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The Adoption of Poison Pills and Managerial Entrenchment: Evidence from Japan*

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Abstract

The purpose of this paper is to examine the effect of poison pills on shareholder wealth using cases of Japanese firms that announced the adoption of poison pills between April 2005 and May 2006. We find that announcements of poison pill defenses reduce shareholder wealth by a significant amount. We also investigate the relationship between this negative stock price response to poison pills and a manager's incentive for entrenchment, using conditional event study methods. We confirm that the probability of adopting poison pills is higher if CEOs have longer tenure or smaller shareholdings. In such cases, we find that the stock price responds negatively when the performance of the firm is poor because pill adoptions deliver a signal that reveals to investors the manager's tendency toward entrenchment.

JEL classifications: G34

Keywords: Poison pill; Takeover defense

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1 Introduction

The first poison pill in Japan was in 2005, reflecting the resurgence of merger and acquisition(M&A) activity since the end of the 1990s. How in fact do poison pills affect firms that adopt them in Japan? Most of the previous empirical studies using U.S. data have investigated two theoretical hypotheses about the effects of poison pills on shareholder value: managerial entrenchment and shareholder value. The managerial entrenchment hypothesis predicts that poison pill adoptions make it less likely that shareholders will receive takeover premiums, and announcements of poison pills result in stock price declines. For example, Bebchuck, Coates and Subramanian (2002) argue that a poison pill provides a powerful takeover deterrent particularly when it is combined with a staggered board.

On the other hand, the shareholder interest hypothesis predicts that the adoption of poison pills should be accompanied by stock price increases, because the pill is adopted primarily to protect shareholders from receiving less than full value for their holdings in control transactions. Comment and Schwert (1995) and Heron and Lie (2006) find that pills increase takeover premiums without decreasing the likelihood of takeover.

These discussions presuppose that a poison pill has a real effect on the bargaining power of the target firm's managers. However, in Japan, it is not clear whether the poison pill has a real effect on shareholder value because there are almost no cases in which a firm with a poison pill became the target of a hostile takeover. Therefore, we cannot conclude whether a poison pill in Japan provides bargaining power to the target firm to obtain a higher premium, or that it defeats the value-increasing changes of control and allows managers to entrench themselves.

This ambiguous situation in Japan gives us an opportunity to test the

alternative hypothesis that adoption of a poison pill reveals the private information of managers. Coates (2000) and Gompers, Ishii and Metrick (2003) state that in the U.S., managers can adopt a pill at any time and the actual presence of the pill is irrelevant until the firm becomes a takeover target. Therefore, the stock market response to announcement of the poison pill adoption does not represent the subsequent future decline or increase of shareholder value. Rather, they show the stock market response to the revelation of private information about managerial preference for shareholder value revealed by the adoption of the poison pill.

Because the real effectiveness of poison pills has never been observed among market participants in Japan, the hypothesis in this paper is that any stock market variations in response to the announcement of the poison pill mean the response to the revelation of private information about the manager's preferences toward the takeover. We call this the private information revelation hypothesis. In this hypothesis, managers reveal their true preference about shareholder value through their behavior in adopting the poison pill.

To examine the private information revelation hypothesis, we use conditional event-study methods based on Acharya (1988). Acharya introduced the self-selection model to event studies, using the Heckman specification to model calls for convertible bonds. In Acharya's model, a firm first decides whether to call an outstanding convertible bond based on the observable variables and private information. Acharya shows that the coefficient of the inverse Mills ratio of the Heckman model, which shows the effect of the private information on the stock market price, is significant if the private information affects the stock price.

In this paper, we use variables relating to the degree of the "dictatorship"

of the manager as the preannouncement information that is assumed to affect the decision to adopt a poison pill. We first examine whether the manager with a higher degree of dictatorship tends to adopt a poison pill or not. Then, based on the first round regression, we investigate the link between the private information about the manager's preference and the stock price response.

We find that firms that are under threat of a takeover bid (TOB) and have a manager with longer tenure tend to adopt poison pills. We further find that only when the firm is performing poorly does the powerful manager tend to adopt a poison pill. Because a manager who is in that position for a longer period tends to have more power to make independent decisions, a powerful manager or dictator is more likely to adopt a poison pill.

Based on these results, we examine the relationship between market responses measured by the cumulative two-day abnormal return (CAR) and the behavior of adopting poison pills. Then, we find that the stock price significantly decreases with the private information revealed by the announcement of the poison pill, especially when the firm is performing poorly, and the stock price does not respond to the news when the better performing firm adopts a poison pill. Considering the fact that the pill is adopted by managers with longer tenure, we conclude that investors are surprised by the news about poison pills, and respond negatively only to the announcement by firms with bad corporate governance and poor corporate performance, because this confirms that the manager really does not care about shareholder interests.

The results in this paper relate to the recent debate about corporate governance and stock price returns. Gompers et al. (2003) and Cremers and Nair (2005) find that governance can directly influence equity price. In particular,

Gompers et al. argue that in the early 1990s, investors might not have fully appreciated the agency costs engendered by weak governance. Subsequent to the realization of the agency costs, investors lower their expectations about poorly governed firms' future cash flows, which results in stock price declines.

The findings in this paper contribute to this debate. The results suggest that an investor does not fully anticipate the agency costs by simply observing formal information such as the CEO's tenure, shareholder structure, or board members' independence. A decision by the manager to adopt a poison pill conveys private information about the manager's preferences regarding shareholder value, and the investors can adjust their expectations about agency costs, which decrease the stock price.

The paper proceeds as follows. We begin in Section 2 by describing our hypothesis and methodology. Sections 3 and 4 explain our data. Section 5 first examines the factors that affect the decision to adopt a poison pill using a probit model. Then, we investigate the private information revelation hypothesis using the conditional event study method. We conclude in Section 6.

2 Hypotheses and Methodology

In this section, we develop a hypothesis about the effect of a poison pill on the stock price. Then, we describe the methodology used to examine this hypothesis.

