pyramid of two companies, a controlling minority shareholder holds a controlling stake in a holding company that, in turn, holds a controlling stake in an operating company. In contrast to pyramids, companies in a cross-holding structure are linked by horizontal cross-holdings of shares that reinforce and entrench the power of central controllers.
Dual class equity means that a firm has issued two or more classes of stocks with differential voting rights. Bebchuk, Kraakman, and Triantis argue that dual class equity is the only form of deviation of cash flow rights and control rights that does not depend on the creation of multiple firms. In this paper, we raise another source of the deviation of cash flow rights and control rights, which does not depend on the creation of multiple firms and does not receive legal regulation. The new source of deviation of cash flow rights and control rights deteriorates the expropriation of controlling shareholders on the minority shareholders and deserves the attention of government and investors.

What is the new source of the deviation of cash flow rights and control rights? We argue that the controlling shareholders’ collateralizing shares as collateral is a new source of the deviation and is popularly used in the real world. Controlling shareholders’ share collateral does not depend on the creation of multiple firms, either. Knowing the potential damage from controlling shareholders’ share collateral can help establish a solid business ethical standard and protect the minority shareholders’ interest. Controlling shareholders’ share collateral is that the controlling shareholders pledge their shares as collateral from financial institutions for funding. It is pretty common for shareholders, either controlling shareholders or minority shareholders, to get loans from financial institutions with their shares as collateral.
Share collateral is popular and there are no particular regulations or restrictions on shareholders’ share collateral, especially the voting rights of the collateralized shares. In this paper, we would like to raise attention on controlling shareholders’ share collateral since it really influences the controlling shareholders’ attitudes toward the minority shareholders with Taiwan evidence. The reason why we use Taiwan evidence is because Taiwan SEC requires the disclosure of controlling shareholders’ share collateral and because the data of controlling shareholders’ share collateral is available. The uniqueness of Taiwan data makes it possible to examine ethical problems related to controlling shareholders’ share collateral.

The remaining of this paper is organized as follows. In section 2, we express the share collateral scheme in capital markets. We discuss why shareholders pledge their shares as collateral in section 3. Section 4 describes the deviation of cash flow rights and control rights due to controlling shareholders’ share collateral. The agency problems resulting from controlling shareholders’ share collateral are investigated in section 5. We provide Taiwan evidence related to the effect of controlling shareholders’ share collateral on firm performance in section 6. Finally, section 7 concludes.

**Share Collateral Mechanism**

Shareholders can pledge their shares as collateral for funding at financial
institutions. Typically, the publicly traded shares with high liquidity are preferred as collateral to protect the lenders’ interest. Share collateral is popular as a kind of margin trading in stock markets when the shareholders use the funding from share collateral for further stock investments. Of course, the funding from share collateral can be used for other purposes other than stock investments. To protect the lenders’ interest on the loans, the borrowers cannot borrow the full amount of the value of the collateralized shares. For example, the shareholders may simply borrow up to a certain percentage, say 60%, of the market value of the collateralized shares. Since the stock prices fluctuate, the borrowers might be asked to pledge more shares to meet the margin requirements when the collateralized shares drop in market value. If the borrowers cannot provide more shares as collateral to meet the margin requirements, the lenders may sell the collateralized shares at the capital markets and get their money back.

Even though the stocks are collateralized to the lenders, the borrowers still own the stocks unless the borrowers default on the loan. In other words, the shareholders who pledge their shares for funding at the financial institutions still keep their rights related to the shares such as the cash flow rights (cash dividends) and the control rights (voting rights for board elections) once they do not default. Since the shareholders who pledge their shares as collateral still keep their voting rights, the
controlling shareholders will not lose their control rights due to their share collateralization. Brigham and Ehrhardt (2002, p.714) argue that “one would normally expect the price of a stock to drop approximately the amount of the dividend on the ex-dividend date.” Before the ex-dividend date, investors expect to receive the announced dividend. However, after ex-dividend date, the investors would not be able to receive the announced dividend. That is, even though the collateralizing shareholders still nominally keep the cash flow rights of cash dividends, the cash dividends will cause the ex-dividend stock price to drop leading to the decrease of the market value of the collateralized shares, and consequently the collateralizing shareholders may have to pledge more shares to meet the margin requirements. Collateralizing shareholders can keep their control rights but not the cash flow rights as they pledge their shares as collateral.

