

The Determinants of Open-Market Share Repurchase: To Signal or to Control?

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This Version: May 2007

We are grateful to Jun-Koo Kang for very insightful comments and providing us with *Kereitsu* firm identification criteria.

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Abstract

Firms may repurchase their own stocks not only to distribute wealth to shareholders but also to gain control of the firm. This study explores this possibility from stock repurchase programs for Japanese firms listed in the Tokyo Stock Exchange. We find that ultimate owners of firms with large cash flow to voting right deviation announce stock repurchases more aggressively. It appears that incumbent management teams are wary of the fact that they can become hostile takeover targets. Extending Bagwell's (1991) argument, we interpret that firms with large deviation between cash flow rights and voting rights are likely to announce large amounts of stock repurchase in order to increase both the cost of gaining a toehold and the price of the offer. We also find that *Keiretsu* (business group) affiliate firms are most aggressive in repurchasing their own shares when the cash flow rights and voting rights are far off alignment. This is consistent with the view of Claessens et. al. (2000) that firms with low deviation between cash flow rights and voting rights return more cash dividends to shareholders to distribute earnings.

JEL classification: G34; G35

Keywords: Law and finance, Shareholder Wealth, Corporate governance

I. Introduction

The motivations of stock repurchase programs have received great attention both from financial economists and practitioners. Stock repurchase activity represents one branch of dividend policy, which is the practice of redistributing firm earnings to shareholders. Table I shows that number of events of open-market stock repurchases have steadily increased, until a tax reform in 2003 when capital gains tax decrease benefited dividend recipients. However, in terms of transaction value, open-market stock repurchase is an economically significant corporate practice in Japan. While dividends simply distribute cash to its shareholders, the consequences of a stock repurchase program are more complex. The existing shareholders of a repurchasing firm gains the premium of the stock repurchase, but the ownership structure also changes. This structural characteristic of stock repurchases has raised serious issues regarding corporate governance. Firms may repurchase their own stock not only to distribute wealth to shareholders but also to gain control of the firm. Extant empirical studies show conflicting results on this issue depending on the legal system of the economy.

Researchers have found that markets react positively to stock repurchase announcements, both in the US and other civil law countries. Perhaps stock repurchases are less costly for managers in the long term, since dividend reduction usually lead to a decrease in stock price. Stock repurchase thus provides the firm with financial flexibility, and this is the motivation and purpose many firms claim they are pursuing. However, in an economy like Japan, where minority shareholder rights are weak and corporate information is relatively secretive compared to US, it is meaningful to study whether there is any possible ground for inefficient corporate governance and expropriation of shareholder wealth.

In this study by analyzing the dividend policies of firms, both stock repurchases and cash dividends, we aim to find the determinants of stock repurchase program announcements of Japanese firms listed in the 1st and 2nd section of the Tokyo Stock Exchange. This study is meaningful in its comprehensiveness;

it covers the entire historical period during which stock repurchase activity has been legal. Repurchasing a firm's own stock was illegal in Japan prior to 1995, and the tax treatment at that time had made stock repurchasing infeasible. Thus prior to 1995, firms only distributed dividends, and stock repurchasing is considerably new in Japan. Stock repurchase activity began to spur in 1995, when a special tax law was passed, exempting shareholders from capital gains tax due to stock repurchases. A further revision of the Commercial Law in 1997 began to allow firms to announce stock repurchase programs without the approval at the shareholder's meeting. Finally in 2001, an important exemption was added to allow publicly held companies to repurchase their shares unrestricted within the bounds of profit payable as dividend and subject to few procedural rules.

We focus on the question on whether the ownership structure of repurchasing firms is a significant factor that explains the motivations of repurchasing announcements. Using the ownership and control rights data of Claessens et. al (2000), we test whether the divergence in ownership and control rights serve as a factor in stock repurchase activity. Ownership right refers to the actual cash flow stake of the owner, calculated by multiplying the percentage of its ownership links. Control right refers to the voting right of the owner, calculated by adding the percentage of its ownership links. Some firms exhibit deviations between ownership and control rights through pyramidal and cross-shareholding structures; for example, the actual cash flow right of an owner may be only 10%, while the voting (control) right is 15%. We hypothesize that firms with greater deviation in ownership and control rights have greater incentive to repurchase its own stock at the expense of its shareholders' wealth.

We also test whether Keiretsu affiliates have significantly different motivations for stock repurchasing activity. There are two different definitions of Keiretsu affiliation. The first definition of (horizontal) Keiretsu is a firm affiliated to one of the eight bank-centered groups (Mitsubishi, Mitsui, Sumitomo, Fuyo, DKB, Sanwa, Tokai, and IBJ). In accordance to the recent change in the conventional definition of Keiretsu due to bank consolidation, we use a second criteria defined by Dodwell Marketing Consultants,

where there are seventeen major industrial groups in Japan. A firm is considered to be a (horizontal and vertical) Keiretsu affiliate if it belongs to one of the seventeen industrial groups.¹

We find that dividend policies provide quantitative evidence on the expropriation that takes place within business groups. Our empirical results suggest that ultimate owners of firms with large deviation between cash flow rights and voting rights repurchase more aggressively, wary of the fact that they can become hostile takeover targets. We interpret that firms with large deviation between cash flow rights and voting rights are likely to announce large amounts of stock repurchase in order to increase both the cost of gaining a toehold and the price of the offer. We also find that the actual repurchasing behavior is not determined by the keiretsu affiliation, but its degree of deviation between cash flow and voting rights. Keiretsu affiliate firms are most aggressive in repurchasing its own shares when their cash flow rights are voting rights are far off alignment. The controlling shareholders of Keiretsu affiliate firms with concentrated control rights use stock repurchase as a measure to deter takeover possibilities. We deviate from the substitution hypothesis because these Keiretsu affiliated firms also payout more dividends than others. Consistent with the findings of Claessens et. al (2000), we find that firms with low deviation between cash flow rights and voting rights distribute more cash dividends to distribute earnings.

This paper is organized as follows. Section II reviews the existing literature related to stock repurchase and its relationship to ownership structure of firms. Section III explains the legislative framework of stock repurchasing in Japan. Section IV explains the economic framework of our study, and section V describes the research design, data, and hypotheses. We analyze the results in Section VI and end with conclusions and further studies in Section VII.

¹ We thank Jun-Koo Kang for providing us the information on identifying Keiretsu affiliation for our sample firms.

II. Historical Perspective of Stock Repurchase in Japan

Prior to 1994, it was illegal in Japan for a firm to repurchase its own outstanding shares. The amendment of the Commercial Law in 1994 enabled firms to repurchase their outstanding shares as a method of redistributing earnings to its shareholders. Although stock repurchase was made theoretically possible by legal permission, it was still practically impossible due to the tax treatment that was required by law in 1994. Before the Tax Reform Act of 1995, stock repurchases were equally regarded as dividend payments. It was impossible to identify exactly to whom the dividends were paid through a stock repurchase. Under Japanese accounting rules, such repurchases increased the per share capital of the remaining shareholders, hence obligating all shareholders of the repurchasing firm to pay an income tax in proportion to their equity ownership. This tax treatment effectively discouraged Japanese corporations from repurchasing their own shares. The Japanese government repealed this tax treatment on October 17, 1995, and stock repurchases actually became possible.

A typical stock repurchase program under the Article 212-2 of the Japanese Commercial Law 212-2 is progressed as follows. Once the firm determines how much of the earnings will be disposed for possible dividends, the board first sends a notice to the stock exchange and makes a public announcement of the repurchase plan to attain approval in the upcoming shareholders' meeting. The board makes public the information regarding the total yen value of the repurchase, the target percentage of shares, and the method of acquisition, which consists of fixed-price tender offer, open-market repurchase, or a combination of both. The proposed resolution is either passed or rejected at the shareholders' meeting. The board is then given the authority to carry out the repurchase once the resolution is passed, and the repurchasing firm must report the actual share repurchase in each month and the actual status of the share repurchase implementation. If the firm for any reason changes the specifications of the repurchase activity,

it must make an appropriate public announcement explaining the decision. If the firm acquires less than 50% of the previously announced target shares, the firm is required to explain.