2.1 Hypotheses

Comment and Schwert (1995) summarized the theoretical framework that underlies event studies of poison pills, noting that the wealth effect of pill adoption is the combination of the following three factors: (1) a stock price

decline because of the deterrence of future takeovers—the managerial entrenchment hypothesis, (2) the expected present value of any increase in premiums due to a gain in bargaining power—the shareholder interest hypothesis, and (3) a revelation of management’s private information—the private information revelation hypothesis. Most of the research into the wealth effect of poison pills using event study methodology in the U.S. compares the managerial and shareholder-interest hypotheses.¹

The managerial entrenchment hypothesis emphasizes conflicts of interest when a takeover reduces a manager’s private benefit. In these circumstances, managers use pill defenses to protect their positions and prevent value that would be increased by change of control. The managerial entrenchment hypothesis predicts that poison pill adoptions make it less likely that shareholders will receive takeover premiums, and announcement of poison pills results in stock price declines. The hypothesis further predicts that declines are larger when there is a high probability of the firms being taken over.

The shareholder interest hypothesis predicts that the adoption of poison pills should be accompanied by stock price increases. Under this hypothesis, the pill is adopted primarily to protect shareholders from receiving less than full value for their holdings in control transactions, and this adoption gives incumbent managers more bargaining power in negotiations about the premium.

These two ideas presuppose that the adoption of poison pills has a real deterrent effect against the takeover. However, it is not certain that poison pills really deter takeovers, even in the case of the U.S. as Coates (2000) persuasively argued. Coates insists that all firms in the U.S. have a shadow pill, and even after a hostile bid, a manager can easily adopt a poison pill

¹ Coates (2000) surveys the empirical research on the wealth effect of poison pills in the 1980s and 1990s in the U.S.

to block the offer at least temporarily. This means the announcement of the adoption of a poison pill in itself has no significant effect. The wealth effect of the poison pill can be interpreted only from the viewpoint of the signaling effect of managers. In Japanese cases, it is also unclear whether a poison pill has a real deterrent effect or not, since there have been almost no cases in which a firm with a poison pill became the target of a hostile takeover.

In this situation, the only effect that can certainly be expected on the short-term stock price following the announcement of the adoption of a poison pill is not the real deterrent effect of a hostile takeover, but rather the revelation of the management's private information. Then, based on the management private information revelation hypotheses, the wealth effect depends on investors' beliefs about the managers of the firm. Prior to pill adoption, investors form some belief about the managers' preferences regarding shareholder value. Pill adoption for a given firm sends positive or negative signals depending on these beliefs. Because the adoption of a poison pill suggests that managers are more likely to resist a bid should one emerge in the future, the point is whether this resistance leads to higher bargaining power for the future bid and a higher premium, or if it simply allows the incumbent managers to indulge in empire-building activity even though the company's performance is poor.

2.2 Methodology

To investigate the hypothesis discussed above, we first specify a statistical model of a firm's decision to announce the introduction of a poison pill, based on Nayak and Prabhala (2001) and Li and Prabhala (2007). Suppose that firm i announces the introduction of a poison pill if variable POI_i is positive, where POI_i is interpreted as the net benefit from the announcement. Part of

POI_i is publicly known, based on observable variables X_i . ψ_i represents firm i 's private information motivating the introduction of a poison pill. Here we focus on the manager's concern for shareholder value as private information. Thus firm i announces the introduction of a poison pill if

$$POI_i = \theta_p X_i + \psi_i > 0 \quad (1)$$

where $E(\psi_i)$, the preannouncement expectation of private information, ψ_i , is zero without loss of generality.

The announcement of the introduction of a poison pill reveals the announcing firm's private information about the degree of the manager's shareholder orientation, ψ_i , to the market. Based on this fact, markets can update the expectations about the firm's private information ψ_i . The revised expectation of ψ_i , conditional on the introduction of the poison pill, forms the information revealed by the introduction of the poison pill. If the poison pill has negative (or positive) valuation effects, we should find that poison pill announcement effects are negatively (or positively) related to the information revealed in the poison pill. Thus, β_p should be negative (or positive) in the following regression:

$$E(AR_i | P) = \gamma_p + \beta_p E(\psi_i | \theta_p X_i + \psi_i > 0) \quad (2)$$

where AR_i denotes the effect associated with the announcement of a poison pill, P , by firm i . Equation (2) gives the conditional effect associated with an announcement of a poison pill, given the vector of characteristics X_i associated with the firm adopting the pill. Uppercase P denotes the introduction of a poison pill, while lowercase p denotes parameters used in modeling the introduction of a poison pill.

3 Data

3.1 Sample data of firms adopting poison pills

Our sample consists of 171 cases wherein firms announced the intention to adopt poison pills between April 2005 and May 2006. Of these 171 cases, 18 are rollovers in which a company adopting a poison pill that expired within one year in 2005 was extended for another year in 2006. Therefore, the number of firms with pill defenses in our sample was 153.² This information was obtained from Bloomberg News and primary source documents through correspondence. We began collecting the data from April 2005 because the first case of poison pill adoption in Japan occurred at that time. In 2005, 27 companies adopted the measure, and in 2006 the number of companies that adopted poison pills increased to 144 including rollovers from previous years in our sample period.

There are two main types of poison pill in Japan: prior warning and rights plan. The prior warning type is a rule that must be followed by a party pursuing the takeover, and breach of the rule by the acquirers leads to the actual measures, such as the issuance of new stock reservation rights. Thus, at the time of its announcement, it does not involve the actual measure. The second is the rights plan type, which involves the actual issuance of new stock reservation rights and is deemed to be a more aggressive measure. These rights are issued in advance to trust banks or special purpose corporations, and if a takeover event occurs they will be allocated to the shareholders. In Table 1, we find that most firms have adopted the prior warning type (158 cases, or 92% of the total), and only 14 firms (8% of the total) the rights plan type.

²Firms with poison pills account for about 5% of all listed firms in Japan.

As Table 1 also shows, in 96 cases out of 171 (56%) the firm obtained approval to adopt the poison pill at a general meeting of shareholders. While only 33% (nine out of 27 cases) obtained shareholder approval in 2005, the percentage increased to 60% (87 cases out of 144) in 2006.