There are no securities acts or regulations governing the share collateralization by minority shareholders in most of the countries. However, the securities acts or regulations do not impose any restriction on controlling shareholders’ voting rights on collateralized shares, either. We cannot find any regulation to ban the controlling shareholders’ share collateral in U.S or in other major countries. The only thing we find is that controlling shareholders’ share collateral might need to be disclosed. For example, Taiwan Securities Acts ask the controlling shareholders to disclose their
share collateral in the prospectus when a firm wants to raise funds through public offerings. Apparently with respect to the controlling shareholders’ share collateral, Taiwan Securities Acts protect new fund providers but not existing fund providers. To sum up, to borrow money by collateralizing shares as collateral from financial institutions is easy for both the controlling shareholders and the minority shareholders once they have agreements with the financial institutions.

**Why Shareholders Pledge Shares as Collateral**

Shareholders can pledge their shares as collateral for funding easily from the capital markets. Why the shareholders pledge their shares for funding? For minority shareholders who are not interested in the control over the firms, they pledge their shares for funding for liquidity preference or for margin trading. Publicly traded stocks can be liquidated easily, and therefore the lenders prefer them as collateral for loan. Hence, shareholders who have demands on liquidity and still want to keep their shares can pledge their shares as collateral at financial institutions for money. Margin trading means that the investors raise loans to buy stocks. Margin trading gives the stock investors greater buying power and financial flexibility to boost their investment potentials. Investors who believe that they can make money on certain stocks can easily make even more by margin trading. Certainly, margin trading also imposes financial risk on the traders.
In this paper, we focus on controlling shareholders’ share collateral. Basically, besides the purposes of liquidity preference and margin trading, the controlling shareholders would probably pledge their shares for funding to finance the firms’ projects or to gain more control rights over the firms by buying more shares. When firms cannot finance their projects due to lack of funds, their controlling shareholders might pledge their shares as collateral for funding to finance the firms’ projects. However, The Commercial Times (October 7, 2000) and Kao, Chiou, and Chen (2004) indicate that the controlling shareholders’ share collateral in Taiwan is not related to the story of firms’ lack of funds. The Commercial Times argues that the controlling shareholders typically pledge their shares as collateral to buy more shares of the same companies to gain more control rights over the firms in a self-financing cycle. The purposes of shareholders’ share collateral can be summarized as liquidity preference, investment by margin trading, financing firms’ projects, and control rights over the firms.

Effects of Share Collateral on the Deviation of Cash Flow Rights and Control

Rights

Cash Flow Rights

As we mentioned, even though the borrowers pledge their shares at financial institutions, the borrowers are still the registered shareholders on the firm’s
shareholder lists and keep their related rights of the shares unless they default. Therefore, controlling shareholders who pledge their shares as collateral would not lose their “nominal” ownership of the firms. However, since the shares are collateralized as collateral, the value of the collateralized shares is used to protect the lenders’ interest from default. Hence, the “real” ownership (the cash flow right) of the collateralizing shareholders decreases. We set up several cases to explain how share collateral affects the cash flow rights and control rights of the controlling shareholders.

Case A: There are two shareholders, X and Y. Both X and Y own 10 shares of the firm, which are individually 10% of the total number of outstanding shares. Suppose X pledges all his shares as collateral for personal liquidity use, but Y does not. Nominally, both X and Y own 10 shares of the firms. Now the firm pays $1 dividend per share. The stock is normally expected to drop by the amount of dividend on the ex-dividend date. Therefore, the ex-dividend stock price drops by $1. Obviously, both X and Y will receive $10 as dividend payment from the firm. However, the $10 received by X should be used to protect the value of the collateralized shares because the value of collateral falls by $10. Typically, X will be asked to pledge more shares. Therefore, the dividends received by X should be used to buy more shares from the market and the shares should be further
collateralized. Once the ex-dividend stock price drops, X’s cash flow right on the firm’s dividend payment is less than $10. On the other hand, Y can have his $10 dividend for any use and his cash flow right on the dividend payment is $10. Hence, the cash flow rights of X on the firm are smaller than those of Y even though X and Y have the same quantity of the shares of the firms. Shareholder X loses his cash flow rights due to his share collateral.

