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The impact of firm strategy and foreign ownership on executive bonus compensation in Japanese firms

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A B S T R A C T

Building on information-processing perspectives and the Japanese contextual factors, this study investigates the relationships between firm strategy and executive bonus pay as well as the moderating role of foreign ownership on the strategy–compensation relationship in Japanese firms. We focus on R&D investment and product diversification as strategy variables and investigate their direct effects on executive bonus pay. Further, we examine the moderating effects of foreign ownership on the strategy–pay sensitivity. The results, based on a sample of the 148 largest industrial firms in Japan for the 1990–1997 period, show that both R&D investment and product diversification are positively related to executive bonus pay. Our findings also indicate that foreign ownership negatively moderates the relationships between the strategy variables and executive compensation, suggesting that foreign investors play an active monitoring role, reducing cash bonus payments when their invested firms choose to increase R&D or pursue diversification strategy.

Keywords:

Corporate governance
Firm strategy
Executive compensation
Information-processing perspective
Ownership structure

1. Introduction

Executive compensation is considered as one of the most important mechanisms to align the interests of managers and shareholders. A large number of studies have examined its determinants and performance effects. The most researched question in this area has been the link between executive compensation and firm performance ([Barkema and Gomez-Mejia, 1998](#)). The major antecedents of executive compensation examined so far include corporate governance factors such as ownership structure, board of directors, remuneration committee, etc. as well as firm strategy ([Balkin and Gomez-Majia, 1990](#); [Tosi and Gomez-Mejia, 1989](#); [Firth et al., 2007](#)). The majority of these studies have been carried out in the U.S. context. This may be mostly attributed to the fact that while many U.S. firms have been using performance-based executive pay such as stock options extensively, firms in other countries have been slow to do so. Recent years have seen a gradual diffusion of performance-based compensation to other countries ([Fiss and Zajac, 2004](#); [Sanders and Tuschke, 2007](#)). However, there has hardly been any empirical examination of the effects of either corporate governance or firm strategy on executive pay in non-U.S. contexts so far. Further, there is a view that the principal–agent approach that is so widely used in the

U.S. to investigate the determinants of executive compensation may not be appropriate in international research, because it ignores the differences in institutional contexts across countries ([Buck et al., 2003](#); [Bruce et al., 2005](#)).

This study attempts to address these gaps in the literature by investigating the strategic and governance determinants of executive compensation in the Japanese context. In this study, we examine the relationship between two important strategic decisions of firms—R&D investment and diversification—and executive bonus payment. The specific impact of executive compensation on R&D and diversification has been attracting increasing attention ([Gomez-Mejia, 1992](#); [Hoskisson et al., 1993](#)). R&D expenses reflect a firm's time orientation and capacity to bear risk. Diversification decisions are fundamental decisions about the scope of the firm and represent one of the major approaches to growth. While R&D expenses capture patterns in annual resource allocations, diversification reflects the cumulative impact of strategic decisions made over a period of time. Further, we investigate how corporate governance, especially shareholding by foreign portfolio investors, has any moderating effects on this relationship, because executive pay reflects choices made by owners of the firms regarding how their agents should be compensated. Given the foreign investors' focus on financial returns, we expect their presence to have a significant impact on the relationship between strategic choices by the firm and executive pay.

We believe that Japan provides an interesting research context for a number of reasons. First, Japan's institutional context is characterized by the absence of a managerial labor market as well as a market for corporate control. Second, although there are a limited number of

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studies that have examined the effects of such determinants as firm performance ([Kaplan, 1994](#); [Kato and Kubo, 2006](#)), *keiretsu* affiliation ([Kato, 1997](#)), and top executive characteristics ([Kato and Rockell, 1992](#)) in the Japanese context, there has been virtually no attempt to examine the effects of firm strategy and corporate governance on executive pay in Japan. Our study attempts to address this issue.

2. The empirical context

Traditionally, studies on executive pay have paid little attention to national differences. Increasingly, however, it is being recognized that in explaining organizational decisions and actions, institutional differences may be even more important ([Jackson and Deeg, 2008](#); [Kosaka, 2004](#)). Comparative governance research reveals that corporate governance practices vary substantially among different institutional contexts ([Buhner et al., 1998](#)). Nations also differ significantly in terms of institutional norms and legal traditions that impose constraints over what firms can do. Executive compensation practice is one area that is particularly institutionally embedded ([Bruce et al., 2003](#)). The determination of both the amount and structure of an executive's compensation is affected by institutional norms, corporate governance practices, legal restrictions, and the managerial labor market. This makes the consideration of institutional factors critical to the study of executive compensation.