====Table 1 =====

Some characteristics of firms with poison pills are shown in Tables 2–4. Financial data used here were obtained from Bloomberg and QUICK AM-SUS, and the data about board members from Toyo-Keizai’s *Yakuin Shikiho* (Japanese company board handbook). Table 2 shows the market capitalization of the 153 companies that adopted pills. The average market capitalization of the sample firms was 290 billion yen, whereas that of the average listed firms was 145 billion yen.³ The difference in market capitalization between sample firms and the average for listed firms is statistically significant at the 5% level. This difference can be attributed to the level of cost tolerance toward introducing takeover measures. Within sample firms, the average market capitalization of firms that adopted poison pills in 2005 was 420 billion yen, and that of firms that adopted pills in 2006 was 262 billion yen.

====Table 2 =====

Table 3 compares the price-to-book ratio (PBR) for the sample and listed firms.⁴ The mean PBR of the sample firm is 1.785 and that for all listed firms

³The listed firms consisted of all Japanese firms excluding REITs and investment funds listed on any of the Japanese equity markets. The market capitalization data are as of the end of May 2006.

⁴PBR data are as of the end of May 2006, and 21 firms were excluded because they did not have proper BPS data following mergers, etc.

is 2.258. This suggests that low-valued firms introduce poison pills as an antitakeover measure, although the difference is not statistically significant. The lower the valuation of a firm, the greater the potential risk of being taken over by a hostile company or funds, and this may be one reason to use poison pills as an antitakeover measure.

===Table 3 =====

Table 4 shows the industry distribution of firms with poison pills. The highest number of firms adopting pills are in the information and communication sector; 16 firms or 10.5% of all the sample firms adopted poison pills. This sector is regarded as an active M&A sector in Japan, and it is among the top five M&A sectors in terms of the number of deals from 2001 to 2006. The chemical and steel sectors also show a relatively high percentage of firms adopting pills relative to the overall Japanese equity market. Because the economies of scale are relatively large and global reorganization through M&As is occurring in these sectors, managers may see a greater necessity for antitakeover measures.

===Table 4 =====

3.2 Unconditional announcement effects of poison pill

To evaluate the wealth effect of poison pills in Japan based on the private information hypothesis, we first computed the one- and two-day abnormal stock returns after the announcements of poison pills. We used the standard market model with TOPIX as a market index. To estimate α and β , we used daily returns over a period of 270 days prior to the announcement and

ending 21 days before the announcement. This led to (3), where AR is the one-day abnormal return and CAR is the cumulative two-day abnormal return.

$$AR_{it} = R_{it} - [\alpha_{it} + \beta R_{mt}], CAR_{it} = AR_{it} + AR_{it+1} \quad (3)$$

Table 6 summarizes the results. When we use the entire sample for the regression of the market model, we find no significant evidence for the wealth effect of poison pills. The average CAR is -0.22% and the median is -0.24%, but both are insignificant.

It should, however, be noted that most firms simultaneously announce the adoption of pills with other news, especially about earnings results and earnings forecasts. In our sample, 118 cases out of 171 announced some news that might affect the stock price, and most of the news was about earnings results and earnings forecasts. In fact, in 101 cases in our sample the adoption of pills was simultaneously announced with earnings results news.⁵ To control for these effects, we calculated the growth rate of profit for the previous fiscal year (*PG*) and the forecasted growth rate of the profit for the fiscal year of the announcement (*FG*). We also created a dummy variable, *POSN*, equaling one if a firm announced some other positive news for its stock price. In our sample, 11 positive news announcements, such as dividend increases, were observed.⁶ Table 5 summarizes the data on news associated with the adoption of pills.

===Table 5 =====

To exclude the effects of these confounding events on the stock price, we

⁵In Japan, companies announce their fiscal year forecasts for the following year along with the results of the previous fiscal year.

⁶Furthermore, six cases out of 171 announced news about earnings revision.

calculated the excess returns for cases free of confounding events (a clean sample) in Table 6. Then, we found that both the one-day abnormal return (AR) and the average CAR are negative at the 5% significance level. For 51 clean sample cases, the average AR was -0.80% with a t-statistic of -2.29 , which is statistically significant. For 52 cases, the average CAR is -1.50% with a t-statistic of -2.50 , which is statistically significant. These negative effects suggest that the stock market negatively responded to the announcement of a poison pill regardless of the reason each firm adopted it.

===Table 6 =====

3.3 Governance characteristics of sample firms

The empirical test for the conditional event study requires us to specify a set of variables X that determines the market's expectations about forthcoming introductions of poison pills. Because we focus on the managerial private information revelation hypothesis, we mainly construct variables related to corporate governance structures for managers.

Because the adoption of poison pills is basically determined by a corporate board, the CEO's influence on that decision-making process is one of the most important factors for the corporate governance structure to consider. Then, as a proxy for the degree of dictatorship of the manager in the boardroom, we used the tenure of the CEO, defined here as the length of time the CEO has been a board member. We anticipate that the longer the tenure of the CEO, the more the CEO obtains political power to entrench him/herself. In fact, Bebchuck, Grinstein and Peyer (2006) show that fortuitous grants of stock options were more likely to occur when the CEO had longer tenure, and insisted on the importance of the CEO's tenure for corporate governance. Furthermore, as a proxy for the degree of alignment of interest between

a CEO and shareholders, we used the percentage of stock ownership by a CEO. We expect that the larger the percentage of ownership by the CEO, the more that CEO's potential to be shareholder-interest oriented.

We also used the percentage of outside directors as another proxy for the degree of dictatorship by the CEO. Brickley, Coles and Terry (1994) insist that when the board has a majority of outside directors, the adoption of a poison pill is good news for shareholders since the poison pill extracts the highest possible price from the bidder. A limited percentage of outside directors reduces the political power to increase shareholder interests if there is a conflict between entrenched management and shareholders.

