Corporate governance systems and firm value: empirical evidence from Japan's natural experiment

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Abstract

Purpose – *This paper aims to present evidence that the adoption by Japanese firms of a shareholder-oriented, more transparent, system of corporate governance creates greater corporate value in comparison to the traditional system of statutory auditors.*

Design/methodology/approach – *This study uses panel data of Tokyo Stock Exchange listed companies to explore the potential convergence of corporate governance systems by examining the value differences between Japanese firms selecting one of two legal systems. A random-effects panel regression is used to analyze the data. The dependent variable of the study is Tobin's q.*

Findings – *This paper finds a significant increase in firm valuation, as measured by Tobin's q, for companies that adopted the alternative of the Anglo-American type committee system, even though comparative financial data show little difference in performance after adoption. This finding is attributed to signal sending, as companies that adopted this system signal a choice toward transparency via monitoring by outsiders, suggesting a reduction of asymmetric agency costs. The paper finds that the committee corporate governance system produces higher corporate value than the traditional auditor governance. The study also finds evidence that it is the signal provided by adoption of the credible system, not the financial performance variables, that accounts for this difference.*

Social implications – *The data support the central idea that corporate governance laws have consequences and encourages additional study of the effects of corporate signaling and the consequences of increased shareholder orientation of agents.*

Originality/value – *This paper takes advantage of the unique opportunity afforded by Japan's introduction of a dual system of corporate governance in 2003, when companies were offered a choice to adopt a new system of outside directors, which is a shareholder-oriented committee system. It establishes that firm value can be created by a signal that corporate governance provides.*

Keywords *Corporate governance, Japan, Committee system, Boards of Directors, Shareholders, Auditors*

Paper type *Research paper*

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Introduction

Recent economic turmoil has refocused examination of corporate governance systems. Seen by some observers as the standard of corporate governance, the US system of shareholder-oriented governance by board committees and independent directors has come under re-examination. Before September 2008, many observers describe a *de facto* convergence on the Anglo-American governance model reasoning that the purported economic efficiency of that model will motivate governments to adopt legal structures to emulate its norms (Hansmann and Kraakman, 2001). In Japan, this motivated firms such as Sony and Hitachi to create Anglo-American governance institutions within the laws that then existed there, and foreign shareholders exerted influence to revise corporate governance practices (Deakin and Whittaker, 2009; Ahmadjian, 2003; Nottage and Wolff, 2005). However, the question of whether the adoption of a different corporate governance system results in demonstrably differential corporate value to thus drive convergence remains

incompletely addressed. Now, with US corporate governance practices being called into question for failures of incentives and monitoring inefficacies, examination of the purported benefits from an Anglo-American corporate governance system seems beneficial.

Despite the abundant academic research on comparative corporate governance systems where much attention is paid to the issue of convergence the issue remains unresolved. One important stream of literature argues that increasing assets values on financial markets during the 1990s drove firms to seek listings on US exchanges and consequently caused those firms to adopt US corporate practice (Nakamura, 2010). In this stream, the mechanism of convergence on an Anglo-American system is economic gain (Hansmann and Kraakman, 2001; Jacoby, 2002). Recent studies found a link between a firms value using the Institutional Shareholder Services database to score firms with seven dimensions of corporate governance centered on the Anglo-US model and found valuation positively related to score (Brown and Caylor, 2006). Using similar methods, a study of Japanese firm performance under varying corporate governance variations found that Japanese firms with higher scores reflecting conformance to the Anglo-US model had better performance as measured by return on assets and Tobin's q. That paper found that increasing economic pressure from Japanese capital markets encouraged corporate managers to attempt corporate governance reform and found reform more likely the higher the percentage of foreign investors and a lower percentage of long-term, stable shareholders (Miyajima, 2006). Some scholars in this stream argue that convergence towards the Anglo-American shareholder-oriented model has already occurred to a ''shareholder-oriented model of corporate governance, involving extensive use of market-based control mechanisms to guide corporate activity and corporate law'' (Nottage and Wolff, 2005). There is some evidence that a convergence of opinion on corporate governance principles, such as the necessity of transparent information systems (Khanna *et al.*, 2006), or the US market for corporate control (Jensen and Ruback, 1983).

A related but contrasting stream of research argues that the path-dependent nature of corporate governance structures via the presence of sunk costs, the logic of corporate governance, complementarity, or institutional inertia imply that any convergence will be gradual if not outright resistance (Bebchuk and Roe, 1999; Schmidt and Spindler, 2002; Gordon *et al.*, 2004). Moreover, comparative institutional analytic literature suggests that path-dependent systems of corporate governance derive from the underlying local organizational and industrial architecture (Aoki and Jackson, 2008) or historical-economic context (Greif, 2006; Nottage and Wolff, 2005; Nottage *et al.*, 2008). A study using event-study methods to compare share prices of Japanese firms that adopted new governance structures found little discernable difference in the value of the firms as tested by stock price trajectories (Gilson and Milhaupt, 2004).

Resolution of the debate between convergence and path-dependence is incompletely resolved because it is difficult to adjudicate with only theoretical work and empirical examinations of single systems in an economic domain are inevitably confounded by local conditions as they change over time. Cross-national comparisons are confounded by fundamental economic dynamics and rarely do when diverse corporate governance regimes are extant at the same time in a national system, they are focused on differing legal purposes, say partnership versus corporation, and thus the legal functional differences confound efficiency comparisons. Indeed, recent works proposes that even if governance practices should follow path-dependent trajectories and retain formal structures, there may be a convergence in functionality, given similar economic forces (Gilson, 2001). A reasonable comparison for analysis requires that systems of corporate governance co-exist in an economic ecosystem so that comparative efficiencies and perhaps convergence itself can be observed. Accordingly, an empirical study sufficient to establish convergence beyond the analytic understanding of system changes remains elusive.

