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ABSTRACT

We examine the turnover of top executives in Japanese firms throughout the period from 1990 to 2013. During this time, the presence of a main bank has been weakened, the ownership of institutional investors has dramatically increased, and independent outside directors have been introduced in many firms. We find that top executive turnover sensitivity to corporate performance has not changed, although return on equity (ROE) and stock returns displace return on assets (ROA) as performance indicators that turnover is most sensitive to. The evidence also indicates that instead of the main bank, foreign institutional investors have begun to play an important governance role in Japan. However, the main bank does not abandon its governance role. While the scope of the main bank's authority may have substantially contracted, main banks continue to perform a certain role in disciplining management.

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1. Introduction

Recently, substantial changes in corporate governance arrangement have been seen across countries. Corporate governance reforms have been enacted in most developed and emerging countries (Kim and Lu, 2013). Institutional investors have become major players not just in the U.S.; their role is rapidly growing in all developed and emerging market countries (Khorana et al., 2005). Among them, Japan might be the country that has experienced the most drastic changes.

It has long been argued that corporate governance practices commonly found in Japan differ markedly from those in the U.S. In the U.S., in the arena of corporate control, institutional investors and independent boards of directors are arguably important governance mechanisms. In contrast, the corporate governance arrangement in Japan is conventionally considered as bank centered (Aoki and Patrick, 1994). However, following the process of financial deregulation and the collapse of the Japanese bubble economy in the early 1990s, the bank-centered corporate governance system has been gradually transformed into the market-oriented system as commonly found in the U.S. (Hoshi and Kashyap, 2001; Aoki et al., 2007).

Figure 1 shows the changes in ownership structure of Japanese firms. Panel 1 shows the 25, 50 (median) and 75 percentile values for main bank ownership during the period from 1990 to 2013. Main bank ownership is used as a proxy for the strength of a firm's ties with its main bank in previous papers (for example, Gibson, 1995; Hori et al., 2006). Before the late 1990s, the extent of main bank ownership in Japan was very high, just below regulatory ceiling and stable.[1] However, after the late 1990s, main bank ownership

[1] The Japanese Anti-Monopoly Law prohibited banks from owning over 5% of a firm's outstanding equity.

began to decline dramatically, with the mean (median) bank ownership decreasing from 4.0% (4.6%) in 1998 to 2.4% (2.5%) in 2005. In addition, the spread between the 75 and 25 percentile values increased from 1.6% in 1998 to 4.3% in 2005, implying that bank-firm relationship was diversified. Panel 2 shows the 25, 50 (median) and 75 percentile values for foreign institutional ownership. In contrast to declines in main bank ownership, foreign institutional ownership began to increase sharply during the same period, from a mean (median) of 5.8% (3.2%) in 1998 to 14.0% (11.0%) in 2005. Similar to main bank ownership, the spread between the 75 and 25 percentile values increased from 7.7% in 1998 to 16.5% in 2005. Firms with large market capitalization, high liquidity and familiarity through oversea business are preferred by foreign investors, while firms with modest market capitalization and low liquidity maintain low foreign institutional ownership (Miyajima and Kuroki, 2007; Miyajima and Ogawa, 2016).

== Figure 1 about here ==

In addition, many Japanese firms reformed the board of directors in the 2000s. Traditionally, the majority of Japanese public corporations did not have outside directors on their boards. However, following the revised Commercial Code of 2003 and increasing presence of institutional investors, many Japanese firms for the first time appointed outside directors to their previously insider boards. As a result, the ratio of firms with at least one outside independent director increased from 30.5% in 2006 to 56.6% in 2013.

In this paper, we examine the impact of these changes on a primary outcome of corporate governance, the ability to identify and replace poorly performing top executives. Many previous studies show that replacing poorly performing top managers is a necessary condition for good corporate governance and the sensitivity of top manager turnover to performance as a measure of the quality of corporate governance (for example, Kaplan,

1994; Murphy, 1999; Dahya et al., 2002; Volpin, 2002; Gibson, 2003).

Our study examines top executive turnover during the period 1990 to 2013 for a sample of Japanese firms listed in the First Section of the Tokyo Stock Exchange. We divide our 24-year sample period into three 8-year sub-periods: 1990 to 1997, 1998 to 2005, and 2006 to 2013. Dividing our sample into these three sub-periods enables us to examine long-term trends in top executives turnover and how these decisions change with a weaker main bank presence, an increase in institutional investors and the appointment of independent outside directors.

A comparison of the evidence for the three sub-periods reveals that although the frequency of "normal" turnover, in which departing top executives become the company chairperson or advisory director, is almost constant, that of disciplinary "forced" top executive turnover increases significantly throughout the sample period. In fact, we find that forced turnovers represent 18.6% of all turnovers in the first sub-period from 1990 to 1997, 28.9% in the second sub-period from 1998 to 2005, and 34.1% in the third sub-period from 2006 to 2013.

In addition, we examine the sensitivity of turnover to three firm performance indicators: ROA, ROE and stock returns. Consistent with previous studies on top executive turnover in Japan, the probability of forced turnover significantly increases as ROA deteriorates, and the sensitivity is constant during all sample periods. When industry-adjusted ROA declines by one standard deviation, the probability of forced turnover equally increases by approximately 2 percent among three periods. In contrast, the relation between the likelihood of forced turnover and ROE is significantly stronger in the most recent period. The probability of forced turnover increases by 0.73 percent when industry-adjusted ROE declines by one standard deviation in the first sub-period

from 1990 to 1997. The corresponding values are 1.48 percent and 1.95 percent for the sub-periods from 1998 to 2005 and from 2006 to 2013, respectively. A similar trend is evident when stock returns serve as the performance measure. The probability of forced turnover increases by 0.71 percent when industry-adjusted stock returns decline by one standard deviation in the first sub-period. The corresponding value is 1.32 percent in the third period.

The changes in frequency of top executive turnover and its sensitivity to performance could parallel the recent trends in corporate governance in Japan, as ROE and stock return represent the interests of shareholders. Then, we examine whether the weakened presence of a main bank, increase in institutional investors and appearance of independent outside directors drive the changes in top executive turnover.

Foreign institutional investors, who have increased rapidly since the end of the 1990s, affect the performance sensitivity of forced turnover, and their influence is stronger in the most recent period. The sensitivity of forced turnover to ROE is not significantly higher for firms with high foreign institutional ownership in the first sub-period from 1990 to 1997, but it is significantly higher in the second and last sub-periods. In addition, we find that foreign institutional investors influence top executive turnover decisions through blockholding. The sensitivity of forced turnover to firm performance is significantly higher for firms with blockholding by foreign institutional investors. A similar tendency does not appear for blockholding by domestic institutional investors.

Independent outside directors, who have recently appeared on the boards of Japanese firms, began to affect turnover-performance sensitivity significantly. However, the effect is so far limited. We find that the sensitivity of forced turnover to ROA is significantly higher only if firms had three or more independent outside directors. Meanwhile, firms

that had one or two independent directors did not show any significant expected effect on executive turnover. Rather, they show the reverse effect of mitigating the ROA sensitivity to top executive turnover.

In terms of the main banks, the range of their influence has narrowed recently. In our sample, the number of firms that are highly dependent on bank loans and appoint directors from a main bank has decreased by half during the period 1990 to 2013. To capture the reduction in the range of main bank activity, we examine whether strong ties with a main bank still affect the turnover-performance sensitivity. We find that the sensitivity of forced turnover to ROA is significantly higher for firms with strong ties to a main bank than for firms without such ties in the most recent sub-period examined, 2006 to 2013.

Overall, further examination shows that the increase in top executive turnover sensitivity to ROE could be mainly attributed to the increases in foreign institutional ownership. This result indicates that instead of a main bank, foreign institutional investors have begun to play an important governance role in Japan for firms with large market capitalization, high liquidity and high overseas sales. However, the main bank does not stop playing a governance role. While the scope of the main bank's authority may have substantially contracted, main banks continue to perform a certain role in disciplining management. In addition, the result shows that independent outside directors are becoming a corporate governance player in Japan.

Our results advance the literature in two ways. First, we provide an outcome of the evolution of Japanese corporate governance in recent years. While there are numerous studies of corporate governance in Japan before the banking crisis, we are not aware of any that consider the recent evolution of the corporate governance arrangement in Japan and its outcome, particularly concerning top executive turnover.

Second, little is known about recent long-term trends in top management turnover in the era of financial globalization. The exception is Huson et al. (2001) and Kaplan and Minton (2012). They examine whether the CEO turnover sensitivity to firm performance has increased in relation to the evolution of the U.S. governance system. One advantage of the chosen Japanese setting is that the Japanese corporate governance system has recently transformed from a traditional bank-centered governance system into a more market-based system like that found in the U.S. In this setting, we find the change in performance indicators that turnover is most sensitive to.

This study is organized as follows. Section 2 provides an overview of previous research on top executive turnover, corporate performance and governance systems. Section 3 presents stylized facts on the salient features of executive turnover. Section 4 summarizes the results of the relationship between turnover and performance. Sections 5 to 7 present analyses of the influence on top executive turnover of institutional investors, independent outside directors and the main bank system. The final section presents our conclusions and discusses the implications of our analytical results.

2. Previous Research on Top Executive Turnover

Because poorly performing managers who resist being replaced are the costliest manifestation of the agency problem (Jensen and Ruback, 1983), the association between top executive turnover and performance is one of the most important indicators for determining whether corporate governance is functioning effectively. Since the mid-1980s, research in the U.S. has made advances on this issue. Pioneering studies in this research area include Coughlan and Schmidt (1985) and Warner et al. (1988) who show that management turnover is sensitive to performance. Subsequent research has aimed to

shed light on the mechanism that conveys the degree of sensitivity of top executive turnover to performance. Weisbach (1988) shows that independent boards are an important mechanism for CEO turnover. He analyzes the relationship between board composition and CEO turnover and finds that outside-dominated boards are more sensitive to poor performance in replacing their CEO than boards with predominately inside directors.

Other studies show that institutional ownership is an important mechanism for CEO turnover. Denis et al. (1997) analyze ownership structure and executive turnover and show that the probability of top executive turnover is negatively related to the ownership stake of officers and directors and positively related to the presence of an institutional blockholder. Aggarwal et al. (2011), in examining the influence of change in ownership structure on executive turnover in 23 countries, find that the increase in institutional investors increased the degree of executive turnover sensitivity to corporate performance. Parrino et al. (2003) find that the change in institutional ownership holdings is negatively related to the likelihood of CEO turnover, showing that in addition to the market for hostile takeovers and direct involvement by blockholders, the threat of exit (sale of their investment in the firm) by institutional investors affects the CEO replacement decision.