Case B: Both X and Y own 10 shares of the firm. X pledges all his shares as collateral and buys 10 more shares of the same firm (suppose no margin is required for share collateral). Now the firm pays $1 dividend per share and the ex-dividend stock price drops by $1 leading to the value of collateralized shares decreasing by $10. Since X owns 20 shares of the firm, he will receive $20 dividend payment from the firm. However, $10 out of the $20 dividend should be used as collateral to protect the lenders’ interest. Even though X currently owns nominally 20 shares of the firm, his cash flow right on the dividend is still $10, which is the same as that of Y who simply owns 10 shares of the firm.

Case C: Both X and Y own 10 shares of the firm. X pledges all his shares as collateral and buys 6 more shares of the same firm (suppose the margin requirement restricts X to buy only 6 more shares from his collateral of 10 shares). Now X owns 16 shares and Y owns 10 shares of the firm. As usual, the firm pays $1 dividend per
share and the ex-dividend stock price drops by $1 leading to the value of collateralized share decreasing by $10. Even though X receives $16 dividends, $10 of the dividend should be used to protect the value of the collateral. Finally, X receives $6 cash flow without any restriction from the dividend payment. That is, X’s cash flow right decreases when X pledges his shares as collateral.

Since shareholder Y does not pledge his shares, he always keeps his original cash flow rights on the firm. However, shareholder X pledges his shares and loses his cash flow rights. The more shares of the firm shareholder X buys from his share collateral, the more cash flow rights he keeps over the firm.

**Control Rights**

The ex-dividend stock price will drop so at least part of the cash dividends from the collateralized share should be used to protect the value of the collateralized shares for lenders’ interest. That is the reason why that the shareholders will lose at least part of their cash flow rights once they pledge their shares as collateral for funding. Even though the shareholders pledge their shares as collateral, they are still the nominal owners of the firms and have the full rights to vote for board elections, i.e. they still keep their voting rights (or the control rights) over the firms. So far, there is no restriction on the voting rights of the collateralized shares in U.S., Singapore or Taiwan. For our cases in section 4.1, shareholder X keeps 10%, 20%, and 16%
control rights of the firm on case A, B, and C, respectively. For all the cases, shareholder Y always keeps 10% of the control rights of the firm. Minority shareholders gain on the liquidity preference or investment benefits from share collateral at the costs of losing cash flow rights over the firm. On the other hand, the controlling shareholders gain on keeping control rights from share collateral at the costs of losing cash flow rights. Share collateral causes a change in cash flow rights and control rights over the firm.

Agency Problems on Controlling Shareholders’ Share Collateral

Share collateral will separate control rights from cash flow rights. Bebchuk, Kraakman, and Triantis (2000) point out that the separation of control from cash flow rights creates agency costs and hurts the interests of minority shareholders. They argue that under the separation of control from cash flow rights, the controlling shareholders may hold a small fraction of the cash flow rights of the firm leading to a sharp increase of the agency costs. The controlling shareholders may select the projects that provide private benefits of control available only to themselves. Similar to Jensen’s (1986) argument on agency cost of free cash flow, Bebchuk, Kraakman, and Triantis (2000) indicate that controlling shareholders tend to extract private benefits from unprofitable projects to expand firm scope. Controlling shareholders may retain their control premium in a transfer of control at the expenses
of minority shareholders’ benefits. Since controlling shareholders’ share collateral will deviate their cash flow rights and control rights, all the agency costs proposed by Bebchuk, Kraakman, and Triantis (2000) apply directly when controlling shareholders pledge their shares as collateral.

Besides agency costs, controlling shareholders’ share collateralization also raises moral hazard problems. The risk preference of controlling shareholders who pledge their shares at financial institutions diverges from that of minority shareholders or creditors. After collateralizing shares, the controlling shareholders bear little risk from the operations of the firms. The controlling shareholders can simply walk away and leave the lenders with worthless shares once the firms collapse or are in financial distress. In this paper, we further investigate some other ethical problems toward outside investors and creditors regarding to controlling shareholders’ share collateral. The real problem of controlling shareholders’ share collateralization is that the risk preference they have with respect to cash flow changes.

In this section, we examine the ethical problems associated with controlling shareholders’ share collateral in three contexts: earnings management, direct stock manipulation, and risky project investments.

**Earnings Management**

The accounting literature defines earnings management as “distorting the
application of generally accepted accounting principles.” Perry and Williams (1994), Friedlan (1994), Erickson and Wang (1999), and Toeh, Welch, and Wong (1998) indicate that managers engage in earnings management in order to mislead the stock markets. Typically, if the reported financial statements reveal high earnings power of the firms, the stock prices normally reflect positively to the reported earnings.

