Enjoying the Quiet Life: Corporate Decision-Making by Entrenched Managers

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Abstract

In this study, we evaluate Bertrand and Mullainathan's (2003) "quiet life hypothesis," which predicts that managers who are subject to weak monitoring from the shareholders (a) avoid making difficult decisions such as risky investment and business restructuring, and (b) exert less effort than their more heavily disciplined counterparts. We operationalize the strength of a manager's defense against market disciplinary power with a proxy variable comprised of cross-shareholder and stable shareholder ownership. We then examine the effect of this proxy variable on manager-enacted corporate behaviors. Results of our analysis indicate that entrenched managers who are insulated from disciplinary action by friendly shareholders avoid making difficult decisions (e.g., large investments, business restructures). This avoidance, in turn, results in less risk-taking by the companies these individuals manage. However, when managers are closely monitored by institutional investors and independent directors, they tend to be active in making difficult decisions. Taken together, our results suggest that Japanese firms pay non-negligible costs for the managerial "quiet life" problem, and improved corporate governance can help to mitigate this problem.

JEL Codes: G31, G32, G34

Key Words: Corporate governance, Cross shareholding, Ownership structure, Quiet life, Risk taking

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1. Introduction

For decades, Japan has suffered from low corporate profitability, low economic growth, and poor stock market performance. Despite unprecedented and prolonged monetary policy meant to boost the economy, capital investments in the corporate sector have remained stagnant. Some have attributed the low profitability of Japanese firms to their failure to restructure and their aversion to risk (which, in turn, has suppressed innovation). The failure of firms to restructure and innovate may be related to the fact that managers' interests may not always coincide with shareholders' interests. That is, managers may make decisions to maximize their own utility rather than maximize shareholders' wealth. For instance, managers may overinvest to grow a firm's size and increase their own private benefits. Given this problem, corporate governance may be useful for mitigating the conflict of the interest between managers and shareholders. To this end, some studies have suggested that corporate governance can assuage problems related to free cash flow/overinvestment (Jensen, 1986; Gompers et al., 2003; Harford, 1999). Interestingly, underinvestment on the part of managers has gone largely unexplored. This is likely because costs associated with under investment are relatively difficult to identify[1].

Hicks (1935) argued that managers of monopolistic enterprises that are insulated from competition in the product market may not be motivated to adequately enact their managerial duties; shirking their responsibilities increases their own utility. Hicks (1935) dubbed this practice the "quiet life." In other words, Hicks argued that when discipline from the product market is not sufficiently punitive, managers avoid difficult decisions and exert less effort. Hart (1983) also contended that discipline from the product market reduces managerial slack. Scharfstein (1988) and Schmidt (1997) came to similar conclusions.

This line of research was limited in its exclusive focus on discipline from the product market, but the quiet life hypothesis also includes discipline from the capital market (see Giroud and Mueller, 2010). This work shows that managers avoid making difficult decisions not only in companies protected from discipline from the product market, but also in companies that are protected from hostile takeovers or, more broadly, pressure from unfriendly shareholders. Bertrand and Mullainathan (2003) performed a critical study to empirically examine this extended version of the quiet life hypothesis. In this study, they focused on the introduction of state anti-takeover laws, which reduces the threat of a hostile takeover. More specifically, the authors used factory-level data in the US to evaluate how the introduction of state laws affects the corporate decision-making. Their results show that for companies with head offices located in the state where the anti-takeover

[1] In this paper, we define investment as an increase of real assets. It does not include a decrease in real assets.

legislation was passed, rates of factory construction *and* closure decreased, employees' wages increased, and the firm's financial performance suffered. These results were not consistent with the free cash flow hypothesis, which predicts that managers seek to increase their own prestige by maximizing firm size rather than shareholder value.

The quiet life hypothesis essentially predicts that managers avoid making difficult decisions when they are protected from the disciplinary effects of the capital market. Because increasing investments (e.g., new facility development, acquisitions, R&D) requires substantial effort on the part of managers, managers may decrease these investments, even if they are expected to increase firm value. This forms the basis of the quiet life hypothesis—when insulated from disciplinary effects of the capital market, managers often underinvest. Because many managers of Japanese firms are protected from the disciplinary effects of the stock market through cross-shareholding, the quiet life problem is cause for some concern. Despite the importance of the quiet life problem, there has been no empirical study of underinvestment problem caused by Japanese firm managers who entrenched themselves.

It is also possible that the under-investment problem or failing to restructure their unprofitable businesses can be explained by the career concern hypothesis (see Holmström, 1999). The career concern hypothesis predicts that when managers face pressure from shareholders and have resultant concern for their own careers, they avoid risky investments that may fail due to exogenous shocks. Although it is rare for managers of Japanese firms to fail to get approval for their own director nomination proposals in shareholder meetings, the increasing influence of foreign institutional investors can raise these career-related concerns[2]. Since friendly cross-shareholders reduce the career-related concerns held by managers, a higher ratio of these shareholders is likely to increase managers' confidence in their job security, and will therefore lead to an increase in risky investments. So, by examining the effects of cross-shareholding on corporate behaviors, it is possible to simultaneously test these competing hypotheses.

In this study, we examine the effects of cross-shareholding and stable shareholding on corporate behaviors among companies listed on the Tokyo Stock Exchange from 2004 to 2014. Results of our analyses show that managers of companies characterized by a high proportion of cross-shareholding and/or stable shareholding avoid making difficult decisions or risky choices (e.g., large investments, restructuring). We also find that monitoring by institutional investors and independent directors mitigates these effects. Our results are consistent with quiet life hypothesis, but not with the career concern or free cash flow hypothesis.

To address the issues outlined above, we have organized this paper into a series of

[2] In contrast, Aghion et al. (2013) found institutional investors reduce managers' concerns about their careers. However, collaboration between firm managers and institutional investors is rare in Japan. As such, we do not expect the same results as Aghion et al. (2013) in the Japanese context.

interrelated sections. In the following section, we discuss the relatively recent phenomenon of cross-shareholding in Japan. Then, in Section 3, we develop our hypotheses. In Section 4, we describe the data and methods we employ to test the hypotheses. We present the results of these analyses in Section 5. In Section 6, we report the results of robustness checks on our main results, and we offer some concluding remarks in Section 7.

2. Cross-shareholding and stable shareholding

When there is little threat of hostile takeover or shareholder intervention, firm managers are free to make decisions that increase their own utility because they are unlikely to be replaced. Related to this, Bertrand and Mullainathan (2003) explored the effects of a state anti-takeover law in the American manufacturing industry from 1976 to 1995. They found that for companies with head offices in states where anti-takeover laws were passed, there were decreases in factory construction or closures, increases in worker wages, and worsened firm performance. Bertrand and Mullainathan's (2003) results are consistent with the quiet life hypothesis; they indicate that the introduction of state anti-takeover laws resulted in a situation of moral hazard for the managers of companies located in those states.

Cross-shareholding is a mechanism that weakens the threat of takeovers and shareholder interventions. Because cross-shareholders are friendly to managers, they often refuse to sell their shares to the hostile acquirer when a takeover does occur. This reduces the likelihood of the takeover being successful.

There is real-world evidence of cross-shareholding arrangements strengthening the defense against hostile takeovers. When Mittal Steel acquired Arcerlor (a European steel company) in early 2006 via unsolicited bid, Nippon Steel—the largest steel company in Japan—recognized the possibility that Mittal may next target it for acquisition. To defend against this possibility, Nippon Steel increased its cross-shareholding arrangements with many business counterparties including Sumitomo Metal Industries and Kobe Steel.

In Japan, the "poison pill" was introduced in 2005. However, to enact a poison pill in Japan, it is necessary for the general shareholder meeting to invoke its use. Therefore, if a company does not have a sufficient number of friendly shareholders (i.e., cross-shareholders and stable shareholders), the poison pill is unlikely to be enacted or effective (Tanaka, 2012).

Given the limitations of a poison pill, cross-shareholding is a more effective measure for thwarting hostile takeover attempts. This is why Nippon Steel enhanced its cross shareholding arrangements besides adopting poison pill to itself also in 2006. Therefore, in this study, we use the cross-shareholding ratio as a variable to measure the degree to which managers are subject to disciplinary effects of the stock market. The quiet life hypothesis dictates that when a company has

a high cross-shareholding ratio, managers avoid making difficult business decisions.