Furthermore, as a proxy for the degree of the threat of takeover, we use the percentage of stock ownership by foreign investors because they are regarded as more active compared with other domestic shareholders. In fact, Iwatsubo and Tonogi (2006) show that larger ownership by foreign shareholders increases firm value in Japan. Here, to create this variable, we first select the firms if the ownership ratio of foreign investors is more than the median of the total sample. From these firms, we allocate a value of one to firms with less than 33% ownership by foreign shareholders, or otherwise zero. Under Japanese Commercial Law, a shareholder who owns more than 33% of all shares in one firm has veto power over important managerial decisions at shareholder meetings. This means that a shareholder with more than a 33% shareholding can commit to a managerial decision. This is the reason why we use 33% as a threshold. Foreign investors with less than 33% shares are expected to have a higher probability of accepting TOB offerings from a bidder, because they do not have the power to control decision-making by the target firm. In other words, the manager of the potential target firm of the hostile TOB might be more threatened by a successful TOB when

the foreign investor has a larger proportion, but less than 33% of the shares. Thus, managers are more likely to adopt poison pills to entrench themselves.

To further control the likelihood of being the target of hostile takeover, we use the net debt to total asset ratio. Net debt is defined as the total interest-bearing debt minus cash equivalent, and the net debt to total assets is calculated by dividing the net debt by the total asset. Hence, if this number is negative, that means the firm has more cash equivalent than interest bearing debt. As Xu (2006) shows, the firm with more internal funds and less growth opportunity is more likely to be the target of a takeover from an activist fund, and one-third of firms that become the target of such activist funds adopted the antitakeover measure. Therefore, we expect that the CEO of a firm with a larger internal fund is more likely to adopt a poison pill to entrench him/herself or to keep long-term shareholder value.

Data used for making these variables were obtained from Bloomberg News, QUICK AMSUS, and Toyo-Keizai's *Yakuin Shikiho* (Japanese company board handbook). In terms of the accounting data, for firms that adopted pills from April 2005 to March 2006, we used 2004 fiscal year data, and for firms that adopted pills from April 2006 to May 2006, we used 2005 fiscal year data. In terms of corporate governance data, we used 2004 fiscal year data.

4 Control Firms and Descriptive Statistics

4.1 Making control firms

To evaluate the effect of corporate governance variables on the decision to adopt poison pills, we used two measures: (1) comparison between the firms with poison pills and a set of control firms, and (2) comparison between the

firms with poison pills and other listed firms on the Tokyo Stock Exchange (TSE).

For the first measure, we constructed two types of control firms. To make the first control group, each firm that adopted poison pills was matched with a nonadopting firm with a similar PBR and similar market capitalization. The firm with the nearest PBR within 70%–130% of the market capitalization of the firm was chosen as the control firm from the overall Japanese non-pill-adopting firms listed on the Japanese stock market (called “control firm group A”).

The second control group (called “control firm group B”) is made up of firms from the same industry. The industry code is defined by the TSE with 33 industries. A firm with the same industry code and the nearest PBR within 70%–130% of the market capitalization of the sample firm was selected.

We used the data from the end of March 2005 to select control firms that had adopted poison pills from April 2005 to September 2005. For firms adopting poison pills from October 2005 to March 2006, we used the data from the end of September 2005, and for firms adopting pills from April 2006 to May 2006, we used the data from the end of March 2006. For the control firm group B, 10 firms were dropped from the sample as there were no proper matching firms.

4.2 Descriptive statistics of sample and control firms

Table 7 shows descriptive statistics for accounting information, valuation information, board characteristics, and ownership structure of the sample firms with poison pills and two control firms. The table shows that the mean and median of net debt to total assets for the firms with poison pills is –5.0%

and -3.4% , respectively, while that of the non-pill-adopting firms is -4.9% and -2.2% for the control firm group A, and -3.6% and -1.7% for the control firm group B. The firms with poison pills have more cash equivalent on their balance sheets, and this is consistent with the fact that most of the target firms of the activist funds have more cash on their balance sheets (Xu 2006). Similarly, the average and median equity ratio of the firms with poison pills is significantly higher than that of the control firms. The firms with less leverage tend to adopt poison pills. In terms of profitability, we find no particular difference between firms with poison pills and others.

Regarding the corporate governance variables, the mean and median of the CEO's tenure in the pill-adopting firms is 14.0 and 12.5 years respectively, which is longer than that of the matching firms, as the control firm group A is 12.2 and 10.0 years, and the control firm group B is 13.4 and 11.0 years. These differences are significant. The tenure of the CEO in the firms with poison pills is significantly longer than that of the firms with no pill. If the CEOs with longer tenure have more political power in decision-making in the board, as is supposed in the literature, this result suggests that a weak corporate governance mechanism increases the possibility of managerial entrenchment enforced by adoption of poison pills.

The percentage of outside directors does not present a large difference; the mean for the pill-adopting sample firms is 24.7% , while the control firm group A is 24.9% , and the control firm group B is 26.3% . Similarly, we cannot find any remarkable difference between the firms with pills and firms without pills for other variables. In the next section, we first examine the effect of these corporate governance variables on decisions to adopt poison pills, and secondly, we investigate the effect of private information revelation on the stock price through the behavior of adopting a poison pill.

====Table 7 =====

5 Regression Analysis

5.1 Decision to adopt poison pills

We first examine whether the corporate governance factor influences the adoption of poison pills using the following specification:

$$\begin{aligned} POI_i = & \theta_0 + \theta_1 \times (\text{Net debt})_i + \theta_2 \times (\text{Fowner})_i + \theta_3 \times (\text{CEO tenure})_i \\ & + \theta_4 \times (\text{Ratio of outside director})_i \\ & + \theta_5 \times (\text{Share of CEO})_i + \psi_i \end{aligned} \quad (4)$$

where POI_i is a dummy variable that takes the value of unity if the firm adopts a poison pill and zero otherwise.

Panel A of Table 8 reports the probit estimates. The first column of results reports the probit estimates for the sample using control firm group A, while the second column reports the results for the sample using control firm group B. Looking at the result of column 1, the coefficient for foreign investors is positive and significant; firms with higher foreign stock ownership are more likely to adopt poison pills. This means that managers feel a larger threat from the successful TOB if a foreign shareholder has a large block of shares (more than the median, but not exceeding 33%), and this encourages managers to adopt poison pills.