Why do the controlling shareholders engage in earnings management when they pledge their shares as collateral? When shareholders pledge their shares as collateral at financial institutions, they can only raise up to a certain fraction of the market value of the collateralized shares. As we mentioned earlier, the publicly traded stocks are preferred as collateral due to the liquidity property. Since the collateralized stocks are publicly traded at exchanges, the stock prices normally fluctuate. When the stock price goes up, the value of the collateralized share increases and the collateralizing shareholders can borrow more money from the financial institutions with their initial collateral. On the other hand, when the stock price goes down, the value of the collateralized shares decreases and the collateralizing shareholders will be asked to pledge more shares as collateral. Faced with the changeable stock price, controlling shareholders who pledge their shares as collateral encounter further pressure on the falling price. Once the controlling shareholders pledge their shares as collateral, they care about every price movement of the stock even a temporary
price drop and have an incentive to engage in earnings management to fool the stock markets and other shareholders.

Once the controlling shareholders engage in earnings management, the reported financial statements become less credible. Kao and Chiou (2002) show that the relation between accounting information and stock return becomes weaker when the controlling shareholders pledge their shares as collateral implying that accounting information is less credible in the capital markets.

Earnings management will distort the information of the financial statements and thus the financial statement will become less relevant to the capital suppliers including the shareholders and the creditors. It is unethical for firms not to reveal their true information to their capital suppliers.

**Direct Stock Price Manipulation**

Shareholders who pledge shares as collateral are very sensitive to the price movement of the stock, especially when the shareholders accumulate their shares by using the funds from share collateral to buy more shares of the same firms. In a bullish market, this stock accumulation causes the price to rise further and increases the shareholders’ profit. On the other hand, in a bear market this share accumulation causes margin calls and substantial losses. For a minority shareholder who pledges his shares as collateral, he cannot use the resources of the firm to manipulate the stock
price when he is required to meet the margin requirements of his share collateral. However, controlling shareholders who control the firm have control over the resources of the firm. Once the controlling shareholders need to meet the margin requirements, they might have an incentive to utilize the firm’s resources to manipulate the stock price directly to avoid their personal losses, especially for the economies without proper governance mechanisms. Chiou, Hsiung, and Kao (2002) indicate that during the 1997 Asian financial crisis, a lot of Taiwanese firms with their controlling shareholders’ share collateral become financially distressed. They argue that a major cause for the firms’ financial distress is that the cash flows of the firms are mis-used to support the stock price during the market crash.

**Choice of Risky Investment Projects**

Brealey and Myers (2002) argue that due to the limited liability of the shareholders in the corporation, the shareholders prefer the risky investment projects at the expenses of the creditors. The shareholders can capture all the benefits from the appreciation of the risky projects. However, shareholders only partially bear the losses from the depreciation of the risky projects due to the limited liability. That is, even though the payoff of the risky investment is symmetric, the payoff of the risk investment to the shareholders is asymmetric. The payoff pattern of the controlling shareholders becomes more asymmetric when they pledge their shares as collateral at
financial institutions. When the controlling shareholders pledge their shares as collateral, they can benefit from the stock appreciation leaving the financial institutions bearing the risk of stock depreciation. If the controlling shareholders use the loan from share collateral to buy shares of the same firm, then their payoff on the risky projects becomes even more asymmetric. When the controlling shareholders select the risky projects, the creditors cannot earn profits from the upside benefits of the risky projects but bear the downside risk of the projects.

Controlling shareholders who use the loan proceeds to buy more stocks of the same firms assume greater risk because more of their assets are tied up in the firm. Hence, the controlling shareholders may be willing to take extreme risks to keep the firm solvent. With extreme risk, the firm may either gain lots of cash or be in distress. However, the controlling shareholders who pledge their shares can benefit from gains of the risky projects and walk away leaving the creditors suffering losses when the risky projects fail. On the other hand, the minority shareholders who do not pledge shares do not have the creditors to bear the down side risk. The moral hazard resulting from controlling shareholders’ share collateralization exposes the minority shareholders to higher risk.

If controlling shareholders use loan proceeds for unrelated purposes, then they have less stake in firm. Hence, controlling shareholders have diversified away their
risk with respect to the future cash flow of the firm. In other words, the collateralizing shareholders bear lower risk than other minority shareholders and thus have higher risk tolerance on the future fortunes of the firm. When the controlling shareholders have higher risk tolerance, they may take risky investment projects and expose minority shareholders to greater risk. The agency costs and moral hazard resulting from controlling shareholders’ share collateralization create ethical problems toward the minority shareholders.