For the purposes of this study, we define cross-shareholding as an interlocking ownership arrangement among related firms such as Keiretsu (corporate group in Japan), business transaction counterparts, and lending banks and the banks' borrowers. The concept of cross-shareholding in Japan initially developed in the late 1960s as a means to deter foreign takeovers (Hoshi and Kashyap, 2001)[3]. To this end, cross-shareholding has been largely successful; its practice has largely eliminated the possibility of hostile takeover of Japanese firms. Although attempts at hostile takeover are relatively rare in Japan, cross-shareholding also protects managers from shareholder activism and hostile block shareholders, particularly in shareholder meeting elections. Institutional owners and proxy advisory firms have recently gained in influence, but friendly shareholders still serve as a protective barrier for managers. Between 1997 and 2004, cross-shareholding declined as a result of banks selling their shares during a banking crisis (Miyajima and Nitta, 2011). Nevertheless, many firms still engage in cross-shareholding, and it still acts as a strong impediment to the exertion of shareholder power.

Stable shareholders, who retain blocks of a firm's shares for a long period of time through ongoing business relationships with the firm, play a similar role for managers as cross-shareholders. In most cases, stable shareholders act as friendly shareholders for incumbent managers, though they do not necessarily offer as much protection as cross-shareholders. Also distinct from cross-shareholding, stable shareholding is difficult to identify externally because it is not characterized by interlocking arrangements. So, although we analyze the effects of stable shareholding in conjunction with cross-shareholding, our primary focus is on the effects of the latter.

It is important to note that there is potentially a positive association between ratio of friendly shareholders (i.e. cross-shareholding and stable shareholding) and corporate investment. Long-term commitments on the part of shareholders allow managers to consider the firm's long-term strategy. As part of this strategy, managers may make long-term investments without concern for their careers. In addition, the protracted period of their relationship with the firm allows those long-term shareholders to understand a firm's condition better than other types of capital providers. As such, they are likely to provide capital with lower costs in cases of financial distress (Hoshi et al., 1990, 1991).

Whether those cross-shareholders or stable-shareholders have positive effects on corporate investment and risk-taking through delegated monitoring or simply provide strong protection for entrenched managers which should result in lower managerial effort is an empirical question.

3. Hypotheses

[3] See p. 126 of Hoshi and Kashyap (2001) for details related to this.

When managers are not effectively monitored or subjected to discipline by shareholders, they may make sub-optimal decisions with respect to firm value. Moreover, managers who are entrenched in their positions, and are therefore shielded from takeovers or shareholder intervention, may overinvest as a function of a free cash flow problem (Gompers et al., 2003; Harford, 1999; Jensen, 1986) or underinvest due to a desire for a "quiet life" (Bertrand and Mullainathan, 2003). Although both possibility represent threats to efficient managerial decision-making, we focus on Bertrand and Mullainathan's (2003) quiet life hypothesis. We do so because of the frequent claim that Japanese managers often fail to promote innovation through aggressive investment or promptly restructure unprofitable businesses.

According to the career concern hypothesis (Holmström, 1999), which theoretically predicts underinvestment, it is possible that cross-shareholding yields different results than those predicted by the quiet life hypothesis and free cash flow hypothesis. Aghion et al. (2013) reported that pressure to earn short-term profits exerts pressure on CEOs to be risk-averse in their investment decisions. However, institutional investors encourage CEOs to make riskier investments by reducing the likelihood of their being fired if the investments should fail. In this way, the career concern hypothesis predicts that cross-shareholding may protect management from being fired as the result of a failed investment decision. Therefore, managers protected by cross-shareholdings are likely to increase their risky investments (e.g., innovative R&D). This prediction is consistent with the free cash flow hypothesis, although the increased investment under the free cash flow hypothesis is not positive NPV investment.

In summary, among the free cash flow hypothesis, the career concern hypothesis, and the quiet life hypothesis, only the latter predicts that firms with a greater proportion of cross-shareholders will reduce their risky investments.

We further test the quiet life hypothesis by examining the effects of cross- and stable shareholding on the frequency with which managers restructure unprofitable businesses. Both the quiet life hypothesis and free cash flow hypothesis predict that protected managers will restructure their businesses to a lesser degree than firms with unprotected managers. The quiet life hypothesis contends that the failure to restructure is due to diminished managerial efforts; the free cash flow hypothesis predicts it is due to a motivation to maximize firm size. The career concern hypothesis offers no clear prediction on cross-shareholding restructuring efforts.

In testing the relationship between cross- or stable shareholding and corporate investments, we may find that firms invest more or less, but cannot assess if they *over*- or *under*invest. Although researchers often use the market-to-book ratio as a proxy for firm value, we will use it to control for a firm's investment opportunities. Because we cannot assess if a firm's investments increase its value, we will instead examine if cross- or stable shareholding is positively related to risk-taking.

John et al. (2008) used the standard deviation of industry-year adjusted ROA as a proxy for risk-taking. In doing so, the authors showed that this proxy variable correlates positively with firm growth rate. Therefore, we examine if cross- or stable shareholding results in lower risk taking by managers. The quiet life hypothesis would predict that a firm's ratio of cross- or stable shareholding is inversely related to its risk-taking. In contrast, under the career concern hypothesis, higher risk-taking is predicted as a result of the stronger protection for managers provided by the cross shareholders. If our analyses reveal a negative relationship between cross- or stable shareholding and a firm's investments and risk-taking, we interpret that as an indication that firms are operating as predicted by the quiet life hypothesis.

Given the above, we can test three hypotheses by examining cross- or stable shareholding and firm behaviors. To make our argument clear, we develop our testable hypotheses focusing on quiet life hypothesis, by developing specific testable predictions related to the quiet life hypothesis.

Although there are several outcomes associated with the managerial phenomena we describe, in this paper, we focus on investments and business restructuring. These two outcomes represent the most difficult decisions that managers are likely to avoid.

First, we predict that managers will decrease investments (even when they have positive net present value) to reduce their managerial efforts. Although investments in fixed assets are essential for growing their businesses in a product market, the implementation of a new project with large capital expenditures requires substantial effort on the part of managers. Second, mergers and acquisitions are also difficult decisions for managers; the integration of new businesses and employees requires significant effort. Thus, the quiet life hypothesis dictates that managers are also likely to seek to avoid M&A. Moreover, past researchers (e.g., Gompers et al., 2003; Harford, 1999) have treated capital expenditures and M&A as investments that maximize the firm's size, thereby increasing managers' private benefits. If entrenched managers prioritize the maximization of the firm's size over "living the quiet life," there should be a positive relationship between cross- or stable shareholding and capital expenditures (or M&A). Third, R&D investments can also be difficult decisions for managers, as they are often protracted and risky. In addition, Japanese accounting standards dictate that R&D costs are recorded as expenses that negatively affect current profits. Distinct from capital expenditures and M&A, making large R&D investments does not increase firm size, and may not increase the manager's prestige. Given this, the quiet life hypothesis predicts that managers of companies characterized by substantial cross- and/or stable shareholding are likely to avoid capital investments, M&A, and R&D expenditures. This tendency should hold, even if these activities have high NPV. By avoiding these activities, these managers are likely to underinvest.

H1: *When a company has a high cross- and/or stable shareholding ratio, that firm's*

capital expenditures, M&A investments, and R&D expenses are low.

Next, we consider business withdrawal activities. Business withdrawal activities require substantial managerial effort including the renegotiation of relationships with clients or adjusted treatment of employees. Business withdrawals are typically regarded as failures; they leave managers exposed to criticism from shareholders, employees, and the news media. Given this, the quiet life hypothesis predicts that even if a business is not profitable for years, if that company has a high ratio of cross- or stable shareholders, its managers will week to avoid decisions related to business withdrawal.

H2: *When a company has high cross- or stable shareholding ratio, that firm will be unlikely to execute actions related to business withdrawal.*

4. Data and sample

For the purposes of this paper, we constructed a panel dataset using data from non-financial companies that were listed on the Tokyo Stock Exchange from 2004 to 2014[4]. All financial data were obtained from the Nikkei NEEDS Financial Quest database. We obtained data related to the adoption of stock options, ownership structure, and outside director ratios from the Nikkei NEEDS-Cges Database. We used the RECOF M&A database to determine the dollar value of M&A-related investments. All databases from which we collected data are the most reliable ones in Japan and frequently used by researchers and practitioners in Japan.

The Nikkei NEEDS-Cges database labels an ownership structure as cross-shareholding if (a) two firms mutually hold at least 1% of each other's outstanding shares, or (b) one of the firms is one of the ten largest shareholders of the other firm (even if ownership is less than 1%)[5]. Stable shareholding is defined by ownership categories. The Nikkei NEEDS-Cges Database calculates the stable shareholder ratio using the following formula;

Stable shareholding = Cross-shareholders + financial institutions (property accounts) + nonfinancial corporate owners + parent company ownership + director ownership + employee ownership + treasure shares + corporate shareholding of more than 3% of outstanding shares.

