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# Shareholder Composition and Managerial Compensation

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## Abstract

Stock options are used only sparingly in Japan. Japanese firms are more likely to adopt new stock option plans when they are more (less) owned by arms-length investors (stable and controlling shareholders). Those firms have significantly more independent boards and pay higher dividends surrounding the adoption year than their industry peers. These results suggest that firms adopting stock options endeavor to meet demands for good governance practice from arms-length shareholders and to follow good governance practices in other dimensions. The coexistence of arms-length, stable, and controlling shareholders generates a situation in which stock options are not widely used in Japan.

## I. Introduction

In this article, we seek to uncover why stock options are used only sparingly in Japan, despite the fact that the commercial law, amended in 1997, allows for stock option grants. Although shareholders have increasingly called for good governance practices in Japan recently, the characteristics of traditional Japanese corporate governance have remained, and stock options are not widely used. According to the Nikkei NEEDS Cges database, only 34.2% of companies listed on the First Section of the Tokyo Stock Exchange (TSE) had outstanding

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(unexpired) stock options from 2002 to 2010.[1] Meanwhile, we confirm that approximately 72% of our sample firms (386 companies listed on the TSE First Section that announced adoptions of new stock option plans from May 2004 to Mar. 2008) already had outstanding stock options in Dec. 2003 or earlier.[2] These facts suggest that some Japanese firms adopt stock option plans several times, although stock options are not commonly used in Japan.

Given the wide variation in the use of stock option plans, analyses of stock option adoptions in Japan offer new insights into the determinants of equity-based compensation. Specifically, we test the hypothesis that stock option usage is associated with ownership structures that may require corporate governance devices that assure financial returns on suppliers of finance. For 779 announcements of new stock option plan adoptions by 386 Japanese firms during the sample period, we find that stock option adoptions are positively related to ownership by arms-length investors (institutional investors and foreigners) and are negatively associated with ownership by stable and controlling shareholders. Our underlying idea gives rise to another hypothesis that firms adopting stock options endeavor to follow good governance practices in other dimensions as well. This prediction contrasts sharply with previous U.S. findings; however, our data clearly show that firms adopting new option plans have significantly more independent boards and pay significantly higher dividends than their industry peers surrounding the adoption of new options.

These results present important contributions to the literature. Previous U.S. research suggests that equity-based compensation is determined mainly by the degree of both agency problems and liquidity constraints. By using data from Japan, we shed light on shareholder preference as an important factor to explain the variation in the use of equity-based compensation. Previous U.S. research documents that managers rewarded with stock options decrease dividends (Lambert, Lanen, and Larcker (1989), Fenn and Liang (2001), and Cuny, Martin, and Puthenpurackal (2009)) and that a substitution relation exists between multiple corporate governance devices (Booth, Cornett, and Tehranian (2002), Berry, Fields, and Wilkins (2006)). In Japan, where firms have cared less about shareholder wealth, however, firms owned mainly by arms-length shareholders pay high dividends, have independent boards, and adopt stock options. The coexistence of arms-length, stable, and controlling shareholders in Japan has recently generated a situation in which stock options are used only sparingly. Accordingly, managers of firms with high ownership by stable and controlling shareholders are likely entrenched.

The rest of this article is organized as follows: Section II explains background information, previous research, and our hypothesis. Section III presents sample-selection procedures. Section IV examines the firms that adopt stock option plans in Japan. Section V investigates dividend payments, board structure,

[1] The TSE has three sections that have different listing requirements. Large and mature companies tend to be listed in the First Section.

[2] The board of directors firstly determines stock option plans, which are proposed as an agenda (director compensation) at shareholder meetings. Firms grant stock options after approval of the plan at a meeting of shareholders. Adoptions (use) of new stock option plans in this article refer to the decisions made at board meetings.

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and shareholder value surrounding the announcement of stock option adoptions. Section VI presents additional analyses. Section VII offers a brief summary.

## II. Background Information, Literature Review, and Hypothesis

Japanese companies have formed cross shareholdings as an effective anti-takeover arrangement (Sheard (1989), Morck and Nakamura (1999)). As a result, it has been well documented that Japanese corporate governance differs from that in the United States. Japanese managerial compensation comprises mainly cash salaries and bonuses, which are much lower than U.S. CEOs' pay.[3] However, Japanese corporate ownership structures have changed significantly over the past 20 years. Foreign shareholders have displaced cross-holding shareholders and increased their presence in the Japanese stock market. Figure 1 indicates the average percentage ownership by shareholder type for 202 Japanese companies for which ownership data are available for all years between 1991 and 2007. Ownership by financial institutions (banks, insurance companies, and security houses), which have served as the core of cross shareholdings, has declined considerably over the past 20 years, although nonfinancial corporations have not significantly decreased their ownership stake in other companies. Meanwhile, foreigners have increased their ownership. As a result, arms-length, controlling, and stable shareholders coexist in the current Japanese stock market. The increase in arms-length shareholders is likely to boost demand for corporate governance devices, which are used widely by U.S. firms (e.g., equity-based compensation).

Although there were no mandatory rules on corporate governance reforms in Japan during our sample period, both domestic and foreign institutional investors (e.g., California Public Employees' Retirement System (CalPERS) and the Japanese Pension Fund Association) have recommended that Japanese-listed firms improve their corporate governance structures by publishing corporate governance principles and voting principles (e.g., introduction of stock option plans and outside directors, downsizing of boards, and reduction in cross shareholdings). Similarly, there has been a trend of growing public opinion favoring high dividend payments since the 1990s. Given that many Japanese-listed companies have moved to a mature stage, high dividend payments should serve as a good governance practice (Easterbrook (1984), Jensen (1986), and La Porta, Lopez-de-Silanes, Shleifer, and Vishny (2000)).[4]

At the same time, the characteristics of agency conflict should differ significantly depending on the corporate ownership structure. Typical (Type I) agency theories suggest that firms with more agency conflicts are more likely to adopt equity-based compensation (Jensen and Meckling (1976)). In contrast, the recent literature stresses that companies (or business groups) with powerful controlling shareholders prevail, especially outside the United Kingdom and United States (Shleifer and Vishny (1997)). Controlling shareholders have various channels

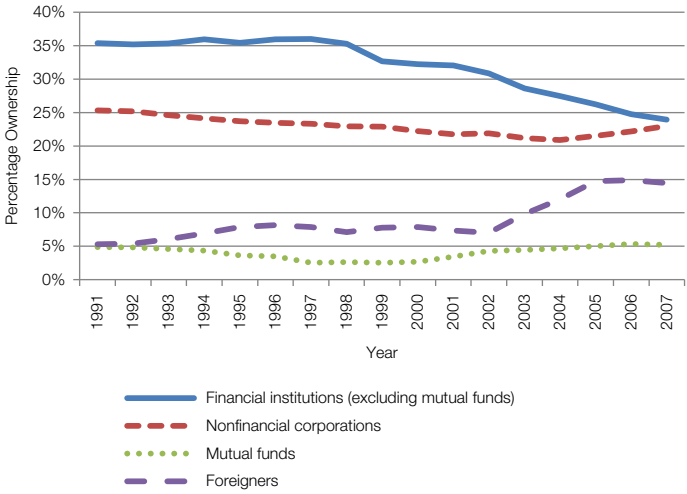
[3] In Japan, equity-based compensation was virtually absent until 1997 (see Kaplan (1994), Kato and Kubo (2006)).