Before a firm can repurchase its shares, it must first alter the articles of association. The decision to alter the articles is made by the board of directors, but in Japan, this decision must be approved at the shareholders' meeting. Even after the articles have been altered, the decision to repurchase also had to be approved at the shareholders' meeting. Since a special revision of the Commercial Law in 1997, firms have been able to execute stock repurchase programs without the approval of the shareholders. This revision had made the procedure for stock repurchases much simpler, and effectively triggered the stock repurchase activity in Japan. In fact, much of the stock repurchases in Japan were based on the special revision until 2001. This special revision of the Commercial Law has made it advantageous for the board of directors in that they could repurchase shares elastically, but the disadvantages were that the funds used for repurchases and the amount of repurchases were restricted. A further revision of the Commercial Law in 2001 introduced treasury shares, and they were now given the opportunity to wait for the repurchased shares before reselling or disposing them immediately.

As mentioned in the introduction, this paper examines the stock price behavior surrounding stock repurchase announcements made by Japanese firms from 1998 to 2005. There are many past studies regarding stock repurchases of Japan, but few after the special revisions of the Commercial Law in 1997 and 2001. This implies that this paper is meaningful in the sense that the study covers the period of time during which stock repurchase activity is a feasible option for Japanese firms with minimum regulatory hindrance. Results will be readily comparable to studies based on US firms than past studies, since the circumstances under which stock repurchase announcements are made after 1997 are similar to the case of the US.

III. Literature Review and Developed Hypothesis on Stock Repurchase

Firm owners may have several motives in distributing earnings to its shareholders. Among various measures in doing so, share repurchasing has been increasingly popular by firm owners recently. According to Grullon and Michaely (2002), stock repurchases in the US accounted for 13.1% of dividends in 1980, but in 1998, the amount rose to 104.4%. Studies in the US have documented positive stock returns for stock repurchase announcements (Barth and Kasznick 1999; Comment and Jarrell 1991; Ikenberry et al. 1995; Vermaelen 1981). A measure similar to a stock repurchase is the distribution of dividends, which have similar price effects. According to Aharony and Swary (1980), when firms announce increase in dividends, the stock price generally increases by approximately 2 percent. Furthermore, firms generally experience stock price declines of about 9.5% after an announcement of dividend decline. One can assume that a dividend increase conveys favorable information about the firm, but is not necessarily beneficial for the firm. For example, if the firm is in shortage of cash, and the best measure is to reduce dividends, the price of the stock is likely to decrease, even though the choice was optimal for the wealth of the firm. Therefore, the observed stock price increase following a dividend increase is a misleading rationale for managers to increase dividends.

In the absence of taxes and transaction costs, dividends and share repurchases are identical. Despite similar numerical results between dividends and stock repurchases, researchers applied different frameworks of interpretations regarding the motives of dividend policy choices and the causes of stock price increases. Despite the unanimous empirical results on the positive market effects of stock repurchase programs, we find it meaningful to determine why some firms may choose to conduct both stock repurchases and cash dividends or prefer stock repurchases to cash dividends.

3.1. Information Signaling Hypothesis

The information signaling effect is one of the most commonly accepted interpretation of the motivations behind stock repurchases. The information signaling hypothesis is based on the premise that the information asymmetry between firm managers and shareholders can cause the firm to be misvalued. According to Miller and Modigliani (1961), when the markets are incomplete firms can convey information about future cash flows by changing the dividend policy. Under the information signaling hypothesis, a cash dividend increase provides shareholders with private information regarding the future earnings, whereas stock repurchase also contains private information regarding current valuations. Bhattacharya (1979) and Vermaelen (1981) build under the notion of asymmetry of information that payout decisions are explicit signals about future earnings, deliberately sent out by managers at some cost. The cost of payout can be assumed to be the cost of issuing new shares, or additional investments forgone. The information signaling hypothesis suggests that the stock repurchase announcement should be followed by positive price movements, and should be activated by positive changes in the firm's expectations on future profitability or cash flows. Ikenberry, Lakonishok, and Vermaelen (1995) show that stock repurchases are associated with a positive stock price movement.

Although past researches suggest that stock prices generally increase after repurchase announcements, Vermaelen (1981) suggests that it is not clear whether the information itself has a positive or negative effect on the stock price. This is due to the possibility that firms repurchasing stock using cash may not have profitable investment opportunities at hand. Grullon and Michaely (2004) find that announcements of open-market stock repurchase programs are not followed by an increase in operating performance of the firm. Stephens and Weisbach (1998) reinforces Vermaelen's (1981) findings by showing that repurchase activity is negatively correlated with prior stock returns. Thus there is evidence that managers repurchase stock when prices are simply low.

3.2 Free Cash Flow Hypothesis

According to Jensen (1986), firms repurchase stock to redistribute excess cash flow to shareholders. Agency theory suggests that firms with free cash in excess of their needs in investment opportunities have incentive to spend them on negative NPV projects that reduce the firm value. The financial slack may induce managers of such firms to often exploit shareholders' wealth by wasting firm resources on perquisite consumptions. This problem of excess cash flow is part of the larger agency problem that arises from the conflict of interest between management and investors. This problem is severe especially in companies with large cash flow, excess funds, and limited growth opportunities. If the market suspects that the financial slack is being wasted, it will discount the share price accordingly.

As a partial solution to this problem, Jensen (1986) suggests that by minimizing the amount of cash in control by the management, shareholders can significantly reduce the agency problem. Management, as an attempt to remove the discount on its share price, utilize stock repurchases and other payout methods as an integral measure to let investors know, or convince, that the firm is not overinvesting in negative NPV projects and its excess cash is being redistributed for the shareholders' benefit. Consistent with the free cash flow hypothesis, Grullon and Michaely (2004) find that the market reaction is more positive for firms that are more likely to invest. This result is in alignment with the assumption that stock repurchases may be associated with a reduction in investment opportunities. Firms that experience a reduction in investment opportunities thus experience a large incline in stock price by distributing its excess cash flow as a measure of mitigating the agency problem of free cash flow. Under the free cash flow hypothesis, both a dividend increase and a stock repurchase help alleviate the agency problem.

A stock repurchase may be preferred over dividends for several reasons. First, in open-market stock repurchases, the firm does not have a commitment to repurchase, and there is no expectation that the repurchasing announcement will occur on a regular basis. Therefore, a stock repurchase is a more flexible

measure of redistributing earnings to its shareholders since a penalty is incurred if dividends are reduced. Second, stock repurchases may also be preferred over dividends due to the personal tax rate advantage of capital gains. There are tax incentives for repurchases relative to large dividends. Cash dividends are highly taxed whereas stock repurchases are taxed at the rate of capital gain. This is one reason stock price can increase due to stock repurchase. Ofer and Thakor (1987), Barclay and Smith (1988) claim that the tax advantage of stock repurchase is a big factor that drives stock prices up. Capital gains tax of stock repurchases is often lower than the tax rate on dividend income. Only the portion of the stock repurchase that is a capital gain is taxed, and the investor can defer the capital gains tax until they realize the gain and sell their stock. In this sense, if dividends and stock repurchases are substitutes, then stock repurchases should be negatively related to a firm's dividend payout ratio.

3.3. Takeover Deterrence Hypothesis

Recently, cash-rich companies with discounted share prices are being targeted by aggressive investment funds. Many studies show how firms may use stock repurchases in order to deter takeover attempts. Harris and Raviv (1988) and Stulz (1988) theoretically model how firms issue new debt to conduct stock repurchase programs in order to deter takeover attempts. Bagnoli and Lipman (1989) find evidence that tender offers serve as defense against takeover attempts by signaling private information regarding the value of the firm. Bagnoli *et. al* (1989) suggests that stock repurchases can be effective in providing private information available to the public, and it can also be an effective measure to protect the firm against hostile takeovers by increasing the cost of tendering. Moreover, Bagnoli *et. al* (1989) concludes that managers repurchase stocks only if its benefits outweigh its costs of doing so. Costs are inversely related to the value of the firm, a repurchase signals that the value of the stock is high, hence impeding takeover attempts. While a large body of empirical evidence supports the idea of takeover

deterrence for fixed-price tender offers, there is conflicting evidence in relation to open-market stock repurchase programs. Dittmar (2000) fails to find evidence that takeover deterrence is a motive for open market stock repurchases, but Billett and Xue (2006) find a positive relation between open market stock repurchases and takeover probability of a firm.