Japan provides an opportunity to study this empirical conundrum in a law enacted in 2002 allowing two corporate governance systems to operate concurrently in the same corporate domain, Japanese stock issuing public corporations. The Japan Commercial Code revision of 2002 introduced a new committee system similar to Anglo-American systems, designed

deliberately as a competitor to the then extant stakeholder-oriented system. By April 2009, 112 publicly traded companies, including prominent business groups like Hitachi, Nomura, and Sony, adopted the new system[1]. This study proposes that by examining the differences in value among firms in the same national economy at the same time, useful data might be generated that can contribute to this inquiry. Such opportunity for study, by having two legal structures operate in one economy at the same time, is seldom available.

This paper, seeking to address the empirical need, examines the comparative change in corporate value upon a Japanese firm's adoption of the committee system of corporate governance against the value of firms that did not transform, and finds higher value among adopting firms. The implication of this result is relevant to research on corporate governance convergence as well as agency costs from information asymmetries.

Japanese corporate governance reform

The contingent governance system of Japanese firms is characteristic of the postwar period (Aoki, 1990; Aoki and Dore, 1994). In this system, the firm manages its own affairs supervised by boards usually composed of insiders promoted from the managerial ranks unless the corporation found itself in financial difficulty. In that contingency the financers of the firm, usually the bank, would rescue or liquidate the firm (Aoki and Patrick, 1994). In part to detect such contingencies, a monitor, or committee of monitors, called a ''statutory auditor,'' or *kansayaku* in Japanese, is chartered to audit and present the financial and legal condition of the firm to shareholders (JCAA, 2008). Although the shareholders elect the auditor, the nomination depends on the board consisting of managers who report to the CEO.

A broad academic and practitioner criticism arose of this contingent governance and associated monitoring system during the 1990s in response to changes in Japan's socio-economic environment in the post-bubble period. Beginning in 1997 during the continuing broad economic slowdown and the contrasting equity market boom in the US, Japan underwent a series of aggressive reforms to its corporate governance legal structure (Schaede, 2008; Shishido, 2007; Vogel, 2006; Milhaupt, 2003). In 2003, one of the series of reforms to the commercial code permitted the optional adoption of a shareholder-oriented, Anglo-American form of corporate governance option for Japanese firms called the ''committee system'' (*iinkai secchi kaisha*; abbreviated to ''*iinkai*'' in this paper.). Alternatively, firms could continue with the incumbent ''statutory auditor'' system, called *kansayaku secchi kaisha*, termed ''*kansayaku*'' in this paper. The law became available in 2003 and some 40 public firms adopted the *iinkai* system in its first year, growing to 112 firms by January 2008, even though a few firms have rescinded the adoption (JCAA, 2008).

The *kansayaku* (auditor) system

Before 2006, a *kansayaku* company had at least one representative director and one auditor. The board of directors appoints a representative director, who legally and personally represents the company, and may optionally appoint subordinate executive directors. The representative director and executive directors manage the company under the supervision of the board of directors. The *kansayaku* are nominated by the representative directors and confirmed by the shareholders. While their role differs depending on the size of the company, fundamentally the *kansayaku* is to audit financial accounting and certify the directors' proper and legal execution of affairs[2]. In larger companies, more than one auditor performs these tasks.

In a *kansayaku* firm, both the board of directors and the corporate auditors are expected to monitor and control the firm, but the *kansayaku* gained a reputation of ineffectiveness in this role (Sarra and Nakahigashi, 2002). They were not nominated by shareholders and rarely rejected by them, were poorly supported with inside staff with divided loyalties, and had poor status as they were often viewed as senior employees who failed to become directors (Ahmadjian, 2003). Perhaps more importantly, the *kansayaku* lacked sanctioning authority – the power to nominate, appoint, or remove directors – and thus could not necessarily

enforce shareholder or employee interests. Frequently the board that nominated the auditors consisted of managers whom rarely challenged a chief executive. Thus, the question of who monitors the monitor was inadequately resolved in this system. With management retaining both selection and retention decisions with respect to the *kansayaku*, the incentives of the system simply did not include the primary interests of shareholders and other stakeholders and was thus inconsistent with the concepts of stakeholder advocacy in Japanese corporate governance[3].

The *iinkai* (committee) system

The *iinkai* system is a shareholder-oriented alternative to the *kansayaku* system enacted in 2002 but available for adoption in 2003. It was METI's original intention, during the formulation of reforms in the late 1990s, to simply replace the *kansayaku* system with an Anglo-American committee system, giving a more ascendant position to shareholders through a governing system by committees of independent directors modeled on reforms innovated by Sony (Whittaker and Deakin, 2009). Firms could choose either system following shareholder approval. Its designers supposed that this might also create competition between the two systems and thus perhaps the market would select the more efficient system and improvements to corporate governance would follow (Nottage and Wolff, 2005).

In contrast to statutory auditor companies, *iinkai* companies have three committees – a nominating committee, an audit committee, and a compensation committee – and must appoint one or more executive officers. The board of directors appoints the members of each committee of three or more directors with outside directors holding the majority of each committee. These committee's decisions are immune to veto by either the whole board or the management, including the president or CEO[4] (Ohara, 2009). In an *iinkai* firm, similar to a *kansayaku* firm, executive authority rests with the president and subordinate executive officers. The nominating committee appoints the president and executive officers. Another board level committee, subject to confirmation by the shareholders, determines compensation for the president and executive officers. Moreover, the financial information reported to shareholders as well as the legal veracity of company actions are monitored and certified by an audit committee. Since these key functions – executive pay, executive appointment, and financial monitoring – are supervised by committees, the majority of whose members are outsiders, and which cannot be overruled by the president, the *iinkai* system was, and is, hoped by its designers to provide more transparent and effective monitoring.