[4] Lee and Park (2009) employ dividend payments as a component of their corporate governance index for Korean firms.

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FIGURE 1
Japanese Corporate Ownership Structure

Figure 1 indicates the average percentage ownership by shareholder type for 202 companies listed on the Tokyo Stock Exchange for which the data are available for all years between 1991 and 2007. We obtained the data from Nikkei NEEDS FinancialQuest.




to intervene in management and have less need to adopt visible governance mechanisms. Although following good governance practices benefits controlling shareholders via low costs of capital (Chen, Chen, and Wei (2009)), controlling shareholders can finance projects from the internal capital market and their main banks as long as they remain financially sound. Controlling shareholders also avoid strengthening corporate governance structures that keep them from expropriating minority shareholder wealth, to the degree that the private benefits of control outweigh the increased costs of capital. Mehrotra, Morck, Shim, and Wiwattanakantang (2013) indicate that there are many family-controlled companies in Japan.

The historical background also implies that many Japanese companies are owned mainly by stable shareholders (e.g., cross-holding shareholders). These shareholders are less likely to require investees to have governance devices designed to mitigate Type I agency problems, as they mainly pursue private benefits such as long-term business relationships and the avoidance of becoming hostile takeover targets, which potentially conflict with maximization of shareholder value. Cross-holding shareholders also can monitor investee firms to increase their benefits through their business relationships.

In sum, there is wide variation in ownership structures in Japan. Firms owned mainly by controlling or stable shareholders will not follow good governance practices, regardless of the degree of Type I agency problems, whereas those owned by arms-length investors are likely to do so, especially when they suffer from Type I agency problems. As a result, most of the variation in corporate governance structures likely arises from the difference in ownership structures

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(demands for typical governance devices). This idea is consistent with the fact that there are not many Japanese companies that follow the call for good governance practice: Only 34.9% of firms listed in the TSE First Section had outstanding stock options as of the end of 2009, and the median number of outside directors was 0 until the end of 2009 (it became 1 at year-end 2010, probably because on Dec. 2009 the TSE required listed firms to have at least 1 independent director or auditor). These facts give rise to the hypothesis that firms owned mainly by arms-length investors adopt stock option plans to follow the call for good governance practices, whereas those owned mainly by powerful controlling shareholders or stable shareholders do not. The novelty of this idea is to explain the variation in equity-based compensation by the difference in ownership structures (shareholder preference) rather than the degree of Type I agency conflicts and liquidity constraints.

Our idea generates different predictions about the relations among stock option adoptions, dividend payments, and board independence from findings by previous U.S. research. Lambert et al. (1989), Fenn and Liang (2001), and Cuny et al. (2009) argue that managers rewarded with stock options decrease dividends. Some U.S. researchers find substitutions among multiple corporate governance devices (Booth et al. (2002), Berry et al. (2006)). These findings imply that high dividend payments and outside director appointments together with stock option adoptions do not benefit shareholders, including institutional investors. However, our hypothesis predicts that firms adopting stock options continue to pay high dividends and have independent boards to meet arms-length shareholders' calls for good governance. Given that incentive compensation packages, independent boards, and performance-sensitive payout policies are almost absent, the current Japanese corporate governance structure is likely far from maximizing shareholder wealth. Accordingly, the benefits of following good governance practices in multiple dimensions should still outweigh the costs in Japan. This idea accords with Aggarwal, Erel, Ferreira, and Matos's (2011) finding that the increase in institutional investors' ownership improves firms' entire corporate governance structures, especially in countries with weak protection of minority shareholder wealth.

## III. Sample Selection and Methodologies

Our analysis starts by establishing which companies adopt stock option plans. Then, we trace dividend payments and board structures surrounding stock option adoptions. We focus on stock option adoptions among various corporate governance devices because stock option adoptions are discrete events Japanese firms have resorted to more frequently than outside director appointments and board downsizing. Besides, our idea generates a new hypothesis on the relation between stock options and other governance devices, which contrasts with previous U.S. research findings.

By using the Nikkei Telecom database, we searched all newspaper articles published in *Nihon Keizai Shimbun* (a popular economic newspaper in Japan) from May 2004 to Mar. 2008 that reference Japanese companies listed on the TSE First Section that decided to adopt new stock option plans for managers and

employees. In most cases, the news is released the day after the board meeting in which stock option plan adoptions are determined. The accounting year immediately before the news release day is defined as year −1. We excluded electric power and gas companies and financial institutions from the sample because regulatory monitoring makes those companies behave differently from other companies.

As a result, we incorporated 779 announcements of new stock option plan adoptions involving 386 companies as our sample (denoted by event firms or stock option firms).[5] Given that our entire data include 1,616 companies, this figure suggests that only 24% of companies adopted new stock option plans during the period. Remarkably, 85% of event firms had outstanding stock options before the announcement (the proportion is about 73% when we focus on firms' first announcements during the sample period). For selected events, we obtained daily stock return data from the Nikkei NEEDS Portfolio Master, financial data from the Nikkei NEEDS FinancialQuest, and governance data from the Nikkei NEEDS Cges.

Our event collection period starts after Japanese domestic investors published their opinions on corporate governance practice. It is also noteworthy that the Japanese Commercial Code was amended in 2003 to decrease the personal liability of outside directors and introduce U.S.-style corporate organizations (companies with committees) with the aim of enhancing outside director appointments.[6] The sample period ends in 2008, as we trace board structures and dividend payments of sample firms for 3 years after the announcement. The TSE required listed companies to have at least one independent director or auditor in Dec. 2009. Therefore, our sample covers a period during which Japanese firms voluntarily decided whether to follow increasing calls for good governance practices.

## IV. Which Firms Adopted Stock Options?

We first investigate the characteristics of stock option companies by using data from all companies listed on the TSE First Section (we delete firm-years in which event companies did not adopt stock option plans). Table 1 summarizes the variables for event and nonevent firms, which are shown by previous research to affect the value of CEO stock options (year −1 data are presented). We find that stock option firms have a significantly higher percentage ownership by directors (DOWN) than nonevent companies. This is inconsistent with typical agency theory that indicates equity-based executive compensation should be provided as Type I agency conflicts increase (Mehran (1995)). Uchida (2006) presents a similar result, suggesting that in Japan, firms with fewer agency conflicts tend to adopt stock options. Corporate liquidity is another well-known determinant of stock option usage, as stock options allow firms to compensate managers without paying

[5] Year and industry distribution of the sample and untabulated results are available from the authors.