Huson et al. (2001) and Kaplan and Minton (2012) examine how the relationship between CEO turnover and firm performance has changed in terms of the evolution of the U.S. governance system. Huson et al. (2001) analyzed CEO turnover from 1971 to 1994. According to their research, while internal governance improved in the U.S. during this period, for example, through an increase in the number of outside directors and a strengthening in their role, there were also advances in external governance, such as the development of a more active market of corporate control. The authors reported that

although there was an increase in the frequency of forced CEO turnover and the recruitment of CEOs from outside of the firms, the degree of sensitivity to performance did not change. Huson et al. (2001) and Kaplan and Minton (2012) analyzed CEO turnover for a later period: 1992 to 2007. As governance had been strengthened through the Sarbanes-Oxley legislation by this time, their attention turned to the question of whether changes in the corporate governance system influenced the probability of CEO turnover. According to their analysis, there was an increase in the frequency of CEO turnover and a higher sensitivity to performance. Kaplan and Minton (2012) pointed to the increase in blockholders and the increasing independence of directors as factors contributing to these changes.

Research related to Japan has traditionally focused on the role of main banks in executive turnover. Kaplan (1994) was the first to shed light on this role. His study analyzed the relationship between executive turnover and performance in Japan and in the U.S. in the 1980s and noted that the Japanese main bank system served the same function as the market for corporate control in the U.S. Subsequent studies examined the relationship between executive turnover and performance, with Kang and Shivdasani (1995) analyzing the period 1985 to 1990, and Abe (1997) analyzing the period 1974 to 1990. Moreover, Miyajima (1998) analyzed executive turnover during five major recessionary periods between the 1950s and the 1990s. All of these studies noted that as in the U.S., when performance deteriorates in Japan, the probability of executive turnover increases, and the stronger the ties to the main bank, the higher the degree of turnover sensitivity to performance.

However, the corporate governance environment for Japanese firms has changed dramatically since the end of the 1990s. The financial deregulations in the early 1980s

allowed firms to issue corporate bonds and equity at market prices and thereby lessen traditional ties with their main banks. The financial difficulties caused by the nonperforming loan problem reduced the ability of banks to monitor and extend loans to borrowers and forced them to dissolve cross-shareholding (*Mochiai*) as is documented by Miyajima and Kuroki (2007). Parallel with financial globalization, foreign institutional investors have rapidly increased their equity holdings in Japan since the end of the 1990s. Miyajima and Ogawa (2016) show that firms with higher foreign institutional ownership are likely to have larger market capitalization, higher liquidity and higher overseas sales. In terms of board structure, the majority of Japanese public corporations did not have outside directors on their boards. In other words, boards were entirely composed of inside directors. However, after the weak economic climate of the 1990s, corporate board reform emerged as a serious issue in Japan. The amended Commercial Code enacted in 2003 reduced the personal liability of outside directors and allowed the adoption of a U.S.-style "committee system" to encourage the participation of outside directors. Institutional investors preferred firms with independent outsider directors in their investment and exercise of voting rights. In response to these developments, many Japanese firms, for the first time, appointed outside directors to their previously insider boards.[2] In this paper, we examine how these changes in the corporate governance arrangements have influenced top executive turnover at Japanese firms.

3. Top Executive Turnover: Stylized Facts

[2] Japan's Corporate Governance Code formulated by the Tokyo Stock Exchange in 2015 requires firms to have more than two independent directors based on the "comply or explain rule". After that, the appointments of independent outside directors dramatically increased. However, this paper did not examine this impact.

3.1. Sample

We randomly selected 500 firms from the First Section of the Tokyo Stock Exchange to compile two samples. Sample 1 consists of 400 firms chosen from 1,070 non-financial corporations listed as of 1990. Of these, 279 were still in existence in 2013. The attrition can be attributed to business failure, dissolution, acquisitions and mergers, and transformation into wholly owned subsidiaries. Sample 2 consists of 100 firms randomly selected from the 393 non-financial corporations that were either newly listed or had migrated their listing status on the First Section of the Tokyo Stock Exchange from 1991 to 2006. This selection procedure allowed us to compile two samples that largely reflect the distribution of firms listed on the First Section of the Tokyo Stock Exchange from 1990 to 2013. Our financial variables were basically compiled with information from consolidated balance sheets. Table 1 shows the time-series distributions of Sample 1 and Sample 2 and characteristics of corporate governance.

== Table 1 about here ==

We divided the study period of 1990 to 2013 into three 8-year sub-periods. The first period is from 1990 to 1997. In this period, the bubble economy collapsed, and banking crisis occurred. However, many firms kept ties with their main banks. Foreign institutional ownership was quite low. Table 1 shows that mean main bank ownership in 1996 is similar to that in 1990. The ratio of firms with foreign institutional ownership of 20% or more is only 4.4% in 1996. The second period is from 1998 to 2005. In this period, following banking crisis, corporate governance of Japanese firms was transformed substantially. Mean main bank ownership decreases from 4.0% in 1998 to 2.4% in 2005. In contrast, mean foreign institutional ownership increases from 5.8% in 1998 to 14.0% in 2005. The third period is from 2006 to 2013. In this period, stock ownership structure

stabilized and independent outside directors were gradually appointed. Mean main bank ownership and foreign institutional ownership in 2006 are similar to those in 2013, but the ratio of firms with independent outside directors increases rapidly from 30.5% in 2006 to 56.6% in 2013.

In examining the above three sub-periods, the aim of this study is to shed light on whether the frequency of top executive turnover and its sensitivity to performance changed, and what kind of relationship exists between such change and the evolution in the corporate governance arrangements in Japan.

3.2. Types of Top Executive Turnover

In this study, we consider the representative of corporation on financial reports as top executive. Most firms assign the president (*shacho*) to the representative. A few firms (for example, Canon Inc. or SUZUKI MOTOR CORPORATION) assign the chairman (*kaicho*) to be representative. We define top executive turnover as the situation where in a given year the top executive is replaced.

Although there are various reasons for top executive turnover, we can observe two types of turnover — normal turnover that occurs after a top executive serves for a certain period and then voluntarily resigns, and disciplinary turnover that is forced after problems arise with regard to managerial ability and low level of effort. Needless to say, governance research should pay attention to disciplinary turnover and distinguish disciplinary turnover from normal turnover.

Until now, research has devoted considerable effort to drawing this distinction. For example, U.S. studies define resignations confirmed in newspapers and other media to have been caused, for example, by declining performance as disciplinary or forced

turnover, as distinguished from voluntary, normal turnover (internal turnover), and have pursued their analyses with a focus on forced turnover. Parrino (1997) distinguishes forced turnover from normal turnover by consulting news stories in the Wall Street Journal.[3]

The standard practice for Japanese firms has been to appoint the incumbent president to the post of chairman or vice chairman after the conclusion of his tenure, as the presidency is filled by a successor promoted from within the firm. Consequently, previous studies in Japan (for example, Kaplan, 1994) assumed that if the resigning president does not take up the post of chairman or vice chairman, the turnover has a disciplinary component of some kind, and thus, the turnover is considered to be forced. However, there are some Japanese firms that have adopted a custom of not appointing a retiring president to the post of chairman or vice chairman (for example, Honda Motor Co., Ltd.). Even in such cases, the retiring president is normally appointed advisory director; therefore, when a retiring top executive does not remain as a board member, the disciplinary aspect is even more pronounced. Thus, this study defines resignations in which the top executive does not remain with the firm as a director, a status that may also include the posts of chairman or vice chairman, to be cases of forced turnover.[4] In contrast, when the resigning top executive remains on the board, the turnover is classified as normal turnover.

In addition, a different type of turnover that includes a disciplinary element would occur when the incumbent top executive loses his position because of a takeover, business

[3] Kaplan and Minton (2012) asserted that this determination could not be made from reading news stories and instead analyzed all CEO turnovers.

[4] In employing the above distinctions, it is necessary to exclude retirement triggered by death or illness. We confirmed whether such circumstances played a role by consulting newspapers.

integration or business failure. Kaplan and Minton (2012) refer to such cases as external turnover to distinguish them from cases of normal or forced turnover. External turnover was rare in Japanese firms prior to the first half of the 1990s, when there was little merger and acquisition (M&A) activity, and firms facing financial hardship were primarily rescued through private main bank bailouts. However, after the banking crisis, there was a rapid increase in delisting due to M&A and business failure. To identify external turnover, in M&A and distress cases based on Corporate Rehabilitations Law that allowed the top executives to remain (debtor-in-possession), we followed top executive turnover in such firms even after the delisting.[5] For example, when top executive turnover follows after acquisition, we consider this to be of forced nature, in contrast to cases in which there is no turnover as the top executive remains after acquisition.

When categorizing top executive turnover as normal or forced, our criteria are whether the top executive was serving as chairman, vice chairman or director one year after resigning as top executive.

3.3. Turnover Pattern: Stylized Facts

Table 2 and Figure 2 summarize top executive turnover trends for 1990 to 2013. The top executive turnover ratio for 1990 to 2013 was 14.9%, with an average turnover ratio for 1990 to 1997 of 13.5%, rising to 15.8% for 1998 to 2005, and dipping to 15.2% for 2006 to 2013. Although the turnover ratio fell somewhat in 2013, we conclude that the turnover probability has been on an upward trend since 1990.

== Table 2 and Figure 2 about here ==

[5] The number of de-listed firms for which we examined top executive turnover is 15 in period I (1990-97), 55 in period II (1998-2005) and 58 in period III (2006-2013).

Examining long-term trends in the tenure of incumbent top executives, we found that the average tenure of top executives who retired between 1990 and 2013 was 7.9 years. The length of tenure, aggregated by sub-period, declined from 8.2 years in 1990 to 1997, to 7.7 years in 1998 to 2005, and then to 6.9 years in 2006 to 2013.

Compared with the result of Kaplan and Minton (2012) that the average CEO turnover probability in the U.S. *Fortune* 500 firms between 1992 and 2007 was 15.7%, top executive turnover in Japanese firms occurred at largely the same degree of frequency. Furthermore, as Kaplan and Minton (2012) also noted that the average turnover probability in *Fortune* 500 firms increased 1.8% points, from 14.8% in 1992 to 1999, to 16.6% in 2000 to 2007, the upward trend in Japanese top executive turnover could be considered part of a global trend.