====Table 8 =====

The coefficient of CEO tenure is positive and significant, which suggests that a manager with longer tenure tends to adopt pills more often. Because

managers who are in that position for longer periods tend to have more power to make independent decisions, this result shows that the tendency of managers to entrench themselves using poison pills is higher for dictator type managers.⁷

The probit models in columns 1 and 2 do not control for the performance of the sample firms, but it is highly possible that a firm with poor performance has a larger incentive to adopt poison pills because lower stock prices caused by poor performance make it easier to engage in hostile TOBs. To account for these possibilities, we split firms into those for which ROA is higher or lower than the median of all sample firms, and perform the same regression. Column 3 of Table 8 shows the estimation results for the firms with better performance, while column 4 of Table 8 shows the results for firms with poor performance. Both estimations use control firm group A as the sample firms. Similarly, in column 5, we use firms with better performance measured by ROA in the control firm group B, while in column 6 we show the estimation results for poorly performing firms compared with the control firm group B.

Comparing the results between good firms and bad firms in terms of performance, we find that the coefficient for CEO tenure is significantly positive only for the firms with poor performance. Whether we use the control firm group A or the control firm group B, we find similar results for CEO tenure. This provides further evidence that the managers with more power in the boardroom with longer tenure try to entrench themselves using poison pills. Especially, when the firm is performing poorly, the manager feels more pressure to entrench. This result is consistent with the evidence from the U.S. that managers with longer tenure tend to behave badly from the viewpoint of shareholder-value maximization (Bebchuck, Grinstein, and Peyer 2006).

⁷Using larger sample, Takizawa, Tsuru and Hosono (2007) finds that a firm with higher cross-shareholding ratio tends to adopt a poison pill in Japan.

5.2 Conditional event study results

To test the private information revelation hypothesis, we estimate the second-pass regression of Equation (2). We can write the equation as:

$$\begin{aligned} E(\text{AR}_i|P) = & C + A_1 \times PG_i + A_2 \times FG_i + A_3 \times POSN_i \\ & + \beta_p \lambda_p(\theta'_p X_i) \end{aligned} \quad (5)$$

where λ_p denotes the inverse Mills ratio for adopting poison pill announcement P, consistently estimated by using the probit estimates from the equation for the parameter θ . As Nayak and Prabhala (2001) explain, the equation is estimated by OLS with standard errors adjusted along the lines of Heckman (1979). Panel B of Table 8 reports the estimates. Here, we control for the effect of the announcements about past performance, forecasted future performance and some other positive news for stock price, because the response by the market to this information might offset the effect of poison pill adoption.

As is shown in panel B of Table 8, the slope of the coefficient β_p is significantly negative whichever sample firm we use. These results are consistent with the information revelation hypothesis. That is, private information about a manager's preference is revealed by adopting a poison pill. Therefore, the market accepts that information as a negative signal in terms of corporate governance.

Furthermore, we find that β_p is significantly negative only in the cases of firms with poor performance whether we use control firm group A or control firm group B as a sample. Comparing the results in columns 3 and 4, we find that only β_p of the regression using the firms with poor performance is significantly negative. We find similar results even if we use control firm group

B as a sample. Therefore, the stock price decreases with the announcement of the poison pill when the firm is performing poorly, and the stock price does not respond to the news when a better-performing firm adopts a poison pill.

Based on the information revelation hypotheses, we suggest that the market accepts the information about adopting a poison pill as a bad signal for shareholder wealth when the firm is performing poorly. Market participants confirm the tendency for managers to entrench themselves against the hostile TOB using poison pills, especially in firms with poor performance. On the other hand, the adoption of poison pills by firms with better performance does not cause the investors concern.

We find that CEOs with longer tenure tend to introduce poison pills when the firm is performing poorly. As we discussed above, information about corporate governance structure is publicly available, and the market assesses the seriousness of the conflict of interest between a manager and shareholders by examining this information. Thus, the above results show that market participants confirm their assessments of corporate governance by accepting the news that the firm has adopted a poison pill and adjust their evaluation of the agency cost, which decreases the stock price when the firm's performance worsens.

5.3 Robustness test

For a robustness test of the above results, we performed the same analysis using all firms listed on the stock market. Instead of using control firms to estimate the poison pill adoption decision, we used all listed firms that have no poison pills as comparable firms to the firms with poison pills.⁸ The

⁸Because we could not obtain information about CEO tenure and the ratio of CEO shareholdings, we excluded the sample firms listed on JASDAQ.

results are shown in Table 9.

====Table 9 =====

Panel A of Table 9 reports the probit estimates. The first column of the results reports the probit estimates for all sample firms. Here, we include a log of total assets to control the size effect. We, in fact, find that larger firms tend to adopt poison pills because firms must pay fixed costs for adopting the pills. The coefficient for foreign investors is again positive and significant; firms with higher (more than the median, but not exceeding 33%) foreign stock ownership are more likely to adopt poison pills, which again suggests that the threat of takeover forces managers to adopt the pills. On the other hand, the coefficient for the shares of CEOs is significantly negative and its magnitude is relatively large compared with the shares of foreign shareholders. We have two alternative interpretations for this negative coefficient. One interpretation is that the agency problems between CEOs and shareholders become less serious if the CEO has more shares. Another is that the probability of a hostile TOB is smaller when the CEO has a larger share, and the CEO does not need the poison pill to obtain bargaining power in the TOB or to be entrenched against the hostile bid. We find the tenure of the CEO is significantly positive even if we use all the listed firms as the sample.

Then, we divided the sample into two groups based on ROA and performed the same regression in columns 2 and 3. In column 2 of panel A in Table 9, we show the probit result for the firms with ROA higher than the median of the total sample. In column 3, we show the probit result for the firms with ROA lower than the median of the total sample. The tenure of the CEO is significantly positive when the firm is performing poorly. This is consistent with the results we obtained in Table 8. A CEO with longer

tenure adopts a poison pill when performance is poor, and not when it is good. Supposing that the CEO with longer tenure has more power over the board and can be regarded as being of the dictator type, the purpose of the adoption of the poison pill is to entrench him/herself.