The Relation between Firm Performance and Controlling Shareholders’ Share Collateral

We argue that controlling shareholders’ share collateral raises agency cost and moral hazard problems including earnings management, direct stock price manipulation, and selection of risky investment projects. These ethical problems will hurt firm performance and expose the firm to financial distress.

The effect of controlling shareholders’ share collateral on firm performance depends on the use of the funding from share collateral. The funding from controlling shareholders’ share collateral could be for personal use such as gaining control or for corporate use such as financing firms’ projects. Basically, only when corporate debt is not available or too expensive to use, the controlling shareholders would pledge their shares for funding to finance the firms’ projects. When the
controlling shareholders finance the firms’ projects through their share collateral, the controlling shareholders have to share the benefits from the projects with other shareholders but bear the risk of the projects themselves. Hence, the use of funding from controlling shareholders’ share collateral can be regarded as a positive signal to the value of the firms’ projects leading to a higher firm performance. On the other hand, it can also be a sign of desperation implying that the firm cannot raise corporate debt for projects. However, if the funding from controlling shareholders’ share collateral is for personal use instead of corporate use, the firms do not benefit from the funding but suffer associated agency cost or moral hazard. Therefore, when the funding of controlling shareholders’ share collateral is not for corporate use, the firm performance should be poorer due to the severe ethical problems of agency costs and moral hazard.

Anecdotal evidence (The Commercial Times, October 7, 2000) indicates that the controlling shareholders in Taiwan pledge their shares as collateral to exaggerate their control rights rather than to finance the firms’ projects. Therefore, we expect controlling shareholders’ share collateral in Taiwan will be negatively related to firm performance.

**Sample and Variable Definition**

This empirical design examines the relationship between firm performance and
controlling shareholders’ collateralized shares with the sample of listed firms in Taiwan. The data on collateralized shares held by directors, ownership of directors, debt ratio, R&D ratio, market value of equity, and stock returns are collected from the Taiwan Economic Journal (TEJ) database. Since TEJ began to report the proportion of collateralized shares owned by directors in 1998, our sample period covers a 6-year period of 1998-2003. Financial firms, utility firms, and state-owned firms are deleted from the sample. Firms with missing data on controlling shareholders’ share collateral or other variables are also discarded. Finally, our sample consists of 2766 firm-year observations.

Our variables are explicitly defined as follows.

1). $RETM$: market-adjusted annual stock return; $RETM$ is used to measure firm performance.

$$RETM_{it} = R_{it} - R_{mt},$$

$R_{it}$ is the stock return of firm $i$ at year $t$.

$R_{mt}$ is the market return at year $t$. Market return is measured by the TSE (Taiwan Stock Exchange) stock index which is a value-weighted market index.

2). $COLLATERAL$: percentage of shares that is held by directors of the firm and is collateralized to financial institutions; $COLLATERAL$ is used to measure controlling shareholders’ share collateral.²
COLLATERAL\(_{it}\) is the percentage of shares that is held by directors of the firm \(i\) and is collateralized to financial institutions at the end of year \(t\).

3). **DEBT**: debt-to-asset ratio,

\[
DEBT_{it} = \frac{\text{Total liabilities}_{it}}{\text{Total assets}_{it}}
\]

**Total liabilities\(_{it}\)** is the total liabilities of firm \(i\) at the end of year \(t\).

**Total assets\(_{it}\)** is the total assets of firm \(i\) at the end of year \(t\).

4) **R&D**: ratio of R&D expenses to net sales,

\[
R&D_{it} = \frac{\text{R & D expenses}_{it}}{\text{Net sales}_{it}}
\]

**R&D expenses\(_{it}\)** is the R&D expenses of firm \(i\) at year \(t\).

**Net sales\(_{it}\)** is the net sales of firm \(i\) at year \(t\).

5) **LogMV**: the logarithm of market value of the firm’s outstanding shares. **LogMV** is a proxy for firm size.

\[
\text{LogMV}_{it} = \log(P_{it} \times \text{Number of shares outstanding}_{it})
\]

**\(P_{it}\)** is the stock price of firm \(i\) at the end of year \(t\).

**Number of share outstanding\(_{it}\)** is the number of shares outstanding of firm \(i\) at the end of year \(t\).

6) **OWNERSHIP**: percentage of shares owned by directors,
OWNERSHIP_{it} = \frac{\text{shares owned by directors}}{\text{number of shares outstanding}},

7) INDUSTRY: industry dummy variable. INDUSTRY is 1 for electronic firms; 0 otherwise.