We examined type of top executive turnover and found that the frequency of forced turnover increased during our sample period. Table 2 shows that forced turnover ratio during the sub-period from 2006 to 2013 is approximately twice that during the sub-period from 1990 to 1997. In addition, the ratio of forced turnover to total turnover also increased dramatically. This ratio is 18.6% in the sub-period from 1990 to 1997 and 34.1% in the sub-period from 2006 to 2013.

4. Has the Sensitivity of Top Executive Turnover to Performance Changed?

4.1. Estimation Model

The previous section shows that top executive turnover was increasing recently. In this section, we examine how the turnover sensitivity to firm performance changes during our sample period. Using a probit model, we estimated the following standard model.

$$TURN_{i,j,t} = \mathrm{F}\ (P_{i,t}, SIZE_{i,t}, TENU_{i,t}, AGE_{i,t}, FAM_{i,t}, SUB_{i,t}, FAM_{i,t}*P_{i,t}, SUB_{i,t}*P_{i,t}) \quad (1)$$

Here, $TURN_{i,j,t}$ is top executive turnover dummy for firm i at period t, and j is comprised of total turnover, normal turnover and forced turnover. $P_{i,t}$ is corporate performance for period t, consisting of ROA, ROE or stock returns (RET). Following Kaplan and Minton (2012), we use industry-adjusted performance. Industry-adjusted performance is calculated by subtracting the industry median value of all firms listed in First Section of the Tokyo Stock Exchange operating in the same industry.

It appears that up until now, disciplining of top executive through intervention by banks (main banks) relied on performance prior to interest payments (ROA) as an indicator. Thus, previous studies show that turnover in Japan is most sensitive to earnings performance indicators. However, one issue that we will devote considerable attention to is whether, as a result of the evolution of the corporate governance system after the banking crisis, the top executive turnover sensitivity to performance shifted to ROE or stock return as indicators, which are indicators of the direct interests of shareholders.[6]

$SIZE_{i,t}$ is a variable reflecting company size of firm i for period t. The log of sales is a proxy for company size in this study. $TENU_{i,t}$ is a variable denoting the length of top executive tenure at firm i for period t and is introduced to capture the seniority-system aspect that has been said to have played a role in top executive appointments. We constructed dummy variables for length of tenure: one to two years, three to four years, seven to eight years, and nine or more years. Thus, the coefficients for the various dummy

[6] ROA = (operating profit + non-operating profit) / total assets; ROE = net income / shareholders' equity; RET = (stock price at end of fiscal year – stock price at end of previous fiscal year + dividend per share) / stock price at end of previous fiscal year.

variables are indicators of the divergence from the turnover probability of a top executive, with the benchmark tenure lasting five to six years.

$FAM_{i,t}$ is the family-run firm dummy. Saito (2008) shows that founding families are a prevalent and important class of shareholders and top executive in Japan. Generally, top executive turnover at family-run firms occurs through hereditary succession; thus, top executive tenure is long, and turnover sensitivity to performance is low. *FAM* was introduced to control for this factor. We defined a family-run firm to be a firm in which the founding family held 5% or more of shares, and the top executive is either the founder or related to the founder. We found that 15.7% of the firms in our total sample met these criteria.

$SUB_{i,t}$ is the subsidiary dummy. Because the appointment of the top executive at a firm that has another listed firm (listed holding company) as its controlling shareholder is made as part of the personnel policy of the entire group, it is assumed that top executive turnover sensitivity to performance is low under such conditions. This dummy was introduced to control for this influence on listed subsidiaries, which is considered to be a common phenomenon in Japan. A shareholding ratio of 30% held by another corporation was set as the threshold for subsidiaries. This dummy was employed for 14.1% of the firms in our sample.

The time-series distribution of the above dummy variables that indicate corporate characteristics are summarized in Table 1.

4.2. Estimation Results

The basic estimation results are shown in Table 3. The table shows the marginal effect of each variable. There are three notable points concerning the top executive

turnover in Japan.

== Table 3 about here ==

First, top executive turnover was overall significantly negatively sensitive to all of the performance indicators: industry-adjusted ROA, ROE and RET. A one standard deviation (4.1%) decrease in ROA increased the top executive turnover probability by 3.2%, which corresponds to 20% of the average turnover probability of 14.9%. Furthermore, top executive turnover had a high correlation with tenure. According to Model 1, holding all other variables in the model at their means, the probability of top executive turnover in years one or two after assuming office is 16.8% lower than the benchmark probability for a top executive in years five and six of his tenure, and the turnover probability was 7.1% lower for a top executive in years three and four of his tenure.

Second, the results for top executive turnover, when classified as normal turnover and forced turnover, are presented in Models 4 to 9 in Table 3. While normal turnover was insensitive to performance, it was significantly sensitive to the one- to two-year tenure and three- to four-year tenure dummies. However, while the tenure dummy effect was small for forced turnover, the performance indicators: ROA, ROE and RET were all significantly negative for forced turnover. For example, a one standard deviation increase in ROA produced a 2.0% increase in the probability of forced turnover, which is approximately half of the average of 4.1%.

Finally, we can confirm the influence of family succession and parent firms on top executive turnover. As is often observed, the frequency of top executive turnover is lower in family firms. The coefficient of the family-run firm dummy is negative, and the coefficient of the interaction term is positive. According to Model 1, the turnover

probability at family-run firms is 8.5% lower than it is for other firms. Furthermore, turnover sensitivity to performance (for example, -0.79 in Model 1) is largely cancelled out by the characteristics of the family-run firm (interaction term coefficient of 0.60).

In cases in which another corporation holds 30% or more shares, the constant term (Subsidiary) was significantly positive in contrast to family-run firms. However, we were not able to obtain significant results for the interaction term coefficient. At such firms, where there was a strong tendency to appoint a top executive as part of the overall personnel policy for the corporate group as a whole, the frequency of top executive turnover, compared to firms whose shares were dispersed, was estimated to be 7% higher overall, and 3% higher for forced turnover.

4.3. Period Effect and Performance Indicators

Next, we examine whether the probability of top executive turnover varied by period. In Panel 1 of Table 4, we add period dummies to equation (1) for Period II (1998–2005) and Period III (2006–2013) and report only the estimation results for the period dummies.[7]

== Table 4 about here ==

The coefficients for the period dummies are all significantly positive. When looking at all turnovers, the top executive turnover probability for Period II is 3.5% higher than for Period I and 2.7% higher than for Period III because of factors that cannot be traced

[7] The correlation between ROA, ROE and stock returns for each period are as follows:

	Period I	Period II	Period III
ROA-ROE	0.39	0.39	0.56
ROA-RET	0.23	0.19	0.29
ROE-RET	0.12	0.16	0.18

to performance and the incumbent top executive's term in office. This period effect is relatively larger for forced turnover, and when ROA is used as the performance indicator for Periods II and III, the turnover probability is 1.9% and 2.4% higher than in Period I. Because the difference in forced turnover ratio between Period I and Period III is 2.7%, this means that most of the incremental forced turnover probability is not attributed to firm performance and the period of incumbency.[8] These results show that the top executive turnover mechanism of Japanese firms has changed during our sample period from 1990 to 2013.

4.4. Did the Degree of Top Executive Turnover Sensitivity to Performance Change?

The change in the governance structure of Japanese corporations in the 1990s was triggered by the declining status of creditors as debt contracted and the rising status of shareholders as institutional investors expanded. Such changes in the corporate governance structure lead to the expectation of a shift in the performance indicators related to top executive turnover. Thus, we have estimated equation (1) above for each period to shed light on this point.

According to Panel 2 of Table 4, while the coefficient of ROA for Period III declined to almost half of that for Periods I and II for all top executive turnover, the ROE coefficient nearly doubled from -0.16 to -0.29. This trend becomes even more apparent when we turn our attention to forced turnover, where the coefficient for ROE for Period III shows less than a third of that for Period I, -0.131 compare to -0.46.[9] For capturing

[8] During our sample period, there was no large variation in the effect of seniority factors (number of years worked) for each period.

[9] To check the significance, we estimated equation based on equation (1) by adding time period dummies for Period II and Period III and the interaction term between time period dummy and firm performance. The interaction term with ROE is negative and significant at the 5% level, indicating

its magnitude, we multiply the one standard deviation of ROE by the coefficient, we find that it rises from 0.7% in Period I to 2.0% in Period III. Since a one standard deviation declines in ROA increases the likelihood of forced turnover by 1.9% in Period III, we confirmed that ROE had become an important performance indicator that forced turnover is sensitive to. Furthermore, in Period III, forced turnover becomes significantly sensitive toward stock returns. The above results are consistent with the view that the governance structure of Japanese corporations had begun to shift toward a structure that places more emphasis on shareholders.

We confirmed the robustness of the above results using the following methodology. According to previous research, including Kaplan and Minton (2012), which focused on the change in profits and not the profit level prior to turnover, we used changes in industry-adjusted ROA and ROE as performance indicators. The results are basically unchanged. The sample for this study is comprised of firms that were listed in the First Section of the Tokyo Stock Exchange as of 1990 and newly emergent firms that were subsequently listed. There is a possibility that the differences in the characteristics of these two groups of firms could determine a change between the above noted periods. Therefore, we limited our estimation sample only to existing firms (Sample 1) and ran the same regression as equation (1). We found that there were no major differences in the results regarding the rising trend in top executive turnover, top executive turnover sensitivity to performance and the shift in performance indicators from ROA to ROE and stock returns.

Overall, top executive turnover at Japanese corporations, even during the period from 1990 to 2013, was significantly sensitive to performance, and thus it cannot be said

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that change in forced turnover sensitivity to ROE is statistically significant.

that there has been a large void in corporate governance. However, we can assert that with regard to top executive turnover sensitivity to performance indicators, those indicators that directly represent the interests of shareholders, such as ROE and stock returns, have grown in importance.

5. The Role of Institutional Investors

5.1. Increase in Institutional Ownership and Top Executive Turnover

The previous section shows a change in important performance indicator for top executive turnover in Japan. In the following sections, we consider possible sources of this change: institutional shareholders, independent outside directors and main bank.

First, we examine whether institutional investors, who have rapidly increased their presence since the latter half of the 1990s, have actually influenced decision making on top executive turnover. For this purpose, we estimated equation (2) based on equation (1) by adding a variable denoting the institutional shareholders.

$$TURN_{i,j,t} = \mathrm{F}\ (P_{i,t},\ INSTI_{i,t},\ INSTI_{i,t}*P_{i,t}\ SIZE_{i,t},\ TENU_{i,t},\ AGE_{i,t},\ FAM_{i,t},\ SUB_{i,t},\ FAM_{i,t}*P_{i,t},\ SUB_{i,t}*P_{i,t}) \qquad (2)$$

The *INSTI* is a variable reflecting an institutional ownership. It is the total ownership of domestic and foreign institutional investors, of which domestic institutional investors (funds managed by trust banks and asset management) are mainly capital investors for pension funds.[10] The ownership of foreign institutional investors represents foreigners

[10] It does not include insurance firms and the share of domestic investors is not fully captured because it is based on the largest 30 shareholders list. For details, see Miyajima et al. (2015).

with the shareholdings of foreign business corporations excluded.