[6] Traditionally, Japanese firms have a board of auditors as well as a board of directors (two-tier monitoring system). The 2003 amendment of the Commercial Code allows firms to adopt the committee system, in which firms have only a board of directors with three committees (nominating, audit, and compensation committees). The majority of these committees' members must be outside directors.

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TABLE 1

Characteristics of Sample Firms

Table 1 provides a summary of variables that potentially affect the probability of firms adopting new stock option plans. Panel A presents the mean and median values of the continuous variables. Panel B presents the fractions of companies that pay dividends and have outside directors. DOWN is directors' percentage ownership. Q is Tobin's *Q* (market value of equity and book value of liabilities divided by book value of assets). VOLATILITY is the standard deviation of 36-month stock returns. LEVER is debt divided by debt and equity. CF is cash flow over assets. BOARD_SIZE is the number of directors. OUTDIR is the proportion of outside directors over total board members. DOE is dividends divided by the book value of equity. CROSS, STABLE, CONTROL, INSTOWN, and FOREOWN are percentage ownership by cross-holding shareholders, stable shareholders, controlling shareholders, institutional shareholders, and foreign shareholders, respectively. We classify the following shareholders as stable shareholders: i) domestic bank shareholders, ii) domestic nonfinancial corporate shareholders, iii) domestic insurance company shareholders, and iv) domestic holding company shareholders. Controlling shareholders are shareholders who own more than 20% of the firm's outstanding shares. Year −1 data are presented (year 0 is the year of the announcement of new stock option adoptions). The *t*-statistics (*Z*-statistics) in Panel A are for the null hypothesis that the mean (median) is identical to that of event firms. The *Z*-statistics in Panel B are for the null hypothesis that the proportion is identical to that of event firms. * and ** indicate significance at the 5% and 1% levels, respectively.

*Panel A. Mean and Median of Continuous Variables*

| | Event Firm | | | Nonevent Firm | | | | |
|---|---|---|---|---|---|---|---|---|
| | Mean | Median | *N* | Mean | *t*-Statistic | Median | *Z*-Statistic | *N* |
| DOWN | 0.057 | 0.006 | 779 | 0.039** | 5.57 | 0.004 | 1.53 | 5,543 |
| Q | 1.668 | 1.274 | 779 | 1.224** | 10.74 | 1.084** | 13.87 | 5,543 |
| VOLATILITY | 0.023 | 0.022 | 779 | 0.023 | 0.22 | 0.022 | 0.96 | 5,543 |
| LEVER | 0.253 | 0.197 | 779 | 0.312** | −6.04 | 0.278** | −5.72 | 5,543 |
| ASSETS (mill. JPY) | 11.860 | 11.615 | 779 | 11.53** | 6.34 | 11.32** | 5.77 | 5,543 |
| CF | 0.076 | 0.074 | 779 | 0.058** | 7.01 | 0.058** | 7.92 | 5,543 |
| BOARD_SIZE | 9.471 | 9.000 | 779 | 9.878* | −2.53 | 9.000** | 3.11 | 5,543 |
| OUTDIR | 0.128 | 0.000 | 779 | 0.067** | 13.03 | 0.000** | 10.09 | 5,543 |
| DOE | 0.024 | 0.019 | 779 | 0.018** | 9.24 | 0.016** | 7.65 | 5,543 |
| CROSS | 0.076 | 0.049 | 779 | 0.097** | −6.41 | 0.079** | −7.28 | 5,543 |
| STABLE | 0.388 | 0.376 | 779 | 0.414** | −4.34 | 0.402** | −3.86 | 5,543 |
| CONTROL | 0.114 | 0.000 | 779 | 0.117 | −0.34 | 0.000 | 0.01 | 5,543 |
| INSTOWN | 0.306 | 0.296 | 779 | 0.212** | 16.28 | 0.179** | 14.81 | 5,543 |
| FOREOWN | 0.185 | 0.159 | 779 | 0.116** | 15.96 | 0.084** | 14.56 | 5,543 |

*Panel B. Dummy Variables*

| | Event Firm | | Nonevent Firm | | |
|---|---|---|---|---|---|
| | Fraction of Yes (%) | *N* | Fraction of Yes (%) | *Z*-Statistic | *N* |
| Pay dividends | 95.1 | 779 | 90.3 | 4.34** | 5,543 |
| Have outside directors | 49.0 | 779 | 35.8 | 7.11** | 5,543 |

cash (Matsunaga (1995), Yermack (1995)). However, Table 1 suggests that stock option companies have a significantly higher cash-flow-to-assets ratio (denoted by CF). Earlier works use a dividend payment dummy for the liquidity measure. Panel B shows that stock option companies have a significantly higher probability of paying dividends than nonevent companies, which is inconsistent with the liquidity hypothesis.

To test our hypothesis, we compare ownership structures between event and nonevent firms. Given that cross shareholdings have been formulated in Japan as antitakeover arrangements, firms with high cross shareholdings are less likely to care about good corporate governance practices. We present the percentage ownership of domestic corporate shareholders that have cross shareholdings with the firm (CROSS). We also investigate the percentage ownership of stable shareholders (STABLE) as well as ownership by controlling shareholders (CONTROL).[7] In Japan, banks, insurance companies, and nonfinancial firms are likely to maintain long-term relationships with the firm and serve as stable shareholders.

[7]We classify the following shareholders as stable shareholders: i) domestic bank shareholders, ii) domestic nonfinancial corporate shareholders, iii) domestic insurance company shareholders, and

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These shareholders pursue nonfinancial returns such as business relationships and have alternative monitoring channels.[8] Accordingly, firms owned mainly by stable shareholders are less likely to adopt corporate governance devices recommended by arms-length shareholders. Controlling shareholders also have various informal mechanisms through which they exert control over management. Therefore, we predict that firms with strong controlling shareholders are less likely to adopt new option plans. Table 1 shows that CROSS and STABLE are significantly smaller for event firms than for nonevent firms.[9] In contrast, Table 1 also shows that firms are more likely to adopt stock options as ownership by institutional investors (INSTOWN) and foreigners (FOREOWN) increases.[10] Although CONTROL does not differ significantly across groups, the univariate test result is consistent with our hypothesis that firms more (less) owned by arms-length investors (stable shareholders) are likely to adopt good governance practices.

Table 1 also compares board structure variables: the number of board members (BOARD_SIZE) and the proportion of outside directors over total board members (OUTDIR). Stock option firms have significantly smaller and more independent boards than nonevent firms do. The average event firm has 9.4 board members, of whom more than 10% are outside directors. Because the median OUTDIR is 0, even for event firms, we also present the fraction of firms adopting outside directors (Panel B). Again, stock option firms show a close association with the presence of outside directors.