[4] The sample included listed firms on the Tokyo Stock Exchange Mothers, but does not included listed firms from the JASDAQ.
[5] The NLF Research institute reports that even when it includes less than 1% but within the largest 30 shareholders, the cross-shareholding ratio increases by only 2%.

In this analysis, however, we exclude cross-shareholders from the stable shareholder ratio to analyze the effect of the two separately. We also exclude director ownership in calculating the stable shareholding ratio. Although most stable shareholders are friendly to incumbent managers, the relationships between stable shareholders and the firm are less clear than the relationships between cross-shareholders and the firm. This is due to a lack of interlocking ownership. Although interlocking shareholding relationships are based on formal agreements in many cases, they can also be based on implicit contracts. In this paper, we focus more directly on cross-shareholding, which is based on intentional arrangements between managers of two firms; stable shareholding often lacks any mutual obligations on the part of the firms involved.

More specifically, we examine the effects of ownership structure three variables related to corporate investments. These variables are:

CAPEX: Capital expenditure / Total Assets;
M&A: Annual M&A investments / Total Assets;
R&D: R&D expenses / Total Assets.

We also explore the effects of ownership on two variables related to corporate restructuring. These variables are:

Sub dummy: A dummy variable that indicates whether a firm sells subsidiaries in a given fiscal year (1 = yes, 0 = no). To make this determination, we identified divesture of the subsidiaries in the firm's cash flow statement;

Reducing Seg dummy: A dummy variable that indicates whether a firm reduces the number of reported business segments in which it is involved relative to the previous year (1 = yes, 0 = no). In our analysis of this variable, we excluded firms that reported being involved in only one business segment.

Table 1 provides a synopsis of all variable definitions and descriptive statistics. These data show that the maximum value of the director ownership ratio is quite large. This is due to a stock split during the accounting period. To avoid bias in our results, we excluded these outliers from our analyses[6].

[6] We excluded two firms from the sample for which the director ownership ratio exceeded 1 (100%).

Table 1 Descriptive Statistics

		N	Mean	S.D	Min	Median	Max
CAPEX[t]	Ratio of Capital expenditure to total assets	22362	0.0418	0.0438	0.0000	0.0307	0.9429
M&A[t]	Ratio of M&A value to total assets	19811	0.0068	0.0464	0.0000	0.0000	1.7675
R&D[t]	Ratiof of R&D expenses to total assets	14801	0.0227	0.0381	0.0000	0.0127	2.2593
Sub dummy[t]	Dummy variable of subsidiary divesture	22363	0.1110	0.3141	0.0000	0.0000	1.0000
Reducing Seg dummy[t]	Dummy variable of business segment reduction	13952	0.0673	0.2506	0.0000	0.0000	1.0000
Risk-taking[t]	Industry and year adjusted standard deviation of ROA	18271	0.0274	0.0322	0.0015	0.0195	0.7211
Cross[t-1]	Ratio of cross shareholders	21689	0.0786	0.0858	0.0000	0.0537	0.5630
Stable.exc.Cross[t-1]	Ratio of stable shareholders excluding cross shareholders and directors	19593	0.2711	0.1866	0.0000	0.2267	0.9289
Inst[t-1]	Institutional investor ownership	21608	0.1806	0.1572	0.0000	0.1392	0.8560
Ind[t-1]	Independent director ratio	21820	0.0615	0.1148	0.0000	0.0000	0.8889
Dir[t-1]	Director ownership	21697	0.0644	0.1175	0.0000	0.0082	0.9970
SO[t-1]	Dummy variable of introduction of stock option	21718	0.3458	0.4756	0.0000	0.0000	1.0000
MtoB[t-1]	Ratio of Market capitalization to net assets	21910	1.5066	2.1474	0.0032	1.0033	47.9082
Cash[t-1]	Ratio of Cash and short-term securities to total assets	21998	0.1706	0.1428	0.0002	0.1314	0.9816
Lev[t-1]	Ratio of interest-bearing debt to total assets	21998	0.2026	0.1980	0.0000	0.1611	8.6923
Assets[t-1]	Total Assets (million Yen)	22008	306,864	1,196,878	0	52,941	35,500,000
ROA[t-1]	ROA	21984	0.0546	0.1322	-7.4231	0.0577	11.7428

Note: Total assets are expressed in millions of yen. [t-1] indicates that a variable is lagged by one year.

Table 2 shows the correlations between the variables used in the following regression analyses. Only the relationship between total assets and institutional investor ownership showed a correlation higher than 0.4. However, the key results of our regression analyses did not change when we did not include firm size among the control variables.

Cross-shareholding and stable shareholder shareholding are negatively correlated (-0.26), suggesting that these two types of ownership may exert complementary effects. Although stable shareholding and institutional ownership are negatively correlated (-0.315), cross-shareholding and institutional ownership are not significantly related. This indicates that firms with high cross-shareholding ratios and firms characterized by substantial institutional ownership are not patently different.

Miyajima and Nitta (2011) reported that cross-shareholding among Japanese firms decreased between 1997 and 2004 due to lender banks selling shares during the banking crisis. If banks primarily sell shares of profitable firms, the remaining cross-shareholders would be clustered in poor-performing firms. In that case, cross-shareholding cannot, in and of itself, be considered the sole impetus behind any possible effect on corporate behaviors of such firms. However, neither

cross-shareholder ownership nor stable shareholder ownership are strongly correlated with ROA. This result is inconsistent with the notion that firms with high cross-shareholding ratios between 2004 and 2014 are concentrated in the poor performers. In contrast, cross-shareholder ownership is negatively correlated with market to book ratio (-0.179), implying that cross-shareholding is associated with lower valuation by the stock market and/or diminished future growth.

Although the cash ratio is negative correlated with cross-shareholding (-0.248), cross-shareholder ownership and leverage are not negatively related. Thus, we do not consider firms with a high degree of cross-shareholding to be financially constrained. In the regression analyses in the following section, we control for both cash ratio and leverage.

Table 2 Correlation Matrix

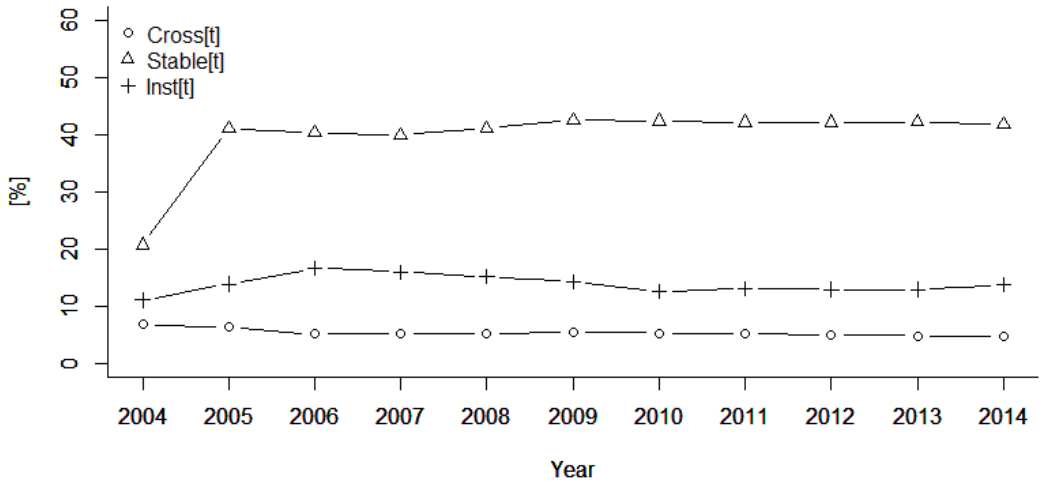
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
(1)	CAPEX[t]	1.000																
(2)	M&A[t]	-0.002	1.000															
(3)	R&D[t]	0.045	0.030	1.000														
(4)	Sub dummy[t]	-0.006	0.042	-0.001	1.000													
(5)	Reducing Seg dummy[t]	-0.021	0.026	0.007	0.059	1.000												
(6)	Risk-taking[t]	0.058	0.077	0.223	0.027	0.070	1.000											
(7)	Cross[t-1]	-0.072	-0.058	-0.119	-0.044	-0.046	-0.240	1.000										
(8)	Stable.exc.Cross[t-1]	0.003	-0.014	-0.061	-0.047	-0.009	-0.051	-0.262	1.000									
(9)	Inst[t-1]	0.104	0.012	0.120	0.113	0.005	-0.083	-0.036	-0.315	1.000								
(10)	Ind[t-1]	0.027	0.040	0.105	0.061	0.061	0.141	-0.124	0.003	0.086	1.000							
(11)	Dir[t-1]	0.073	0.048	0.053	-0.034	0.023	0.225	-0.287	-0.288	-0.184	0.006	1.000						
(12)	SO[t-1]	0.090	0.084	0.156	0.070	0.040	0.206	-0.217	-0.100	0.120	0.154	0.258	1.000					
(13)	MtoB[t-1]	0.132	0.113	0.102	0.016	0.022	0.249	-0.179	-0.028	0.021	0.082	0.182	0.189	1.000				
(14)	Cash[t-1]	-0.046	0.089	0.242	-0.031	0.022	0.312	-0.248	-0.106	-0.020	0.119	0.362	0.246	0.221	1.000			
(15)	Lev[t-1]	0.046	-0.027	-0.106	0.111	0.051	-0.015	0.033	-0.078	-0.069	0.007	-0.023	-0.035	0.053	-0.375	1.000		
(16)	LnAssets[t-1]	0.020	-0.044	-0.047	0.172	0.001	-0.348	0.160	-0.083	0.617	-0.012	-0.399	-0.102	-0.164	-0.375	0.157	1.000	
(17)	ROA[t-1]	0.133	-0.019	-0.143	-0.023	0.023	-0.045	-0.020	0.039	0.083	-0.004	0.023	0.003	0.042	0.080	-0.233	0.077	1.000