The ownership distribution for institutional investors and foreign institutional investors for the observation period is summarized in Table 1. The estimation results are summarized in Table 5.

== Table 5 about here ==

Panel 1 presents results for the total institutional ownership, and Panel 2 presents results for the foreign institutional ownership. The results for both panels are similar. For forced turnover, the interaction term for the institutional ownership and performance is at the 1% level of significance for ROE; a high institutional ownership or foreign institutional ownership increased the forced turnover sensitivity to ROE. When the foreign institutional ownership ratio was 20%, a one standard deviation decline in ROE led to a 0.68% (0.002 * 0.17 * 20%) increase in the forced turnover ratio.[11] Thus, the level of the institutional ownership at the beginning of the period influences the decision of top executive turnover.

Furthermore, Panel 3 presents the results obtained after narrowing the institutional investor effect down to that of foreign institutional investors and running estimations for each period. We found that there was a significant influence of foreign institutional investors on forced turnover-ROE sensitivity in Periods II and III. In Period II, with a one standard deviation decline in ROE, likelihood of forced turnover for firms with 20% foreign institutional ownership is 0.3% higher than for firms without foreign institutional ownership. Moreover, when the foreign institutional ownership was replaced with the

[11] To check the robustness, we created a dummy variable for foreign institutional ownership, which takes a value of one for firms whose foreign institutional ownership exceeds 20%. When the foreign institutional ownership was replaced in the aggregate value with the 20%+ shareholding dummy, the result was the same. The coefficient of interaction term between 20%+ shareholding dummy and ROE is positive at the 5% significance level.

20%+ shareholding dummy variable, the results were nearly identical, suggesting that the effect of foreign institutional investors on forced turnover-ROE sensitivity is stronger in more recent periods.

Overall, these results show that the increase in top executive turnover sensitivity to ROE could be partly attributed to the increases in institutional ownership. In the next subsection, we examine the mechanism that leads to higher sensitivity.

5.2. Engagement of Blockholders

A rise in the institutional ownership can influence top executive turnover when institutional investors who hold a certain level of shares exercise their voting rights or engage with the firm. Kaplan and Minton (2012) show that institutional blockholder ownership significantly increases the sensitivity of CEO turnover to stock return.

In addition, there is a possibility that the two types of blockholders — domestic institutional investors and foreign institutional investors — perform different roles in this regard. While domestic institutional investors, who may have a business relationship with the firm, may wield less influence, foreign institutional investors, who have a higher degree of independence from the firm, are able to exercise more actual influence (Ferreira and Matos, 2008; Giannetti and Laeven, 2009).

To examine the influence of blockholders, we replaced the institutional ownership with a dummy variable, which takes the value of one when a single entity institutional investor holds more than 3% ownership.[12] This analysis was made possible for the first

[12] Existing research has used a threshold value of 5% (Holderness, 2009), which is a standard that matches the reporting requirements for large shareholding reports. However, there is no clear basis for the 5% threshold, and as there is a tendency for investors to keep their shareholding ratio below the large shareholding reporting threshold, we used a threshold of 3%, the level at which the rights of minority shareholders are protected. In Japan, shareholders having more than 3% have special rights

time by using data supplied by FactSet Ownership Database. Empirical analysis up to now has not sufficiently taken into account the fact that the management of institutional investor voting rights, which increased entering the 2000s, had been delegated to trust banks and custodians (for example, the Master Trust Bank of Japan, Ltd. and for foreign institutional investors, State Street Corporation) and that most of the top shareholders on the lists of the 10 largest shareholders of firms with high institutional investor shareholding ratios were such custodians. The shareholdings of these custodians included the holdings by multiple institutional investors and thus were not an indication of the actual shareholdings of each investing entity. While caution needs to be exercised when using FactSet data,[13] which were not obtained from a comprehensive survey, they are valuable for the reporting of the ultimate holding entity, and we use such data to analyze the effect of blockholders. The estimation is for the period after 2006 when the institutional investor shareholding ratio peaked.[14]

Table 6 presents the distribution of institutional investor blockholders. Approximately 40% of the sample firms had institutional investors that held 3% or larger blocks. Of these, domestic institutional investors had invested in 23% of the sample firms and foreign institutional investors approximately 27% in 2013. We should make the following two points with regard to institutional blockholders.

== Table 6 about here ==

(for example, calling the shareholder meeting and the election of inspector of execution of operation). The incidence of ratios at 5% or higher is 19.7%, comparing to that at 3% or higher 37.9% from 2006 to 2013).

[13] FactSet Ownership Database does not cover all listed firms and all institutional investors. In Period III, FactSet covers approximately 90% of our sample observations and approximately 60% of foreign institutional investors.

[14] We have not conducted an estimation for 2005 or the preceding years because we have reservations pertaining to the FactSet's coverage of these years.

First, the ownership of institutional investors has increased, and the emergence of such outsider blockholders has been part of a major evolution since the mid-2000s, but the presence of these blockholders is still quite low when compared to the situation in the U.S. and the U.K. For example, in the U.S., where the stock ownership structure is understood to have a high degree of dispersion, and ownership of the shares of listed firms by other businesses and banks is considered to be rare, 89% of the firms on the S&P 500 report the existence of blockholders owning 5% or more of shares (Holderness, 2009).

Second, there are huge biases in the dispersion of blockholders by firm size. As emphasized in an earlier study (Miyajima and Hoda, 2015), institutional investors, and foreign institutional investors in particular, have a strong investment bias toward size and liquidity, which is confirmed in Panel 2 of Table 6. When divided into quartiles by market capitalization, 33.3% of firms in the fourth quartile (¥1.451 billion yen or more) have at least one foreign institutional investor holding 3% or more, while only 9.3% of firms in the first quartile have a foreign institutional investor holding a block of 3% or more. However, domestic institutional investors target somewhat different firms, with blockholder shareholdings the highest in the third quartile.

Estimation results are summarized in Table 7, where we replace the institutional ownership with the blockholder dummy. When we did not distinguish between domestic and foreign institutional investors and added a 3% blockholder dummy to the explanatory variable, the coefficient of the interaction term with performance was in all cases not significant. However, what is worthy of attention is that when a distinction is drawn between domestic institutional blocks and foreign institutional blocks, the results differ dramatically. These results are shown in the lower part of Table 7.

== Table 7 about here ==

The sign of the interaction term for the presence of domestic institutional blockholders and performance is positive, and when ROA is used as the performance variable, it is significant at the 5% level for both all turnover and forced turnover. This is consistent with the view that the actions of domestic institutional investors are constrained by business ties with client firms (Ferreira and Matos, 2008). In contrast, the sign of the coefficient of the interaction term for the presence of foreign institutional blockholders and performance is negative, and when ROE is used as the performance variable, the results are significant at the 5% level for both all turnover and forced turnover. The existence of foreign institutional blockholders who, unlike domestic institutional investors, are unencumbered by business ties with client firms, particularly with respect to ROE (a direct indicator of the interests of shareholders), increased top executive turnover sensitivity to performance to a statistically significant degree. Although there were only 27% of companies in which foreign institutional investors were blockholders, once foreign institutional investors possess blocks of shares, we can assume that they influence top executive turnover through the exercise of their voting rights and engagement or the threat of exit.

6. The Role of Independent Outside Directors

Traditionally, the majority of Japanese public corporations did not have outside directors on their boards. In other words, boards were entirely composed of inside directors. One of the changes in Japanese corporate governance in the 2000s has been that as board reform has led to the introduction of independent outside directors, their traditional function as management boards involved in the execution of managerial policy has gradually transformed into monitoring boards, with the primary function to monitor

management. In this section, we examine the degree of influence that appointments of independent outside directors have had on the increase in top executive turnover and changes to the performance indicators that such turnover is sensitive to in the 2000s.

We define independent outside director as an outside director who has no affiliation with bank or parent firm. Weisbach (1988) shows that gray outside directors from an entity with business dealings with the firm do not have a significant influence on CEO turnover. To check the background of outside directors, we use Nikkei NEEDS-Cges (corporate governance evaluation system). We make a dummy for firms that appointed at least one independent outside director, which takes the value of one, and a dummy for firms that appointed three or more independent outside directors, which takes a value of one. The incidence of the independent outside director dummy and the three or more independent outside directors dummy was 30.5% and 5.2% respectively for the year 2006, and 56.6% and 10.1% for the year 2013.

In our estimation model, we replaced the INSTI variable in equation (2) with an independent outside director dummy. The estimation results are presented in Table 8. Panel 1 shows the results for the presence of the independent outside director dummy and reveals that for all performances indicators, the coefficient for the interaction for independent outside directors and performance was, against our expectations, positive and partly significant. According to model 5, firms that appointed independent outside directors had top executive turnover sensitivity to performance (ROE) 30% lower than firms without independent outside directors (0.047/-0.152). There was a tendency for independent outside directors to reduce top executive turnover sensitivity to performance. This suggests that the introduction of fewer than two independent outside directors would be simply window-dressing.

== Table 8 about here ==

When we add the dummy variable for three or more independent outside directors, the interaction term between the presence dummy and ROE is still positive and significant, and the interaction term between the dummy for three or more is negative but not significant. By comparison with the coefficients, the presence dummy effect (0.053) is larger than the effect of the dummy for three or more independent outside directors (-0.037). Thus, we cannot find evidence that independent outside directors increase the sensitivity of forced turnover to ROE.

However, the interaction term between the dummy for three or more and ROA is negative at a 1% level of significance for forced turnover, indicating that forced turnover is more sensitive to ROA when boards have three or more independent outside directors than when they have only one outside director. These results suggest that the appointment of only one independent outside director not only does not increase turnover sensitivity to performance but also has a potential window-dressing effect that reduces sensitivity and that the appointment of three or more independent outside directors may increase turnover sensitivity to ROA.

To test the robustness, we also conducted the following estimations. We constructed dummy variables for cases in which firms had one, two, or three or more independent outside directors. We replaced the dummy variable for three or more independent outside directors with a dummy variable for a 30% or more independent outside director ratio and then conducted estimations for both cases. The results in all estimations were similar to those presented.