Nevertheless, there are several reasons open market stock repurchases may deter takeover attempts. Bagwell (1991) show that repurchases may increase the costs incurred on bidders by reducing the number of shares held by those that value them the most. This conclusion comes under the assumption that, with the occurrence of a stock repurchase announcement, the shareholders who sell shares have relatively low valuations compared to the remaining shareholders. This would effectively increase the price of the actual offer. Moreover, extending from the perspective of the free cash flow hypothesis, an open market stock repurchase can alleviate agency problem, thereby reducing the potential gains of the acquirer in the event of a successful takeover. Hirshleifer and Thakor (1992) develop a model in which managers increase leverage during periods of high takeover activity if they perceive their own firm to be performing poorly. The subsequent increase in leverage will result in a reduction in free cash flow and increase insider ownership, thus diminishing the potential gains for the bidder. Finally, open market stock repurchases may impede possible takeover events since the financial flexibility helps the firms respond quickly to any takeover attempts.

3.4. Optimal Leverage Ratio Hypothesis

Stock repurchases and cash dividends are similar in the way both distribute to shareholders. However, they are clearly distinguished by managers. When managers distribute these earnings through a stock repurchase, it reduces equity and increases the leverage ratio of the firm. Therefore, if there is an optimal leverage ratio the firm is seeking, the managers may use a stock repurchase to achieve this ratio (Bagwell

and Shoven (1988); and Opler and Titman (1996). According to the optimal leverage ratio hypothesis, a firm would be likely to repurchase their stock if its leverage ratio is below its target leverage ratio. According to this hypothesis, the firm's capital structure affects the firm's decision to repurchase its own stock.

3.5 Developed Hypothesis

The dividend policy of firms provides a perspective on the likelihood of insider expropriation of minority shareholders because dividends and stock repurchase transfer wealth from the discretion of the controlling shareholder. According to Claessens et. al (2000), the separation of ownership and control is highest in Japan relative to other East Asian economies. Therefore, analyzing the deviation of cash flow rights and voting rights of Japanese firms relating it with the firm's dividend policy will provide various implications. In this study, we incorporate the pyramid structure and keiretsu affiliate dummies as interaction variables, and test whether these entities yield results that are different from non-keiretsu and non-pyramidal structured firms. Corporate pyramid structure is a broader definition compared to keiretsu; keiretsu affiliate refers to a firm with the specific structure in which it is classified in one of the 17 major industrial groups in Japan. We predict that the keiretsu dummy variable will yield stronger results since its specification is narrower than the pyramid structure. We use the standard cross-sectional OLS regression to test our hypotheses.

$$Dividendpolicy_{it} = \beta_0 + \beta_1 CFR/VR_{it} + \beta_2 Keiretsu_{it} + \beta_3 Keiretsu_{it} * CFR/VR_{it} + \beta_4 Pyramid_{it} * CFR/VR_{it} + \beta_5 FCF / Share_{it} + \beta_6 CapEx_{it} + \beta_7 PTB_{it} + \beta_8 LEV_{it} + \beta_9 LnTA_{it} + \varepsilon_{it}$$

Hypothesis 1: Firms with larger deviation between cash flow rights and voting rights are likely to announce larger amounts of stock repurchase.

We predict that firms with larger deviations in cash flow and voting rights will be willing to repurchase more of its own shares. Firms with larger deviations in cash flow and voting rights have unstable control over their firms and attempt to carry out corporate activities in order to maintain that degree of control in the firm. As a takeover deterrence policy, ultimate owners of firms with greater deviations in cash flow and voting rights will likely send out signals of intention in increasing ownership in order to discourage potential raiders. By announcing greater amount of repurchase, potential raiders will be reluctant to attempt a tender offer, expecting aggressive defense from the incumbent management. The stock price increase is also likely to be greater when repurchasing amount is greater, thus eliminating potential raiders to a greater extent.

Hypothesis II: Keiretsu firms are more likely to announce larger amounts of stock repurchase. This effect will be smaller for firms with small deviation between cash flow rights and voting rights.

Japanese economic history shows that equity ownership of industrial firms by Japanese banks is very common and quite different from the limited ownership by banks that arise in the US. Many large Japanese firms are classified as members of corporate groups called keiretsu, which is characterized by the complex web of inter-corporate ownership centered on banks. These industrial keiretsu affiliates have main banks that own large blocks of their equity. This type of bank equity ownership, with inter-corporate ownership, resulted in a structure in which banks have substantial influence over their firms. Sheard (1989) and Morck & Nakamura (1999) argue that inter-corporate ownership in Japan emerged as a measure of takeover deterrence and has actually been quite effective in eliminating the possibility of a hostile takeover. In fact, hostile takeovers are virtually impossible among Keiretsu firms. In this study, we predict that the repurchasing motivation and behavior of keiretsu affiliates and non-keiretsu firms to differ. We predict Keiretsu-affiliated firms to be more aggressive in announcing stock repurchases with the fear of potential raiders.

Hypothesis III: Firms with smaller deviation between cash flow rights and voting rights are likely to make larger amount of “actual” repurchases.

The main economic premise of this study is that firms with high CFR/VR ratios are less likely to expropriate minority shareholder's wealth. According to Claessens et. al (2002), firm valuation increases with the cash flow ownership held by the largest shareholder. This means that managers of firms with high CFR/VR ratios are more committed to value-maximizing. In hypothesis I, we predicted that firms with low CFR/VR ratios will announce greater amounts of repurchase, but in this hypothesis, we predict that these firms will commit less to their initially announced amount. That is, firms with high CFR/VR ratios will actually repurchase more shares than firms with low CFR/VR ratios. Firm owners with a small stake benefit less from stock repurchase premiums. We are thus anticipating that stock repurchase programs serve for different purposes across these two groups; high CFR/VR ratio firms and low CFR/VR ratio firms, where the former uses it as a measure to distribute earnings and the latter uses it as a takeover deterrence strategy.

Hypothesis IV: For firms with larger deviation between cash flow rights and voting, and if these firms are Keiretsu-affiliated firms, they are likely to make larger actual repurchases.

We predict that Keiretsu-affiliated firms will make larger actual repurchases. In alignment with hypothesis II, Keiretsu-affiliated firms should be more aggressive in repurchasing its own shares to hinder hostile takeovers. We predict that Keiretsu-affiliated firms with low CFR/VR ratios are the ones that are most likely to use stock repurchase as a takeover deterrence mechanism; having a low CFR/VR ratio is not the decisive factor.

Hypothesis V: Firms with smaller deviation between cash flow rights and voting rights are likely to distribute higher dividend yields.

As we mentioned above, managers of firms with high CFR/VR ratios are more committed to value-maximizing. Firms with high CFR/VR ratios will distribute more dividends, and firms with low CFR/VR ratios will distribute smaller amount of dividends and prefer stock repurchases. This prediction is backed up by the premise that firms with high CFR/VR ratios will be more committed to promote firm value than firms with low CFR/VR ratios.

IV. Data and Methodology

We define dividends as the total cash dividends paid to its shareholders. We divide this value by the sales (and total assets) reported at the end of the most recent fiscal year for our dependent variables for dividend rate. We use two different parameters to measure the extent of stock repurchases. The first type is the percentage amount of total number of shares outstanding that the firm announces to repurchase. This amount is in fact significantly different to the actual amount of shares repurchased, since it is merely an announcement; firms do not have to make a commitment to repurchasing 100 percent of share repurchase announced. Considering that firms only need to explain to the government authority when the amount repurchased is less than 50 percent of the target amount, results from the regression analysis may differ. The second type of measure we use is the actual transaction value of the stock repurchase. We divide this transaction value by the dollar value of sales (and total assets) reported at the end of the most recent fiscal year for our dependent variable for stock repurchase rate. The appendix explains the construction of the variables used in the regression.