As mentioned, Japanese companies have received an increasing number of calls for high dividend payments. Panel A of Table 1 clearly indicates that the dividend-to-equity ratio (DOE) is significantly higher for stock option firms than for nonevent firms. Again, high dividend payments by stock option firms do not support the liquidity hypothesis of stock option grants. Rather, these results are consistent with the idea that firms adopting new option plans follow good governance practices in other dimensions as well.

Monitoring decisions of new investment projects are more subject to information asymmetry than monitoring decisions on existing assets. Following this idea, previous studies have adopted Tobin's $Q$ as a measure of information asymmetry to examine conventional agency theory of equity-based compensation (Smith and Watts (1992), Gaver and Gaver (1993), Mehran (1995), Baber, Janakiraman, and Kang (1996), and Ryan and Wiggins (2001)). We find stock option companies have significantly higher Tobin's $Q$ (market value of equity and book value of liabilities divided by book value of assets, denoted by Q) than nonevent companies. However, we do not find significantly higher stock return volatility

iv) domestic holding company shareholders. Ownership by controlling shareholders is defined as ownership by shareholders who own more than 20% of the firm's outstanding shares.

[8]Morck, Nakamura, and Shivdasani (2000) show that main bank ownership has both costs and benefits for shareholders.

[9]We also compare bank ownership between event and nonevent firms to examine the idea that firms under bank control do not adopt stock option plans. The untabulated results find no significant difference.

[10]Institutional ownership is available from the Nikkei NEEDS Cges, which is defined as ownership by foreigners (excluding foreign corporations), trust accounts, and special accounts of domestic insurance companies. It does not include ownership by domestic banks and self-accounts of domestic trust banks and insurance companies, which have served as the core of cross shareholdings.

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(standard deviation of daily stock returns during the 36 months ending at the fiscal year-end, denoted by VOLATILITY), which is another proxy for information asymmetry, for stock option firms compared to nonevent companies. We present an alternative interpretation of high Tobin's $Q$ of stock option companies in the following section.

Univariate analysis suggests that stock option firms have significantly lower leverage (debt divided by debt and equity) than nonevent firms. Given that bank-centered corporate governance structures have developed in Japan, this finding, which is consistent with findings by Kato, Lemmon, Luo, and Schallheim (2005) and Uchida (2006), suggests that bank monitoring serves as an alternative governance device to equity-based compensation. Alternatively, banks prevent borrowing firms from adopting stock options, which increases the agency costs of debt (John and John (1993)). Event firms are larger in asset size than nonevent firms.

To further analyze the factors associated with stock option adoptions, we implement logit regressions in which the dependent variable equals 1 for event companies and 0 for nonevent companies. Given that ownership variables are mutually correlated, we include only one of these variables in a single estimation (e.g., the correlation between INSTOWN and FOREOWN is 0.8). Although CROSS does not have a significant coefficient, Table 2 reports a negative and significant coefficient on STABLE and CONTROL after controlling for various firm characteristics.[11] This result suggests firms are less likely to adopt new option plans when shareholders have informal channels to monitor management. Conversely, Table 2 reports a positive coefficient on INSTOWN and FOREOWN. These results support the hypothesis that firms owned mainly by arms-length investors tend to adopt stock option plans. We replicate the logit regression by using year 2003 data for ownership structure variables to address the reverse-causality concern. The untabulated results report a significant coefficient with expected signs on all ownership structure variables except STABLE. In addition, Table 2 reports a negative and significant coefficient on LEVER. Bank-centered governance structure is not compatible with equity-based compensation.

As mentioned, event firms should have small and independent boards if they adopt option plans to meet arms-length shareholders' calls for good governance practices. Consistent with this idea, BOARD_SIZE is negatively associated with the probability of firms adopting new option plans, and OUTDIR is positively associated with this probability. DOE also has a positive coefficient in all estimations and is statistically significant in model 1, which eliminates board characteristic variables from the independent variable. In conjunction with the finding that most event firms experienced stock option adoptions before the sample period, these results suggest firms adopting new option plans follow good governance practices in multiple dimensions.

Table 2 reports positive coefficients on DOWN and DOE, which are inconsistent with agency theory and the liquidity hypothesis. In addition, other variables

[11] Since the late 1990s, cross shareholdings have decreased considerably in Japan. Indeed, Table 2 suggests the median CROSS in our sample is less than 7%. We interpret that the percentage ownership by cross-holding shareholders does not represent recent Japanese firms' stable ownership structures.

TABLE 2
Logit Regression Results

Table 2 shows the logit regression results in which the dependent variable equals 1 for event firms and 0 for others. The sample comprises all firms listed in the First Section of the Tokyo Stock Exchange from 2004 to 2008, except firm-years in which event firms did not adopt stock option plans. DOWN is directors' percentage ownership. Q is Tobin's *Q* (market value of equity and book value of liabilities divided by book value of assets). VOLATILITY is the standard deviation of 36-month stock returns. LEVER is debt divided by debt and equity. ln(ASSETS) is the natural logarithm of assets. CF is cash flow over assets. BOARD_SIZE is the number of directors. OUTDIR is the proportion of outside directors over total board members. DOE is dividends divided by the book value of equity. CROSS, STABLE, CONTROL, INSTOWN, and FOREOWN are ownership by cross-holding shareholders, stable shareholders, controlling shareholders, institutional shareholders, and foreign shareholders, respectively. SHARE_FRIEND is the factor extracted by principal component analysis from STABLE, CONTROL, INSTOWN, and FOREOWN. Year −1 data are used for the independent variables (year 0 is the year of the announcement of new stock option adoptions). Firm-clustering standard errors are used to compute the *Z*-statistics. * and ** indicate significance at the 5% and 1% levels, respectively.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| DOWN | 1.753* | 2.231** | 1.479 | 2.363** | 2.293** | 2.318** | 1.886* |
| | (2.18) | (2.87) | (1.67) | (2.96) | (2.93) | (2.98) | (2.32) |
| Q | 0.199** | 0.247** | 0.245** | 0.247** | 0.183** | 0.184** | 0.180** |
| | (3.04) | (3.30) | (3.18) | (3.20) | (2.79) | (2.61) | (2.58) |
| VOLATILITY | 2.080 | 0.586 | −1.485 | 3.296 | −4.931 | −4.053 | −4.794 |
| | (0.18) | (0.05) | (−0.14) | (0.30) | (−0.43) | (−0.37) | (−0.44) |
| LEVER | −0.607 | −0.968** | −1.001** | −1.048** | −0.537 | −0.641 | −0.640 |
| | (−1.77) | (−2.93) | (−3.07) | (−3.15) | (−1.60) | (−1.94) | (−1.94) |
| ln(ASSETS) | 0.155* | 0.371** | 0.348** | 0.360** | 0.168* | 0.228** | 0.184** |
| | (2.18) | (5.83) | (5.51) | (5.74) | (2.36) | (3.15) | (2.60) |
| CF | −0.495 | −0.187 | 0.016 | −0.095 | −0.422 | 0.003 | −0.042 |
| | (−0.67) | (−0.24) | (0.02) | (−0.12) | (−0.56) | (0.000) | (−0.05) |
| BOARD_SIZE | | −0.044* | −0.042* | −0.045* | −0.040* | −0.040* | −0.038 |
| | | (−2.23) | (−2.14) | (−2.24) | (−1.99) | (−2.03) | (−1.92) |
| OUTDIR | | 2.605** | 2.697** | 2.837** | 2.675** | 2.489** | 2.714** |
| | | (5.28) | (5.43) | (5.67) | (5.48) | (5.09) | (5.50) |
| DOE | 8.937* | 7.677 | 7.346 | 7.942 | 6.985 | 6.756 | 6.547 |
| | (2.18) | (1.36) | (1.25) | (1.46) | (1.55) | (1.18) | (1.21) |
| CROSS | | −0.340 | | | | | |
| | | (−0.38) | | | | | |
| STABLE | | | −1.040* | | | | |
| | | | (−2.21) | | | | |
| CONTROL | | | | −1.001* | | | |
| | | | | (−2.49) | | | |
| INSTOWN | 2.912** | | | | 2.904** | | |
| | (5.61) | | | | (5.63) | | |
| FOREOWN | | | | | | 2.556** | |
| | | | | | | (3.50) | |
| SHARE_FRIEND | | | | | | | 0.290** |
| | | | | | | | (5.11) |
| Constant | −5.105** | −6.939** | −6.192** | −6.734** | −5.190** | −5.584** | −4.693** |
| | (−5.14) | (−7.09) | (−6.17) | (−7.06) | (−5.24) | (−5.56) | (−4.55) |
| Industry and year dummy | | | | Yes | | | |
| Pseudo-$R^2$ | 0.124 | 0.127 | 0.124 | 0.126 | 0.139 | 0.130 | 0.137 |
| *N* | 6,203 | 6,203 | 6,203 | 6,203 | 6,203 | 6,203 | 6,203 |