8) EM: the measurement of earnings management measured by absolute value of abnormal accruals. Abnormal accruals are accruals that can be manipulated and is typically used as the measure of earnings management. This paper applies absolute values of abnormal accruals as a measure of earnings management. This measure is suggested by Warfiled et al. (1995) and Bartov (2000). Accruals are the difference between net income and cash flow from operations. Accruals consist of discretionary and non-discretionary accruals. We use a modified Jones (1991) model to estimate expected or nondiscretionary accruals for each two-digit industry code for each year from 1998-2003. Abnormal or discretionary accruals are measured by subtracting normal accruals from total accruals.

Empirical Results

Table 1 reports the descriptive statistics of the variables. On average, market-adjusted annual stock return is 5.71%. 19.9% of shares owned by directors is collateralized at financial institutions. Directors own 24% of the outstanding shares of the firm. Debt ratio is about 41.57% and R&D ratio is 1.94%. 31% of the
sample is electronic firms. The earnings management level is about 0.102 on average. Table 2 shows the correlation coefficients among the variables and indicates that the magnitudes of the correlation coefficients are all smaller than 0.359 (the correlation coefficient between INDUSTRY and R&D). The magnitudes of correlation coefficients imply that our independent variables are not highly correlated to cause multi-collinearity problem. We also apply VIF (variance inflation factor) to examine the collinearity among independent variables in Table 3.

\[
RETM = \beta_0 + \beta_1 COLLETERAL + \beta_2 DEBT + \beta_3 R&D + \beta_4 \log MV + \beta_5 OWNERSHIP + \beta_6 INDUSTRY + \varepsilon
\]

\[
EM = \gamma_0 + \gamma_1 COLLETERAL + \gamma_2 DEBT + \gamma_3 log MV + \gamma_4 OWNERSHIP + \gamma_5 INDUSTRY + \psi
\]

From the correlation coefficients in table 2, we know that our independent variables are not highly correlated to one another. In table 3, we further investigate the VIF of each independent variable in the regressions to see if collinearity problem exists in our analysis. Table 3 indicates that all the VIFs are smaller than 2 implying
that there is no severe collinearity among the independent variables.

Table 3 reports our regression results between firm performance and controlling shareholders’ share collateral. We use Newey-West (1987) test to adjust for heteroscedasticity and autocorrelation. Table 3 shows that controlling shareholders’ share collateral is highly and negatively related to firm stock return with coefficient = –0.352 and Newey-West t-value = –3.659. Table 3 also indicates that controlling shareholders’ share collateral is significantly positively related to the level of earnings management with coefficient and Newey-West t-value are 0.025 and 2.581, respectively. With the data in Taiwan, the empirical results confirm our argument that the controlling shareholders’ share collateral would raise ethical problems and increase agency costs leading to poor firm performance.

**Concluding Remarks and Suggestions**

Shareholders can pledge their shares as collateral for funding from the capital markets. Minority shareholders who have no control over the firms will bear all the related risk and benefits from their share collateral themselves. On the other hand, the controlling shareholders with their control power over the firm can earn benefits from their share collateral and transfer the risk of share collateral to the creditors and to the minority shareholders. However, controlling shareholders’ share collateral is not forbidden in major capital markets around the world. The expropriation from the
controlling shareholders on the minority shareholders and the ethical problems on the creditors and minority shareholders due to controlling shareholders’ share collateral should attract the attention of the government and all the participants of the capital markets.

A major source for the ethical problems related to controlling shareholders’ share collateral is the deviation of cash flow rights and control rights. To alleviate the ethical problems, we can do at least two things: one is to reinforce the corporate governance mechanism; the other is to reduce the deviation of the cash flow rights and the control rights resulting from the controlling shareholders’ share collateral. To reinforce the corporate governance mechanism, the controlling shareholders’ share collateral should be monitored by the exchange and the related information should be truthfully revealed to the public. To reduce the deviation of cash flow rights and control rights associated with controlling shareholders’ share collateral, the voting rights of the collateralized shares should be limited. We suggest that similar to treasury stocks collateralized shares should not be honored with voting rights. When a shareholder collateralizes his shares for funding, his voting rights of the collateralized shares should be removed. That is, the controlling shareholders may lose control over the firm when collateralizing shares. Once the controlling shareholders might lose control over the firm, they need the support of minority
shareholders. In this case, the controlling shareholders would not expropriate the minority shareholders, but instead they would favor the minority shareholders. Knowing the potential ethical problems of controlling shareholders’ share collateral can protect the interest of the creditors and minority shareholders and thus facilitates the establishment of a solid capital market.
Footnotes