From a shareholder's point-of-view, the *iinkai* system has advantages from an agency perspective (Eisenhardt, 1989). First shareholders can credibly rely on the selection of the system as a signal of good intent because it is costly for management to send (Farrell and Rabin, 1996), and cannot be secretly revoked. Secondly, outside director participation on audit, compensation and nomination committees can be associated with a greater risk of detection of inappropriate behaviors and an increased risk of sanctions upon detection. Third, Itt may be that by selecting the new system, wherein management submits its books and other records to outside directors for examination, away from the supervision of the CEO and the board of directors, a firm signals a willingness to be examined by outsiders and more closely align its interests with its shareholders[5]. To the extent that transparency is the disclosure of accurate information to outsiders (Bushman *et al.*, 2004), the *iinkai* system is more transparent and might therefore accrue greater value in the capital markets. Overall, the adoption of the committee system is a credible signal that assures shareholders of lower costs of agency by reducing asymmetric information. Such better alignment between management and shareholder is likely to have positive valuation and performance effects (Nyberg *et al.*, 2010):

P1. Firms that adopt the *iinkai* system will have greater value for shareholders after adoption.

Firms are unlikely to rapidly show performance changes after adoption of the *iinkai* system. Recent literature demonstrates in a survey of Japanese CEOs, directors, and senior

managers that corporate governance practice did not depend on whether a firm selected one system or another (Buchanan and Deakin, 2007). They concluded that the adoption of western structures does not result in actual practices that diverge widely from the more traditional models. Moreover, it is unlikely that affirms will alter its operations to a great extent over a several month period to either materially upgrade or downgrade sales and profits or even employment. Prior empirical surveys comparing *kansayaku* and *iinkai* firm performance as measure by stock prices forums little changed after one year (Gilson and Milhaupt, 2004):

P2. Firms that adopt the *iinkai* system will show no material change in sales or profitability after adoption.

The institutional difference between the *iinkai* and *kansayaku* systems has eroded. In a corporate governance form-versus-function phenomenon anticipated by Gilson in 2001, essential features of the *iinkai* system such as outside directors and the separation of executive management from board management are increasingly being adopted by many traditional firms (Gilson, 2001). While only about 100 firms adopted the *iinkai* system, a Tokyo Stock Exchange Survey of 2006 found that 42.3 percent of all listed companies had outside directors (Tokyo Stock Exchange, 2007). In 2005, Japan enacted a further revision to its commercial code, which reformed the authority and responsibilities of *kansayaku* firms that requires them to more closely resemble *iinkai* firms (Takahashi and Madoka, 2005). The law provided that, for large public companies, the majority of the appointed auditors must be independent and that at least one of a firm's auditors must be engaged by the firm on a full-time basis. Moreover, the new law required firms to establish either governing bodies, such as a board of *kansayaku* consisting of accounting consultants (*kaikei san'yo*), or the three committees (nominating committee, audit committee and compensation committee), which are close analogs of the *iinkai* framework. With the 2005 law, then, a *kansayaku* firm could closely mimic an *iinkai* system firm in almost all its essential features. The difference in the institutional framework was therefore at its greatest from 2003 through 2005 and those years are the focus of the quasi-natural experiment examined in this paper:

P3. Differences in value between firms that adopt the *iinkai* system and others will diminish after adoption.

Empirical methodology

The sample

Proprietary and public databases are used for this research. To learn company financial information for Tobin's q computations, two sources are employed. For non-financial statement data that is not available from the Thomson reports, such as the presence of a stock option, we relied on data sources from the Financial Services Agency of the Japanese Government, (Financial Services Agency, 2008). The data for this study consists of *kansayaku* and *iinkai* companies, with the *iinkai* firms identified by the Japanese Corporate Auditors Association, www.kansa.or.jp (JCAA, 2008). They include 103 Japanese firms that have adopted the system through December 2007[6]. To control for differences across industries, the 103 companies were grouped into industry groups using the Japan Standard Industrial Classification system. Selected firms are publicly traded and have data on relevant variables available during the study period of the 1999-2007 fiscal years. Financial and company data are sourced from Thomson Financials One Banker database. Of the 103 total available firms, a market price is not directly obtainable for 21 firms because they are subsidiaries of other companies. As subsidiaries, assigning parent company employees to the committees might compromise the independence of board committees, which is consistent with law. In addition, most of these subsidiaries have Hitachi as the parent and inclusion of all these Hitachi related companies was thought to introduce bias into the sample. Moreover, forty *iinkai* companies were unsuitable for the analysis because they were private or had insufficient available information caused by bankruptcy or merger. The remaining forty-two *iinkai* firms were classified into six industry-type categories based on their SIC codes: finance, electronics, pharmaceuticals, manufacturing, trade, and

internet/communications. Five dummy variables control for these differing industries in the regression analysis.

For *kansayaku* companies, we assigned all companies from the ''Kaisha Shikiho (会社四季報) 2007,'' into JSI classifications and then into one of the six industry-type categories. From these categories, 86 companies for the years FY1999 through FY2007 were selected at random proportionate to the industries in the *iinkai* sample. The study uses this proportional sampling technique because the frequency of pharmaceutical and Internet companies in the *iinkai* sample that was substantially different from the population of *kansayaku* companies that bias might occur if a simple random sampling was used. Most sampled companies have a March 31 fiscal year end and the study uses year-end data. In the few cases where the fiscal year is not 3/31, the actual close is within one quarter and should not introduce bias into the results. Complete lists of *iinkai* and *kansayaku* study companies are in Appendices 1 and 2 respectively.

Dependent variable – Tobin's q

Consistent with past research, we use Tobin's q ratio to measure a firm's value. The q ratio is used in studies such as cross-sectional differences in investment and diversification decisions, the relationship of managerial equity ownership and firm value, the relationship between managerial performance and tender offer gains, investment opportunities and tender offer responses, and financing, dividend, and compensating policies (Chung and Pruitt, 1994). For this study, Tobin's q calculations follow the method of Chung and Pruitt (1994), which resolves the practicable difficulties of calculating the q-value since market values of assets are difficult to obtain or estimate *ex post*. Their method instead estimates the market value of the firm as the sum of the market value of common and preferred shares for the period under examination, plus the current liabilities (net of current assets), book value of inventories, and long-term debt. This sum is divided by the total book value of assets to obtain an approximate q-value for a firm. This calculation method allows use of publicly available financial data and is robustly correlated with q-values calculated by more complex alternative methods[7].