CAPEX is the ratio of capital expenditures to total assets; M&A is the ratio of the value of M&A transactions to total assets; R&D is the ratio of research and development expenses to total assets; Sub dummy is a dummy variable that is equal to 1 if a company sells its subsidiary (which changes the scope of consolidation), and 0 otherwise, Reducing Seg dummy is a dummy variable that is equal to 1 if a company with multiple segments reduces the number of segments in which it operates, and 0 otherwise, Risk-taking is the standard deviation of industry-year adjusted ROA for the past 10 years (ROA is calculated by using an operating profit). Cross is the ratio of the number of cross-held shares to the number of outstanding shares; Stable.exc.Cross is the ratio of the number of shares held by stable shareholders except for cross-shareholders and directors to the number of outstanding shares; Inst is the ratio of the number of shares held by institutional investors to the number of outstanding shares; Ind is the ratio of the number of outside directors who are independent from stakeholders to the number of directors; Dir is the ratio of the number of shares held by directors to the number of outstanding shares; SO is a dummy variable that is equal to 1 if a firm uses a stock-option system, and 0 otherwise; MtoB is the ratio of stock market capitalization to net assets; Cash is the ratio of the sum of cash and short-term securities to total assets; Lev is the ratio of interest-bearing debt to total assets; LnAssets is the natural logarithms of total assets; and ROA is the ratio of operating cash flow to total assets.

Figure 1 illustrates the time series variation in cross-shareholder and stable shareholder ownership between 2004 and 2014. Stable ownership increased from 2004 to 2005, but this is due to change in the data provider's definition of stable shareholding. Specifically, from 2005 forward, the Nikkei NEEDS-Cges Database included treasure shares and corporate shareholding of more than 3% of the outstanding shares among stable shareholders. Given this definitional anomaly, we excluded FY 2004 from our analyses that include stable shareholding as a predictor. Barring that one outlying year, neither type of shareholding changed much in the time period of focus. This result also holds at the individual-firm level. The mean and median change in yearly cross-shareholding was only -0.06% and 0.00% respectively, indicating that both types of

shareholders are essentially constant. In addition, although cross-shareholding decreased from 1997 to 2004 (Miyajima and Nitta, 2011), Japanese firms seemed to maintain interlocking relationships in the subsequent period. Thus, any possible effect of cross-shareholding and stable shareholding on corporate management and behaviors is a topic of current import.

Figure 1 Changes in ownership structure among Japanese firms



Cross, Stable, and Inst respectively represent cross-shareholder ownership, stable shareholder ownership (except for managerial ownership), and institutional investor ownership.

5. Empirical Results

5.1 Empirical approach

To test the hypotheses developed in Section 3, we performed random-effects panel regression analyses. Similar to studies that have used corporate governance indexes as data, we did not use a firm fixed-effects model because cross-shareholding and stable shareholding did not change to a large extent over time. Inclusion of firm fixed effects would force the identification of the cross-shareholding coefficient from only small changes[7]. Therefore, we performed our analyses with a focus on the effects of ownership structure *across* firms rather than *within* firms.

In our regression analyses, we clustered standard errors by firm to adjust for cross-sectional heteroskedasticity and within-firm serial correlation of error terms. As a robustness check, we also employed propensity score matching to compare of treatment and control firms and the two-staged least squares method.

In the next section, we describe our multivariate regression analyses comprised of the variables. When the dependent variable is a dummy, we employ a random-effects probit regression.

[7] See the Section 3-C of Gompers et al. (2003).

First, we analyze the model which includes only the cross-shareholding ratio and control variables as predictors. We then add stable shareholding to the model as an independent variable. In both models, we include the following variables as controls: the market-to-book ratio (MtoB; to control for firms' investment opportunities), the cash ratio (Cash; to control for financial constraints), the natural logarithm of total assets (LnAssets), the leverage ratio (Lev), ROA, the industry dummy variables, and the year dummy variables. We lagged all explanatory variables for one year from the point of analyses, and removed all outlying variables from the analysis. We also excluded market-to-book ratios that were negative in sign.

5.2 Effects of cross- and stable shareholding on investments and business restructuring

We first tested Hypothesis 1 by examining whether cross-shareholding and/or stable shareholder ownership exert negative effects on investments and restructuring. To test these relationships, we tested separately regressed capital expenditures (CAPEX), M&A, and R&D on corporate investments. We standardized all variables by the firm's total assets at the previous fiscal year's end. The results of this regression analysis are shown in Table 3.

Table 3 Cross-shareholding and corporate investments

	CAPEX		M&A		R&D	
Cross[t-1]	-0.016 ***	-0.022 ***	-0.011 **	-0.015 ***	-0.005 **	-0.015 ***
	(-3.29)	(-3.93)	(-2.40)	(-2.61)	(-2.09)	(-4.08)
Stable.exc.Cross[t-1]		-0.008 **		-0.006		-0.010 ***
		(-2.44)		(-1.32)		(-3.17)
MtoB[t-1]	0.001 ***	0.001 ***	0.001 ***	0.001 ***	-0.000 *	-0.001 **
	(3.80)	(3.88)	(4.12)	(3.77)	(-1.83)	(-2.35)
Cash[t-1]	0.001	0.001	0.016 ***	0.014 **	0.002	0.002
	(0.21)	(0.09)	(2.65)	(1.98)	(0.29)	(0.31)
LnAssets[t-1]	0.001 *	0.001 **	0.000	0.000	-0.001	-0.001
	(1.91)	(1.97)	(0.04)	(0.16)	(-0.91)	(-0.71)
Lev[t-1]	-0.028 ***	-0.026 ***	-0.006	-0.006	-0.009 **	-0.009 **
	(-7.25)	(-6.63)	(-1.62)	(-1.46)	(-2.46)	(-2.41)
ROA[t-1]	0.010	0.009	-0.018 **	-0.014 *	-0.012	-0.008
	(1.43)	(1.37)	(-2.34)	(-1.82)	(-1.57)	(-1.51)
(Intercept)	0.040 ***	0.042 ***	0.006	0.007	0.026 ***	0.028 ***
	(6.74)	(6.50)	(0.78)	(0.79)	(3.25)	(3.38)
Industry	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes
N	21111	19068	18727	17099	14219	12813
R sq. : within	0.045	0.045	0.008	0.008	0.018	0.024
R sq. : bitween	0.171	0.181	0.068	0.057	0.338	0.327
R sq. : overall	0.139	0.145	0.021	0.019	0.319	0.325

CAPEX is the ratio of capital expenditures to total assets; M&A is the ratio of the value of M&A transactions to total assets; and R&D is the ratio of research and development expenses to total assets. Cross is the ratio of the number of cross-held shares to the number of outstanding shares; Stable.exc.Cross is the ratio of the number of shares held by stable holders except for cross shareholders and directors to the number of outstanding shares; MtoB is the ratio of stock market capitalization to net assets; Cash is the ratio of the sum of cash and short-term securities to total assets; Lev is the ratio of interest-bearing debt to total assets; LnAssets is the natural logarithm of total assets; and ROA is the ratio of operating cash flow to total assets. Industry and year fixed effects are included in all regressions. The values in parentheses are the t-values calculated by using the firm-cluster robust standard errors. ***, **, * are significance levels at 1%, 5%, and 10%, respectively.