2.1. Ownership structure of Japanese firms

Many Japanese firms are linked through extensive cross-shareholding arrangements with their main banks, business partners, and client firms. Further, a large portion of Japanese stocks are owned by "stable" investors ([Gerlach, 1992](#)). Stable investors own shares primarily to cement long-term stable business relationships rather than to earn a return on their stock investments ([Charkham, 1994](#); [McGuire and Dow, 2002](#)). They own shares in other firms to ensure stability in earnings and sales so that they can protect the interests of important stakeholders including employees, management, and business partners that are often members of the same *keiretsu* group ([Gedajlovic and Shapiro, 2002](#); [Nakatani, 1984](#)). Because of this "insider" oriented ownership structure, Japanese firms are able to make strategic investments for long-term competitiveness ([Porter, 1992](#)). Therefore, research on Japanese corporate governance suggests that capital markets or external market investors do not function as an effective monitoring mechanism to protect and promote the interests of shareholders who often seek short-term financial returns ([Yoshikawa and Phan, 2003](#)).

The ownership structure of Japanese corporations, however, is beginning to change, primarily due to the increasing role played by foreign and domestic market investors. Since these investors have only arm's-length relationships with firms in which they own shares, they look for higher investment returns and follow a more shareholder-oriented corporate governance model ([Jackson and Moerke, 2005](#)). In fact, several studies have found a positive association between foreign ownership and firm performance ([Miyajima and Kuroki, 2005](#)). Foreign share ownership has also been found to foster appropriate strategic investment by Japanese firms ([David et al., 2006](#)). Thus, there is growing evidence to suggest that the stable world of Japanese corporate governance may be beginning to change as a result of the growing influence of foreign portfolio investors.

2.2. Executive compensation in Japanese firms

Executive compensation of large Japanese firms usually consists of regular monthly salary and annual or semi-annual bonus. Executive salary has been traditionally determined by setting limits to total salary amount to all directors in the statutes of a corporation or in the resolution in the shareholders' meeting, and then the board meeting

approves the exact amount for each executive ([Colpan et al., 2007](#)). Although an increasing number of firms have begun to adopt performance-based pay plans in recent years, the salary component of executive pay was traditionally determined by the rank or seniority of each manager, and changes in their salaries were often linked to changes in employee wages ([Kubo, 2005](#)).

In contrast to salaries, executive bonus payments in Japan as in firms in other countries were more closely tied to performance. The bonus payment amount of executives' compensation is typically between 10 and 30% of their total salary ([Kubo, 2005](#)). Executive bonuses are often reduced or entirely eliminated in the case of poor firm performance ([Xu, 1997](#)). Until the revision of the Commercial Code in 1997 which allowed the introduction of stock options to compensate management and employees, the bonus payment was the major compensation component that was linked to firm performance. These contextual factors lead us to focus on executive bonus payments in Japanese firms during the period of 1990–1997.

3. Theory and hypotheses

3.1. Strategy and executive compensation

There is an increasing recognition in the literature that firm strategy can have a significant influence on executive compensation ([Balkin and Gomez-Majia, 1990](#); [Gomez-Mejia, 1992](#)). The case for a relationship between firm strategy and executive compensation can be made from an information-processing perspective. In the case of Japan, the precise nature of such a relationship can be derived from an understanding of institutional characteristics specific to Japan.

3.1.1. Information-processing perspective

Firm strategy is likely to be one of the key determinants of the level of executive compensation because different strategies have different levels of complexity and hence varying levels of demand for information processing ([Finkelstein and Hambrick, 1988](#); [Henderson and Fredrickson, 1996](#)). Since the ability to process complex information is a valuable resource, managers with such ability are likely to be paid higher compensation than managers who do not possess such capabilities. Prior studies show that strategies that require the CEO to process complex information tend to be associated with higher CEO compensation ([Duru and Reeb, 2002](#); [Henderson and Fredrickson, 1996](#)).