Firms with a $q > 1$ have been found to be better investment opportunities, indicate that management has performed well with the assets under its command and have higher growth potential (Lang *et al.*, 1989). The q ratio is useful to study the effects of corporate decisions on performance, especially where standard accounting methods have failed to detect any performance effects, as in increases in intangible asset value. For example, if a firm selects a business strategy that materially improves the marginal productivity of assets at small marginal cost, the market value of the firm may increase even though no significant relationship between the selected strategy and the financial accounts are detected.

Descriptive statistics

Table I presents descriptive statistics of the companies in our sample over the fiscal years 1999 through 2007 grouped by governance system: *iinkai* and *kansayaku*.

While the overall Tobin q values of committee system firms appear greater than auditor firms, the difference is significant only after 2004 (Table II). Iinkai companies in the sample also differ from sampled *kansayaku* firms in closely-held shares proportion, foreign ownership and the frequency of a stock option plan but do not seem to differ in profit as a percent of sales, revenue per employee, cash flow as a percent of sales, or return to assets. Iinkai firms, while apparently performing no better than *kansayaku* firms, are more broadly owned by foreign interests (26 percent versus 12 percent), are held more closely by insider shareholders (45 percent to 35 percent), and much more frequently have stock option plans (83 percent to 34 percent).

Noticeably, q-values for both styles of firms decline from 2005 onward and the difference between the medians narrow to insignificance by 2007 in support of our proposition 1.

Within differing industries the data show marked differences. Figures 1-6 give the Tobin's q medians and ranges for each studied industry: trade, electronics, manufacturing, ICT,

Table I Descriptive statistics comparisons – auditor vs committee system firms

	Mean		SE		Median	
	Audit	*Committee*	*Audit*	*Committee*	*Audit*	*Committee*
Tobin's q	1.378	2.269	0.0442	0.4509	1.288	1.362
Governance variables						
Management held shares (%)	33.2	41.9	18.8	20.6	34.1	37.7
Foreign ownership (%)	12.6	7.5	11.6	23.3	9.15	21.8
Board size	8.72	9.33	3.47	2.84	8	9
Stock option plan (% adopting)	36.2	84.7	48.2	36.1		
Debt-to-equity ratio	476	47	5587	267	38.8	49.1
Performance variables						
Revenue (millions Yen)	220.7	127.8	643.9	271.4	663.9	100.4
Cash flow from operations (mY)	13.2	82.7	42.1	182.6	2.4	3.2
Profit (% of sales)	2.18	−0.13	8.5	121.8	2.5	2.2
Dividend (millions Yen)	2,202	6,291	7,214	10,748	340	554
Dividend (pct sales)	1.01	1.50	1.48	3.88	0.71	0.44

Table II Median, upper and lower quartile Tobin q values

	1999	*2000*	*2001*	*2002*	*2003*	*2004**	*2005**	*2006**	*2007*	*2008*
Auditor system										
Upper Qtl	1.76	1.50	1.58	1.72	1.75	2.00	1.79	1.63	1.35	1.43
Median	1.26	1.24	1.22	1.32	1.31	1.54	1.43	1.34	1.13	1.25
Lower Qtl	1.06	1.02	0.98	1.06	1.06	1.31	1.15	1.02	0.88	0.95
Committee system										
Upper Qtl	1.85	1.76	1.90	2.01	1.96	1.88	1.84	1.76	1.39	1.51
Median	1.65	1.53	1.49	1.51	1.58	1.76	1.61	1.44	1.18	1.37
Lower Qtl	1.19	1.23	1.16	1.29	1.43	1.54	1.34	1.20	0.92	0.96

Note: *Significant difference, 90 percent, two sided

pharmaceuticals and finance. While those companies using the *iinkai* system retain greater median Tobin's q-values in each industry, the range and degree of difference seems to depend on the industry. The data show that q-values trend downward for both types of firms from 2005, and that the difference between systems' values narrows, consistent with the convergence of laws governing *iinkai* and *kansayaku* firms after the 2005 legal reforms.

Model specification and econometric concerns

To extend these univariate results and determine whether they are robust to controlling for financial and governance variables, as well as controlling for the firm's industry, a Tobit random-effects panel regression is used to analyze the data. The dependent variable of the study, Tobin's q, is a continuous variable and takes only non-negative values between zero and one. Since the percentile value is left-censored, the Tobit regression model's assumptions of homoscedastic, normally distributed errors with censored data are thus consistent with our dataset. We regress the Tobin's q data against the independent variable of the corporate governance system, a set of variables to control for governance and financial effects, and on a set of dummy variables for the different categories of companies. For the study's independent variable, the *iinkai* system is modeled as a dummy variable that takes a value of one if the company has selected that system.

Variables

Governance controls – from the available literature, limited to the studies consistent with the data available for our study, four indicators of corporate governance were selected: the size of the board of directors, the presence of a stock option plan, the ratio of debt to equity – as a measure of the risk choices of the firm and as a variable of the director's choice of corporate