that represent the degree of agency problems and liquidity status do not have a significant coefficient (VOLATILITY and CF). Although Tobin's *Q* has a positive and significant coefficient, it is difficult to argue that the degree of Type I agency conflicts and liquidity status explains adoptions of stock option plans.

Because of correlations among ownership structure variables, we include only one ownership variable in each of the estimations in Table 2. To further explore the relation between ownership structure and stock option adoptions, we introduce a new variable from the ownership structure variables by using principal component analyses. SHARE_FRIEND is a principal component that includes information of STABLE, CONTROL, INSTOWN, and FOREOWN.[12]

[12]We do not include CROSS for two reasons: i) logit regression results do not show a significant relation between CROSS and the probability of firms granting stock options (see Table 2), and ii) CROSS has a weak but negative correlation with STABLE and CONTROL.

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High (low) SHARE_FRIEND suggests that the firm is owned more (less) by arms-length investors (stable or controlling shareholders). Model 7 of Table 2 shows that SHARE_FRIEND has a positive and significant coefficient. This result supports our hypothesis that firms more (less) owned by arms-length investors (stable or controlling shareholders) tend to adopt stock options.

## V. Dividend Payments and Board Structure of Stock Option Firms

In this section, we trace dividend payments and board structures of event companies surrounding the event year to test the hypothesis that stock option firms keep high dividend payments and independent boards to meet demands from arms-length shareholders. We employ a difference-in-differences (DID) approach, in which matched firms are selected by two procedures: size matching and propensity score (PS) matching. In size matching, we select as a matched company the same-industry firm closest in assets at year −1. Our hypothesis does not suppose a causal link from stock option adoptions to dividend policy and board structures. The size-matching analysis aims to compare dividend payments and board structures of event companies with those of industry peers, controlling for industry movements.

It is also important to examine whether stock option adoptions directly change dividend payments and board characteristics, as suggested by U.S. evidence. To address this issue, we employ PS matching, in which the firm closest in probability of adopting stock options (estimated from model 7 of Table 2) is selected as a matching company (caliper matching). We require matching companies not to have outstanding stock option plans throughout our sample period. We present results for the first events of the sample firms as well as for all events to avoid allowing former stock option adoptions to affect the results of subsequent events. We also select firms matched on book-to-market ratio, SHARE_FRIEND, and the variable under consideration. The results are qualitatively the same as those found by size matching.

### A. Dividends of Firms Adopting Stock Option Plans

Panel A of Table 3 presents the adjusted DOE (event firm's DOE minus matched firm's DOE) during the years surrounding the event year (from year −1 to year 3). The size-matched adjusted DOE is positive and significant throughout the sample period, which supports our hypothesis. Meanwhile, there is no evidence that stock option companies decrease dividend payments after the announcement of stock option adoptions, as suggested by previous U.S. studies (Lambert et al. (1989), Fenn and Liang (2001), and Cuny et al. (2009)). Rather, the entire sample result indicates that from year −1 to year 2, firms adopting new option plans increased dividends more than their size-matched companies did (untabulated).

We do not find evidence that event firms pay higher dividends than PS-matched firms do. This finding suggests that characteristics affecting the probability of stock option adoptions influence dividend payments as well; stock option adoptions are not the direct driver of high dividend payments. This argument is

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consistent with our hypothesis that firms owned mainly by arms-length investors follow good governance practices in managerial compensation packages and dividend payments.

As a further test, we replicate the analysis by replacing DOE with the dividend-to-sales ratio (DOS) and dividend-to-assets ratio (DOA). The analyses present qualitatively the same result. We also investigate the frequency of dividend changes and find that stock option firms have a significantly higher probability of increasing dividends than size-matched companies surrounding the event year. These results suggest that firms adopting stock options tend to curtail excess internal funds, which potentially causes overinvestment problems, although there is no strong evidence that stock option adoptions directly increase dividend payments.