Firm-specific variables include firm size, leverage, and price-to-book ratio. Firm size is measured by the logarithm of the firm's total assets, leverage is measured by the ratio D/A , of total financing debt to total assets. We expect highly levered firms to repurchase less and payout less dividends because they are liable to higher interest rate on their loans. Firstly, creditors will seek to prevent the transfer of wealth to shareholders, and secondly, dividends and debt are substitutes in controlling agency problems. Capital expenditure is included to test the effect of the growth opportunity of the firm, which might call for retention of earnings to finance investment projects internally. Free cash flow per share is the dollar value of free cash flow per share reported at the end of the most recent fiscal year. Keiretsu dummy variable is the value equal to 1 if the repurchasing firm is classified as a keiretsu firm defined by the Dodwell Marketing Consultants, 0 otherwise. (i.e., the firm belongs to one of the 17 major industrial groups of Japan. Pyramid dummy variable is the value equal to 1 if the firm is controlled through a pyramid structure, 0 otherwise. CFR/VR denote the ratio of cash flow (ownership) rights to voting (control) rights owned by the largest ultimate controlling shareholder, for corporations with an ultimate owner who owns at least 5 percent of the shares.

We obtain ownership data on our sample firms from the work carried out by Claessens et. al (2000) using 1996 data for East Asian Corporations.² The ownership data sources are Worldscope International, national company handbooks, and other sources. The data traces back through the network of indirect ownership via other corporations to identify all the ultimate owners of each corporation that owns more than 5 percent of its shares. The stock repurchase event data in this study is obtained from the Mergers & Acquisitions database of the SDC Platinum version of Thomson Financial. The sample consists of open-market repurchases announcements of all firms listed in the 1st and 2nd section of the Tokyo Stock Exchange between 1995 and 2006. This is the entire period ever since stock repurchasing was legalized in Japan. Financial statement items and profitability ratios were obtained from SDC Platinum and OSIRIS

² We thank Stijn Claessens and Joseph Fan for providing us with the data on ownership structures of our sample firms.

database of Bureau Van Dijk. Other missing items were supplemented by Datastream. We have excluded any firm that was missing a stock price data, or were privatized or merged during our sample period. We also excluded firms reporting data that are not credible for a functioning business: earnings and dividends that exceeded cash flow or earnings. We have excluded repurchase announcements of firms that had previous repurchase announcements within the past year. For example, if a firm announces a stock repurchase program at the end of 1997, then we ignore any further repurchase announcements made by this firm throughout 1998, should any exist. If several announcements of a single firm takes place consecutively (e.g., within a matter of days), then we only consider the first repurchase announcement. We end up with a total of 283 repurchase events to test our regressions. All 283 firms are repurchasing firms, therefore the dividend ratio regressions are run with the same sample firms that also repurchase shares.

V. Empirical Results

Tables IV through VIII display the results of cross-sectional OLS regressions of the stock repurchase rates and dividend rates on the controlling shareholder's CFR/VR ratio of cash flow to voting rights, keiretsu affiliation, pyramid structure, free cash flow per share, capital expenditure, and other firm-specific variables.

Table IV displays the results of the cross-sectional OLS regressions of the percentage amount of stock repurchase sought on the decision variables. The coefficients of variables coincide with the signs anticipated in hypotheses I and II. Results show that firms with low CFR/VR ratios announce larger amounts of stock repurchase. However, this includes both Keiretsu and non-Keiretsu firms, and we must look more closely on the coefficients of our interaction variables. Regression IV shows that Keiretsu

firms in general, announce larger amounts of stock repurchase, and when these Keiretsu firms have low CFR/VR ratios, they also announce larger amounts of stock repurchase. This implies that much of the effects of the negative coefficient on the CFR/VR variable come from Keiretsu samples that are included in it. Coefficients of the pyramid interaction terms are not significant. In order to look at this issue from a different point of view, we run regressions using a different measure of stock repurchasing behavior: the dollar value of stock repurchased divided by sales and total assets.

Tables V and VI display the results of the cross-sectional OLS regressions of the dollar value of stock repurchased divided by sales and total assets on the decision variables, respectively. The results from this second group of regressions imply that having a low CFR/VR ratio alone is not the deciding factor that drives stock repurchases. We see that the coefficient of the CFR/VR variable is positive, meaning that firms with smaller deviation of cash flow and voting rights make larger amounts of actual repurchases. We also find that Keiretsu-affiliated firms with low CFR/VR ratios repurchase more stocks. This result is consistent with our hypothesis that firms with low CFR/VR ratios make smaller amounts of actual repurchase, and Keiretsu-affiliated firms with low CFR/VR ratios repurchase a larger amount. Coefficients of the pyramid interaction variable are also negative, like the keiretsu interaction variable, but its significance across various models is inconsistent.

Our results on the dividend rate regressions add persuasive power to the analysis that Keiretsu-affiliate firms are more aggressive in repurchasing shares. Tables VII and VIII display the results of the cross-sectional OLS regressions of the dollar value of dividend paid out divided by sales and assets on the decision variables. The results from this third group of regressions imply that firms with low CFR/VR ratios payout a smaller portion of its earnings as dividends. The coefficient of the Keiretsu dummy variable is also negative, but the coefficient of the interaction variable Keiretsu*CFR/VR is positive. Combining the results from the regression results of the stock repurchase value, we can Keiretsu firms with low CFR/VR ratios buyout more of its own shares and payout more dividends as well. We

summarize our results in the following table. The pyramid interaction variable turns out to be irrelevant in the dividend payout rate of the sample firms.

Both Keiretsu and non-Keiretsu firms with low CFR/VR ratios show similar behavior in that they announce large amounts of repurchase, but the Keiretsu-affiliates are more committed to actually repurchasing the shares. The results conflict with the substitution hypothesis of dividend and stock repurchases because both dividend rates and stock repurchase rates are higher for Keiretsu-affiliated firms with low CFR/VR ratios. We also find results consistent with the findings of Claessens et. al (2000), that firms with low deviation between cash flow rights and voting rights distribute more cash dividends to distribute earnings. It is likely that these firms repurchase shares for reasons other than redistributing wealth to its shareholders. These results are in line with the findings of Sheard (1989) and Morck and Nakamura (1999) that the Keiretsu ownership structure of Japanese business groups emerged as a measure of takeover defense.

VI. Concluding Remarks

Distributing cash to its shareholders through stock repurchases is becoming increasingly popular around the world. Japan is no exception, and the Japanese government has been aggressive in making amendments in its Commercial Law to promote this activity and allow its proper practice. Although there have been numerous researches investing stock repurchases in the US, studies regarding Japan has been limited due to the lack of data on stock repurchase announcements. This study is meaningful in the sense that the empirical evidence comes from the entire period in which stock repurchase programs became legal in Japan. Past research covers only portions of the period between years 1995 to 2006.

We use a sample of 283 firms listed in the First and Second Section of the Tokyo Stock Exchange that repurchased its shares during the period 1995 to 2006. With the dividend rate and stock repurchase rate as our dependent variables, we search for the effects of the deviation between cash flow rights and voting rights on its dividend policy. We observe how Keiretsu and Non-Keiretsu firms differ in their dividend policies as well.

Our analyses of expropriation from the perspective of dividend policies provide quantitative evidence on the expropriation that takes place within business groups. Our findings suggest that ultimate owners of firms with large deviation between cash flow rights and voting rights. It appears that incumbent management teams are wary of the fact that they can become targets of hostile takeover. Extending Bagwell's (1991) argument, we interpret that ultimate owners of firms with large deviation between cash flow rights and voting rights are likely to announce large amounts of stock repurchase in order to increase both the cost of gaining a toehold and the price of the offer. When a firm's shareholders have heterogeneous valuations, shareholders who decide to sell shares in a repurchase has low valuations, but the remaining have high valuations, thus increasing the cost to any potential raider.