Figure 1 Trade industries – comparative Tobin q values

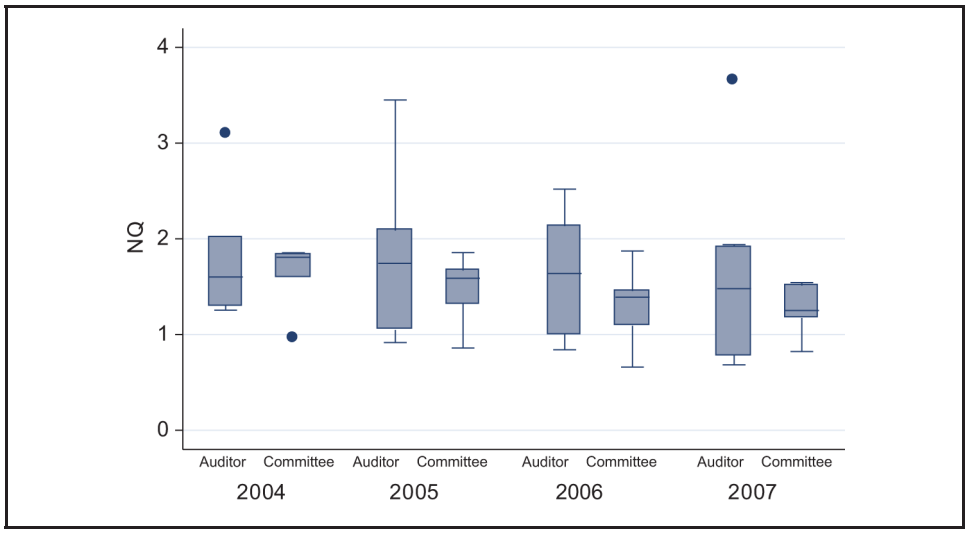
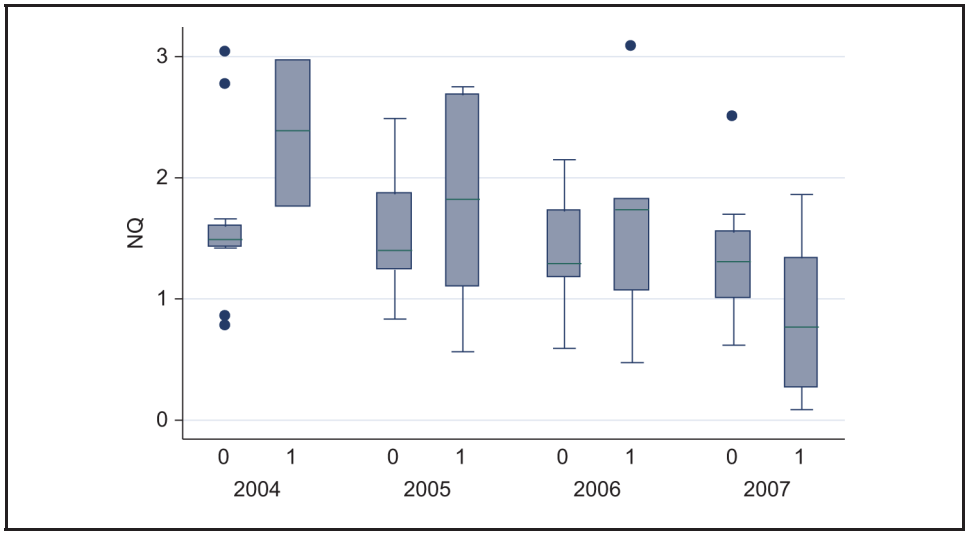


Figure 2 Phama industry



structure, and, lastly, the proportion of closely held shares. Controlling shareholders, outside directors, board composition, and debts structure are interdependent and decisive in determining a firms value in terms of Tobin's Q (Agrawal and Knoeber, 1996). Following that literature, our board size variable captures the idea that larger boards are more amenable to control by a small faction allied with the CEO who might have an opportunity to advance private interests. Moreover, since differing corporate governance aspects may determine the debt structure of a firm, we employ the debt-to-equity ratio to capture this.

Similarly, prior literature suggests that a board which collectively owns a larger proportion of shares in a focal firm is presumed to be motivated differently than a board owning few shares, a variable capturing the proportion of closely held shares is used to control for the differing effect of entrenchment in firms. Several empirical studies have made much of the closely held proportion of shares as an entrenchment mechanism (Kaplan and Minton, 1994; Bebchuk *et al.*, 2004)[8]. Moreover, Bebchuk and Fried (2004) associate high rates of closely held shares with lower CEO pay and better governance. Recent literature emphasizes theorize that controlling interests seek status quo governance structures as a

Figure 3 ICT industry – comparative Tobin q values

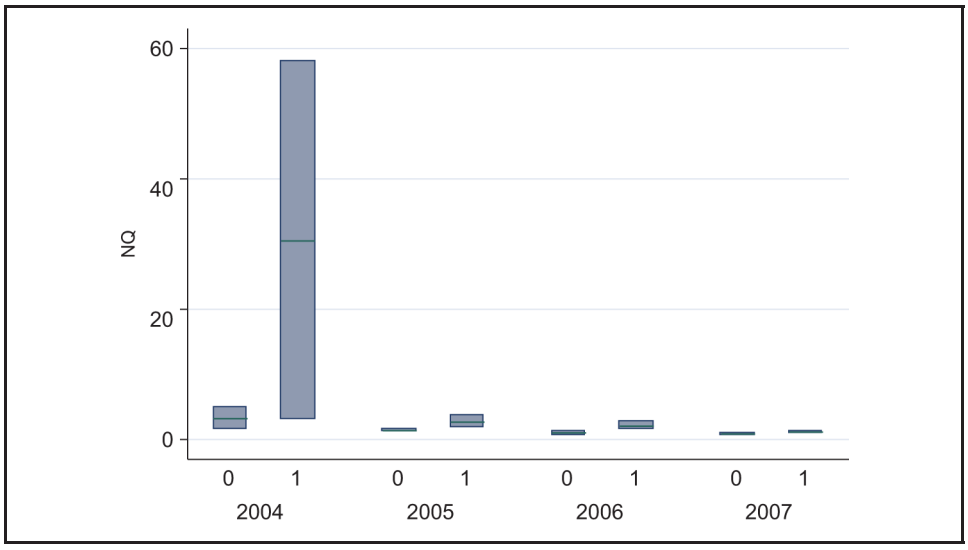
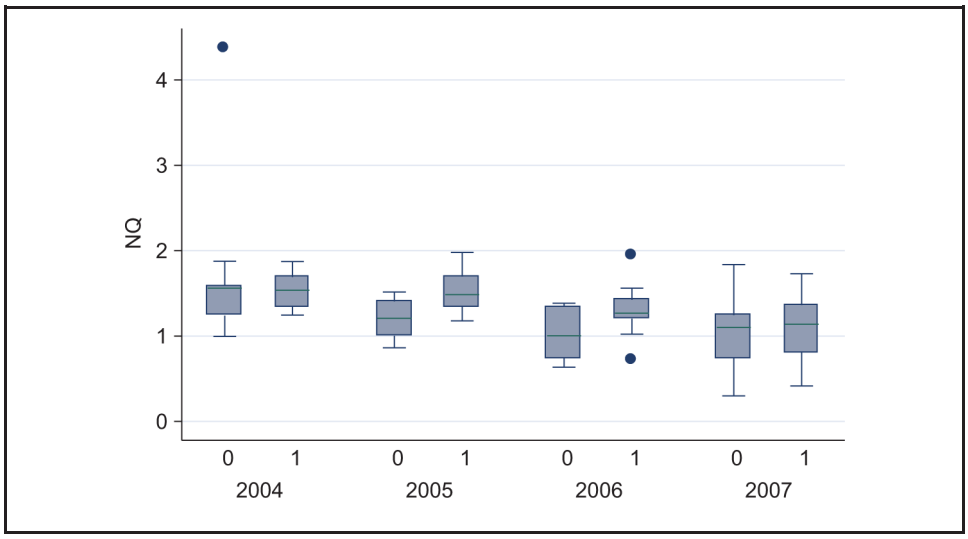