From the above results, we can conclude that the increase in top executive turnover sensitivity to ROE could not be attributed to the increases in independent outside directors.

The results also show that the relationship between independent outside directors and top executive turnover sensitivity to performance was not linear and that there were quite clear thresholds for three directors and for a board composition of 30%.

7. The Role of Main Banks

Previous research showed that main banks play the role of imposing discipline on the managers of Japanese firms. Specifically, when earnings performance declines decisively, the bank will begin initiatives for the top executive's removal (Kang and Shivdasani, 1995). However, following the process of financial deregulation and the collapse of the Japanese bubble economy in the early 1990s, the bank-centered corporate governance system deteriorated. The shift in performance indicators from ROA to ROE and stock returns might reflect the deterioration of the main bank system.

In this subsection, we examine whether main banks are still capable of disciplining management. For this purpose, we replaced the INSTI variable in equation (2) with a Main bank dummy, which shows the strong ties with main bank. To construct the main bank dummy variable, we first identify a bank as a main bank if it is designated by the client as the primary source of its banking transactions (based on the *Kaisha Shikiho* by *Toyo Keizai Shinposha*). We then check whether the main bank meets the following criteria: 1) the relationship with the main bank is stable, that is, the main bank has not changed in five years, and 2) substantial loan dependence. As a main bank relationship assumes that the client's dependency on loans from the main bank is at or above a certain level, the degree of loan dependency must be at or above the industry median for each year, and 3) directors have been dispatched from the main bank. We constructed the Main bank dummy for when all three conditions were met. The percentage of firms with a

positive Main bank dummy was 26.8% for 1990 in Period I, 23.9% for 1998 in Period II, 15.0% for 2006 and 13.0% for 2013 in Period III. The estimation results are summarized in Table 9.

== Table 9 about here ==

The forced turnover sensitivity to performance did lead to an increase limited to the ROA indicator, but the significance level was not sufficiently high. In contrast, the coefficient of the interaction term for ROE was rather positive, although not sufficiently significant, suggesting that a strong main bank relationship, in fact, reduces turnover sensitivity to ROE, which is a direct indicator of the interests of shareholders.

When examining this in each period (Panel 2), we found that the interaction term for ROE is positive and significant in Period I, indicating that a strong main bank relationship reduces forced turnover sensitivity to performance in 1990s. The diminished effect that we found in the estimations for all periods (Panel 1) was primarily a reflection of the relationship found in this first period and is consistent with the conventional understanding (Hoshi and Kashyap, 2001) that the additional financing supplied by main banks in the 1990s impeded business reorganization. In contrast, in Period II, the coefficient of the interaction term for ROA had a negative sign for both all turnover and forced turnover but was not statistically significant. In Period III, which coincided with a waning in main bank relationships, the sign of the coefficient of the interaction term for ROA was negative and statistically significant at the 10% level. These results indicate that main banks continued to influence top executive turnover even after 2006.

The above results suggest that the number of firms with intimate relationships with main banks has declined dramatically over the past 20 years, but these relationships continue to play an important role in corporate governance.

8. Conclusion

In our analysis, we explored the relationship between top executive turnover and firm performance from 1990 to 2013. Entering the 1990s, top executive turnover in Japanese firms increased. Furthermore, Japanese top executive turnover was negatively sensitive to performance to a significant degree. Therefore, in spite of skepticism on the effectiveness of corporate governance in Japan, results suggest that the relationship between a firm's declining performance and top executive turnover has not been severed over the past 20 years. In fact, the biggest change that has occurred during this period is that the performance indicator that top executive turnover is sensitive to has shifted from ROA, a measure of performance preceding interest payments, to ROE and stock returns, which are directly related to shareholder interests. This result is consistent with the evolution of the corporate governance system as seen in the dissolution of cross-shareholding, the increase in foreign institutional investor ownership, and board reform. However, it is believed that their influence is not as strong as it has been in the U.S., where CEO turnover has traditionally been sensitive to stock returns and where the degree of this sensitivity has increased in recent years.

The rapid increase in institutional ownership and in particular foreign institutional ownership since the end of the 1990s has increased not only top executive turnover but also turnover sensitivity to ROE. These results show that institutional investors have supplanted the main bank system and begun to function as a mechanism for disciplining management. In this manner, foreign institutional ownership has become an important mechanism for increasing turnover sensitivity to ROE along with blockholdings. However, it is important to pay note that the functioning of these mechanisms is limited

to firms that have large market capitalization and are well known to foreign institutional investors.

Independent outside directors play a role in increasing top executive turnover sensitivity to performance only if there are multiple appointments of such directors to a board. As to whether appointment of independent outside directors increases turnover sensitivity to performance, the estimation results here show that when only one or two such directors are appointed to a board, the window-dressing effect exceeds the management-disciplining effect. To have an actual effect on top executive turnover, the important conditions are that at least three independent outside directors be appointed to the board, or that independent outside directors must comprise at least 30% of the board.

Finally, the traditional main bank system has not been entirely deprived of its management-disciplining function. While the scope of the main bank authority has substantially contracted, main banks continue to perform a certain role in disciplining management for firms that are highly dependent on banks for loans and to which main banks have dispatched directors.

There has clearly been a change in the relationship between top executive turnover and performance between 2006 and 2013 compared to the relationship that existed prior to 1998. However, although there has been substantial change, this does not mean that top executive turnover at Japanese firms in recent years has become highly sensitive to ROE and stock returns that directly reflect shareholder value. It is probably appropriate to describe the current situation as falling somewhere between behavior exhibited by Japanese firms and U.S. firms in the past. We will have to continue to examine this situation while monitoring future developments to determine whether Japanese firms are in a transitional phase that is converging to the U.S. model of corporate governance or

whether they have achieved a new phase of stable corporate governance.

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Table 1. Corporate Governance of Sample Firms

The sample consists of 500 firms randomly selected from the First Section of the Tokyo Stock Exchange. Sample 1 consists of 400 firms chosen from 1,070 non-financial corporations listed as of 1990. Sample 2 consists of 100 firms randomly selected from the 393 non-financial corporations that were either newly listed or had migrated their listing status on the First Section of the Tokyo Stock Exchange from 1991 to 2006. When the firm has a stable relationship with a bank that it has designated as being responsible for most of its banking transactions (*Kaisha Shikiho* published by *Toyo Keizai Shinposha*), the bank is considered to be its main bank. Family-run firm is a firm in which the founding family held 5% or more of shares and the top executive is either the founder or related to the founder. Subsidiary firm is a firm in which another corporation held 30% or more of shares. Data on ownership are from the Corporate Financial Databank, compiled by the Development Bank of Japan. The information on the directors is from the *Yuka Shoken Hokokusho* (Securities Report), Nikkei NEEDS-Cges, and *Yakuin Shikiho* (Directory of Directors) published by *Toyo Keizai Shinposha*.

	1990	1996	1999	2001	2006	2009	2013	All
Sample (Number of firms)	400	413	414	443	426	401	376	9859
Sample 1	400	394	380	372	330	302	277	8466
Sample 2	0	19	34	71	96	99	99	1393
Mean family ownership (%)	3.93	4.66	5.08	6.62	6.70	6.78	6.81	5.74
Percentage of family-run firms	16.5%	16.0%	15.5%	17.2%	14.6%	13.5%	13.8%	15.7%
Percentage of subsidiary firms	13.3%	12.3%	13.0%	13.1%	16.2%	16.7%	16.0%	14.1%
Mean institutional ownership (%)	8.90	11.73	11.17	13.13	21.68	21.70	24.94	15.72
Mean foreign institutional ownership (%)	3.28	6.94	6.68	6.44	14.48	13.09	16.64	9.18
Percentage of firms with foreign institutional ownership 20% or more	0.0%	4.4%	9.4%	7.4%	29.8%	25.2%	35.6%	14.0%
Mean main bank ownership (%)	4.11	4.06	3.84	3.34	2.43	2.32	2.17	3.20
Percentage of firms with main bank ownership 3% or more	85.3%	83.3%	77.3%	64.6%	42.3%	40.1%	36.7%	61.8%
Percentage of firms with main bank dispatches director	43.5%	36.1%	36.0%	32.7%	27.9%	22.9%	22.6%	32.3%
Percentage of firms with independent outside director	NA	NA	NA	NA	30.5%	38.3%	56.6%	NA
Percentage of firms with 3 or more independent outside directors	NA	NA	NA	NA	5.2%	8.5%	10.1%	NA
Mean ratio of independent outside directors to total directors (%)	NA	NA	NA	NA	5.66	7.65	11.61	NA

Table 2. Trends in Top Executive Turnover

The sample consists of 500 firms randomly selected from the First Section of the Tokyo Stock Exchange. The position of the top executive after resigning is the position held one year after retirement. Top executive is the representative of the corporation on the *Yuka Shoken Hokokusho* (Securities Report). Forced turnover is defined to occur when the top executive does not take up the post of chairman, vice chairman or another directorship after resigning as top executive. Resignations due to death and illness are excluded. The information on the top executive and directors is from Nikkei NEEDS-Cges, and *Yakuin Shikiho* (Directory of Directors) published by *Toyo Keizai Shinposha*.