Greater R&D investment usually leads to high levels of information-processing demands on managers for three reasons. First, R&D investments are typically associated with high levels of outcome uncertainty or risk. Second, the lead times in many R&D projects are very long. Third, R&D activity may require high degrees of coordination among different departments as well as the more complex task of managing technical staff. Hence, the need to process large amounts of complex information, outcome uncertainty, long time horizons, and high overall risk lead to high levels of executive compensation.

Product diversification is another strategy that is likely to increase the information-processing demands on managers. As diversification increases the scope of the firm and hence the range of strategic decisions that managers have to make, managers' task becomes more complex. Related diversification increases interdependencies among business units and hence leads to more coordination needs ([Henderson and Fredrickson, 1996](#)). Unrelated diversification increases the information-processing demands for a number of reasons. First, the success of a conglomerate strategy hinges on the management's ability to ensure the functioning of an efficient internal capital market. Such an internal capital market would place enormous information-processing needs on the top management to choose between competing demands by divisions. Second, monitoring the performance of several unrelated businesses requires more information processing than monitoring either a single business or related businesses. Third, managing a portfolio of

unrelated businesses requires entry and exit decisions on a regular basis which would require the management to scan multiple industry environments ([Jones and Hill, 1988](#)). Hence, greater diversification leads to higher executive compensation ([Duru and Reeb, 2002](#)).

3.1.2. Japanese contextual characteristics

Although both the United States and Japan represent capitalist economies, they practice very different variations of the capitalist system. While the Anglo-American system is based on equity-based finance and dispersed shareholders, the Japanese system relies on “debt financing, concentrated shareholders, and tightly interconnected networks among firms, their trading partners, and financial institutions” ([Ahmadjian and Robbins, 2005](#): 451). Needless to say, these differences directly lead to differences in the strategic preferences and resultant resource deployments of Japanese corporations ([Neelankavil and Alaganar, 2003](#); [Porter, 1992](#)).

The considerable success achieved by Japanese corporations in post-war years is attributable, to a large extent, to sustained commitment to R&D ([Kono, 1984](#)). Commitment to R&D is reflective of both a long-term orientation and a willingness to bear risk. The ownership structure of Japanese corporations is dominated by stable investors who are by and large indifferent to short-term fluctuations in stock price. The stability of stock ownership, in turn, translates into a time perspective that is significantly longer than time horizons considered by their counterparts in North America ([Porter, 1992](#)). Similarly, life time employment and an unwillingness to change jobs in the pursuit of higher compensation also contribute to this long-term orientation on the part of Japanese executives. Considering the longer time perspectives of Japanese corporations and their willingness to live with the risk inherent in major R&D commitments, it is to be expected that reward systems of Japanese corporations would encourage resource allocation towards greater R&D.

Although the agency approach views product diversification as detrimental to shareholder value, we believe that principals in Japan have preferences different from those in the U.S. context. [Kagono et al. \(1985\)](#) found that the diversification strategy of Japanese firms is characterized by concentration on a few strategic markets, less active acquisition of new businesses, and greater hesitancy to divest questionable businesses. While the Anglo-American system emphasizes profitability over growth, the Japanese system places emphasis on growth over profits ([Ahmadjian and Robbins, 2005](#)). The explanation for such a fundamental divergence in the preferences of Japanese and American firms lies in the ownership structure of Japanese corporations. Majority of the stock in Japanese corporations is held by stable investors who also have other business relationships with the firm. These “relationship” investors make their investments in the firm not for immediate capital gains but in order to cement their relationships. Any expansion in the scope or size of the firm presents additional opportunities for business for these relational investors. The potential for relational investors to appropriate rents from diversification has been noted recently by [David et al. \(2010\)](#). We believe that given the overall preference for growth as well as the possibility of rent appropriation, relationship investors in Japan would want their managers to engage in growth through diversification and would be willing to reward them for engaging in diversification.

Finally, from the perspective of Japanese executives, it is reasonable to assume that they would prefer to receive larger cash bonus payments, because the salary component of their compensation is relatively fixed. Hence, other things being equal, those executives would have preferred to link their bonus payment to strategic decisions. Thus, based on arguments derived from information-processing demands as well as a careful consideration of the Japanese context, we hypothesize that:

Hypothesis 1. *R&D investment is positively related to executive bonus payment.*

Hypothesis 2. *Diversification strategy is positively related to executive bonus payment.*

3.2. Foreign investors, strategy, and executive bonus payment

One of the basic premises of agency theory is that goal divergence between managers and investors can be resolved through a mix of monitoring and incentive alignment mechanisms, often influenced by the interests of large owners. For example, [Tosi and Gomez-Mejia \(1989\)](#) and [Khan et al. \(2005\)](#) report relationships between ownership concentration and CEO compensation. [David et al. \(1998\)](#) found that large ownership by institutional investors was associated with lower CEO pay and stronger long-term incentives when such investors did not depend on business with their invested firms.