Results further suggest that the actual repurchasing behavior is not determined by the Keiretsu affiliation, but its degree of deviation between cash flow and voting rights. Keiretsu affiliate firms are most aggressive in repurchasing its own shares when their cash flow rights are voting rights are far off alignment. We conclude that these controlling shareholders of Keiretsu affiliate firms with concentrated control rights use stock repurchase as a measure to deter takeover possibilities. We deviate from the substitution hypothesis because Keiretsu affiliated firms also payout more dividends than others. Since they are already paying out more dividends to alleviate the agency problem of free cash flow, we interpret that the excessive stock repurchasing practice serves for a different purpose. We also find results consistent with the findings of Claessens et. al (2000), in which firms with low deviation between cash flow rights and voting rights distribute more cash dividends to distribute earnings.

Expropriation by controlling shareholders is not simply a matter of redistribution of wealth among its shareholders. Firms may choose to invest in projects with negative NPVs to create opportunities for expropriation. This kind of inefficiency can pile up so much enough to precipitate macroeconomic problems. While Japan is undergoing various efforts in strengthening capital market institutions, there is no glimpse of efforts in bringing fundamental changes in the role of business groups. In order to address this problem, the government must foster transparency to reveal the control links and the parties acting in concert. In addition, further regulatory reform must take place to strengthen the rights of minority shareholders. Minority shareholder rights will strive, and furthermore, firms will be forced to acquire more cash flow rights to maintain control. This can reduce the controlling shareholder's incentive to expropriate and may force a consolidation of the Keiretsu into more transparent structures.

Reference

- [1] Bagnoli, M., R. Gordon and B.L. Lipman, 1989, "Stock Repurchase as a Takeover Defense," *Review of Financial Studies* 2, 423-443
- [2] Barclay, M.J. and C.W. Smith, Jr., 1988, "Corporate Payout Policy: Cash Dividends vs. Open-market Share Repurchases," *Journal of Financial Economics* 22, 61-82.
- [3] Bartov, E., 1991, "Open-Market Stock Repurchases as Signals for Earnings and Risk Changes," *Journal of Accounting and Economics*, 14, 275-294.
- [4] Billet, M.T. and Xue, H., 2006, "The Takeover Deterrent Effect of Open Market Share Repurchases," *Journal of Finance*, forthcoming.
- [5] Comment, R. and G. A. Jarrell, 1991, "The Relative Signaling Power of Dutch-Auction and Fixed-Price Self-Tender Offers and Open-Market Share Repurchases," *Journal of Finance*, 46, 1243-1271.
- [6] Comment, R. and G.W. Schwert, 1995, "Poison or Placebo? Evidence on the Deterrent and Wealth Effects of Modern Antitakeover Measures," *Journal of Financial Economics*, 39, 3-44.
- [7] Dann, L. Y., 1981, "Common Stock Repurchases : An Analysis of Returns to Bondholders and Stockholders," *Journal of Financial Economics*, 9, 113-138.
- [8] Dann, L. Y., R. W. Masulis and D. Mayers, 1991, "Repurchase Tender Offers and Earnings Information," *Journal of Accounting and Economics*, 14, 217-251.
- [9] Dittmar, A.K., 2000, "Why Do Firms Repurchase Stock?" *The Journal of Business*, 73, 331-355.

- [10] Ferris, S. and K. Park, 2005, "Foreign Ownership and Firm Value: Evidence From Japan," *Advances in Financial Economics*, 11(1), Elsevier Science, Amsterdam.
- [11] Ginglinger, E. and J.F. L'Her, 2006, "Ownership Structure and Open Market Stock Repurchases in France," *The European Journal of Finance*, 12, 77-94.
- [12] Grullon, G. and R. Michaely, 2002, "Dividends, Share Repurchases and the Substitution Hypothesis," *Journal of Finance*, 57, 1649-1684.
- [13] Grullon, G. and Michaely, R., 2004, "The Information Content of Share Repurchase Programs," *Journal of Finance*, 2004, 651-680.
- [14] Hertzfel, M. and P. C. Jain, 1990, "Earnings and Risk Changes around Stock Repurchase Tender Offer," *Journal of Accounting and Economics*, 14, 253-274.
- [15] Ikenberry, D., J. Lakonishok and T. Vermaelen, "Market Under-Reaction to Open Market Share Repurchases," *Journal of Financial Economics*, 1995.
- [16] Jensen, M. 1986, "Agency Costs of Free Cash Flow," *American Economic Review* , 76, 323-29.
- [17] Lakonishok, J. and T. Vermaelen, 1990, "Anomalous Price Behavior Around Repurchase Tender Offer," *Journal of Finance*, 45, 455-477.
- [18] La Porta, R., F. Lopez-de-Silanes, A. Shleifer and R. Vishny, 1998, "Law and Finance," *The Journal of Political Economy* 106, 1113-1155.
- [19] Morck, R. and Nakamura, M., 1999, "Banks and Corporate Control in Japan," *Journal of Finance*, 54, 319-339.
- [20] Ofer, A.R. and A.V. Thakor, 1987, "A Theory of Stock Price Responses to Alternative Corporate Cash Disbursement Methods: Stock Repurchases and Dividends," *Journal of Finance* 42, 365-394.

- [21] Sheard, P., 1989, "The Main Bank System and Corporate Monitoring and Control in Japan," *Journal of Economic Behavior and Organization*, 11, 399-422.
- [22] Shleifer A. and R.W. Vishny, 1986, "Large Shareholders and Corporate Control," *Journal of Political Economy*, 95, 461-488.
- [23] Shleifer A. and R.W. Vishny, 1997, "A Survey of Corporate Governance," *Journal of Finance*, 52, 737-784.
- [24] Stephens, C. and M. Weisbach, 1998, "Actual Share Repurchases in Open-Market Repurchase Programs," *Journal of Finance* 53, 313-333.
- [25] Vermaelen, T., 1981, "Common Stock Repurchase and Market Signaling: An Empirical Study," *Journal of Financial Economics*, 9, 139-183.

Appendix I

Description of Variables

Variable	Description
% Shares Bought	Percentage amount of total number of shares outlying announced for the stock repurchase. <i>Source: SDC Platinum</i>
Repurchase/Sales	Dollar value of actual shares repurchased divided by the dollar value of sales reported at the end of the most recent fiscal year. <i>Source: SDC Platinum</i>
Repurchase/TA	Dollar value of actual shares repurchased divided by the dollar value of total assets reported at the end of the most recent fiscal year. <i>Source: SDC Platinum</i>
Dividend/Sales	Dollar value of dividends paid on common stock divided by the dollar value of sales reported at the end of the most recent fiscal year. <i>Source: SDC Platinum</i>
Dividend/TA	Dollar value of dividends paid on common stock divided by the dollar value of total assets reported at the end of the most recent fiscal year. <i>Source: SDC Platinum</i>
Keiretsu Dummy	Value equal to 1 if the repurchasing firm is classified as a keiretsu firm defined by the Dodwell Marketing Consultants, 0 otherwise. (i.e., the firm belongs to one of the 17 major industrial groups of Japan. <i>Source: Dodwell Marketing Consultants, Japan Company Handbook 2000</i>
Pyramid Dummy	Value equal to 1 if the firm is controlled through a pyramid structure, 0 otherwise. <i>Source: Claessens et. al (2000) & Japan Company Handbook 2000</i>
CFR/VR	The ratio of cash flow (ownership) rights to voting (control) rights owned by the largest ultimate controlling shareholder, for corporations with an ultimate owner who owns at least 5 percent of the shares. <i>Source: Worldscope, Japan Company Handbook & Claessens et. al (2000)</i>
FCF/Share	Dollar value of free cash flow per share reported at the end of the most recent fiscal year. <i>Source: Worldscope</i>
Capital Expenditure	Dollar value of expenses of firm on fixed assets reported at the end of the most recent fiscal year. <i>Source: SDC Platinum</i>
Price-to-Book Ratio	Market value of equity divided by the book value of equity as reported at the end of the most recent fiscal year. <i>Source: Worldscope</i>
Debt/TA	Dollar value of debt divided by the dollar value of total assets reported at the end of the most recent fiscal year. <i>Source: SDC Platinum</i>
Total Assets	Dollar value of total assets reported at the end of the most recent fiscal year. <i>Source: SDC Platinum</i>

* The definitions above refer to the description of variables as they are defined by the corresponding data source.