Consistent with Hypothesis 1, our results show that cross-shareholding and stable shareholding are significantly and negatively related to capital expenditures and R&D. The regression model testing the effect of ownership structure on M&A produced mixed results; cross-shareholding was significantly and negatively related to M&A, but stable shareholding had no significant relationship. Taken together, these results produce support for H1, at least in relation to cross-shareholding. This suggests that managers who are protected from the threat of hostile takeovers and other shareholder pressure by cross-shareholders tend to invest less than those that are not.

Our results further show that the market-to-book ratio was significantly and positively

associated with capital expenditures and M&A. Interestingly, the market-to-book ratio was significantly and negatively related to R&D. This contradictory result may suggest that firms perform more R&D to prompt innovation when that firm has limited opportunities for growth.

The results of our analyses illustrate that respective decreases in cross-shareholding and stable shareholding by 8% and 19% (one standard deviation of the respective ratio) increases total investments by an amount equivalent to 0.7% of total assets. This effect is considerable, given that the average ratio of capital expenditures to total assets is 4.2% (see Table 1).

In summary, these results are consistent with the quiet life hypothesis for entrenched managers, but not with the free cash flow hypothesis or career concern hypothesis. Stable shareholding has largely similar effects as cross-shareholding, though the magnitude of the effects associated with the former are slightly weaker than those of the latter.

We next analyzed the effects of cross-shareholding and stable shareholding on a firm's restructuring activities. To evaluate this relationship, we constructed two dependent variables. The first is a dummy variable that takes the value of 1 when the firm divests its subsidiaries in a given fiscal year and 0 otherwise (i.e., sub dummy). The other is a dummy variable that takes the value of 1 if a firm reduces the number of its business segments in the given fiscal year and 0 otherwise (i.e., reducing seg dummy). To evaluate the regressions with these dummy dependent variables, we used a random-effects probit model. The results of these analyses are outlined in Table 4.

Table 4 Cross-shareholding and corporate restructuring

	Sub dummy		Reducing Seg dummy	
Cross[t-1]	-0.963 ***	-1.238 ***	-0.995 ***	-1.105 ***
	(-3.65)	(-4.31)	(-4.21)	(-4.32)
Stable.exc.Cross[t-1]		-0.231 *		-0.202 *
		(-1.93)		(-1.81)
MtoB[t-1]	0.003	0.003	0.022 ***	0.022 **
	(0.31)	(0.31)	(2.67)	(2.46)
Cash[t-1]	0.427 **	0.296 *	0.229	0.194
	(2.55)	(1.67)	(1.30)	(1.04)
LnAssets[t-1]	0.263 ***	0.254 ***	0.027 **	0.022 *
	(17.39)	(16.25)	(2.33)	(1.76)
Lev[t-1]	1.178 ***	1.086 ***	0.598 ***	0.560 ***
	(9.26)	(8.09)	(5.17)	(4.55)
ROA[t-1]	-0.827 ***	-0.901 ***	0.112	0.125
	(-3.99)	(-4.15)	(1.19)	(1.29)
(Intercept)	-4.224 ***	-3.981 ***	-1.946 ***	-1.820 ***
	(-22.95)	(-19.85)	(-12.41)	(-10.25)
Industry	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes
N	21112	19068	13845	12587

Sub dummy is a dummy variable that is equal to 1 if a company sells its subsidiary (which changes scope of consolidation), and 0 otherwise; and Reducing Seg dummy is a dummy variable that is equal to 1 if a company with multiple segments reduces the number of segments in which it operates, and 0 otherwise. Cross is the ratio of the number of cross-held shares to the number of outstanding shares; Stable.exc.Cross is the ratio of the number of shares held by stable shareholders except for cross-shareholders and directors to the number of outstanding shares; MtoB is the ratio of stock market capitalization to net assets; Cash is the ratio of the sum of cash and short-term securities to total assets; Lev is the ratio of interest-bearing debt to total assets; LnAssets is the natural logarithm of total assets; and ROA is the ratio of operating cash flow to total assets. Industry and year fixed effects are included in all regressions. The values in parentheses are t-values. ***, **, * are significance levels at 1%, 5%, and 10%, respectively.

Table 4 shows that both cross- and stable shareholding have significant and negative relationships with restructuring activities. Once again, cross-shareholding has stronger effects than stable shareholding (see the t-statistics associated with the coefficients). These results are consistent with H2; managers who are protected by cross-shareholders and stable shareholders are less likely to engage in restructuring activities.

Researchers and policy makers often comment that since the 1970s, non-manufacturing firms in Japan have been less productive than manufacturing firms (Fukao, 2010). Although many large, Japanese manufacturing firms (e.g., automobile manufacturers, electronics firms) are competitive

globally, most large Japanese non-manufacturing firms operate primarily within the domestic market. Because many sectors of Japanese service market are dominated by domestic firms, managers of these non-manufacturing firms tend to have greater opportunity to pursue the "quiet life" (e.g., avoid investing and restructuring) than their counterparts in manufacturing firms. Given these differences, it is possible that cross-shareholding may affect investment and restructuring activities for manufacturing firms differently than for non-manufacturing firms. To check for this possibility, we repeated our regression analyses (see Tables 3 and 4) after splitting our data into subsamples of manufacturing and non-manufacturing firms. See Table 5 for the results of this analysis.

Table 5 Regression analyses with manufacturing and non-manufacturing firm subsamples

Panel A Effects on investments

	CAPEX		M&A		R&D	
	manufacturing	Non-manufacturing	manufacturing	Non-manufacturing	manufacturing	Non-manufacturing
Cross[t-1]	-0.017 ***	-0.020 **	-0.016 ***	-0.011	-0.010 **	-0.023 ***
	(-2.85)	(-2.13)	(-3.99)	(-1.07)	(-2.26)	(-4.02)
Stable.exc.Cross[t-1]	-0.001	-0.010 **	-0.004	-0.006	-0.007 *	-0.016 ***
	(-0.36)	(-2.34)	(-1.34)	(-0.97)	(-1.82)	(-3.22)
MtoB[t-1]	0.002 ***	0.001 **	0.001 **	0.001 ***	-0.000	-0.001 **
	(4.04)	(2.53)	(2.04)	(2.94)	(-1.16)	(-2.55)
Cash[t-1]	-0.012 **	0.007	0.006	0.017	-0.010	0.019 **
	(-2.02)	(0.65)	(1.12)	(1.44)	(-1.49)	(2.16)
LnAssets[t-1]	0.003 ***	-0.002 **	0.001 ***	-0.001	-0.001	-0.001
	(7.41)	(-1.99)	(3.16)	(-0.84)	(-1.03)	(-0.80)
Lev[t-1]	-0.036 ***	-0.012 **	-0.011 ***	-0.002	-0.010 ***	-0.005
	(-8.00)	(-2.09)	(-3.39)	(-0.33)	(-3.26)	(-0.55)
ROA[t-1]	0.032 ***	0.005	-0.027 **	-0.009	-0.002	-0.019 *
	(4.18)	(1.02)	(-2.26)	(-0.95)	(-0.35)	(-1.72)
(Intercept)	0.003	0.066 ***	-0.007	0.017	0.028 **	0.028 **
	(0.35)	(6.65)	(-1.22)	(0.98)	(2.19)	(2.57)
Industry	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes
N	9574	9494	8799	8300	9252	3561
R sq. : within	0.097	0.022	0.007	0.010	0.033	0.034
R sq. : bitween	0.213	0.207	0.059	0.053	0.297	0.198
R sq. : overall	0.169	0.154	0.017	0.021	0.306	0.177

CAPEX is the ratio of capital expenditures to total assets; M&A is the ratio of the value of M&A transactions to total assets; and R&D is the ratio of research and development expenses to total assets. Cross is the ratio of the number of cross-held shares to the number of outstanding shares; Stable.exc.Cross is the ratio of the number of shares held by stable shareholders except for cross-shareholders and directors to the number of outstanding shares; MtoB is the ratio of stock market capitalization to net assets; Cash is the ratio of the sum of cash and short-term securities to total assets; Lev is the ratio of interest-bearing debt to total assets; LnAssets is the natural logarithm of total assets; and ROA is the ratio of operating cash flow to total assets. Industry and year fixed effects are included in all regressions. The values in parentheses are t-values calculated by using the firm-cluster robust standard errors. ***, **, * are significance levels at 1%, 5%, and 10%, respectively.