The Japanese institutional environment, however, is characterized by the presence of “stable” shareholders. These are primarily domestic owners who own large blocks of shares. As discussed earlier, their ownership positions are an expression of their relationship with the firm. Thus, in the past, the ownership structure of the firm had little impact in developing mechanisms that ensure shareholder value maximization. However, the rising presence of foreign portfolio investors in the Japanese capital markets since the 1990s is leading to greater recognition of the need for shareholder value maximization. Foreign portfolio investors are predominantly institutional investors from the U.S., U.K., or other European countries ([Bank of Japan, 2004](#)). Their primary objective is to maximize the returns on their investment. Since foreign investors are usually arms-length investors, they do not benefit from any commercial transactions with their invested firms as many domestic firms do ([Ahmadjian and Robbins, 2005](#)). They hold shares in Japanese firms as a part of their global portfolio to earn higher financial returns and also to diversify investment risk. Hence, it is reasonable to expect that they will exercise influence on the firms in which they invest to pursue strategies that result in higher returns on their capital ([Jackson and Moerke, 2005](#)). Foreign portfolio investors also tend to trade shares more frequently than domestic investors, which substantially affect the share price of Japanese firms. Therefore, although these investors own a relatively small block of shares, they tend to have a disproportionate effect on the strategic decisions and performance of their invested firms. Past empirical research indicates foreign ownership influences a number of firm outcomes such as performance ([Yoshikawa and Phan, 2003](#)), layoffs ([Ahmadjian and Robinson, 2001](#)), wages ([Yoshikawa et al., 2005](#)), adoption of global governance codes ([Aguilera and Cuervo-Cazzura, 2004](#)), and level of strategic investments ([David et al., 2006](#)).

Prior to the legalization of stock option compensation in 1997, executive bonus payments were the only discretionary or variable part of a Japanese executive's compensation. Salaries tended to reflect seniority and rank rather than performance. Given the constraints that salaries were more or less fixed and bore very little relationship to specific actions or outcomes on the one hand, and that incentive alignment was not possible through the granting of stock options on the other hand, cash bonus payments were the only component of compensation that could be used by return oriented investors as a lever to induce desirable actions and reward higher performance.

R&D is considered critical for the long-term competitiveness of a firm for a number of reasons. R&D is the source of product innovations and in the absence of innovations a firm may suffer competitive decline. R&D is also the source of process innovations that lead to

lower costs and higher quality. Given the potential for R&D to result in higher firm performance and hence higher stock values, investors would want to reward managers for undertaking such investments. Since bonus payments were the only discretionary part of a Japanese executive's compensation, we hypothesize that

Hypothesis 3. *Foreign ownership positively moderates the relationship between R&D investment and executive bonus payment.*

Most Japanese firms have pursued diversification as a growth strategy over the past many decades. Both the adherence to life time employment and the value placed on size and growth are considered to be the primary motivations for diversification by Japanese firms. Further, traditionally Japanese firms have followed a strategy of "retain and reinvest" rather than "downsize and distribute" (Lazonick and O'Sullivan, 2002). Domestic relationship investors had preferred a strategy of "retain and reinvest" because firm growth offered them prospects for higher payoffs through various kinds of business relationships. Foreign investors, on the other hand, are unlikely to encourage diversification for a number of reasons. First, a product diversification strategy is more complex to manage. Second, a diversification strategy makes it more difficult for the investors and the board to monitor because of its complexity due to the wide range of product areas. Third, managers can use diversification strategy to protect managerial employment (Amihud and Lev, 1981). Finally, empirical research evidence shows that conglomerate diversification actually leads to reduction in shareholder wealth (Datta et al., 1991). Investors, therefore, have an incentive to penalize managers who attempt to diversify excessively by reducing their compensation. Therefore,

Hypothesis 4. *Foreign ownership negatively moderates the relationship between diversification strategy and executive bonus payments.*