## B. Board Characteristics of Firms Adopting Stock Options

Panel B of Table 3 indicates board independence, which was another important component of the corporate governance reform during the 2000s in Japan. Results show that event firms have significantly more independent boards than size- and PS-matched firms do surrounding the event year. In addition, the right columns suggest that event firms increase board independence significantly more than their size-matched peers do (the change in adjusted OUTDIR is positive and

TABLE 3
Corporate Governance Variables

Table 3 provides the dividend-to-equity ratio (Panel A), board independence (number of outside directors over number of total board members; Panel B), and board size (number of directors; Panel C) of event firms. In each panel, size-matched adjusted variables and propensity-score-matched adjusted variables are presented for the entire sample and the first event sample. Adjusted variables are computed as event firm's variable less matched firm's variable. The first event sample consists of firm-years in which the firm adopted stock options for the first time during our sample period. Year −1 is the year before the announcement of new stock option plan adoptions. The *t*-statistics (*Z*-statistics) are for the null hypothesis that the mean (median) is 0. * and ** indicate significance at the 5% and 1% levels, respectively.

| | Year −1 | Year 0 | Year 1 | Year 3 | Year 1 to Year −1 | Year 3 to Year −1 |
|---|---|---|---|---|---|---|
| *Panel A. Dividend Payment* | | | | | | |
| *Entire Sample (size matching)* | | | | | | |
| Mean (adj.) | 0.005** | 0.006** | 0.006** | 0.005** | 0.001 | 0.001 |
| *t*-statistics | 4.50 | 4.89 | 4.31 | 4.58 | 0.95 | 1.19 |
| Median (adj.) | 0.003** | 0.003** | 0.003** | 0.004** | 0.001 | 0.001 |
| *Z*-statistics | 6.28 | 6.77 | 6.26 | 5.56 | 1.35 | 1.01 |
| *N* | 777 | 744 | 706 | 537 | 704 | 536 |
| *Entire Sample (propensity score matching)* | | | | | | |
| Mean (adj.) | 0.000 | 0.000 | 0.000 | −0.002 | 0.001 | 0.002 |
| *t*-statistics | −0.31 | 0.05 | 0.28 | −1.26 | 0.74 | 1.89 |
| Median (adj.) | 0.000 | 0.000 | 0.000 | 0.001 | 0.000 | 0.002** |
| *Z*-statistics | −0.63 | −0.21 | −0.01 | 0.09 | 1.62 | 2.69 |
| *N* | 779 | 745 | 712 | 547 | 712 | 547 |
| *First Event (size matching)* | | | | | | |
| Mean (adj.) | 0.002 | 0.003** | 0.004* | 0.003 | 0.001 | 0.001 |
| *t*-statistics | 1.79 | 2.69 | 2.09 | 1.81 | 0.94 | 0.62 |
| Median (adj.) | 0.002* | 0.002** | 0.002** | 0.002** | 0.001 | 0.003 |
| *Z*-statistics | 2.38 | 3.04 | 2.60 | 2.91 | 0.52 | 0.58 |
| *N* | 349 | 337 | 320 | 268 | 320 | 268 |
| *First Event (propensity score matching)* | | | | | | |
| Mean (adj.) | −0.002 | 0.000 | 0.000 | −0.001 | 0.002 | 0.002 |
| *t*-statistics | −1.40 | −0.03 | 0.11 | −0.43 | 1.25 | 1.23 |
| Median (adj.) | −0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 0.002* |
| *Z*-statistics | −0.72 | −0.25 | −0.49 | 0.51 | 0.57 | 2.12 |
| *N* | 350 | 333 | 324 | 275 | 324 | 275 |

*(continued on next page)*

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TABLE 3 (continued)
Corporate Governance Variables

| | Year −1 | Year 0 | Year 1 | Year 3 | Year 1 to Year −1 | Year 3 to Year −1 |
|---|---|---|---|---|---|---|
| *Panel B. Board Independence* | | | | | | |
| *Entire Sample (size matching)* | | | | | | |
| Mean (adj.) | 0.061** | 0.070** | 0.073** | 0.080** | 0.013** | 0.014* |
| *t*-statistics | 8.71 | 9.57 | 9.95 | 9.48 | 3.32 | 2.44 |
| *N* (adj.) | 779 | 744 | 706 | 537 | 706 | 537 |
| *Entire Sample (propensity score matching)* | | | | | | |
| Mean (adj.) | 0.025** | 0.032** | 0.030** | 0.037** | 0.005 | 0.009 |
| *t*-statistics | 3.64 | 4.46 | 4.14 | 4.38 | 1.06 | 1.30 |
| *N* (adj.) | 779 | 745 | 712 | 547 | 712 | 547 |
| *First Event (size matching)* | | | | | | |
| Mean (adj.) | 0.043** | 0.052** | 0.063** | 0.069** | 0.024** | 0.024** |
| *t*-statistics | 4.42 | 5.19 | 6.02 | 6.11 | 4.11 | 2.80 |
| *N* (adj.) | 349 | 337 | 320 | 268 | 320 | 268 |
| *First Event (propensity score matching)* | | | | | | |
| Mean (adj.) | 0.020* | 0.028** | 0.026** | 0.034** | 0.006 | 0.009 |
| *t*-statistics | 2.12 | 2.83 | 2.51 | 2.94 | 0.85 | 0.83 |
| *N* (adj.) | 350 | 333 | 324 | 275 | 324 | 275 |
| *Panel C. Board Size* | | | | | | |
| *Entire Sample (size matching)* | | | | | | |
| Mean (adj.) | −0.965** | −0.794** | −0.640** | −0.546** | 0.380** | 0.631** |
| *t*-statistics | −5.00 | −4.43 | −3.64 | −2.77 | 2.78 | 3.20 |
| Median (adj.) | −1.000** | −1.000** | −1.000** | 0.000** | 0.000* | 0.000** |
| *Z*-statistics | −4.99 | −4.36 | −3.57 | −2.87 | 2.47 | 3.22 |
| *N* (adj.) | 779 | 744 | 706 | 537 | 706 | 537 |
| *Entire Sample (propensity score matching)* | | | | | | |
| Mean (adj.) | 0.091 | 0.180 | 0.183 | 0.055 | 0.112 | 0.002 |
| *t*-statistics | 0.45 | 0.88 | 0.88 | 0.25 | 1.00 | 0.01 |
| Median (adj.) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000* | 0.000 |
| *Z*-statistics | 0.15 | 0.73 | 0.72 | −0.21 | 1.75 | 0.51 |
| *N* (adj.) | 779 | 745 | 712 | 547 | 712 | 547 |
| *First Event (size matching)* | | | | | | |
| Mean (adj.) | −0.805** | −0.362 | −0.431 | −0.321 | 0.375 | 0.586* |
| *t*-statistics | −2.69 | −1.35 | −1.66 | −1.13 | 1.68 | 1.98 |
| Median (adj.) | −1.000* | 0.000 | −1.000 | 0.000 | 0.000 | 1.000 |
| *Z*-statistics | −2.55 | −1.39 | −1.75 | −0.99 | 1.22 | 1.93 |
| *N* (adj.) | 349 | 337 | 320 | 268 | 320 | 268 |
| *First Event (propensity score matching)* | | | | | | |
| Mean (adj.) | −0.029 | 0.198 | 0.111 | 0.167 | 0.130 | 0.200 |
| *t*-statistics | −0.09 | 0.66 | 0.37 | 0.55 | 0.70 | 0.79 |
| Median (adj.) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| *Z*-statistics | −0.43 | 0.84 | 0.59 | 0.66 | 1.42 | 1.38 |
| *N* (adj.) | 350 | 333 | 324 | 275 | 324 | 275 |

significant). In sum, the result supports the idea that firms meet arms-length shareholders' demands by adopting new option plans and having independent boards, but it is not consistent with the substitution hypothesis. The result is consistent with the finding on dividend payments, suggesting that firms adopting stock options endeavor to follow good governance practices in multiple dimensions. Panel B does not present the median OUTDIR because many Japanese companies still have no outside directors. The untabulated results reveal that throughout the period, event firms have a significantly higher frequency of adopting outside directors than industry peers.