Figure 4 Electronics industry – comparative Tobin q values



means to extract ownership rents (Schmidt and Spindler, 2002). In the context of this paper, firms with controlling owners might resist adoption of the *iinkai* system. Accordingly, we control for this effect by including a variable of the percentage of shares held by officers. Although, since these data are not available for all firms, we analyze this effect in a third model, consisting of the sample of 221 observations that report closely held shares.

Prior literature argues that foreign shareholder influence operated to stimulate or catalyze legal reform and influenced behavior on Japanese boards (Ahmadjian and Robbins, 2005; Deakin and Whittaker, 2009) We capture the influence of foreign business practice by including two variables, the foreign sales as a percent of total, and the presence of a stock option plan. In Japanese corporate governance literature, the shareholder-oriented *iinkai* system is viewed as an Anglo-American – or at least a foreign – system and there is some evidence in the literature that foreign ownership and influence can change the value of a firm (Asaba, 2005). To control for foreign influence on firm governance, the study measured foreign ownership as a percentage of total shares outstanding. Another measure of foreign influence might be the recent stock option plan implementations in Japan. While initially

Figure 5 Finance industry – comparative Tobin q values

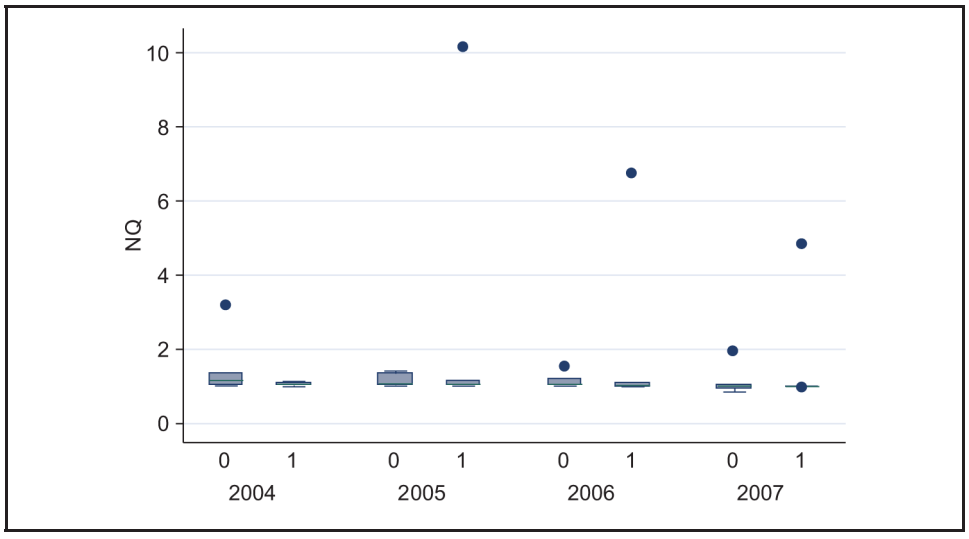
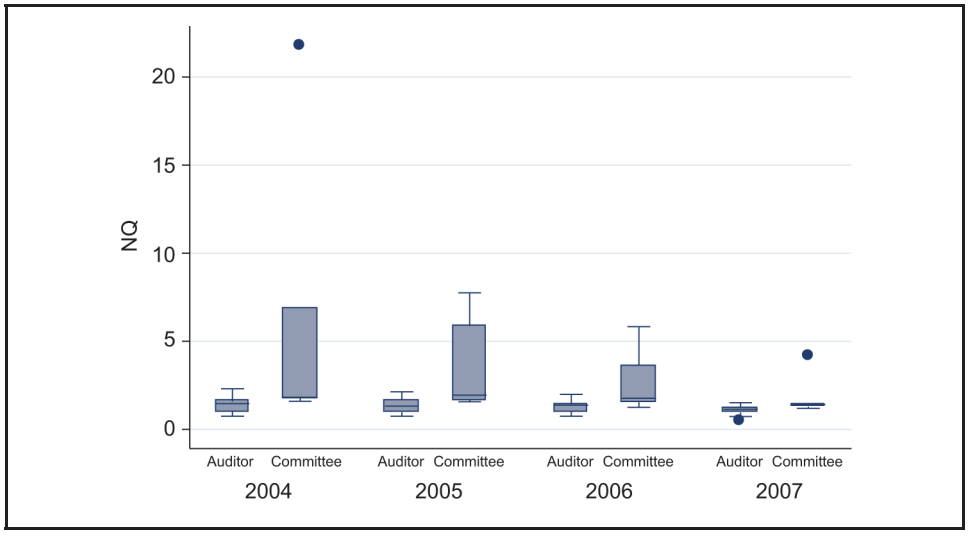


Figure 6 Manufacturing – comparative Tobin q values



promulgated in 1997, these plans were reformed in 2002 in the same corporate law change that created the *iinkai* system. This study uses the adoption of this, an innovation in Japan, as a control for foreign influence and its potential effect on q, similar to foreign ownership, and thus includes a dummy variable that takes on a value of one if the firm has a stock option plan.