4. Methods

4.1. Sample

The sample was chosen from the 200 largest industrial firms in sales in Japan in 1987. The data were collected for the 1990–1997 period. We chose this period in order to eliminate the effects of stock options which were legalized in 1997 as a part of compensation. Further, this was a period of economic decline in Japan. After the stock markets suffered a sharp drop in late 1989, the Japanese economy experienced stagnation during the 1990s. This could have an important impact on strategies such as R&D investment and diversification as both entail high risk and great information demands on managers. We restricted the sample to publicly traded manufacturing firms. After removing the privately held firms and non-manufacturing firms, we had a complete unbalanced panel composed of 691 to 693 observations from 148 firms.

4.2. Dependent variable

As Japanese firms are not legally required to disclose the pay of individual executives, we used the total bonus payments disbursed to all directors and divided the total amount (in million yen) by the number of directors. Since the majority of directors of Japanese firms are insiders (i.e., corporate executives), we treated the director bonus as a part of executive compensation. Executive pay usually includes salary, bonus, director fees, and other perks and benefits. However, Japanese firms often adjust executive bonus payments to firm performance but not the basic salary (Kubo, 2005). Therefore, we treated the director bonus payments as performance-linked pay. Previous research (Xu, 1997) has pointed out the limitations of using average executive salaries: (1) insider directors of Japanese firms receive both salaries and bonuses as employees, executive salaries and bonuses as directors; (2) the

disclosed data include salaries and bonuses paid to outside directors who earn much less than inside directors. Despite its limitations, we follow prior studies (Kubo, 2005; Xu, 1997) in using average executive bonuses as our dependent variable.

4.3. Independent, moderator, and control variables

The independent variables include R&D investment and product diversification as strategic variables and foreign ownership as governance variable. R&D intensity was calculated as the ratio of R&D expenditures to total sales. We measured the extent of diversification using a Herfindahl index. Data for R&D intensity and diversification were collected from *Kaisha Shikiho* (Japan Company Handbook). Foreign ownership was the ratio of shareholdings by foreign portfolio investors in the total outstanding shares. We excluded foreign shareholders that are corporate owners because their investment objectives may be strategic rather than financial returns from their shareholdings. These data were collected from *Nikkei Needs*, which contains comprehensive financial and other corporate data on Japanese firms.

We controlled for *performance*, calculated as a firm's relative return on assets (ROA) as net income expressed as a percentage of total assets adjusted for the mean ROA of all the firms in the same primary industry. Debt can serve as a governance mechanism because debt reduces a firm's free cash flow. Therefore, we controlled for the monitoring effects of *debt* using a firm's ratio of total debt to total assets. We used *CEO tenure* as a control variable because long serving CEOs who tend to have more power may try to delink their bonuses to firm performance. We also controlled for *share ownership by executives* because executive ownership can narrow the agency problem between shareholders and executives. Mean of the industry level bonus (*industry bonus*) is included to control for the industry effect. We have also included the time dummy variables to control for the temporal effects. Finally, we included *ownership by financial institutions* that include banks and insurance companies, because they may have some influence on executive pay as creditors.

4.4. Analysis

The models are estimated by the General Method of Moments (GMM) implemented in Arellano and Bond (1991) for dynamic panel data. This estimation method has several properties which suit the characteristics of our sample. First, it allows us to control for unobserved individual heterogeneity, which could arise, for example, from differences in firm-specific investment practices. To address this issue, we model the unobserved firm-specific heterogeneity as an individual effect (η_i) which is thus eliminated by first differencing the variables. All models also included year fixed effects (not reported). Second, since executive compensation moves slowly to adapt to corporate strategies and vice-versa, we need to account for the dynamic partial adjustment of the dependent variable (Finkelstein and Hambrick, 1988; Henderson and Fredrickson, 1996). Furthermore, the specification of dynamic structures is strongly recommended to avoid possible autocorrelation in the models disturbances. For these reasons we included the lagged dependent variable as a regressor.

Third, when calculating first differences to remove the η_i component, it creates a negative correlation between the lagged dependent variable and the errors in the transformed equation and thus the so-called Within-Group estimation is inconsistent. Even more, endogeneity is a concern in our analysis since some of our explanatory variables (mainly those related to the ownership structure) could be correlated with the error term. Actually, prior research has emphasized the importance of modeling endogeneity by using instrumental variables for ownership structure to control for

Table 1
Correlation matrix.