1 Controlling shareholders are shareholders able to control the composition of the board of directors. Typically, controlling shareholders are also top managers. La Porta, Lopez-de-Silanes, and Shleifer (1999) define shareholders own at least 10% of votes through a control chain as controlling shareholders. On the other hand, a minority shareholder is exactly what it sounds like: an individual or organization who holds shares in a corporation but does not control a majority of the votes. In companies that are widely-held, a 10% shareholder can be a controlling shareholder. However, in companies that are concentrated, a 10% shareholder can still be a minority shareholder.

2 In fact, directors are not exactly the same as controlling shareholders. In Taiwan, it is difficult to define the ultimate controlling shareholders due to complicate control chain and token shareholdlers. Hence, we follow Kao, Chiou, and Chen (2004) to use “director” as a proxy variable for “controlling shareholder”.

3 Since direct stock price manipulation is illegal and risky investment project is difficult to observe, we simply test the relation between controlling shareholders’ share collateral and earnings management in this paper.
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TABLE 1
Descriptive statistics

Descriptive statistics for stock performance, controlling shareholders’ share collateral, and other firm characteristics of firms listed in Taiwan over the period of 1998-2003.

<table>
<thead>
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<th></th>
<th>N</th>
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<th>Standard deviation</th>
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<td>0.264</td>
<td>0.000</td>
<td>1.000</td>
</tr>
<tr>
<td>OWNERSHIP</td>
<td>2766</td>
<td>0.240</td>
<td>0.139</td>
<td>0.000</td>
<td>0.971</td>
</tr>
<tr>
<td>DEBT</td>
<td>2766</td>
<td>0.415</td>
<td>0.163</td>
<td>0.025</td>
<td>0.865</td>
</tr>
<tr>
<td>R&amp;D</td>
<td>2766</td>
<td>0.019</td>
<td>0.036</td>
<td>0.000</td>
<td>0.545</td>
</tr>
<tr>
<td>MV</td>
<td>2766</td>
<td>16616</td>
<td>67939</td>
<td>49</td>
<td>1472848</td>
</tr>
<tr>
<td>INDUSTRY</td>
<td>2766</td>
<td>0.310</td>
<td>0.462</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>EM</td>
<td>2766</td>
<td>0.102</td>
<td>0.126</td>
<td>0</td>
<td>1.092</td>
</tr>
</tbody>
</table>

RETM: market-adjusted annual stock return.
COLLATERAL: percentage of shares that is held by directors of the firm and is collateralized to financial institutions. The minimum ownership of controlling shareholders equals to 0 because some directors, for example independent directors, do not own any shares of the firms.
DEBT: debt-to-asset ratio.
R&D: ratio of R&D expenses to net sales.
MV: the market value of the firm’s outstanding shares. Unit: in million NT dollars.
OWNERSHIP: percentage of shares owned by directors.
INDUSTRY: industry dummy variable. INDUST is 1 for electronic firms; 0 otherwise.
TABLE 2
Correlation analyses

Correlation coefficients among stock performance, controlling shareholders’ share collateral, and other firm characteristics of firms listed in Taiwan over the period of 1998-2003. P-values are reported in the parentheses.