Panel B Effects on restructuring

	Sub dummy		Reducing Seg dummy	
	manufacturing	Non-manufacturing	manufacturing	Non-manufacturing
Cross[t-1]	-1.117 ***	-1.214 ***	-1.418 ***	-0.857 **
	(-2.96)	(-2.74)	(-3.76)	(-2.40)
Stable.exc.Cross[t-1]	-0.164	-0.233	-0.394 **	-0.086
	(-0.88)	(-1.45)	(-2.01)	(-0.62)
MtoB[t-1]	-0.011	0.002	-0.008	0.025 **
	(-0.52)	(0.24)	(-0.27)	(2.53)
Cash[t-1]	0.092	0.350	0.080	0.207
	(0.31)	(1.54)	(0.23)	(0.93)
LnAssets[t-1]	0.271 ***	0.237 ***	0.037 *	0.010
	(12.82)	(10.23)	(1.92)	(0.59)
Lev[t-1]	1.180 ***	1.058 ***	0.551 ***	0.549 ***
	(5.78)	(5.84)	(2.63)	(3.56)
ROA[t-1]	-0.943 **	-0.921 ***	-0.559	0.149
	(-2.36)	(-3.50)	(-1.07)	(1.43)
(Intercept)	-4.564 ***	-3.824 ***	-2.241 ***	-1.697 ***
	(-14.94)	(-13.52)	(-7.35)	(-7.48)
Industry	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes
N	9574	9494	6510	6077

Sub dummy is a dummy variable that is equal to 1 if a company sells its subsidiary (which changes scope of consolidation), and 0 otherwise; Reducing Seg dummy is a dummy variable that is equal to 1 if a company with multiple segments reduces its number of segments in which it operates, and 0 otherwise. Cross is the ratio of the number of cross-held shares to the number of outstanding shares; Stable.exc.Cross is the ratio of the number of shares held by stable shareholders except for cross-shareholders and directors to the number of outstanding shares; MtoB is the ratio of stock market capitalization to net assets; Cash is the ratio of the sum of cash and short-term securities to total assets; Lev is the ratio of interest-bearing debt to total assets; LnAssets is the natural logarithm of total assets; and ROA is the ratio of operating cash flow to total assets. Industry and year fixed effects are included in all regressions. The values in parentheses are t-values calculated by using the firm-cluster robust standard errors. ***, **, * are significance levels at 1%, 5%, and 10%, respectively.

These results show that cross-shareholding is significantly and negatively associated with all outcomes except for M&A among non-manufacturing firms. The effects associated with stable shareholding are more mixed (likely due to a smaller sample size). Among manufacturing firms, stable shareholding is significantly and negatively related to R&D and the reduction of business segments. Among non-manufacturing firms, stable shareholding is significantly and negatively related to capital expenditures and R&D expenses.

Taken together, these results indicate that the negative effects of cross-shareholding on investments and business restructures are common in both manufacturing and non-manufacturing firms.

An interesting question emerges from these results is if the negative effects of cross-shareholding on firm investments and restructuring activities is consistent in times of economic expansion and depression. To answer to this question, we included a term in the regression that represents the interaction between GDP growth and cross-shareholding. After including this interaction term, we found that the main effect of cross-holding remained significantly and negatively related to all outcomes, but the interaction term was significant (and negative) only for capital expenditures[8]. This result suggests that the negative influence of cross-shareholding on firm investments and restructuring occurs during both economic expansion and depression. However, because we only analyzed an eleven-year period in this study, analyses of longer periods of time may produce different results. This is one limitation of our study.

5.3 Cross- shareholding and risk taking

Although we found consistent evidences to support H1, because our analyses do not allow us to identify a firm's optimal investment level, the results presented thus far are not sufficient to definitively conclude that managers protected by cross-shareholding and stable shareholding under-invest. Accordingly, we measured a firm's tendency to take risks by industry-year adjusted standard deviation of ROA over the previous decade[9]. John et al. (2008) showed that this variable is positively associated with a firm's long-term growth. Managers often challenge projects that realize innovation and long-term growth, as these projects often result in higher volatility and uncertain future profitability of the firm. If there is a negative relationship between cross-shareholding and a

[8] For the sake of parsimony, we did not include this figure in the table.

[9] We first subtracted the industry-year matching average ROA from the firm's ROA. This yields an industry-year adjusted ROA for each respective firm. We then calculated the standard deviation for each firm-year of the last decade (if data for more than five years of ROA are available). Although it is impossible to directly observe *how* companies take risks, the performance of high-risk projects should result in a large distribution of ROA.

firm's tendency to engage in risk-taking, a negative coefficient accompanying the variables for cross- and stable shareholding would indicate that the firm under-invests. Thus, we test if companies with high cross- and stable shareholding ratios take fewer risks to confirm the presented supporting evidences for H1 indicate under-investment by the firms. The results of the regression analysis testing this are outlined in Table 6.

Table 6 Cross-shareholding and risk-taking

Dependent = Risk taking	All	Sub-samples	
		manufacturing	Non-manufacturing
Cross[t-1]	-0.019 ***	-0.019 ***	-0.019 ***
	(-4.84)	(-4.16)	(-2.95)
Stable.exc.Cross[t-1]	-0.007 *	-0.009 **	-0.004
	(-1.94)	(-2.46)	(-0.79)
MtoB[t-1]	0.001 **	0.000	0.001 **
	(2.25)	(0.88)	(2.06)
Cash[t-1]	0.005	0.005	0.005
	(0.77)	(1.02)	(0.44)
LnAssets[t-1]	-0.012 ***	-0.005 ***	-0.016 ***
	(-5.85)	(-5.38)	(-5.23)
Lev[t-1]	0.007	0.004	0.008
	(1.23)	(1.19)	(0.81)
ROA[t-1]	0.011 **	-0.013 **	0.012 ***
	(2.06)	(-2.34)	(2.78)
(Intercept)	0.167 ***	0.091 ***	0.211 ***
	(8.84)	(7.13)	(7.28)
Industry	Yes	Yes	Yes
Year	Yes	Yes	Yes
N	16562	8814	7748
R sq. : within	0.126	0.085	0.175
R sq. : bitween	0.298	0.251	0.327
R sq. : overall	0.257	0.213	0.301

Risk-taking is the standard deviation of industry-year adjusted ROA for the past 10 years (ROA is calculated by using an operating profit). Cross is the ratio of the number of cross-held shares to the number of outstanding shares; Stable.exc.Cross is the ratio of the number of shares held by stable holders except for cross-shareholders and directors to the number of outstanding shares; MtoB is the ratio of stock market capitalization to net assets; Cash is the ratio of the sum of cash and short-term securities to total assets; Lev is the ratio of interest-bearing debt to total assets; LnAssets is the natural logarithm of total assets; and ROA is the ratio of operating cash flow to total assets. Industry and year fixed effects are included in all regressions. The values in parentheses are t-values calculated by using the firm-cluster robust standard errors. ***, **, * are significance levels at 1%, 5%, and 10%, respectively.

The regression results show that the coefficients for cross-shareholding (in the analyses for the entire sample and all manufacturing and non-manufacturing firm subsamples) are significant and negative. Stable shareholding is negatively related to salient outcomes, but not significantly so for the non-manufacturing sub-sample. These results provide strong support for H1 relating to cross shareholders, though partial support relating to stable shareholders.

Taken together, the results presented in Tables 3-6 indicate that firms with higher cross-shareholding ratios invest less and engage in less restructuring than firms with lower cross-shareholding ratios. In addition, firms with high cross-shareholding ratios tend to take fewer risks, which may hinder a firm's future growth. These results collectively support H1 and H2.

Although ownership by cross shareholders tends to be lower than ownership by stable shareholders as shown in Table 1, cross shareholding ratio shows stronger negative effects on both investments and restructurings. This might be due to stronger relationship between the firms which have cross shareholding arrangements each other. Thus, we focus on cross shareholding in the additional analyses presented in the following sections.

5.4 Corporate governance and the quiet life problem

Because the quiet life problem is a form of agency problem, effective corporate governance should mitigate the negative effects of cross-shareholding on investments and restructuring actions. When managers pursue the quiet life under the protection of cross-shareholders, other mechanisms of governance may preclude them from reducing their efforts. In this section, we examine whether corporate governance measures make managers maintain high levels of effort.