	Sample size	Top executive turnover	Ratio	Turnover after M&A	Turnover after collapse	Chairman, vice chairman after resigning	Directorship after resigning	Ratio	Forced turnover	Forced turnover ratio
	(a)	(b)	(b)/(a)			(c)	(d)	((c)+(d))/(b)	(e)	(e)/(a)
1990	400	48	12.0%	0	0	36	8	92%	4	1.0%
1991	400	55	13.8%	2	0	46	4	91%	5	1.3%
1992	401	65	16.2%	1	0	45	8	82%	12	3.0%
1993	401	39	9.7%	1	0	29	4	85%	6	1.5%
1994	403	64	15.9%	2	0	38	10	75%	16	4.0%
1995	405	53	13.1%	0	0	43	7	94%	3	0.7%
1996	413	60	14.5%	1	2	34	7	68%	19	4.6%
1997	414	52	12.6%	1	3	29	7	69%	16	3.9%
1998	414	68	16.4%	3	1	39	9	71%	20	4.8%
1999	414	66	15.9%	3	3	40	8	73%	18	4.3%
2000	438	69	15.8%	0	0	36	9	65%	24	5.5%
2001	443	62	14.0%	3	11	33	5	61%	24	5.4%
2002	429	91	21.2%	3	0	58	12	77%	21	4.9%
2003	430	66	15.3%	1	1	42	5	71%	19	4.4%
2004	429	60	14.0%	2	0	37	6	72%	17	4.0%
2005	430	61	14.2%	4	0	36	11	77%	14	3.3%
2006	426	77	18.1%	2	0	41	7	62%	29	6.8%
2007	418	63	15.1%	1	0	43	5	76%	15	3.6%
2008	412	72	17.5%	5	1	36	7	60%	29	7.0%
2009	401	62	15.5%	2	0	28	9	60%	25	6.2%
2010	395	61	15.4%	1	1	32	4	59%	25	6.3%
2011	387	50	12.9%	2	1	30	2	64%	18	4.7%
2012	380	58	15.3%	1	0	39	2	71%	17	4.5%
2013	376	44	11.7%	3	0	33	3	82%	8	2.1%
Total	9859	1466	14.9%	44	24	903	159	72%	404	4.1%
1990-1997	3,237	436	13.5%	8	5	300	55	81%	81	2.5%
1998-2005	3,427	543	15.8%	19	16	321	65	71%	157	4.6%
2006-2013	3,195	487	15.2%	17	3	282	39	66%	166	5.2%

Table 3. Analysis of Influence of Corporate Performance on Top Executive Turnover

The sample consists of 500 firms randomly selected from the First Section of the Tokyo Stock Exchange. The period of analysis is 1990 to 2013. Normal turnover is defined to occur when the top executive takes up the directorship after resigning as top executive. Forced turnover is defined to occur when the top executive does not take up the post of chairman, vice chairman or another directorship after resigning as top executive. Industry-adjusted performance is calculated by subtracting the median of the industry to which each firm belongs from each firm's performance. Family-run firm is a firm in which the founding family held 5% or more of shares and the top executive is either the founder or related to the founder. Subsidiary firm is a firm in which another corporation held 30% or more of shares. The analysis was conducted using a probit model. Marginal effects are in the upper row, and cluster-robust standard errors are in the lower row. The clusters are at the firm and year level. *** denotes 1% level of significance, ** 5% level of significance, and *10% level of significance.

Dependent variable =	All turnover	All turnover	All turnover	Normal turnover	Normal turnover	Normal turnover	Forced turnover	Forced turnover	Forced turnover
Performance indicator =	ROA	ROE	RET	ROA	ROE	RET	ROA	ROE	RET
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
Industry performance (median)	-0.424	-0.261	0.002	-0.167	-0.174	0.004	-0.233 **	-0.074	-0.001
	(0.279)	(0.237)	(0.021)	(0.199)	(0.150)	(0.012)	(0.113)	(0.083)	(0.012)
Industry-adjusted performance	-0.785 ***	-0.179 ***	-0.038 **	-0.170	-0.035 *	0.000	-0.482 ***	-0.079 ***	-0.031 **
	(0.151)	(0.024)	(0.017)	(0.110)	(0.018)	(0.002)	(0.083)	(0.008)	(0.013)
Log (sales)	0.003	0.003	0.001	0.008 ***	0.009 ***	0.008 ***	-0.004 ***	-0.005 ***	-0.007 ***
	(0.003)	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)
Tenure 1 to 2 years (dummy)	-0.168 ***	-0.168 ***	-0.168 ***	-0.130 ***	-0.130 ***	-0.130 ***	-0.027 ***	-0.028 ***	-0.028 ***
	(0.013)	(0.012)	(0.013)	(0.010)	(0.010)	(0.010)	(0.004)	(0.004)	(0.004)
Tenure 3 to 4 years (dummy)	-0.071 ***	-0.070 ***	-0.070 ***	-0.065 ***	-0.065 ***	-0.065 ***	0.001	0.002	0.001
	(0.010)	(0.009)	(0.010)	(0.007)	(0.007)	(0.007)	(0.003)	(0.004)	(0.004)
Tnure 7 to 8 years (dummy)	-0.004	-0.004	-0.006	0.000	0.000	0.000	-0.004	-0.003	-0.005
	(0.011)	(0.011)	(0.012)	(0.007)	(0.008)	(0.007)	(0.005)	(0.005)	(0.005)
Tenure 9 or more years (dummy)	-0.039 ***	-0.041 ***	-0.044 ***	-0.016 **	-0.016 **	-0.017 **	-0.022 ***	-0.024 ***	-0.026 ***
	(0.010)	(0.010)	(0.010)	(0.008)	(0.008)	(0.008)	(0.004)	(0.004)	(0.004)
Age 70 or older (dummy)	0.139 ***	0.144 ***	0.143 ***	0.108 ***	0.110 ***	0.109 ***	0.020 ***	0.022 ***	0.023 ***
	(0.018)	(0.018)	(0.018)	(0.015)	(0.015)	(0.016)	(0.006)	(0.007)	(0.007)
Family-run firm (dummy)	-0.085 ***	-0.084 ***	-0.087 ***	-0.054 ***	-0.056 ***	-0.054 ***	-0.022 ***	-0.023 ***	-0.028 ***
	(0.008)	(0.008)	(0.008)	(0.006)	(0.006)	(0.006)	(0.005)	(0.005)	(0.005)
Family-run firm * Industry-adjusted performance	0.596 ***	0.023	-0.050 **	0.061	-0.084 *	-0.070 ***	0.359 *	0.501 *	0.020
	(0.124)	(0.062)	(0.023)	(0.127)	(0.045)	(0.020)	(0.211)	(0.277)	(0.026)
Subsidiary firm (dummy)	0.072 ***	0.077 ***	0.070 ***	0.030 ***	0.032 ***	0.029 ***	0.032 ***	0.036 ***	0.031 ***
	(0.008)	(0.009)	(0.017)	(0.008)	(0.007)	(0.009)	(0.004)	(0.005)	(0.005)
Subsidiary firm * Industry-adjusted performance	0.084	0.078	0.017	0.248	0.036	0.012	0.067	0.034 *	0.014
	(0.290)	(0.058)	(0.052)	(0.243)	(0.056)	(0.042)	(0.097)	(0.018)	(0.019)
Pseudo-R^2	0.096	0.100	0.090	0.100	0.101	0.100	0.104	0.104	0.075
Sample size	9857	9854	9837	9857	9854	9837	9857	9854	9837

Table 4. Changes in Top Executive Turnover Sensitivity to Performance

The sample consists of 500 firms randomly selected from the First Section of the Tokyo Stock Exchange. The period of analysis is 1990 to 2013. Normal turnover is defined to occur when the top executive takes up the directorship after resigning as top executive. Forced turnover is defined to occur when the top executive does not take up the post of chairman, vice chairman or another directorship after resigning as top executive. Industry-adjusted performance is calculated by subtracting the median of the industry to which each firm belongs from each firm's performance. Control variables include log of sales, tenure dummies, age dummy, family-run firm dummy and subsidiary firm dummy. The analysis was conducted using a probit model. Marginal effects are in the upper row, and cluster-robust standard errors are in the lower row. The clusters are at the firm and year level. *** denotes 1% level of significance, ** 5% level of significance, and *10% level of significance.

Panel 1: Dummy effect by period

Dependent variable =	All turnover	Normal turnover	Forced turnover	Forced turnover	Forced turnover
Performance indicator =	ROA	ROA	ROA	ROE	RET
	Model 1	Model 2	Model 3	Model 4	Model 5
Industry-adjusted performance	-0.797 ***	-0.170	-0.220 ***	-0.078 ***	-0.030 **
	(0.149)	(0.110)	(0.037)	(0.008)	(0.012)
Period II (1998 to 2005) (dummy)	0.035 ***	0.015 *	0.019 ***	0.017 **	0.024 ***
	(0.010)	(0.008)	(0.006)	(0.007)	(0.007)
Period III (2006 to 2013) (dummy)	0.027 **	0.000	0.024 ***	0.025 ***	0.025 ***
	(0.011)	(0.006)	(0.007)	(0.008)	(0.008)
Control variables	YES	YES	YES	YES	YES
Pseudo-R^2	0.099	0.100	0.113	0.114	0.085
Sample size	9857	9857	9857	9854	9837

Panel 2: Coefficient of industry-adjusted performance variable, estimation by period

Dependent variable =	All turnover			Normal turnover			Forced turnover		
Performance indicator =	ROA	ROE	RET	ROA	ROE	RET	ROA	ROE	RET
Period I (1990 to1997)	-1.125 ***	-0.157 ***	-0.083 **	-0.548 ***	-0.075 *	-0.044 **	-0.403 ***	-0.046 ***	-0.032
	(0.210)	(0.036)	(0.034)	(0.103)	(0.041)	(0.020)	(0.119)	(0.014)	(0.021)
Period II (1998 to 2005)	-0.970 ***	-0.144 ***	-0.036 *	-0.191	-0.009	-0.009	-0.625 ***	-0.076 ***	-0.023
	(0.264)	(0.028)	(0.020)	(0.158)	(0.017)	(0.015)	(0.155)	(0.007)	(0.019)
Period III (2006 to 2013)	-0.537 ***	-0.291 ***	-0.015	0.039	-0.022	0.040 *	-0.428 ***	-0.131 ***	-0.046 *
	(0.202)	(0.049)	(0.039)	(0.164)	(0.040)	(0.022)	(0.119)	(0.011)	(0.024)

Table 5. Effect of Institutional Investors on the Sensitivity of Top Executive Turnover

The sample consists of 500 firms randomly selected from the First Section of the Tokyo Stock Exchange. The period of analysis is 1990 to 2013. Forced turnover is defined to occur when the top executive does not take up the post of chairman, vice chairman or another directorship after resigning as top executive. Estimation results for the institutional ownership are presented in Panel 1, and for the foreign institutional ownership in Panels 2 and 3. Panel 3 presents analytical results by period. Industry-adjusted performance is calculated by subtracting the median of the industry to which each firm belongs from each firm's performance. Control variables include log of sales, tenure dummies, age dummy, family-run firm dummy and subsidiary firm dummy. The analysis was conducted using a probit model. Marginal effects are in the upper row, and cluster-robust standard errors are in the lower row. The clusters are at the firm and year level. *** denotes 1% level of significance, ** 5% level of significance, and *10% level of significance.