	Mean	s.d.	1	2	3	4	5	6	7	8	9
1. Executive bonus	3.73	1.79	1.000								
2. Debt/assets	.32	.14	-.194	1.000							
3. CEO tenure	4.65	4.66	.049	-.167	1.000						
4. Director ownership	.67	1.64	.034	-.164	.218	1.000					
5. Financial ownership	45.29	11.50	-.038	-.061	.048	-.033	1.000				
6. Relative ROA	.33	1.52	.143	-.235	.213	.178	-.071	1.000			
7. Diversification	.37	.14	-.012	-.052	.070	.079	-.037	.075	1.000		
8. R&D	3.49	2.37	.201	-.213	-.040	-.101	.185	-.024	-.186	1.000	
9. Foreign ownership	8.39	6.54	.232	-.282	.148	.111	.113	.306	-.042	.264	1.00

possible reverse causality when explaining executive compensation but also when analyzing its relationship with either diversification (Amihud and Lev, 1999) or R&D intensity (Lee and O'Neill, 2003). To account for endogeneity, we used lagged values of the regressors as instruments of the first-differenced regressors as proposed by Arellano and Bond (1991). The resulting GMM estimator addresses these endogeneity problems by optimally exploiting these orthogonality conditions. Fourth, GMM estimation provides improved estimates in the presence of the unknown heteroscedasticity and autocorrelation that often arise in dynamic panels (Arellano, 2003).

Additionally, we centered the values of the explanatory variables by subtracting the means, to reduce potential multicollinearity in our tests of the interaction effects (Aiken and West, 1991). We examined variance inflation factors (VIF) to check for multicollinearity and found that the values were less than 2; well below the cutoff value of 10 that indicates excessive multicollinearity (Green, 2003).

Finally, since this methodology assumes that there is no autocorrelation in ε_{it} , we calculate m1 and m2 statistics for first and second order autocorrelations in the first difference residuals for all our models (see Table 2). Moreover, the Sargan test of over-identifying restrictions for the dynamic panel data model was also implemented to check the validity of the instruments.

5. Results

Table 1 shows the correlations of the variables, and Table 2 shows the results of the effects of diversification, R&D investment, and their interaction effects with foreign ownership on executive bonus pay. Table 1 indicates that none of the independent variables is highly correlated with each other. As shown in Table 2, we found support for Hypothesis 1. Our results indicate that R&D investment is positively and significantly ($p = .005$ in Model 2) related to executive bonus pay. Hypothesis 2 is also supported. We found that diversification is positively and significantly ($p = .010$ in Model 2) related to executive bonus pay.

We found that the interaction of foreign ownership and R&D investment is negatively related to executive bonus payments, where as Hypothesis 3 predicts a positive moderating effect. However, we found support for Hypothesis 4. Our results show that the interaction of foreign ownership and product diversification is negatively ($p = .005$ in Model 4) related to executive bonus payments. These results suggest that foreign investors have negative impact on executive cash bonus payments when their invested firms decide to increase R&D investment or pursue greater product diversification strategy.

Table 2
Results.

	Model 1	Model 2	Model 3	Model 4
Director bonus (lagged)	.4118442*** (.0946914)	.422377*** (.0982615)	.4577061*** (.0982449)	.5052803*** (.1018361)
Debt/assets	-3.644702*** (1.261199)	-3.824079*** (1.272253)	-2.713352** (1.304289)	-2.544059** (1.318896)
CEO tenure	-.0075405 (.0124271)	-.0083882 (.012408)	-.0076128 (.0123955)	-.0086376 (.0125481)
Director own	.0489906 (.1306461)	.047981 (.1304155)	.0729651 (.1304289)	.0640427 (.1319702)
Financial own	.0225443 (.0168185)	.0218402 (.0168662)	.0527153*** (.0182581)	.0556541*** (.0185617)
ROA relative	.123615*** (.0319937)	.1250507*** (.0323499)	.1123451*** (.0323317)	.1198542*** (.0327208)
Industry bonus	1.026839*** (.099721)	0.9984314*** (.099828)	1.023141*** (.1000009)	1.036168*** (.1011045)
Diversification		2.11051* (1.261278)	2.119451* (1.261673)	4.289343** (1.592536)
R&D sales		.1805978** (.0833534)	.1701773* (.0833606)	.3114915*** (.1011341)
Foreign own			.0913674*** (.0213479)	.2445148*** (.0546904)
Diversification* Foreign own				-.2486981** (.1012791)
R&D* Foreign own				-.0130166** (.0052342)
Constant	-1.674272 (.01083179)	-2.840859** (1.124275)	-5.78291*** (1.310766)	-7.723472*** (1.485479)
Wald	275.62 (13)	282.40 (15)	301.55 (16)	304.24 (18)
m1	-6.51	-6.13	-6.08	-6.03
m2	1.68	1.45	2.03	2.21
Sargan	269.41 (20)	278.64 (20)	263.97 (20)	249.36 (20)
No. of observations	693	691	691	691