The PS-matching result shows no evidence that stock option firms increase board independence more than PS-matched companies do. Put differently, we do not find strong evidence that stock option adoptions directly cause board reforms. The result is consistent with our idea that firms owned mainly by arms-length

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investors adopt stock option plans, have independent boards, and pay high dividends.

Previous research argues that large boards do not monitor management effectively due to free-rider problems. Yermack (1996) and Eisenberg, Sundgren, and Wells (1998) show that firm value is negatively related to board size. Japanese institutional investors also call for small boards in their voting principles. We trace board size of event firms to test whether firms adopting stock options have small boards. Consistent with Table 2, Panel C of Table 3 suggests that stock option firms have significantly smaller boards than asset-matched firms at year −1. Although the untabulated results show the average event firm decreases its raw board size surrounding the announcement year, the right columns of Panel C suggest the change in adjusted board size is significantly larger for event firms than for size-matched companies. Uchida (2011) shows that many Japanese firms significantly decreased board size during the 2000s by introducing an officer system that separates directors and executive officers in an organization. We interpret that firms adopting stock options downsized boards earlier than asset-matched companies did. Results from PS matching and board size matching (untabulated) show no significant changes in board size surrounding new stock option adoptions. Combined with the results on dividend payments and board independence, the result indicates that firms adopting stock options follow good governance practices in various dimensions.

## C. Shareholder Value Creation

It is also important to examine whether new stock option adoptions following calls from arms-length shareholders create shareholder value. If stock options align managers' interests with shareholder value, the stock market should react favorably to the announcement of new stock option plans. DeFusco, Johnson, and Zorn (1990) and Billett, Mauer, and Zhang (2010) show that announcements of stock option adoptions are accompanied by positive stock price reactions as well as bond price reductions. This result suggests stock option grants increase shareholder value in the United States, due at least in part to wealth transfer from bondholders to shareholders.

We execute a standard event study, which sets the day before the news release day as the event day (day 0), to examine the wealth effect of stock options. In addition to the abnormal return at the event day (hereafter denoted AR[0]), we compute four cumulative abnormal returns (CARs); CAR[$t_1$, $t_2$] as the sum of AR from day $t_1$ to day $t_2$. Stock return data from day −220 to day −21 are used for market model estimation. To mitigate other events contaminating the result, we construct a clean sample that consists of 326 events, for which no news articles were released on the news release day except stock option adoptions.

As shown in Table 4, we do not find a significant stock price reaction to the announcement of stock option adoptions. Unreported analyses find no evidence that stocks of event firms generate long-term excess returns.[13] Tables 1

[13]We compute 12-, 24-, and 36-month stock returns from the month after the announcement of stock option plan adoptions. In this analysis, we select a company matched on total market capitalization and the book-to-market ratio.

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TABLE 4
Event Study Results

Table 4 presents stock price reaction to the announcement of new stock option plan adoptions. AR[0] is abnormal return at day 0, which is computed by standard event study methodology, and CAR[$t_1$, $t_2$] is the cumulative abnormal return from day $t_1$ to day $t_2$. Event day (day before the news release day) is denoted by day 0. Stock return data from day −220 to day −21 are used for market model estimation. A clean sample that consists of events for which no other news is announced on the news release day is used for investigation. The *t*-statistics (*Z*-statistics) are for the null hypothesis that the mean (median) is 0.

| | $N = 326$ | | | |
|---|---|---|---|---|
| | Mean | *t*-Statistics | Median | *Z*-Statistics |
| AR[0] | −0.09% | −1.26 | −0.03% | −0.94 |
| CAR[−1, 0] | 0.00% | 0.03 | −0.14% | −0.81 |
| CAR[−1, 1] | −0.05% | −0.43 | −0.30% | −1.25 |
| CAR[−2, 2] | 0.21% | 1.36 | −0.05% | 0.60 |
| CAR[−20, 20] | 0.52% | 1.16 | −0.41% | 0.11 |

and 2 suggest that stock option firms have high Tobin's $Q$ at year −1. Given that event firms repeatedly adopt new stock option plans, the stock market is likely to have incorporated the value of new option adoptions before the announcement. We interpret that investors can identify which companies care about arms-length shareholders (or minority shareholders) from their ownership structures, and new option plans do not have incremental effects on shareholder value. Put differently, investors identify that managers are entrenched when firms are owned mainly by stable and controlling shareholders. Consistent with Kim, Yasuda, and Hasegawa (2012), we do not find an improvement in accounting performance surrounding stock option adoptions by Japanese companies (untabulated).

## VI. Further Analyses

We argue that firms owned mainly by arms-length shareholders follow good governance practices, such as stock option adoptions. As an additional analysis, we execute regression analyses of total corporate governance score (GOVERNANCE), which is constructed by principal component analysis of the new stock option adoption dummy, DOE, OUTDIR, and BOARD_SIZE. We use 1-year lagged data for the independent variables to address causality concerns. The untabulated results carry a positive and statistically significant coefficient on SHARE_FRIEND, suggesting that firms more (less) owned by arms-length investors (stable and controlling shareholders) follow good governance practices in multiple dimensions. The result is materially unchanged when we adopt 3-year lagged data for SHARE_FRIEND.

We also argue that corporate ownership structure affects firms' stock option adoptions. However, it is also likely institutional and foreign investors invest in firms with equity-based compensation packages. Regarding the reverse causality concern, the change in Japanese corporate ownership structure was originally initiated by exogenous shocks. As mentioned, Japanese companies traditionally formulated cross shareholdings to block against hostile takeover bids. However, the substantial price decline of stocks in the 1990s due to the collapse of the bubble economy forced firms to unbind cross shareholdings. The introduction of the current value accounting system, which forces firms to explicitly expense capital

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losses, accelerated this trend. In addition, the Banks' Shareholdings Restriction Law was enacted in 2001 to put a cap on banks' shareholdings with the aim of improving banks' financial soundness. Accordingly, the percentage ownership by banks, which served as a core of cross shareholdings, declined substantially in the early 2000s (see ownership by financial institutions in Figure 1). These facts suggest the current Japanese corporate ownership structure is determined exogenously, at least to a certain degree.

To further address this concern, we examine the change in ownership structure variables surrounding the announcement of new stock option adoptions. The untabulated results show no evidence that stock option adoptions change corporate ownership structures, regardless of the matching method. Figure 1 indicates that domestic mutual funds have relatively stable equity stakes in firms over time, while foreign investors have increased their percentage ownership considerably since the 1990s. In Japan, many domestic institutional investors traditionally have served as stable shareholders and have recently begun to call for good governance practices. This fact suggests that the causality concern is less serious in the relation between domestic institutional investors' ownership and stock option adoptions. Unreported analyses show that domestic institutional investors' ownership (institutional ownership less foreign ownership) is positively related to the likelihood that firms adopt stock option plans.