Panel 1. Institutional ownership

Dependent variable =	All turnover	All turnover	All turnover	Forced turnover	Forced turnover	Forced turnover
Performance indicator =	ROA	ROE	RET	ROA	ROE	RET
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Industry-adjusted performance	-1.116 ***	-0.154 ***	-0.057 ***	-0.566 ***	-0.064 ***	-0.034 *
	(0.218)	(0.026)	(0.025)	(0.089)	(0.009)	(0.020)
Institutional ownership	0.0002	0.0001	-0.0003	0.0003	0.0000	-0.0001
	(0.001)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)
Institutional ownership * Industry-adjusted performance	0.0150 **	-0.0029 *	0.0010	0.0032	-0.0020 ***	0.0001
	(0.008)	(0.002)	(0.001)	(0.004)	(0.000)	(0.001)
Control variables	YES	YES	YES	YES	YES	YES
Pseudo-R^2	0.097	0.100	0.089	0.103	0.106	0.074
Sample size	9673	9670	9666	9673	9670	9666

Panel 2. Foreign institutional ownership

Dependent variable =	All turnover	All turnover	All turnover	Forced turnover	Forced turnover	Forced turnover
Performance indicator =	ROA	ROE	RET	ROA	ROE	RET
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Industry-adjusted performance	-1.021 ***	-0.165 ***	-0.040 *	-0.533 ***	-0.069 ***	-0.030 *
	(0.190)	(0.024)	(0.023)	(0.083)	(0.008)	(0.016)
Foreign institutional ownership	0.0006	0.0003	-0.0001	0.0005	0.0002	0.0001
	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)
Foreign institutional ownership * Industry-adjusted performance	0.0151	-0.0027	0.0002	0.0033	-0.0020 ***	-0.0001
	(0.010)	(0.002)	(0.001)	(0.005)	(0.001)	(0.001)
Control variables	YES	YES	YES	YES	YES	YES
Pseudo-R^2	0.097	0.100	0.090	0.106	0.108	0.075
Sample size	9856	9853	9837	9856	9853	9837

Panel 3: Estimation results by period for interaction term for foreign institutional ownership and performance

Dependent variable =	All turnover	All turnover	All turnover	Forced turnover	Forced turnover	Forced turnover
Performance indicator =	ROA	ROE	RET	ROA	ROE	RET
Period I (1990 to1997)						
Industry-adjusted performance	-1.363 ***	-0.152 ***	-0.085 **	-0.316 **	-0.044 **	-0.044 ***
	(0.279)	(0.046)	(0.042)	(0.142)	(0.020)	(0.019)
Foreign institutional ownership	-0.001	-0.001	-0.001	0.000	0.000	0.000
	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)
Foreign institutional ownership * Industry-adjusted performance	0.044 **	0.000	0.001	-0.018	0.000	0.002 **
	(0.020)	(0.006)	(0.005)	(0.011)	(0.003)	(0.001)
Period II (1998 to 2005)						
Industry-adjusted performance	-1.198 ***	-0.118 ***	-0.046	-0.646 ***	-0.057 ***	-0.024
	(0.267)	(0.024)	(0.033)	(0.163)	(0.007)	(0.023)
Foreign institutional ownership	-0.001 *	-0.001	-0.002 **	0.000	-0.001	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Foreign institutional ownership * Industry-adjusted performance	0.0257 *	-0.0051	0.0012	0.0032	-0.0042 **	0.0003
	(0.015)	(0.006)	(0.002)	(0.012)	(0.002)	(0.001)
Period III (2006 to 2013)						
Industry-adjusted performance	-0.596 *	-0.288 ***	0.001 ***	-0.470 ***	-0.119 ***	-0.038
	(0.306)	(0.051)	(0.046)	(0.119)	(0.011)	(0.030)
Foreign institutional ownership	0.001	0.001	0.001	0.000	0.000	0.000
	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)
Foreign institutional ownership * Industry-adjusted performance	0.0005	-0.0002	-0.0011	0.0018	-0.0010 *	-0.0006
	(0.013)	(0.002)	(0.002)	(0.006)	(0.001)	(0.001)

Table 6. Distribution of Institutional Blockholders

The sample consists of 500 firms randomly selected from the First Section of the Tokyo Stock Exchange. Blockholder is a single entity institutional investor holding more than 3% ownership. Data pertaining to blockholders were obtained from FactSet Ownership Database. As some firms have both domestic and foreign blockholders, the total number of firms reporting domestic blockholders and foreign blockholders exceeds the total number of firms reporting blockholders. The market capitalization quartiles in Panel 2 were demarcated at ¥16.5 billion, ¥40.6 billion and ¥145.0 billion.

Panel 1. Firms with blockholders with 3% or larger shareholdings

	Blockholders		Blockholder breakdown	
	None	Exist	Domestic	Foreign
2006	204	154	110	72
2007	197	163	109	96
2008	208	153	101	80
2009	234	127	83	69
2010	251	111	62	74
2011	244	118	62	78
2012	242	119	65	74
2013	213	148	82	98

Panel 2. Quartile of market capitalization and blockholder ratio

	Smaller←Market capitalization→Larger			
	1	2	3	4
Ratio of firms with blockholders	18.95%	29.47%	51.15%	49.93%
Ratio of firms with domestic institutional blockholders	12.54%	19.60%	33.06%	27.28%
Ratio of firms with foreign institutional blockholders	9.33%	15.31%	29.42%	33.25%

Table 7. Effect of Institutional Blockholders on the Sensitivity of Top Executive Turnover

The sample consists of 500 firms randomly selected from the First Section of the Tokyo Stock Exchange. The period of analysis is 2006 to 2013. Forced turnover is defined to occur when the top executive does not take up the post of chairman, vice chairman or another directorship after resigning as top executive. Industry-adjusted performance is calculated by subtracting the median of the industry to which each firm belongs from each firm's performance. Blockholder is a dummy variable that takes one when a single entity institutional investor holds more than 3% ownership. Log of sales, tenure dummies, age dummy, family-run firm dummy and subsidiary firm dummy are controlled. The analysis was conducted using a probit model. Marginal effects are in the upper row, and cluster-robust standard errors are in the lower row. The clusters are at the firm and year level. *** denotes 1% level of significance, ** 5% level of significance, and *10% level of significance.

Dependent variable =	All turnover	All turnover	All turnover	Forced turnover	Forced turnover	Forced turnover
Performance indicator =	ROA	ROE	RET	ROA	ROE	RET
1. Presence of blockholders						
Industry-adjusted performance	-0.316 *	-0.165 ***	-0.014	-0.390 ***	-0.100 ***	-0.020
	(0.185)	(0.054)	(0.032)	(0.046)	(0.020)	(0.012)
Institutional blockholders (dummy)	-0.017	-0.018	0.021	0.006	0.003	0.001
	(0.016)	(0.017)	(0.017)	(0.008)	(0.007)	(0.004)
Institutional blockholders * Industry-adjusted performance	0.120	-0.118	0.016	0.233	-0.016	0.009
	(0.293)	(0.135)	(0.056)	(0.175)	(0.049)	(0.013)
2. Blockholder breakdown						
Industry-adjusted performance	-0.257	-0.162 ***	-0.015	-0.314 ***	-0.095 ***	-0.021 *
	(0.186)	(0.052)	(0.033)	(0.049)	(0.019)	(0.012)
Domestic institutional blockholders (dummy)	-0.018	-0.009	-0.016	0.001	0.003	0.000
	(0.020)	(0.019)	(0.021)	(0.007)	(0.006)	(0.003)
Domestic institutional blockholders * Industry-adjusted performance	0.741 **	0.270	0.035	0.335 *	0.074	0.0140
	(0.314)	(0.218)	(0.046)	(0.188)	(0.066)	(0.012)
Foreign institutional blockholders (dummy)	-0.011	-0.024	-0.017	0.001	-0.005	0.000
	(0.012)	(0.016)	(0.013)	(0.008)	(0.009)	(0.004)
Foreign institutional blockholders * Industry-adjusted performance	-0.067 **	-0.426 **	-0.021	-0.236 **	-0.093 **	0.000
	(0.029)	(0.194)	(0.040)	(0.108)	(0.040)	(0.014)

Table 8. Effect of Independent Outside Directors on the Sensitivity of Top Executive Turnover

The sample consists of 500 firms randomly selected from the First Section of the Tokyo Stock Exchange. The period of analysis is 2006 to 2013. Forced turnover is defined to occur when the top executive does not take up the post of chairman, vice chairman or another directorship after resigning as top executive. Industry-adjusted performance is calculated by subtracting the median of the firm's industry from each firm's performance. The independent outside director dummy takes 1 if at least one independent outside director has been appointed. The three or more independent outside directors dummy takes 1 if three or more independent outside directors have been appointed. Control variables include log of sales, tenure dummies, age dummy, family-run firm dummy and subsidiary firm dummy. The analysis was conducted using a probit model. Marginal effects are in the upper row, and cluster-robust standard errors are in the lower row. The clusters are at the firm and year level. *** denotes 1% level of significance, ** 5% level of significance, and *10% level of significance.

Panel 1. The effect of independent outside directors

Dependent variable =	All turnover	All turnover	All turnover	Forced turnover	Forced turnover	Forced turnover
Performance indicator =	ROA	ROE	RET	ROA	ROE	RET
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Industry-adjusted performance	-0.604 ***	-0.295 ***	-0.005 *	-0.529 ***	-0.152 ***	-0.063 **
	(0.163)	(0.042)	(0.003)	(0.109)	(0.015)	(0.028)
Independent outside director (dummy)	0.012	0.011	0.015	0.003	0.003	0.002
	(0.011)	(0.012)	(0.009)	(0.007)	(0.006)	(0.007)
Independent outside director * Industry-adjusted performance	0.169	0.013	-0.024	0.237	0.047 **	0.040 **
	(0.375)	(0.077)	(0.035)	(0.149)	(0.023)	(0.016)
Control variables	YES	YES	YES	YES	YES	YES
Pseudo-R^2	0.092	0.104	0.090	0.107	0.131	0.095
Sample size	3188	3188	3188	3188	3188	3188

Panel 2. The effect of the number of independent outside directors

Dependent variable =	All turnover	All turnover	All turnover	Forced turnover	Forced turnover	Forced turnover
Performance indicator =	ROA	ROE	RET	ROA	ROE	RET
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Industry-adjusted performance	-0.591 ***	-0.290 ***	-0.005	-0.485 ***	-0.151 ***	-0.063 **
	(0.160)	(0.041)	(0.047)	(0.104)	(0.015)	(0.029)
Independent outside director (dummy)	0.008	0.010	0.012 *	0.001	0.001	0.000
	(0.009)	(0.016)	(0.007)	(0.008)	(0.008)	(0.006)
Independent outside director * Industry-adjusted performance	0.441	0.042	-0.029	0.352 ***	0.053 **	0.039 **
	(0.355)	(0.061)	(0.037)	(0.133)	(0.025)	(0.016)
3 or more independent outside directors (dummy)	0.020 *	0.008	0.013	-0.001	0.012	0.016
	(0.011)	(0.012)	(0.011)	(0.009)	(0.014)	(0.014)
3 or more independent outside directors * Industry-adjusted performance	-1.972 **	-0.188 **	0.028	-1.436 ***	-0.037	0.001
	(0.935)	(0.093)	(0.095)	(0.353)	(0.029)	(0.045)
Control variables	YES	YES	YES	YES	YES	YES
Pseudo-R^2	0.095	0.105	0.090	0.118	0.132	0.096
Sample size	3188	3188	3188	3188	3188	3188

Table 9. Effect of Main Bank on the Sensitivity of Top Executive Turnover

The sample consists of 500 firms randomly selected from the First Section of the Tokyo Stock Exchange. The period of analysis is 1990 to 2013. Forced turnover is defined to occur when the top executive does not take up the post of chairman, vice chairman or another directorship after resigning as top executive. Industry-adjusted performance is calculated by subtracting the median of the industry to which each firm belongs from each firm's performance. If borrowing from the main bank exceeds the industry median; the relationship with the main transactional bank is stable, and the main bank has dispatched a director to the firm, the main bank dummy takes the value of 1. Of the analytical results obtained per period, Panel 2 presents the results of the main bank dummy, performance and interaction term. Control variables include log of sales, tenure dummies, age dummy, family-run firm dummy and subsidiary firm dummy. The analysis was conducted using a probit model. Marginal effects are in the upper row, and cluster-robust standard errors are in the lower row. The clusters are at the firm and year level. *** denotes 1% level of significance, ** 5% level of significance, and *10% level of significance.