We find that the coefficient of the share of foreign ownership is significantly positive when the firm is performing better. This result shows that the firm is more likely to adopt a poison pill when it has foreign block shareholders, at least when its performance is good. The presence of block shareholdings by foreign investors drives Japanese managers to adopt poison pills because they feel more threatened by the market for corporate control. Furthermore, we again find that the effect of shares held by the CEO is significantly negative in both regressions.

We performed the same OLS regression to examine the hypothesis that the market responds to the announcement of poison pills because their adoption reveals the managerial tendency for entrenchment, and panel B of Table 9 reports the estimates. First, we again find the announcement of the past performance or performance projection significantly affects the CAR.

Then, we find a negative and significant result in the coefficient of β_p when we use the entire sample. Looking at the results in columns 2 and 3, we find again that the coefficient of β_p is significantly negative only when the firm is performing poorly. This is the same result as when we use control firms for the first-stage probit analysis. These results suggest that the stock price declines in response to the announcement of the poison pill only when the firm's performance is poor. The poison pills for the firms with poor performance then have a negative wealth effect for the shareholders.

In the above probit model, we find that CEOs with longer tenure tend to adopt poison pills only when the firm is performing poorly. Combining these

two results in panel A and panel B again suggests that investors in the stock market fully confirm their expectation that a manager with longer tenure has a stronger tendency to entrench him/herself by observing the fact that he/she has introduced the poison pill when the firm's performance is poor.

6 Conclusion

This paper presented evidence using Japanese cases that the adoption of poison pills itself reveals private information about the preferences for managerial entrenchment to the stock market. We find that this private information revelation effect is the reason for stock price declines upon the announcement of pill defenses, especially when firms are performing poorly. Based on the fact that a firm has adopted a poison pill, the stock market confirms that the manager wants to entrench him/herself.

We also find that the tenure of the CEO plays a key role in the adoption of poison pills. Especially, we find that a CEO with longer tenure is more likely to adopt a poison pill when there is a threat of a takeover and the performance of the firm is poor. These results are consistent with the prediction that the CEO has more power to control the board if he/she is in that position for a longer period. The adoption of a poison pill by the CEO with longer tenure and poor performance should be treated as a negative signal from the viewpoint of the shareholders' value maximization.

References

- Acharya, Sankarshan (1988) “A Generalized econometric model and tests of a signaling hypothesis with two discrete signals,” *The Journal of Finance*, Vol. 43, pp. 413–429.
- Bebchuck, Lucian Arye, John C. Coates, and Guhan Subramanian (2002) “The powerful antitakeover force of staggered boards: theory, evidence, and policy,” *Stanford Law Review*, Vol. 54, pp. 887–951.
- Bebchuck, Lucian Arye, Yaniv Grinstein, and Urs Peyer (2006) “Lucky CEOs.” John M Olin Center for Law, Economics, and Business, Discussion Paper no. 566, Harvard University.
- Brickley, James A., Jeffery Coles, and Rory Terry (1994) “Outside directors and the adoption of poison pills,” *Journal of Financial Economics*, Vol. 35, pp. 371–390.
- Coates, John C. (2000) “Takeover defenses in the shadow of the pill: A critique of the scientific evidence,” *Texas Law Review*, Vol. 79, pp. 271–382.
- Comment, Robert and G. William Schwert (1995) “Poison or placebo? Evidence of the deterrence and wealth effects of modern antitakeover measures,” *Journal of Financial Economics*, Vol. 39, pp. 3–43.
- Cremers, K. J. Mertijn and Vinay Nair (2005) “Governance mechanisms and equity price,” *The Journal of Finance*, Vol. 25, pp. 2589–2894.
- Gompers, Paul, Joy Ishii, and Andrew Metrick (2003) “Corporate governance and equity prices,” *The Quarterly Journal of Economics*, Vol. 118, pp. 107–155.

- Heckman, James (1979) "Sample selection as a specification error," *Econometrica*, Vol. 47, pp. 153–161.
- Heron, Randall A. and Erik Lie (2006) "On the use of poison pills and defensive payouts by takeover targets," *Journal of Business*, Vol. 79, pp. 1783–1807.
- Iwatsubo, Kentaro and Konomi Tonogi (2006) "Foreign ownership and firm value: Identification through heteroskedasticity (in Japanese)." Center for Economic Institutions Working Paper Series No.2006-13, Hitotsubashi University.
- Li, Kai and Nagpurnandand R. Prabhala (2007) "Self Selection Models in Corporate Finance," in B.S. Eckbo ed. *Handbook of Corporate Finance*, Vol. 1: North-Holland, pp. 37–86.
- Nayak, Subhankar and Nagpurnanand R. Prabhala (2001) "Disentangling the dividend information in splits: A decomposition using conditional event-study methods," *Review of Financial Studies*, Vol. 14, pp. 1083–1116.
- Takizawa, Miho, Kotaro Tsuru, and Kaoru Hosono (2007) "Motivation for adopting anti-takeover method :the empirical investigation of the managerial entrenchment hypothesis(in Japanese)." RIETI Discussion Paper Series 07-J-033.
- Xu, Peng (2006) "Which firm is the target of hostile takeover?(in Japanese)." RIETI Discussion Paper Series 06-J-008.

Table 1 Takeover defense measures of 171 cases adopted from April 2005 to May 2006 classified by type, year, and shareholder approval

The prior warning type is a rule that must be followed by a party pursuing a takeover, and breach of the rule by the acquirers leads to the actual measures, such as the issuance of new stock reservation rights. The rights plan type involves the actual issuance of new stock reservation rights. These rights are issued in advance to trust banks or special purpose corporations, and if the takeover event occurs they will be allocated to the shareholders.

	Total	Year	
		2005	2006
Prior warning type	158	21	137
With shareholders approval	84	4	80
Without shareholders approval	74	17	57
Rights plan type	14	7	7
With shareholders approval	13	6	7
Without shareholders approval	1	1	0
Total types	171	27	144
With shareholders approval	96	9	87
Without shareholders approval	75	18	57

Table 2 Distribution of market capitalization

The sample period is from April 2005 to May 2006. ***, **, * and * denote a significant difference between all listed firms and sample firms at 1%, 5%, and 10% level, respectively.