These findings suggest that ownership structures affect corporate governance structures. Nevertheless, we present caveats that our results potentially suffer from endogeneity problems. We cannot rule out the possibility that unobserved variables affect voluntary corporate governance reforms and ownership structure changes. A potential story is that companies that have cared about shareholder wealth have attracted institutional investors and conducted corporate governance reforms. This story is consistent with the finding that stock option firms have high Tobin's $Q$, but the announcement of new stock option adoptions does not incrementally create shareholder value. Although it is difficult to address the endogeneity concerns, this story is also consistent with our idea in that typical corporate governance devices (such as stock options, dividend payments, and independent boards) are designed for arms-length investors who mainly pursue financial returns. In this sense, ownership structures serve as a proxy variable for the degree to which the firm cares about arms-length shareholder wealth.

Another difficulty exists in causal inferences about the relations between stock options and other governance devices. Indeed, the DID analysis using PS matching presents no strong evidence that stock options affect dividend payments and board structures. As mentioned, our arguments do not postulate a causal relation from stock options to other governance devices, and vice versa. We argue that arms-length shareholders' demands for good governance are the driving force behind firms' adoptions of various corporate governance devices.

One concern might be that our findings on ownership structure variables are driven by the fact that increases in arms-length investors' ownership automatically decrease ownership by stable and controlling shareholders. To address this concern, we implement 2-step regressions. In the first step, we regress INSTOWN (or FOREOWN) against STABLE and CONTROL to decompose INSTOWN (FOREOWN) into components explained and unexplained by

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non-arms-length shareholder ownership. Then, we implement the logit regression by using the expected value of INSTOWN (or FOREOWN) and the residual of the first-step regression as independent variables. The untabulated results carry a positive and significant coefficient on these variables, except for the expected value of FOREOWN. This result suggests that both arms-length and non-arms-length investors have significant impacts on the likelihood that a firm adopts stock option plans.

We require matched firms to have no outstanding stock options during our sample period, and most of the matched firms had no outstanding stock options even before the sample period. However, there are companies that had outstanding stock options before but did not adopt new stock option plans during the sample period. To highlight the characteristics of stock options during our sample period, we replicate the analyses employing those firms as control companies. There are only 320 companies that satisfy the control firm requirement and fewer than 10 candidates in many industries. Instead of selecting a matched firm for every event firm, we compute the adjusted values of corporate governance variables (DOE, OUTDIR, and BOARD_SIZE) by subtracting the industry median among the control companies from the event firm's value. Keep in mind that this method disfavors our hypothesis, as the matched firms, which adopted stock options immediately after the amendment of the Commercial Code, should be more conscious of corporate governance practices than those that have never adopted options.

The untabulated results indicate that the stock option firms have significantly higher DOE and OUTDIR than the control firms both before and after the year of stock option adoption. This result is consistent with our hypothesis that firms adopting stock options endeavor to follow good governance practices in other dimensions. On the contrary, we find that BOARD_SIZE is significantly larger for stock option firms than for control companies. Given that Japanese companies considerably downsized their boards in the late 1990s and early 2000s, the result potentially suggests that the control sample includes firms that conducted governance reforms early.

Restricted stocks are not commonly used in Japan, and some Japanese companies adopt stock option plans whose strike price is 1 JPY (1-yen stock options). In our sample, 148 events (approximately 19% of the entire sample) adopt 1-yen option plans only. We replicate our analyses after deleting the 148 events and obtain qualitatively the same result (untabulated).

Previous U.S. research suggests that stock options induce managerial risk-taking behaviors (e.g., DeFusco et al. (1990), Guay (1999), Cohen, Hall, and Viceira (2000), Coles, Daniel, and Naveen (2006), Billett et al. (2010), and Dong, Wang, and Xie (2010)). To examine whether this tendency holds for Japan, we examine changes in managerial risk-taking measures (100-day standard deviation of stock returns, few-day volatility of stock returns, and leverage) surrounding stock option adoptions. Untabulated results do not find strong evidence that stock option adoptions induce managerial risk-taking behaviors.

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## VII. Conclusion

Previous U.S. research has commonly examined the determinants of equity-based compensation by focusing on conflicts of interest between shareholders and managers. However, demands for so-called governance devices should vary across companies, depending on corporate ownership structures. Recent international research suggests that many companies have controlling shareholders who can exert strong power on management via various informal channels (La Porta, Lopez-de-Silanes, and Shleifer (1999)). Stable shareholders who pursue private benefits (e.g., long-term business relations) monitor the firm through business transactions and do not require companies to adopt so-called governance devices, which are designed for widely held firms.

In Japan, the Commercial Code was amended in 1997 to allow for stock option grants, but only one-third of listed companies have outstanding stock options. Institutional investors publicly call on listed firms to adopt performance-based compensation. Meanwhile, different types of shareholders (stable shareholders, controlling shareholders, and foreign and institutional investors) have been coexisting in the Japanese stock market in recent times. These facts naturally give rise to the idea that significant variation exists in the use of equity-based compensation in Japan because of the difference in ownership structure across listed companies.

We investigate 779 announcements of new stock option plan adoptions in Japan from May 2004 to Sept. 2008. We find that firms more (less) owned by arms-length investors (stable or controlling shareholders) tend to adopt new stock option plans. Firms adopting new option plans have higher director ownership, and about 75% of those firms had outstanding stock options before the announcement year. Remarkably, these firms paid higher dividends both before and after the stock option adoption than their industry peers. Event firms had more independent boards surrounding stock option adoption than their industry peers. These results suggest that in Japan, a minority of firms adopt stock option plans to respond to demands from arms-length shareholders.

These results present important contributions to the literature, providing evidence that different types of shareholders have different demands for equity-based compensation. Put differently, wide variation exists in the use of equity-based compensation, even in a single country, because of the coexistence of arms-length, controlling, and stable shareholders. Accordingly, managers are likely entrenched when firms have high ownership by stable and controlling shareholders. In conjunction with the limited adoption of stock options and outside directors, a low Tobin's $Q$ for firms without stock options suggests that the average Japanese firm does not follow good governance practices in terms of maximizing shareholder value. This argument accords with the recent finding of Mehrotra, van Schaik, Spronk, and Steenbeek (2011).

Although we argue that arms-length shareholders' demands for good governance enhance stock option adoptions and other governance improvements, there are alternative mechanisms in which stock option adoptions and governance improvements go together. For example, Japanese firms may have curtailed overinvestments and thus increased dividend payments surrounding stock option adoptions. Given that the Japanese outside director market is narrow, only firms

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with a good prospect may be able to attract outside directors as well as adopt stock options. Further studies will be most useful in elaborating on these issues in the future.

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