Appendix II

Calculation of Cash Flow Rights & Voting Rights and its Economic Implication

In this paper, we test the relationship between the CFR/VR ratio and stock repurchase and dividend payout. Let CFR denote the controlling shareholder's share of the cash flow (ownership) rights in a firm and VR denote the controlling shareholder's share of the voting (control) rights. We first explain the economic rationale for using the CFR/VR ratio as a measure of the corporation's vulnerability to insider expropriation within a group of corporations. The conceptual simplicity of CFR/VR facilitates empirical analysis. Let us assume that there is a hypothetical group of firms, A, B, and C. One can enjoy control rights in excess of his direct ownership in firm C by pyramiding. That is, indirect ownership of firm C can increase the control rights of an investor. By owning firm C indirectly through another corporation B, which owns a portion of C, his control rights will exceed his actual ownership stake in firm C. Generalizing, if an investor owns a portion x of the shares of firm A, which owns a portion y of the shares of firm B, which in turn owns z portion of the shares of firm C, then through this chain of ownerships, he owns a portion of $x*y*z$ of firm C indirectly. This is his cash flow right; or ownership right. However, this investor's control rights can be measured by its weakest link, which is the minimum ownership portion x , y , and z . For example, an investor who owns 60 percent of firm A, which owns 50 percent of firm B, which owns 40 percent of firm C, has 12 percent of cash flow rights, but 40 percent of its control rights.

Theory suggests that both cash flow and voting rights are important. Specifically, Jensen and Meckling (1976) argue that the incentives to expropriate vary with cash flow rights. In this context, the CFR/VR ratio will be low if the controlling shareholder controls the corporation through a chain of intermediate firms. If the firm is at the lower end of the corporate pyramid, then it will provide many opportunities for intragroup transactions to expropriate the wealth of minority shareholders. This is the main reason we define CFR/VR as a measure of the corporation's vulnerability to insider expropriation. We thus predict that a firm with a low CFR/VR ratio will be more likely to expropriate minority shareholders' wealth, resulting in lower dividend rates. Dividend rates will be lower for low CFR/VR ratio firms since controlling shareholders of these firms will want to keep corporate resources within it, rather than distribute. Dividends can be signals of mitigating minority shareholder expropriation because in practice, dividend rates are mostly stable, increased only if the managers believe that the high rates can be sustained, heedful of the fact that dividend reductions lead to sharp falls in firm stock prices. Therefore dividend payout is a measure for long-term commitments by managers to shareholders that can be used to alleviate the agency problems arising from the asymmetry of information and incomplete contracting between two parties.

The interpretation of the CFR/VR ratio's association with stock repurchase announcements is more complex. Stock repurchase, like dividend payout, is also a way to redistribute the firm's earnings to its

shareholders, but its consequences are quite different compared to dividends. Firstly the ownership structure of the controlling shareholders changes after a repurchase. Note that the Commercial Law in 2001 introduced treasury shares, allowing the repurchasing firm to wait for the repurchased shares before selling or disposing them immediately. This emerges the issue of possible takeover deterrence intention of repurchasing firms. Secondly, whereas a dividend reduction leads to a sharp decline in stock prices, there is no hard evidence that a reduction in stock repurchase has the same effect. It is possible for controlling shareholders to announce a large amount of stock repurchase and actually buyback a smaller amount at the expense of a low cost for failing to commit to its initial announcement. This issue of financial flexibility is addressed by Jagannathan, Stephens, and Weisbach (2000), who finds that dividends are used by firms with higher permanent operating cash flows, whereas stock repurchases are used by firms with higher temporary cash non-operating cash flows. Therefore stock repurchase announcement is a weaker commitment of managers to shareholders than dividends. We predict that stock repurchase of low CFR/VR firms will be low, but the percent of % shares sought will have opposite results.

Table I. Stock Repurchase Activity in Japan**Panel A. Stock Repurchase Trend in Japan by Year**

Year	Transaction Value (US \$mil)	Market Proportion (%)	Number of Deals
1995	239.8	.2	4
1996	2,360.6	1.6	12
1997	7,467.2	5.0	77
1998	6,789.1	4.5	58
1999	3,467.4	2.3	68
2000	2,006.3	1.3	98
2001	8,004.5	5.4	144
2002	27,457.7	18.4	456
2003	43,157.3	28.8	850
2004	18,903.0	12.6	115
2005	29,776.3	19.9	116
	149,629.2	100	1,998

Panel B. Stock Repurchase by Industry

Industry Code	Description	All Companies	Sample Proportion (%)	TSE	Sample Proportion (%)
0xxx	Agriculture & Forestry	7	0.3	3	0.3
1xxx	Oil, Mining & Construction	112	5.0	58	4.9
2xxx	Food, Paper & Chemicals	446	19.8	259	21.7
3xxx	Plastic, Metal & Machinery	674	30.0	379	31.8
4xxx	Utilities	91	4.0	54	4.5
5xxx	Retail Trade	453	20.2	210	17.6
6xxx	Finance & Insurance	169	7.5	115	9.6
7xxx	Services	211	9.4	78	6.5
8xxx	Others	84	3.7	36	3.0
		2247	100.0	1192	100.0

Table II**Panel A: Summary Statistics**

Variable	1st Quartile	Median	3rd Quartile	Mean	Standard Deviation	Sum
% Shares Sought	3.8	5	8	6.8647	7.9124	1943
Dividend / Sales	0.0045	0.0070	0.0122	0.0102	0.0113	2.886
Dividend / Total Assets	0.0037	0.0060	0.0085	0.0066	0.0044	1.861
Repurchase / Sales	0.0136	0.0235	0.0502	0.0408	0.052	11.546
Repurchase / Total Assets	0.0099	0.0199	0.0326	0.0282	0.0317	7.982
Keiretsu Dummy	0	0	1	0.4064	0.492	115
Pyramid Dummy	0	1	1	0.636	0.482	180
Cash Rights / Voting Rights	0.2	0.5	1	0.5751	0.377	162.758
Free Cash Flow Per Share	-2.8955	2.2184	3.7147	0.7707	3.7378	218.1
Capital Expenditure	2.6889	3.5748	4.904	3.8177	1.9397	1080
Debt / Total Assets	2.15	9.19	16.3	11.2219	10.5761	3176
Total Assets	6.3833	7.1777	8.3614	7.5742	1.6721	2144
Price-to-Book Ratio	0.6	0.94	1.25	0.9601	3.0629	271.71

* Summary Statistics for a total of 283 samples events

Panel B: Keiretsu Firms vs. Non-Keiretsu Firms: T-Test and Wilcoxon Z-Test

	Non-Keiretsu		Keiretsu		Difference			
	Mean	Median	Mean	Median	Mean	t-stat	Median	p-value
% Shares Sought	6.5125	5	7.3791	5.3	0.8666	-0.9	0.3	0.2641
Dividend / Sales	0.0118	0.0083	0.0078	0.0059	-0.004	2.95	-0.0023	0.0005
Dividend / Total Assets	0.0073	0.0066	0.0055	0.0052	-0.0018	3.39	-0.0013	0.0019
Repurchase / Sales	0.0457	0.0266	0.0337	0.0217	-0.012	1.92	-0.0049	0.0485
Repurchase / Total Assets	0.0305	0.0219	0.0249	0.0156	-0.0056	1.47	-0.0062	0.2062
Pyramid Dummy	0.5298	1	0.7913	1	0.2615	-4.64	0	0.0001
Cash Rights / Voting Rights	0.6339	0.6857	0.4892	0.4000	-0.1447	3.23	-0.2857	0.0013
Free Cash Flow Per Share	1.2162	2.8321	0.1198	0.3230	-1.0964	2.44	-2.5092	0.0083
Capital Expenditure	3.5132	3.4400	4.2626	3.8876	0.7494	-3.25	0.4476	0.0006
Debt / Total Assets	9.2796	6.4650	14.059	11.8800	4.7794	-3.82	5.4150	0.0001
Total Assets	7.3361	6.9136	7.922	7.5928	0.5859	-2.93	0.6792	0.0005
Price-to-Book Ratio	1.1879	0.92	0.6274	0.94	-0.5605	1.52	0.02	0.7986