Financial performance controls – to examine the performance variables suggested by this literature, we present models using, return on assets, sales per employee, foreign sales, and dividends. For financial performance controls, our study relies on the empirical literature in economics, finance, law, and Japanese corporate governance that had modeled firm performance (Hoshi *et al.*, 1991; Bebchuk *et al.*, 2004). Other studies for the US have found that Tobin's q is related to common financial measures (Hermalin and Weisbach, 1991; Gompers *et al.*, 2002) such as sales, cash flow, and profit from operations. Since Tobin's q is affected by the market value or the book value of the firm, we sought controls amongst the common performance variables that might most directly affect book or market value. Return

on assets is a common measure of operational efficiency of a firm. A positive return implies that the firm is generating profit and cash, and the more efficiently it does this with a set of assets, the greater the return. Future return is also enhanced as a more efficient use of assets implies a lower gross funding need than a less efficient firm. Accordingly, we suppose that return on assets captures the panolopy of operational performance such as profit and cash flow data but that benefits from being a dimensionless ratio directly comparable across firms in the same line of business.

Prior empirical analysis across diverse economic national domains, that higher dividends may be associated with shareholder rights (La Porta *et al.*, 2000). To control for this effect, we also include the dividend, measured as the log of the annual payment, following the prior analysis of ultimate returns from an agency theory perspective. In calculating logarithms, we ensure a minimization of bias by retaining all firms, including those with zero dividends, by using an infinitesimal epsilon quantity in otherwise zero cells. All models also control for the industry classification of the firm with five dummy variables for the machinery, electronic, manufacturing, finance, and trade (retail and wholesale) industries holding the pharmaceutical industry as the baseline.

We present three random effects Tobit regression models. Model 1 enters the corporate governance and performance variables, however to avoid econometric difficulties given some firms did not report ownership data, this model does not include the insider control variable. Model 2 employs an instrument to address the concern that return on assets may be endogenous by using profit as a percent of sales as one of the more material efficiencies in return to assets. It is a measure of efficiency of cash operations for a focal firm but at best only weakly related to q. Similarly, Model 3 uses the somewhat reduced sample of firms that report managerial share to control for managerial ownership with both governance and financial controls that we discussed in an earlier section. Table III reports the results of all three models.

Discussion

The coefficient on the governance system variable is positive, material, and significant in all models indicating support for our first proposition. This finding suggests that selection of the *iinkai* system seems to confer a value advantage. The magnitude of the coefficient is material economically implying that selecting the *iinkai* system increases a companies Tobin q value by over 0.91 in model 1 and over 1.01 in model 3. The study also found that amongst the study's governance variables, this was the only variable with a significant affect. Among performance controls, the variable measuring the efficiency of the firm – return on assets – was significant at the 99 percent level and also material in magnitude while all other controls had insignificant coefficients. When ROA was instrumented by sales efficiency (profit as a percentage of sales), the control variable was not significant. This implies that unobserved variables, or the endogeneity of the ROA variable, contributed to its significance in the non-instrumented model. Since the variable of interest, the corporate governance system, has similar magnitudes and significance in both approaches, we are confident that, in addition to the univariate analytic charts and the event study, that the system selection seem to be causal of increased company value after selection. These results are consistent with the idea that corporate governance changes are a signal, rather than an operational improvement, and the signal manifests itself as intangible value. To add robustness to the idea that intangibles might be driving q-values, the coefficients on the dummy variables for the electronics, trade, and manufacturing industries are negative, with the pharmaceuticals being the base industry in the regression.

In terms of financial controls, industry selection seems to be an important determinant of value. Increasing Tobin's q is associated with increasing intangible assets. Since technology and information firms are associated with human capital intangibles, we expect and find that firms in the information, communication and technology industry segment have greater values than other industries. We find that the coefficients on all variables were not significant suggesting that the increased q value in *iinkai* firms is not the results of operating or payout performance in support of our second proposition. The significant negative coefficient of the

Table III Tobit regression – governance system as a predictor of company value

Independent variables	*Dependent variable Tobin's q Model 1*	*Model 2*	*Model 3*
Governance system	0.919*	0.919*	1.076*
	(0.415)	(0.424)	(0.522)
Board size	−0.030	−0.031	−0.046
	(0.058)	(0.061)	(0.073)
Stock option plan	0.033	0.023	0.1571
	(0.424)	(0.453)	(0.5361)
Debt to equity ratio	0.000	0.000	−0.001
	(0.000)	(0.001)	(0.001)
Insider control			0.004
			(0.014)
Log dividend	−0.407*	−0.371	−0.524*
	(0.218)	(0.239)	(0.244)
Return on assets	0.110**	0.094	0.192**
	(0.029)	(0.073)	(0.054)
Foreign sales % of total	−0.003	−0.004	−0.008
	(0.008)	(0.008)	(0.011)
Sales per employee	−0.011	0.011	−0.010
	(0.006)	(0.006)	(0.007)
Manufacturing	0.581	0.596	0.965
	(0.578)	(0.594)	(0.736)
ICT industry	2.447**	2.458**	3.101**
	(0.887)	(0.908)	(1.126)
Electronics	−0.140	−0.134	−0.357
	(0.570)	(0.583)	(0.727)
Trade	−0.543	−1.577	−0.138
	(0.672)	(0.695)	(0.892)
Finance	0.290	1.166	0.779
	(0.659)	(0.895)	(0.792)
Constant	1.769	1.726	1.786
	(0.696)	(0.734)	(1.129)
Wald chi^2	42.37**	29.29**	41.44**
Number of observation	334	334	264
Instrumented variables	N/A	ROA	N/A

Notes: *The coefficient is significant at the 5 per cent level; **1 percent level (two-tailed)

dividend payout level does not hold in significance or sign in the instrumented analysis, implies, as in the case of return to assets, that unobserved variables may affect this value.