(i) ***, **, * indicate significance at the 1%, 5% and 10% levels, respectively.

(ii) Panel data models are estimated by using Arellano and Bond (1991) dynamic panel data for Stata.

(iii) Models are estimated after taking first differences of the variables so as to eliminate the individual effect, and lags $t-1$ and $t-2$ have been used as instruments in order to control for endogeneity. Time dummies were included in the estimation.

(iv) Heteroscedasticity consistent asymptotic standard error in parentheses.

(v) Wald is a test of the joint significance of the coefficients; it is asymptotically distributed as χ^2 under the null of no serial correlation. Degrees of freedom in parentheses.

(vi) m1 and m2 are the tests of serial correlation of order 1 and 2, respectively, using residuals in first differences. They are asymptotically distributed as $N(0,1)$ under the null of no serial correlation.

(vii) Sargan is a test of the over-identifying restrictions, asymptotically distributed as χ^2 under the null hypothesis of no correlation between instruments and error terms. Degrees of freedom are shown in parentheses.

(viii) Time dummy variables are not reported for space consideration.

To provide further insights on the moderating effects of foreign ownership, we created a plot which depicts the interaction relationships between the strategy variables and directors' bonus compensation. In Fig. 1, diversification is plotted against director bonus for both the 20th and the 80th percentile, which represent low versus high levels of foreign ownership, respectively. Similarly, Fig. 2 presents the relationship between R&D investment and executive bonus compensation at the same levels (20th and 80th percentiles). According to both figures, firms that are highly monitored by foreign ownership tend to reduce their bonus payments when they increase either R&D investment or their diversification level, thus providing evidence on the monitoring effects of foreign ownership. It corroborates our results in Model 4.

6. Discussion and conclusions

We have examined the direct effects of strategy and the interaction effects of foreign ownership and strategy on executive compensation in Japanese firms. Our focus was on executive bonus payments, the only component in executive compensation that reflects firm performance in Japanese firms prior to the legalization of stock options in 1997. We found both R&D investment and product diversification to be significant predictors of executive bonus payments. These results are consistent with our argument that the Japanese contextual factors reward executives for choosing strategies for long-term competitiveness and growth. Thus, despite the lack of active managerial labor market in Japan, our results indicate that such strategies command a premium in executive payment.

The results involving the interaction effects of the strategy variables and foreign ownership support our argument that foreign portfolio investors play a significant monitoring role in the Japanese context. The results of our study indicate that the presence of foreign investors results in lower bonuses for executives undertaking diversification. The information-processing perspective would suggest that increasing diversification would lead to higher rewards for executives because of the higher information-processing needs. The empirical results, however, suggest that foreign investors prefer that their invested firms do not engage in diversification.

We had hypothesized that foreign ownership would have a positive moderating effect on the relationship between R&D investment and executive bonus payments. Surprisingly, the results of our study are contrary to our expectation. One possible

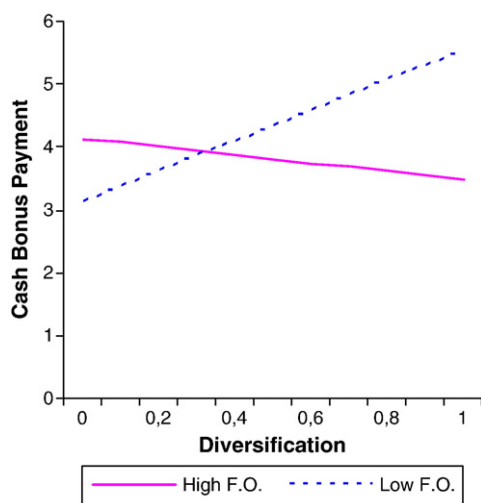


Fig. 1. Executive compensation and diversification and the moderating effect of foreign ownership. Fig. 1 plots the level of diversification (x-axis) on cash bonus payment (y-axis). "High F.O." and "Low F.O." respectively represent firms at the 20th and 80th percentiles of foreign ownership. The remaining variables in Model 4 were held constant at their means.