<table>
<thead>
<tr>
<th></th>
<th>COLLATERAL</th>
<th>OWNERSHIP</th>
<th>DEBT</th>
<th>R&amp;D</th>
<th>LogMV</th>
<th>INDUSTRY</th>
</tr>
</thead>
<tbody>
<tr>
<td>RETM</td>
<td>-0.116</td>
<td>0.039</td>
<td>-0.074</td>
<td>0.002</td>
<td>0.185</td>
<td>0.079</td>
</tr>
<tr>
<td></td>
<td>(&lt;.0001)</td>
<td>(0.038)</td>
<td>(&lt;.0001)</td>
<td>(0.904)</td>
<td>(&lt;.0001)</td>
<td>(&lt;.0001)</td>
</tr>
<tr>
<td>COLLATERAL</td>
<td>-0.250</td>
<td>0.344</td>
<td>-0.156</td>
<td>-0.067</td>
<td>-0.167</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(&lt;.0001)</td>
<td>(&lt;.0001)</td>
<td>(&lt;.0001)</td>
<td>(0.000)</td>
<td>(&lt;.0001)</td>
<td></td>
</tr>
<tr>
<td>OWNERSHIP</td>
<td>-0.163</td>
<td>-0.022</td>
<td>0.056</td>
<td>-0.020</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(&lt;.0001)</td>
<td>(0.247)</td>
<td>(0.003)</td>
<td>(0.304)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEBT</td>
<td>-0.224</td>
<td>-0.211</td>
<td>-0.146</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(&lt;.0001)</td>
<td>(&lt;.0001)</td>
<td>(&lt;.0001)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R&amp;D</td>
<td>0.174</td>
<td>0.359</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(&lt;.0001)</td>
<td>(&lt;.0001)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LogMV</td>
<td></td>
<td></td>
<td>0.316</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(&lt;.0001)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
TABLE 2 continued

*RETM:* market-adjusted annual stock return.

*COLLATERAL:* percentage of shares that is held by directors of the firm and is collateralized to financial institutions.

*DEBT:* debt-to-asset ratio.

*R&D:* ratio of R&D expenses to net sales.

*MV:* the market value of the firm’s outstanding shares. Unit: in million NT dollars.

*OWNERSHIP:* percentage of shares owned by directors.

*INDUSTRY:* industry dummy variable. *INDUSTR* is 1 for electronic firms; 0 otherwise.
TABLE 3
Regression analyses between firm performance (earnings management) and controlling shareholders’ share collateral

The relation between stock performance (earnings management) and controlling shareholders’ share collateral conditioning on other firm characteristics. In the parentheses are Newey-West t-values are calculated using Newey-West test.

<table>
<thead>
<tr>
<th></th>
<th>Dependent variable: RETM</th>
<th>Dependent variable: EM</th>
<th>Variance Inflation Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>-0.525</td>
<td>0.089</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>(-4.192)</td>
<td>(1.606)</td>
<td></td>
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<tr>
<td>COLLATERAL</td>
<td>-0.352</td>
<td>0.225</td>
<td>1.217</td>
</tr>
<tr>
<td></td>
<td>(-3.659)</td>
<td>(2.581)</td>
<td></td>
</tr>
<tr>
<td>DEBT</td>
<td>-0.106</td>
<td>0.109</td>
<td>1.221</td>
</tr>
<tr>
<td></td>
<td>(-0.906)</td>
<td>(9.056)</td>
<td></td>
</tr>
<tr>
<td>R&amp;D</td>
<td>-1.564</td>
<td></td>
<td>1.198</td>
</tr>
<tr>
<td></td>
<td>(-2.549)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LogMV</td>
<td>0.241</td>
<td>-0.009</td>
<td>1.153</td>
</tr>
<tr>
<td></td>
<td>(6.191)</td>
<td>(-3.451)</td>
<td></td>
</tr>
<tr>
<td>OWNERSHIP</td>
<td>0.065</td>
<td>0.031</td>
<td>1.086</td>
</tr>
<tr>
<td></td>
<td>(0.633)</td>
<td>(3.782)</td>
<td></td>
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<tr>
<td>INDUSTRY</td>
<td>0.169</td>
<td>0.050</td>
<td>1.263</td>
</tr>
<tr>
<td></td>
<td>(1.356)</td>
<td>(12.198)</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>2766</td>
<td>2766</td>
<td></td>
</tr>
<tr>
<td>R²</td>
<td>4.78%</td>
<td>8.96%</td>
<td></td>
</tr>
<tr>
<td>Pr&gt;F</td>
<td>&lt;0.0001</td>
<td>&lt;0.0001</td>
<td></td>
</tr>
</tbody>
</table>

RETM: market-adjusted annual stock return.
EM: the absolute value of abnormal accrual as measure of earnings management.
COLLATERAL: percentage of shares that is held by directors of the firm and is collateralized to financial institutions.
DEBT: debt-to-asset ratio.
R&D: ratio of R&D expenses to net sales.
MV: the market value of the firm’s outstanding shares. Unit: in million NT dollars.
OWNERSHIP: percentage of shares owned by directors.
INDUSTRY: industry dummy variable. INDSTR is 1 for electronic firms; 0 otherwise.