Table III
Pearson Correlation Matrix

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1 % Shares Sought	1.00												
2 Dividend / Sales	0.21	1.00											
3 Dividend / Total Assets	0.06	0.37	1.00										
4 Repurchase / Sales	0.28	0.43	0.13	1.00									
5 Repurchase / Total Assets	0.28	0.03	0.31	0.70	1.00								
6 Keiretsu Dummy	0.05	-0.17	-0.20	-0.11	-0.09	1.00							
7 Pyramid Dummy	0.06	-0.08	-0.09	-0.17	-0.13	0.27	1.00						
8 Cash Rights / Voting Rights	-0.11	0.09	0.11	0.13	0.09	-0.19	-0.79	1.00					
9 Free Cash Flow Per Share	0.06	0.02	0.23	0.02	0.19	-0.14	-0.03	0.04	1.00				
10 Capital Expenditure	0.02	-0.13	-0.16	0.04	0.12	0.19	-0.04	0.02	0.09	1.00			
11 Debt / Total Assets	-0.11	-0.23	-0.22	-0.27	-0.22	0.22	0.03	-0.01	-0.01	0.42	1.00		
12 Total Assets	-0.03	0.09	-0.39	0.13	-0.08	0.17	-0.03	0.00	0.00	0.74	0.25	1.00	
13 Price-to-Book Ratio	-0.07	0.02	0.03	0.03	0.03	-0.09	-0.04	0.04	0.03	0.05	-0.01	0.04	1.00

* The values indicate the Pearson correlation values among regression variables, and those significant at the 5% level are bolded.

Table IV**Regression Results on the Determinants of Stock Repurchase Announcements**

The dependent variable is % sought, the percentage amount of total number of shares outlying announced for the stock repurchase. Numbers in parentheses denote p-value, the level of significance. The main independent variables are the deviation of cash flow rights to voting rights and its interaction terms with the keiretsu dummy variable and the pyramid dummy variable. Free cash flow per share and capital expenditure are other independent variables. The regression is run with three control variables: price-to-book ratio, leverage, and firm size.

Variables	Dependent Variable: % sought							
	I	II	III	IV	V	VI	VII	VIII
Constant	9.1515*** (0.0001)	7.7948*** (0.0004)	9.1267*** (0.0001)	8.1845*** (0.0002)	9.6681*** (0.0001)	9.0778*** (0.0001)	11.1552*** (0.0001)	10.3446*** (0.0001)
CFR/VR	-2.2668* (0.0689)		-2.1395 * (0.0991)		-2.3340* (0.0615)	-2.3224* (0.0625)	-2.2432* (0.0826)	-0.5796 (0.7203)
Keiretsu		1.2338 (0.2136)		3.8992*** (0.0067)				3.5285** (0.0485)
(CFR/VR) * Keiretsu			-0.5357 (0.7206)	-5.3401** (0.0106)			-0.5182 (0.7281)	-4.3003 (0.1156)
(CFR/VR) * Pyramid					-1.6827 (0.333)			-1.2767 (0.4853)
FCF/Share						0.1352 (0.281)		0.1115 (0.3822)
CapEx							0.7419* (0.0536)	0.6142 (0.1144)
PTB	-0.1851 (0.2271)	-0.1784 (0.2476)	-0.1868 (0.2239)	-0.1489 (0.3307)	-0.1861 (0.2248)	-0.1894 (0.2167)	-0.1982 (0.1951)	-0.1641 (0.2845)
Debt / Assets	-0.0842* (0.0666)	-0.0945** (0.0438)	-0.0819* (0.0777)	-0.0952** (0.0404)	-0.0836* (0.0685)	-0.0838* (0.0678)	-0.1155** (0.0195)	-0.1234** (0.0127)
Ln(TA)	0.0184 (0.9494)	-0.0264 (0.9282)	0.0228 (0.9373)	-0.0834 (0.7742)	0.004 (0.9891)	0.0185 (0.949)	-0.5602 (0.1801)	-0.5716 (0.1727)
R-Square	0.0295	0.0233	0.0299	0.0461	0.0328	0.0336	0.043	0.061
Adjusted R-Square	0.0155	0.0092	0.0124	0.0289	0.0153	0.0161	0.0222	0.0301
F-value	2.11	1.66	1.71	2.68	1.88	1.92	2.06	1.97

* Significant at the 10% level; ** Significant at the 5% level; *** Significant at the 1% level.

Table V**Regression Results on the Determinants of Stock Repurchase I**

The dependent variable is Repurchase Value / Sales, , the dollar value of stock repurchase divided by the dollar value of sales as reported at the end of the most recent fiscal year. Numbers in parentheses denote p-value, the level of significance. The main independent variables are the deviation of cash flow rights to voting rights and its interaction terms with the keiretsu dummy variable and the pyramid dummy variable. Free cash flow per share and capital expenditure are other independent variables. The regression is run with three control variables: price-to-book ratio, leverage, and firm size.

Dependent Variable: Repurchase / Sales								
Variable	I	II	III	IV	V	VI	VII	VIII
Constant	-0.0014 (0.9225)	0.0092 (0.4988)	-0.0021 (0.8811)	0.0092 (0.5016)	0.0025 (0.8665)	-0.0015 (0.9162)	-0.0003 (0.9823)	-0.0005 (0.9757)
CFR/VR	0.0177** (0.0223)		0.0215*** (0.0076)		0.0172** (0.0265)	0.0176** (0.0234)	0.0214*** (0.008)	0.0246** (0.0159)
Keiretsu		-0.0087 (0.1579)		-0.0089 (0.3243)				0.0073 (0.5123)
(CFR/VR) * Keiretsu			-0.0160* (0.086)	0.0003 (0.9823)			-0.0159* (0.0868)	-0.0231 (0.1785)
(CFR/VR) * Pyramid					-0.0125 (0.2472)			-0.0066 (0.566)
FCF/Share						0.0002 (0.7857)		0.0000 (0.9747)
CapEx							0.0006 (0.7857)	0.0004 (0.8544)
PTB	0.0003 (0.7730)	0.0002 (0.8064)	0.0002 (0.8126)	0.0002 (0.8086)	0.0003 (0.7786)	0.0003 (0.7788)	0.0002 (0.8212)	0.0003 (0.762)
Debt / Assets	-.0016*** (0.0001)	-.0015*** (0.0001)	-.0015*** (0.0001)	-.0015*** (0.0001)	-.0016*** (0.0001)	-.0016*** (0.0001)	-.0015*** (0.0001)	-.0016*** (0.0001)
Ln(TA)	0.0065*** (0.0004)	0.0068*** (0.0002)	0.0066*** (0.0003)	0.0068*** (0.0002)	0.0064*** (0.0004)	0.0065*** (0.0004)	0.0061*** (0.0189)	0.0060*** (0.0227)
R-Square	0.1295	0.1193	0.1387	0.1193	0.1337	0.1297	0.139	0.1416
Adjusted R-Square	0.117	0.1067	0.1232	0.1034	0.1181	0.114	0.1203	0.1133
F-value	10.34	9.42	8.92	7.51	8.55	8.26	7.42	5.00

* Significant at the 10% level; ** Significant at the 5% level; *** Significant at the 1% level.

TableVI**Regression Results on the Determinants of Stock Repurchase II**

The dependent variable is Repurchase Value / Total Assets, the dollar value of stock repurchase divided by the dollar value of total assets as reported at the end of the most recent fiscal year. Numbers in parentheses denote p-value, the level of significance. The main independent variables are the deviation of cash flow rights to voting rights and its interaction terms with the keiretsu dummy variable and the pyramid dummy variable. Free cash flow per share and capital expenditure are other independent variables. The regression is run with three control variables: price-to-book ratio, leverage, and firm size.