Market Cap.(billion yen)	All listed firms		Sample		2005		2006	
	Number of firm	% of Total	Number of firm	% of Total	Number of firm	% of Total	Number of firm	% of Total
Over 1,000	110	3%	10	7%	3	11%	7	6%
1,000-500	105	3%	10	7%	1	4%	9	7%
200-500	204	5%	25	16%	2	7%	23	18%
100-200	277	7%	19	12%	1	4%	18	14%
50-100	360	9%	29	19%	8	30%	21	17%
Below 50	2,826	73%	60	39%	12	44%	48	38%
Total	3,882	100%	153	100%	27	100%	126	100%
Mean Market Cap.(bil. yen)	145		290 ***		420 *		262 *	

Table 3 Distribution of price to book ratio (PBR)

The sample period is from April 2005 to May 2006. Twenty one firms are dropped from the market data calculation because of mergers, etc. ***, **, and * denote a significant difference between all listed firms and sample firms at 1%, 5%, and 10% level, respectively.

PBR	All listed firms		Sample	
	Number of firms	% of Total	Number of firms	% of Total
Over 2.5	844	22%	30	20%
2.0-2.5	345	9%	14	9%
1.5-2.0	538	14%	40	26%
1.0-1.5	879	23%	37	24%
0.5-1.0	1,097	28%	31	20%
Below 0.5	158	4%	1	1%
Total	3,861	100%	153	100%
Mean PBR	2.258		1.785	

Table 4 Distribution of industries

	All listed firms		Sample	
	No. of Company	% of Total	No. of Company	% of Total
1 Fish, Agriculture & Forestry	11	0.3%	1	0.7%
2 Mining	7	0.2%		0.0%
3 Construction	220	5.7%	2	1.3%
4 Foods	156	4.0%	9	5.9%
5 Textiles & Apparels	82	2.1%	5	3.3%
6 Pulp & Paper	29	0.7%		0.0%
7 Chemicals	219	5.6%	14	9.2%
8 Pharmaceutical	52	1.3%	4	2.6%
9 Oil & Coal Products	14	0.4%		0.0%
10 Rubber Products	21	0.5%		0.0%
11 Glass & Ceramics Products	75	1.9%	2	1.3%
12 Iron & Steel	56	1.4%	7	4.6%
13 Nonferrous Metals	42	1.1%	3	2.0%
14 Metal Products	100	2.6%	5	3.3%
15 Machinery	247	6.4%	11	7.2%
16 Electric Appliances	308	7.9%	13	8.5%
17 Transportation Equipment	106	2.7%	5	3.3%
18 Precision Instruments	52	1.3%	4	2.6%
19 Other Products	117	3.0%	10	6.5%
20 Electric Power & Gas	25	0.6%	1	0.7%
21 Land Transportation	66	1.7%	9	5.9%
22 Marine Transportation	18	0.5%	2	1.3%
23 Air Transportation	6	0.2%		0.0%
24 Warehousing & Harbor Transportation Services	43	1.1%	1	0.7%
25 Information & Communication	346	8.9%	16	10.5%
26 Wholesale Trade	392	10.1%	8	5.2%
27 Retail Trade	382	9.8%	8	5.2%
28 Banks	98	2.5%		0.0%
29 Securities & Commodity Futures	40	1.0%	1	0.7%
30 Insurance	10	0.3%		0.0%
31 Other Financing Business	59	1.5%		0.0%
32 Real Estate	127	3.3%	1	0.7%
33 Services	355	9.1%	11	7.2%
Total	3,881	100.0%	153	100.0%

Table 5 Descriptive statistics of the news announced with the pill adoption

	Mean	Median	Maximum	Minimum	Std.dev.	Observations
Recurring profit growth rate for last year (%)	3.2	2.3	23.8	-32.9	7.4	101
Recurring profit forecast growth rate for this year (%)	39.8	6.2	1,603.7	-76.0	188.2	101
Positive news	-	-	-	-	-	11

Table 6 Abnormal returns at announcement of adoption of poison pills from April 2005 to May 2006

We used the standard market model with TOPIX as a market index. AR denotes the mean abnormal stock return for one-day interval from the close of the announcement date to the close of trading on the first date. CAR denotes the mean cumulative two-day abnormal stock return from the close of the announcement date to the close of the trading on the second date. Clean sample is a sample of firms announced pill adoptions without confounding news events. ***, **, and * denote a significant difference from zero at 1%, 5%, and 10% level, respectively.

	Number of cases	Mean	Median
AR			
All firms	167	-0.11%	-0.31%
Clean sample	51	-0.80% **	-0.51% **
CAR			
All firms	167	-0.22%	-0.24%
Clean sample	52	-1.50% **	-1.25% ***

Table 7 Descriptive statistics of sample and control firms

The net debt to total asset is calculated by dividing the net debt by the total asset, while net debt is defined as the total interest bearing debt minus cash equivalent. The equity ratio is defined as equity capital divided by total assets. ROA is calculated by dividing recurring profit by total assets, and EBIT margin is the earning before interest and tax divided by sales. For the governance data, we collected several data potentially related to the political power of the CEO, board members, and outside shareholders. In terms of the power of the CEO (number of years as director), the age of the CEO and the CEO's percentage of stock ownership. In terms of the power of the board, we used the number of the board members and the percentage of outside directors. In terms of the power of shareholders, we used the foreigner's percentage of stock ownership. Data used for these empirical analyses are obtained from AMISUS and *Yakain Shikho* (Japanese company board handbook) of Toyo-Keizai (CEO, board of directors data and ownership figures).

For the accounting data, for the companies adopting pills from April 2006 to May 2006 we used fiscal year 2005. For the governance data, we used fiscal year 2005 data. The sample consists of 171 cases that between April 2005 and May 2006 announced the intention to adopt poison pill. The control firms A are firms with the nearest price to book ratio within 70%-130% of the market capitalization of the sample company chosen from all Japanese firms listed in the Japanese stock market. The control firms B are chosen from the same industry, and the other method is the same as the control firm A. ***, **, and * denote a significant difference between sample firms and control firms at 1%, 5%, and 10% level, respectively.