Investors can use their voting power at shareholders' meetings to discipline managers. Although individual investors with small stakes in the firm have little incentive to monitor and/or discipline managers, institutional investors with large equity interests have the incentive and power to do so. Thus, it is likely that institutional ownership is positively related to disciplinary measures taken against managers that exert little effort in executing their responsibilities. Miyajima and Hoda (2015) reported that firm ownership by institutional investors had positive effects on corporate value and ROA, suggesting that institutional investors do exert some disciplinary pressure on managers. This can be illustrated by recent cases in which institutional investors have come to monitor managers more closely. Since the early 2000s, some activist hedge funds have begun to influence managerial decisions. Similarly, the influence exerted by proxy advisory firms (backed by institutional investors) has also increased in the form of intensified corporate governance. Although the quiet life hypothesis predicts that managers will exert less effort when protected by cross-shareholders and stable shareholders, institutional investor ownership may mitigate the strength of this relationship.

Outside directors also monitor firm managers. In the 2000s, an increasing number of firms employed independent directors to monitor and advise firm managers. These independent directors were allowed to participate in board meetings and obtain inside information related to the company. Given their access to the firm and salient information, they could monitor managers more effectively than shareholders. Related to this, Dahya and McConnell (2007) performed a study based on the UK's Cadbury Report. This report recommended at least three outside directors on a firm's board. Through their analysis, Dahya and McConnell (2007) found that, if a company increased the number of outside directors to comply the recommendation, ROA of the firm improved significantly. Saito (2011) similarly analyzed the effect of the introduction of outside directors on corporate performance in Japan. He reported that companies that introduced outside directors between 1997 and 2008 experienced significant increases in their ROA within a year. These studies suggest that outside directors effectively discipline managers. As suggested by Dahya et al. (2008), outside directors sent from a parent firm do not necessarily monitor managers in a way to benefit minority shareholders. Given this caveat, we excluded outside directors who represent their parent company and lending banks when calculating the independent director ratio.

Aligning shareholders' and managers' profits can also be an effective method of corporate governance meant to circumvent the aforementioned agency problem. As such, we use two variables to capture this alignment—director ownership and a stock-option dummy variable (1 if firm provides stock options for managers, 0 otherwise). According to Jensen and Meckling (1976), director ownership is key in mitigating the agency problem associated with managers seeking the quiet life. In this vein, Teshima (2004) found a positive relationship between director ownership and the Tobin's q of companies listed in the Tokyo Stock Exchange.

In this study, we consider the director ownership ratio to be a measurement of managerial incentive. If the ratio is high and managers hold stock options, those managers are likely to act in accordance with shareholder interests, thereby mitigating the quiet life problem due to cross-shareholding ownership. Table 7 provides the results of this analysis.

Table 7 Governance effects

	CAPEX	M&A	R&D	Sub dummy	Reducing Seg dummy	Risk-taking
Cross[t-1]	-0.041 ***	-0.023 ***	-0.007 **	-1.426 ***	-1.637 ***	-0.020 ***
	(-6.02)	(-3.68)	(-2.44)	(-3.75)	(-4.54)	(-4.68)
Cross[t-1]*Inst[t-1]	0.161 ***	0.069 **	0.012	2.675 *	2.211	0.042 **
	(5.49)	(2.18)	(0.99)	(1.84)	(1.62)	(2.23)
Cross[t-1]*Ind[t-1]	0.062 **	0.077	0.021 *	1.695	6.602 ***	-0.007
	(2.32)	(1.00)	(1.69)	(1.01)	(4.11)	(-0.57)
Cross[t-1]*SO[t-1]	-0.004	0.012 *	0.000	0.250	-0.167	0.004 *
	(-0.69)	(1.86)	(0.05)	(0.66)	(-0.42)	(1.86)
Cross[t-1]*Dir[t-1]	-0.040	-0.122 **	-0.059	-5.762	-7.438	-0.053
	(-0.53)	(-2.52)	(-1.34)	(-1.27)	(-1.48)	(-0.84)
MtoB[t-1]	0.001 ***	0.001 ***	-0.001 **	0.001	0.019 **	0.001 **
	(3.85)	(3.96)	(-2.20)	(0.14)	(2.28)	(2.30)
Cash[t-1]	0.000	0.017 ***	0.001	0.433 **	0.211	0.007
	(0.04)	(3.21)	(0.27)	(2.57)	(1.18)	(1.12)
LnAssets[t-1]	0.000	0.000	-0.001	0.248 ***	0.008	-0.011 ***
	(0.51)	(0.04)	(-0.92)	(14.95)	(0.61)	(-5.35)
Lev[t-1]	-0.026 ***	-0.003	-0.009 **	1.172 ***	0.605 ***	0.006
	(-6.75)	(-1.11)	(-2.32)	(9.13)	(5.15)	(1.12)
ROA[t-1]	0.009	-0.017 **	-0.011	-0.897 ***	0.139	0.012 **
	(1.40)	(-2.24)	(-1.58)	(-4.24)	(1.40)	(1.98)
(Intercept)	0.047 ***	0.005	0.027 ***	-4.071 ***	-1.777 ***	0.153 ***
	(7.20)	(0.97)	(3.28)	(-20.52)	(-10.18)	(8.31)
Industry	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes
N	20901	18554	14124	20902	13735	18033
R sq. : within	0.045	0.009	0.020			0.111
R sq. : bitween	0.183	0.083	0.331			0.296
R sq. : overall	0.146	0.022	0.322			0.251

CAPEX is the ratio of capital expenditures to total assets; M&A is the ratio of the value of M&A transactions to total assets; R&D is the ratio of research and development expenses to total assets; Sub dummy is a dummy variable that is equal to 1 if a company sell its subsidiary (which changes scope of consolidation), and 0 otherwise, Reducing Seg dummy is a dummy variable that is equal to 1 if a company with multiple segments reduces the number of segments in which it operates, and 0 otherwise. Cross is the ratio of the number of cross-held shares to the number of outstanding shares; Stable.exc.Cross is the ratio of the number of shares held by stable shareholders except for cross-shareholders and directors to the number of outstanding shares; Inst is the ratio of the number of shares held by institutional investors to the number of outstanding shares; Ind is the ratio of the number of outside directors who are independent from stakeholders to the number of directors; Dir is the ratio of the number of shares held by directors to the number of outstanding shares; SO is a dummy variable that is equal to 1 if a firm uses a stock option system, and 0 otherwise; MtoB is the ratio of stock market capitalization to net assets; Cash is the ratio of the sum of cash and short-term securities to total assets; Lev is the ratio of interest-bearing debt to total assets; LnAssets is the natural logarithm of total assets; and ROA is the ratio of operating cash flow to total assets. Industry and year fixed effects are included in all regressions. We estimated random-effects models for CAPEX, M&A, and R&D and random-effects probit models for the Sub dummy and Reducing Seg dummy. The values in parentheses are t-values, which are calculated by using the firm-cluster robust standard errors for CAPEX, M&A, and R&D. ***, **, * are significance levels at 1%, 5%, and 10%, respectively.

The positive and significant coefficients for interaction terms (cross-shareholding × institutional ownership) in the regression models on capital expenditures, M&A, and divesture indicate that greater institutional ownership significantly mitigates the negative effects of cross shareholding on these three behaviors. Our results similarly demonstrate that a firm's independent director ratio mitigates the negative effect of cross-shareholding on a firm's capital expenditures and R&D, as well as a manager's tendency to reduce the number of business segments in which a firm operates. However, stock options only mitigate the negative effect of cross-shareholding on M&A. Director ownership had no significant effect on how cross-shareholding influences these outcomes.

In sum, our results indicate that as a form of corporate governance, monitoring by institutional investors and independent directors significantly mitigates the negative effect of managers' pursuit of the quiet life on multiple outcomes. This is consistent with the original quiet life hypothesis, which predicts that managers who do not face discipline as a result of their actions are likely to avoid making difficult decisions that may upset a firm's status quo.

6. Robustness tests

Although the results presented above are consistent with H1 and H2, because our results depend on the linear regression models, there is a potential misspecification problem. In addition, we did not include a firm fixed effect in the regression models, it is still possible that our presented results are driven by unobservable time invariant factors that correlate with cross shareholding. It is possible that better-performing firms had already resolved any problems related to interlocking shareholding arrangements. In this case, firms characterized by a high proportion of cross-shareholders may cluster as poor-performing firms. Although we included both the market-to-book ratio and ROA as predictors in the models to avoid this possibility, we also performed two robustness tests to address potential problems associated with endogeneity. To address above two potential issues, we conduct two robustness tests; the first is a propensity score matching test; in the second, we employed a two-stage least squares (2SLS) method with an instrumental variable.