Variable	Dependent Variable: Repurchase / Total Assets							
	I	II	III	IV	V	VI	VII	VIII
Constant	0.0342*** (0.0002)	0.0385*** (0.0001)	0.0337*** (0.0002)	0.0393*** (0.0001)	0.0384*** (0.0001)	0.0334*** (0.0002)	0.0587*** (0.0001)	0.0566*** (0.0001)
CFR/VR	0.0073 (0.1397)		0.0098* (0.0558)		0.0067 (0.17)	0.0066 (0.1707)	0.0085* (0.075)	0.0124** (0.0373)
Keiretsu		-0.0024 (0.5435)		0.0028 (0.6247)				0.0105 (0.1072)
(CFR/VR) * Keiretsu			-0.0105* (0.0751)	-0.0104 (0.2124)			-0.0103* (0.0619)	-0.0190* (0.0582)
(CFR/VR) * Pyramid					-0.0136** (0.0474)			-0.0088 (0.1901)
FCF/Share						0.0015*** (0.002)		0.001** (0.0262)
CapEx							0.0091*** (0.0001)	0.0084*** (0.0001)
PTB	0.0002 (0.7104)	0.0002 (0.7101)	0.0002 (0.7502)	0.0003 (0.6423)	0.0002 (0.7184)	0.0002 (0.7664)	0.0001 (0.9266)	0.0001 (0.7995)
Debt / Assets	-0.0006*** (0.0006)	-0.0006*** (0.0012)	-0.0006*** (0.0016)	-0.0006*** (0.0011)	-0.0006*** (0.0006)	-0.0006*** (0.0006)	-0.0010*** (0.0001)	-0.0010*** (0.0001)
Ln(TA)	-0.0004 (0.6948)	-0.0004 (0.7526)	-0.0004 (0.7512)	-0.0005 (0.6819)	-0.0006 (0.6199)	-0.0004 (0.6912)	-0.0075*** (0.0001)	-0.0074*** (0.0001)
R-Square	0.0551	0.0489	0.0658	0.0542	0.0684	0.0872	0.1889	0.2152
Adjusted R-Square	0.0415	0.0352	0.049	0.0371	0.0516	0.0707	0.1713	0.1894
F-value	4.05	3.57	3.90	3.17	4.07	5.29	10.71	8.32

* Significant at the 10% level; ** Significant at the 5% level; *** Significant at the 1% level.

Table VII**Regression Results on the Determinants of Dividend Payouts I**

The dependent variable is Dividend Payout / Sales, the dollar value of dividends paid on common shares divided by the dollar value of sales reported at the end of the most recent fiscal year. Numbers in parentheses denote p-value, the level of significance. The main independent variables are the deviation of cash flow rights to voting rights and its interaction terms with the keiretsu dummy variable and the pyramid dummy variable. Free cash flow per share and capital expenditure are other independent variables. The regression is run with three control variables: price-to-book ratio, leverage, and firm size.

Dependent Variable: Dividend / Sales								
Variable	I	II	III	IV	V	VI	VII	VIII
Constant	0.0035 (0.2662)	0.0052* (0.0811)	0.0034 (0.2877)	0.0050* (0.0937)	0.0033 (0.3053)	0.0035 (0.2708)	-0.0022 (0.5157)	-0.002 (0.5707)
CFR/VR	0.0027 (0.1153)		0.0036** (0.0465)		0.0027 (0.1134)	0.0027 (0.1189)	0.0038** (0.0277)	0.0024 (0.2662)
Keiretsu		-0.0035** (0.0111)		-0.0048** (0.0163)				-0.0028 (0.2519)
(CFR/VR) * Keiretsu			-0.0036* (0.0847)	0.0026 (0.3635)			-0.0036* (0.0731)	-0.0004 (0.9046)
(CFR/VR) * Pyramid					0.0006 (0.8051)			0.0015 (0.5569)
FCF/Share						0 (0.7834)		0.0001 (0.5785)
CapEx							-0.0020*** (0.0001)	-0.0020*** (0.0002)
PTB	0.0000 (0.8755)	0.0000 (0.9834)	0.0000 (0.9166)	0.0000 (0.9292)	0.0000 (0.8744)	0.0000 (0.8813)	0.0001 (0.7958)	0.0000 (0.9121)
Debt / Assets	-0.0003*** (0.0001)	-0.0003*** (0.0001)	-0.0003*** (0.0001)	-0.0003*** (0.0001)	-0.0003*** (0.0001)	-0.0003*** (0.0001)	-0.0002*** (0.0074)	-0.0002** (0.0117)
Ln(TA)	0.0011*** (0.0065)	0.0012*** (0.0024)	0.0011*** (0.0051)	0.0013*** (0.002)	0.0011*** (0.0064)	0.0011*** (0.0066)	0.0027*** (0.0001)	0.0028*** (0.0001)
R-Square	0.0854	0.0984	0.0951	0.1011	0.0856	0.0856	0.1433	0.1501
Adjusted R-Square	0.0722	0.0854	0.0788	0.0848	0.0691	0.0691	0.1247	0.1221
F-value	6.49	7.58	5.83	6.23	5.18	5.19	7.7	5.36

* Significant at the 10% level; ** Significant at the 5% level; *** Significant at the 1% level.

Table VIII**Regression Results on the Determinants of Dividend Payouts II**

The dependent variable is Dividend Payout / TA, the dollar value of dividends paid on common shares divided by the dollar value of total assets reported at the end of the most recent fiscal year. Numbers in parentheses denote p-value, the level of significance. The main independent variables are the deviation of cash flow rights to voting rights and its interaction terms with the keiretsu dummy variable and the pyramid dummy variable. Free cash flow per share and capital expenditure are other independent variables. The regression is run with three control variables: price-to-book ratio, leverage, and firm size.

Dependent Variable: Dividend / Total Assets								
Variable	I	II	III	IV	V	VI	VII	VIII
Constant	0.0135*** (0.0001)	0.0142*** (0.0001)	0.0134*** (0.0001)	0.0142*** (0.0001)	0.0137*** (0.0001)	0.0133*** (0.0001)	0.0158*** (0.0001)	0.0156*** (0.0001)
CFR/VR	0.0012** (0.0595)		0.0016** (0.0165)		0.0012* (0.0675)	0.0011* (0.0774)	0.0015** (0.022)	0.0012 (0.1218)
Keiretsu		-0.0010** (0.0491)		-0.0009 (0.1983)				-0.0001 (0.9095)
(CFR/VR) * Keiretsu			-0.0016** (0.0356)	-0.0001 (0.9276)			-0.0016** (0.0315)	-0.001 (0.4383)
(CFR/VR) * Pyramid					-0.0009 (0.3349)			-0.0003 (0.772)
FCF/Share						0.0003*** (0.0001)		0.0002*** (0.001)
CapEx							0.0009*** (0.0001)	0.0008*** (0.0001)
PTB	0.0001 (0.4787)	0.0000 (0.5511)	0.0001 (0.5167)	0.0000 (0.5484)	0.0001 (0.4826)	0.0000 (0.534)	0.0000 (0.6227)	0.0000 (0.6655)
Debt / Assets	-0.0001** (0.0188)	0.0000* (0.0502)	0.0000** (0.0404)	0.0000* (0.0506)	-0.0001** (0.0195)	-0.0001** (0.0171)	-0.0001*** (0.0003)	-0.0001*** (0.0005)
Ln(TA)	-0.0009*** (0.0001)	-0.0009*** (0.0001)	-0.0009*** (0.0001)	-0.0009*** (0.0001)	-0.0009*** (0.0001)	-0.0009*** (0.0001)	-0.0016*** (0.0001)	-0.0015*** (0.0001)
R-Square	0.1793	0.1802	0.1923	0.1803	0.182	0.2281	0.2518	0.2812
Adjusted R-Square	0.1675	0.1684	0.1777	0.1655	0.1673	0.2142	0.2355	0.2575
F-value	15.18	15.28	13.19	12.18	12.33	16.37	15.48	11.87

* Significant at the 10% level; ** Significant at the 5% level; *** Significant at the 1% level.

Table IX
Summary of Empirical Results

	% Shares Sought	Stock Repurchase	Dividend Payout
CFR/VR	Negatively Correlated	Positively Correlated	Positively Correlated
Keiretsu*CFR/VR	Negatively Correlated	Negatively Correlated	Negatively Correlated