	Mean		Median		Std.dev.	
	Sample	Control Firms A	Control Firms B	Sample	Control Firms A	Control Firms B
Accounting Data						
Net debt to total asset (%)	-5.0	-4.9	-3.6	-3.4	-2.2	-1.7
Equity ratio (%)	48.9	44.9 *	49.8	47.7	42.6 *	47.7
ROA (%)	6.1	6.0	6.5	5.3	5.3	5.9
EBIT margin (%)	6.1	7.0	3.5	6.3	5.7	6.4
Governance Data						
Tenure of CEO	14.0	12.2 *	13.4	12.5	10.0 **	11.0
Age of CEO	60.0	60.5	60.8	62.1	62.6	61.7
CEO's stock ownership (%)	1.1	1.9	2.0	0.1	0.0 *	0.1
Number of board	14.0	13.5	13.6	13.0	13.0	13.0
% of outside directors (%)	24.7	24.9	26.3	22.2	23.5	23.5
Foreigner's stock ownership (%)	14.7	15.0	14.9	13.5	11.0	10.0

Table 8 Conditional announcement effects: control firms

Panel A reports the estimates of the firm's decision to adopt a poison pill between 2005 and 2006. Fowner is the dummy variable, which is one if the ownership ratio of foreign investors is more than the median of the total sample but less than 33%, or otherwise zero. Panel B reports the estimates of the regression for the conditional announcement effect. The independent variable, λ_p , is the unexpected information revealed by the adoption of poison pills and is computed as an inverse Mills ratio based on parameters estimated from a Panel A probit model. ***, **, and * denote significance at 1%, 5%, and 10% level, respectively.

Model	Control Firms A 1 All		Control Firms B 2 All		Control Firms A 3 ROA Higher		Control Firms A 4 ROA Lower		Control Firms B 5 ROA Higher		Control Firms B 6 ROA Lower	
Panel A: Probit model for adopting poison pills												
Dependent variable: POI												
Independent variables	Coefficient	Std.error	Coefficient	Std.error	Coefficient	Std.error	Coefficient	Std.error	Coefficient	Std.error	Coefficient	Std.error
Net debt	-0.042	0.290	-0.118	0.304	0.796	0.470 *	-0.463	0.411	1.238	0.538	-0.798	0.425 *
Fowner	0.290	0.149 *	0.344	0.153 **	0.342	0.208	0.354	0.225	0.515	0.222 **	0.403	0.232 *
CEO tenure	0.021	0.008 **	0.010	0.008	0.003	0.011	0.042	0.013 ***	-0.008	0.012	0.027	0.012 **
Ratio of outside director share held by CEO	0.126	0.631	-0.366	0.612	-0.346	0.885	0.502	0.916	-0.981	0.881	0.091	0.887
C	-3.385	1.712 **	-2.035	1.597	-3.251	2.338	-1.668	2.854	-2.085	2.000	-1.882	2.782
R^2	-0.397	0.226 *	-0.170	0.239	-0.172	0.311	-0.777	0.342 **	0.014	0.338	-0.531	0.355
	0.031		0.024		0.041		0.069		0.056		0.058	
Log-likelihood	-203.453		-194.224		-100.736		-97.258		-93.284		-93.921	
NOB	303		287		152		151		143		144	
Panel B: Second pass regressions												
Dependent variables: CAR												
Independent variables												
PG	0.133	0.074 *	0.131	0.075 *	0.052	0.089	0.162	0.104	0.000	0.086	0.196	0.106 *
FG	0.004	0.003	0.003	0.003	-0.001	0.027	0.003	0.004	-0.002	0.027	0.004	0.004
POSN	0.046	0.018 ***	0.046	0.018 **	0.003	0.015	0.102	0.033 ***	0.003	0.015	0.109	0.032 ***
C	0.048	0.031	0.057	0.037	-0.010	0.023	0.060	0.032 *	0.011	0.017	0.055	0.036
λ_p	-0.075	0.038 *	-0.087	0.046 *	0.001	0.028	-0.097	0.042 **	-0.024	0.021	-0.093	0.047 **
NOB	150		142		71		79		67		75	

Table 9 Conditional announcement effects: all listed firms

Panel A reports estimates of the firm's decision to adopt a poison pill in 2006. Fowner is the dummy variable, which is one if the ownership ratio of foreign investors is more than the median of the total sample but less than 33%, or otherwise zero. Panel B reports estimates of the regression for the conditional announcement effect. The independent variable, λ_p , is the unexpected information revealed by the adoption of poison pills and is computed as an inverse Mills ratio based on parameters estimated from the probit regression in Panel A. ***, **, and * denote significance at 1%, 5%, and 10% level, respectively.

Model	All listed firms 1 All sample		All listed firms 2 ROA Higher		All listed firms 3 ROA Lower	
Panel A: Probit model for adopting poison pills						
Dependent variable	POI					
Independent variables	Coefficient	Std.error	Coefficient	Std.error	Coefficient	Std.error
Net debt	-0.159	0.080 **	-0.490	0.239 **	-0.104	0.083
Fowner	0.240	0.095 **	0.270	0.136 **	0.216	0.141
CEO tenure	0.027	0.014 **	0.017	0.019	0.039	0.020 *
Ratio of outside director	-0.259	0.439	-0.515	0.606	0.034	0.633
Share held by CEO	-3.462	1.264 ***	-2.535	1.321 *	-7.484	3.923 *
Size	0.154	0.031 ***	0.176	0.041 ***	0.133	0.048 ***
C	-3.509	0.357 ***	-3.687	0.503 ***	-3.338	0.533 ***
R ²	0.077		0.085		0.075	
Log-likelihood	-488.456		-254.532		-231.387	
NOB	2464		1203		1261	
Panel B: Second pass regressions						
Dependent variables:	CAR					
Independent variables						
PG	0.202	0.075 ***	0.072	0.101	0.282	0.096 ***
FG	0.014	0.007 *	0.136	0.039 ***	0.014	0.008 *
POSN	0.047	0.017 ***	-0.004	0.016	0.146	0.030 ***
C	0.062	0.033 *	0.035	0.032	0.084	0.059
λ_p	-0.038	0.017 **	-0.021	0.017	-0.050	0.030 *
NOB	137		74		63	