Panel 1: Estimations for all periods

Dependent variable =	All turnover	Forced turnover	Forced turnover	Forced turnover
Performance indicator =	ROA	ROA	ROE	RET
	Model 1	Model 2	Model 3	Model 4
Industry-adjusted performance	-0.667 ***	-0.436 ***	-0.085 ***	-0.030 ***
	(0.145)	(0.085)	(0.010)	(0.011)
Main bank (dummy)	0.006	0.008 *	0.013 ***	0.018 ***
	(0.010)	(0.005)	(0.004)	(0.005)
Main bank * Industry-adjusted performance	-0.693 ***	-0.171	0.019	-0.001
	(0.271)	(0.106)	(0.012)	(0.025)
Control variables	YES	YES	YES	YES
Pseudo-R^2	0.097	0.107	0.107	0.080
Sample size	9857	9857	9854	9837

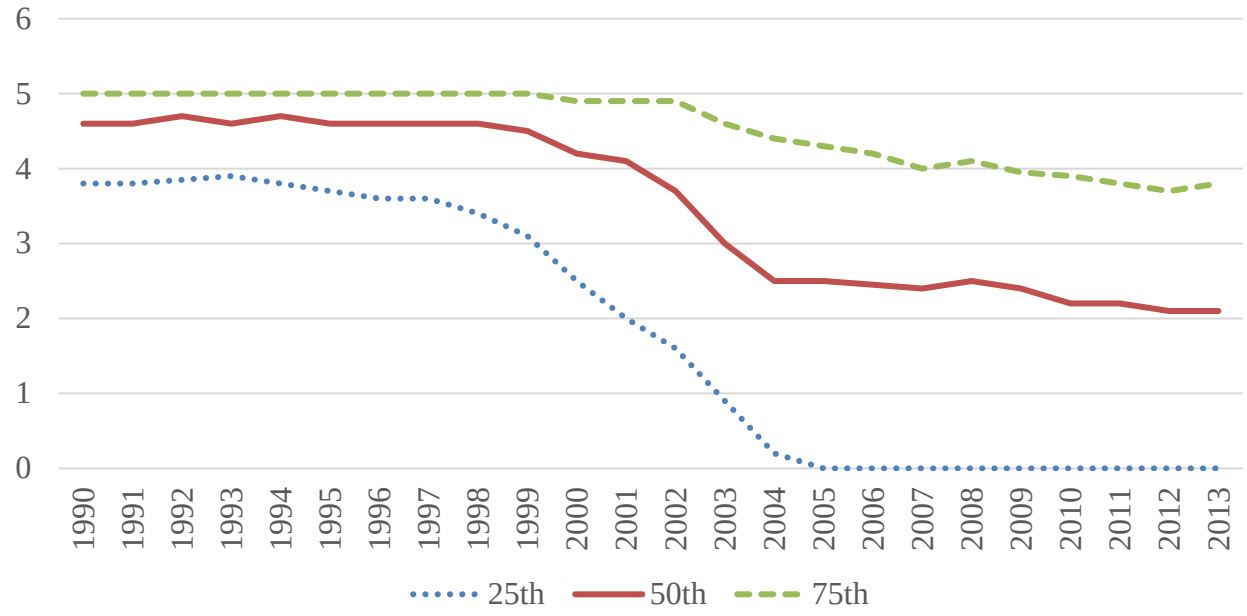
Panel 2: Estimation by period

Dependent variable =	All turnover	Forced turnover	Forced turnover	Forced turnover
Performance indicator =	ROA	ROA	ROE	RET
	Model 1	Model 2	Model 3	Model 4
Period I (1990 to 1997)				
Industry-adjusted performance	-9.730 ***	-0.390 ***	-0.058 ***	-0.044 *
	(1.974)	(0.124)	(0.014)	(0.026)
Main bank (dummy)	0.040 ***	0.015 ***	0.021 ***	0.019 ***
	(0.014)	(0.006)	(0.005)	(0.005)
Main bank * Industry-adjusted performance	-0.325	0.056	0.036 **	0.030
	(0.570)	(0.136)	(0.018)	(0.034)
Period II (1998 to 2005)				
Industry-adjusted performance	-0.790 ***	-0.544 ***	-0.072 ***	-0.019
	(0.244)	-(0.168)	(0.015)	(0.013)
Main bank (dummy)	-0.020	0.015 **	0.018 ***	0.030 ***
	(0.018)	(0.007)	(0.005)	(0.007)
Main bank * Industry-adjusted performance	-1.225 ***	-0.217	0.002	-0.006
	(0.364)	(0.150)	(0.022)	(0.024)
Period III (2006 to 2013)				
Industry-adjusted performance	-0.472 **	-0.388 ***	-0.126 ***	-0.039 *
	(0.205)	(0.120)	(0.018)	(0.022)
Main bank (dummy)	0.006	-0.002	0.004	0.005
	(0.022)	(0.006)	(0.007)	(0.007)
Main bank * Industry-adjusted performance	-0.460	-0.285 *	-0.015	-0.036
	(0.438)	(0.176)	(0.033)	(0.036)

Figure 1. Trends in Main Bank and Foreign Institutional Ownership

The sample consists of 500 firms randomly selected from the First Section of the Tokyo Stock Exchange. Data on ownership are from the Corporate Financial Databank, compiled by the Development Bank of Japan. Panel 1 shows the 25, 50 (median) and 75 percentile values for main bank ownership. Main bank is a bank that is designated the primary source of its banking transactions by the client (based on the *Kaisha Shikiho* published by *Toyo Keizai Shinposha*). The legal limit of main bank ownership fell to 5% of outstanding shares. Panel 2 shows the 25, 50 (median) and 75 percentile values for foreign institutional ownership.

Panel 1. Main bank ownership (%)



Panel 2. Foreign institutional ownership (%)

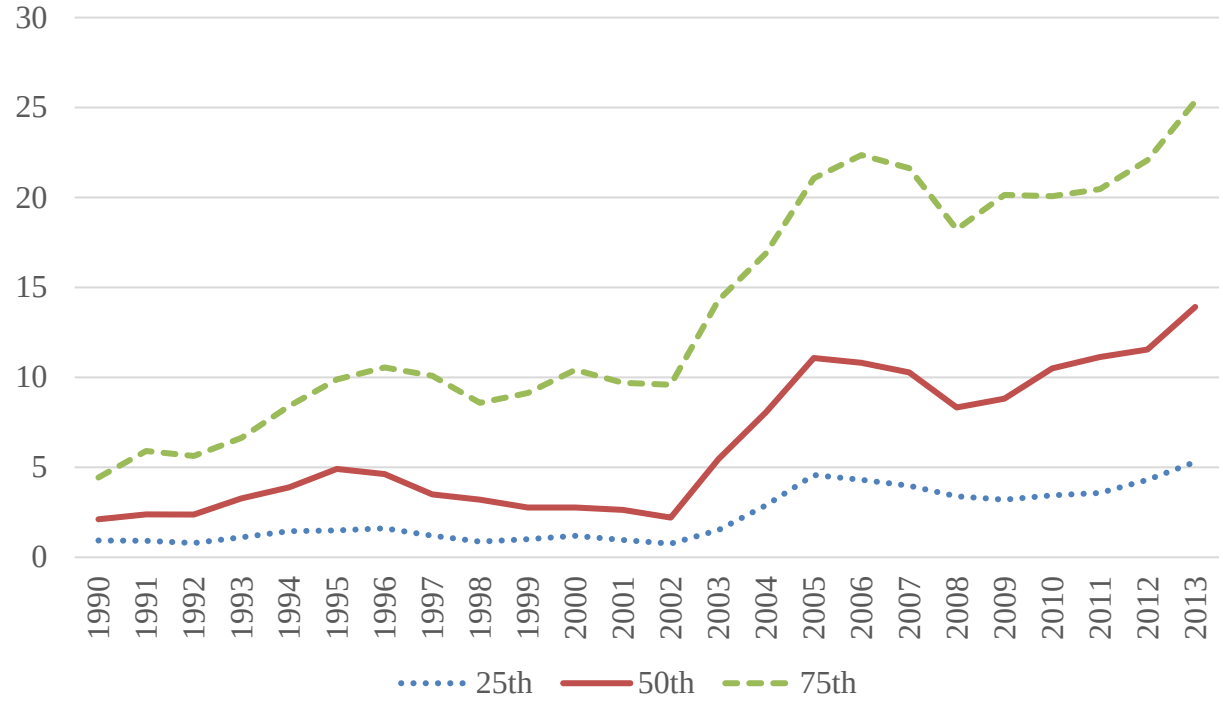


Figure 2. Trends in the Top Executive Turnover Ratio

The sample consists of 500 firms randomly selected from the First Section of the Tokyo Stock Exchange. The top executive turnover ratio is calculated by dividing the annual number of top executive turnovers by the sample size. The forced turnover ratio is calculated by dividing the annual number of forced turnovers by the sample size. Forced turnover is defined as when the top executive does not take up the post of chairman, vice chairman or another directorship after resigning as top executive. Resignations due to death and illness are excluded.