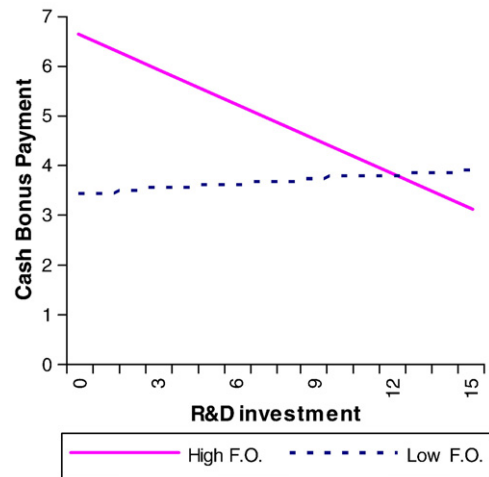


Fig. 2. Executive compensation and R&D expenditure and the moderating effect of foreign ownership. Fig. 2 plots R&D investment (x-axis) on cash bonus payment (y-axis). "High F.O." and "Low F.O." respectively represent firms at the 20th and 80th percentiles of foreign ownership. The remaining variables in Model 4 were held constant at their means.

theoretical explanation for this result may involve the appropriateness of bonus payments as a reward for R&D investments. Henderson and Fredrickson (1996) argue that since R&D is a long-term investment, often taking up to ten years before outcomes can be known and benefits are realized, short-term cash bonus is not an appropriate way to compensate executives. Further, R&D investments, because of their highly technical nature, are more difficult for outsiders such as investors to assess, because they often do not possess technological knowledge and expertise to do so. Therefore, investors are unlikely to encourage short-term cash bonus payments in such situations. In other words, our results do not warrant an interpretation that foreign investors are myopic with regard to R&D investments. Instead, they may have reservations about using short-term cash bonus payments as a means to bring about incentive alignment with regard to R&D investments that are informationally complex, long term in terms of time horizon, and of uncertain outcomes. Our findings are consistent with the agency theory argument that return-oriented investors narrow the agency problem by reducing short-term cash bonuses when executives engage in strategies with longer term payoffs.

One of the contributions of our study is that our results provide supporting evidence for the applicability of the information-processing perspective to the strategy-pay relationship in the Japanese context. When Japanese executives chose to increase R&D investment or engage in diversification strategy, their bonus payment also increased during the period from 1990 to 1997. This suggests that heavy cognitive demands on executives were compensated through larger bonus payment. This is an interesting result, because external labor market for senior executives is not as developed in Japan as in the U.S. and also because Japanese firms tend to emphasize firm-specific skills and experience. Our results imply that even in such a context, managerial human capital is valued and compensated through bonus payments.

Further, our findings suggest that the Japanese context not only encourages executives to choose long-term and growth oriented strategies, but also rewards those executives. Many studies often treat Japanese managers as one stakeholder group that balances the interests of various stakeholders such as employees and business partners (Aoki, 1988), and do not pay much attention to managerial motives. Our study shows that Japanese firms reward those managers that choose such strategies that are consistent with their long-term and stakeholder-oriented values.

While interpreting the results of this study, it is important to bear in mind some of its limitations. First, we have focused on only the 1990–

1997 period because our study was designed to eliminate the effects of stock options. However, some Japanese firms have been moving away from compensation schemes that traditionally rely on seniority and rank and have started offering stock options to their executives and employees. Hence, future studies need to examine the relationship in subsequent periods to understand the changes that may have taken place in the relationship between performance and executive compensation, possibly including stock options. Second, we used only R&D investment and product diversification as our strategy variables. We need to investigate the relationship between other strategic investments and executive compensation to see whether there are differences between them in terms of the strategy-pay sensitivity. Finally, research on executive compensation in other national contexts is still relatively limited. Given the paucity of research on compensation systems and their performance implications in non-U.S. contexts, it is imperative that future studies examine these relationships in differing national contexts and across different time periods.

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