In the propensity score matching test, we first divided sample firms into tertiles for each year by cross shareholding ratio. We then used the propensity score matching method to select control firms for the first tertile—which is comprised of firms with the highest cross-shareholding ratio—from the second and third tertile firms. In performing the propensity score matching analysis, we used the same control variables as those outlined in Table 3, and chose the nearest-matching firm as the control firm. Using this method, we selected control firms with similar characteristics as the treatment firms. Table 8 shows the results of mean- and median-difference tests that compare

the treatment firms (first tertile) and their corresponding control firms.

Table 8 Propensity score matching test

variables		treatment	control	t-stat or z-stat
CAPEX	Mean	0.0380	0.0393	-2.149 **
	Median	0.0301	0.0304	-1.958 *
M&A	Mean	0.0037	0.0049	-1.674 *
	Median	0.0000	0.0000	-2.664 ***
R&D	Mean	0.0181	0.0214	-5.379 ***
	Median	0.0117	0.0129	-3.668 ***
Risk-taking	Mean	0.0194	0.0237	-14.234 ***
	Median	0.0162	0.0187	-13.658 ***

The propensity scores are calculated using an estimated logit model in which the dependent variable is a dummy variable that is equal to 1 if a firm can be classified among the treatment firms, and 0 otherwise; the independent variables in the model are MtoB, Cash, Lev, LnAssets, ROA, and Industry fixed effects, all of which are lagged by one year. MtoB is the ratio of stock market capitalization to net assets; Cash is the ratio of the sum of cash and short-term securities to total assets; Lev is the ratio of interest-bearing debt to total assets; LnAssets is the natural logarithm of total assets; and ROA is the ratio of operating cash flow to total assets. CAPEX is the ratio of capital expenditures to total assets; M&A is the ratio of the value of M&A transactions to total assets; R&D is the ratio of research and development expenses to total assets; and Risk-taking is the standard deviation of industry-year adjusted ROA for the past 10 years (ROA is calculated by using operating profit). We respectively report t-statistics and z-statistics for t-tests and Wilcoxon signed-rank tests. ***, **, * are significance levels at 1%, 5%, and 10%, respectively.

Table 8 shows that all three investment metrics (CAPEX, M&A, and R&D), as well as risk-taking, were significantly lower among treatment firms relative to control firms. In addition, although we do not show in the table, both the Sub dummy and Reducing Seg dummy associated with the treatment firms were lower than in their control firms in McNemar's chi-squared tests (McNemar's chi-squared test, $p < 0.01$ and 0.10, respectively). As such, these robustness tests provide further support for H1 and H2.

Second, in the 2SLS tests, we used firm age as an instrumental variable. Hoshi and Kashyap (2001, p. 126) reported that cross-shareholding, as a practice, originated in the 1960s, and declined between 1997 and 2004 (see Miyajima and Nitta, 2011). These historical trends suggest that cross-shareholding was essentially a 20th century practice. As such, firm age should be intrinsically related to the cross-shareholding ratio. In our data, the correlation between cross-shareholding and the natural logarithm of firm age is 0.30; the correlation between cross-shareholding and ROA is only -0.04. In the first stage regression, we used the same control variables as those listed in Table 3. The coefficient associated with the natural logarithm of firm age is 0.032 ($t = 37.80$). The F-statistic for the overall model is 129.264. Table 9 summarizes the results of the second-stage regression results[10].

[10] In the 2SLS analysis, we used linear probability models for the equations predicting the Sub dummy and Reducing Seg dummy.

Table 9 Second stage regression results of 2SLS

	CAPEX	M&A	R&D	Sub dummy	Reducing Seg dummy	Risk-taking
Cross[t-1]	-0.152 ***	-0.025	-0.173 ***	-1.132 ***	-0.336 ***	-0.219 ***
	(-6.01)	(-1.41)	(-5.18)	(-6.33)	(-3.28)	(-10.61)
MtoB[t-1]	0.001 ***	0.001 ***	-0.001 ***	-0.002 *	0.002 *	0.001 ***
	(7.95)	(7.05)	(-6.21)	(-1.85)	(1.69)	(10.08)
Cash[t-1]	-0.007 **	0.014 ***	0.002	0.000	-0.003	0.007 ***
	(-2.31)	(3.86)	(0.78)	(0.01)	(-0.11)	(3.43)
LnAssets[t-1]	0.001 ***	0.000	-0.000	0.045 ***	0.003 **	-0.009 ***
	(4.08)	(0.43)	(-0.29)	(17.70)	(2.42)	(-28.72)
Lev[t-1]	-0.023 ***	-0.006 **	-0.005 ***	0.199 ***	0.070 ***	0.010 ***
	(-9.51)	(-2.50)	(-2.58)	(9.87)	(5.04)	(5.87)
ROA[t-1]	0.011 ***	-0.019 ***	-0.014 ***	-0.037 **	0.034 **	0.011 ***
	(5.82)	(-4.06)	(-6.26)	(-1.96)	(2.08)	(11.43)
(Intercept)	0.041 ***	0.006 *	0.025 ***	-0.292 ***	0.033 *	0.140 ***
	(10.57)	(1.87)	(6.28)	(-10.07)	(1.71)	(43.68)
N	21111	18727	14219	21112	13845	18147
R sq. : within	0.025	0.007	0.001	0.001	0.102	0.030
R sq. : bitween	0.151	0.070	0.281	0.097	0.051	0.254
R sq. : overall	0.114	0.021	0.255	0.039	0.095	0.206

CAPEX is the ratio of capital expenditures to total assets; M&A is the ratio of the value of M&A transactions to total assets; and R&D is the ratio of research and development expenses to total assets. Sub dummy is a dummy variable that is equal to 1 if a company sells its subsidiary (which changes scope of consolidation), and 0 otherwise; Reducing Seg dummy is a dummy variable that is equal to 1 if a company with multiple segments reduces the number of segments in which it operates, and 0 otherwise. Risk-taking is the standard deviation of industry-year adjusted ROA for the past 10 years (ROA is calculated by using an operating profit). Cross is the ratio of the number of cross-held shares to the number of outstanding shares; Stable.exc.Cross is the ratio of the number of shares held by stable shareholders except for cross-shareholders and directors to the number of outstanding shares; MtoB is the ratio of stock market capitalization to net assets; Cash is the ratio of the sum of cash and short-term securities to total assets; Lev is the ratio of interest-bearing debt to total assets; LnAssets is the natural logarithms of total assets; and ROA is the ratio of operating cash flow to total assets. Industry and year fixed effects are included in all regressions. The values in parentheses are t-values calculated by using the firm-cluster robust standard errors. ***, **, * are significance levels at 1%, 5%, and 10%, respectively.

In Table 9, Cross represents the figure estimated from the first stage regression. The coefficients associated with Cross are significant ($p < 0.01$) and negative, except for the model predicting the M&A ratio. The results further confirm the results outlined in Tables 3, 4, and 6. That is, a greater degree of cross-shareholding results in lower capital expenditures, lower R&D investments, fewer restructuring actions, and less risk-taking. These results provide further support for H1 and H2.

7. Conclusion

In this paper, we have empirically examined the effects of cross-shareholding and stable shareholding on corporate behaviors. Our results are consistent with the quiet life hypothesis (Bertrand and Mullainathan, 2003), which claims that managers who are protected from the disciplinary effects of the capital market avoid making difficult business decisions and exert less effort in the performance of their duties. Although cross-shareholding in Japan decreased between 1997 and 2004, contemporary cross-shareholding exerts negative effects on investments and the frequency of restructuring activities among Japanese firms. These firms also engage in less risk-taking, which may lead to reduced growth in the future.

These results are not consistent with the free cash flow hypothesis (Gompers et al., 2003; Harford, 1999; Jensen, 1986) which predicts that entrenched (i.e., protected) managers will overinvest. This conclusion, combined with the test of the quiet life hypothesis, indicates that managers will seek to maintain a peaceful status quo when protected by the umbrella of cross-shareholding. In this way, cross-shareholding has substantial indirect costs. To illustrate, Table 9 shows that relative to control firms, firms with the highest proportion of cross-shareholders annually utilize 0.1% less of their total assets for capital goods, 0.1% less for M&A, and 0.3% less for R&D. In total, firms characterized by substantial cross-shareholding use 0.5% less of their total assets than control firms per year. This is a significant amount, considering that the mean of these three investment types represents about 7% of the firm's total assets (see Table 1).

Our results also show that enhanced governance measures, including monitoring by institutional investors and independent directors alleviate the costs of quiet life problem. Therefore, policies which enhance monitoring mechanism for managers by outsiders may be useful to encourage managerial risk-taking in Japanese firms where the quiet life problem may emerge.

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