It is notable that the results in model 3 discover no significant coefficient on the closely held share variable. We hypothesized that firms with a larger proportion of ownership by outsiders would tend to resist the adoption of the *iinkai* system with its requirement of injecting outsiders into board decisions. However, the small value and insignificance of the coefficient make it also possible that, since *iinkai* companies certainly overcame some opposition, residual effects on firm value from continued resistance, if present, are not detected.

Performance, endogeneity and timing

We find a difference between the values of firms with differing governance systems within the same economic domain. We have so far left unresolved the question of the direction of causality. For, is it that the committee system increases a firm's value or do the better firms select the committee system? To better understand these apparent differences in value, it is of interest to see; if firms that selected the committee system differed from firms that did not before adoption of the new system, if adoption of the committee system is temporally associated with the increase in value, and if firms that adopt the system react similarly to other exogenous events. This is important also for determining the mechanism and causal direction of increased value since, if the value rise manifests soon after adoption of the new system, it implies that the market value of the firm has changed (the numerator of the q

calculation), as opposed to the liquidation value or efficiency of the firm's assets (the denominator). We examine these questions with a univariate analysis of performance data, and an event study to analyze the temporal nature and uniqueness of any value change.

We examine the trajectory of performance measures for companies that selected the *iinkai* system in 2003 and compare them to *kansayaku* firms. We track the period FY 1999 through FY 2008, thus looking at data two years before the system could be formally adopted to asses any differences before new system selection and to capture changes in value upon both adoption. For the univariate analysis, we examine; return on assets, return on equity, total investment return, to capture performance; foreign income as a percent of total, and research and development expenditures as a percent of sales, to capture important discussion in the academic and business literature on important strategies for Japanese firms. The results are shown in Figures 7-11.

There are no material apparent differences between *kansayaku* and *iinkai* companies *ex ante*, or *ex post* selection of the committee system by *iinkai* firms in terms of performance,

Figure 7 Foreign income percentage of total income

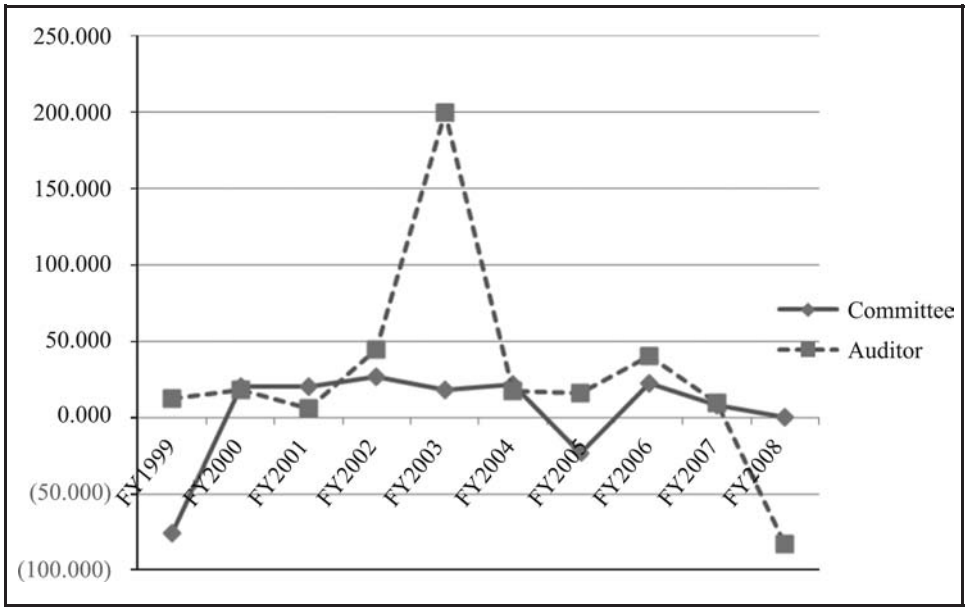


Figure 8 Return on equity (per share)

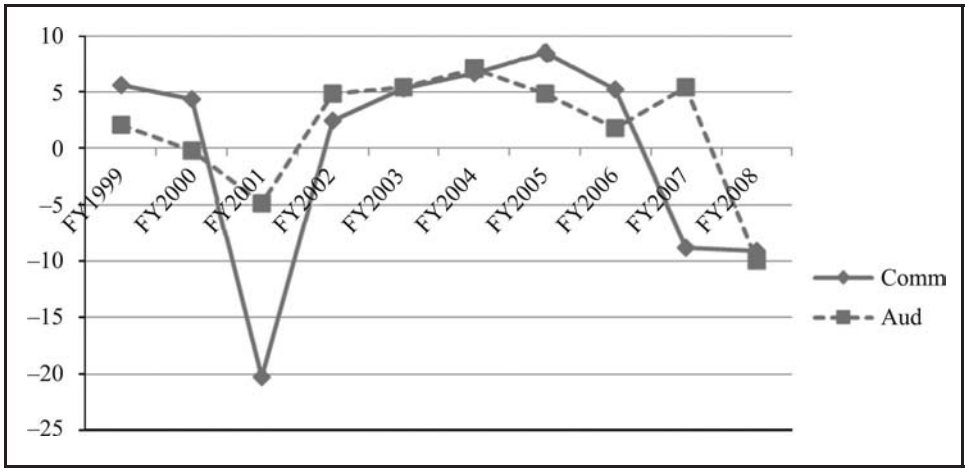


Figure 9 Total investment return

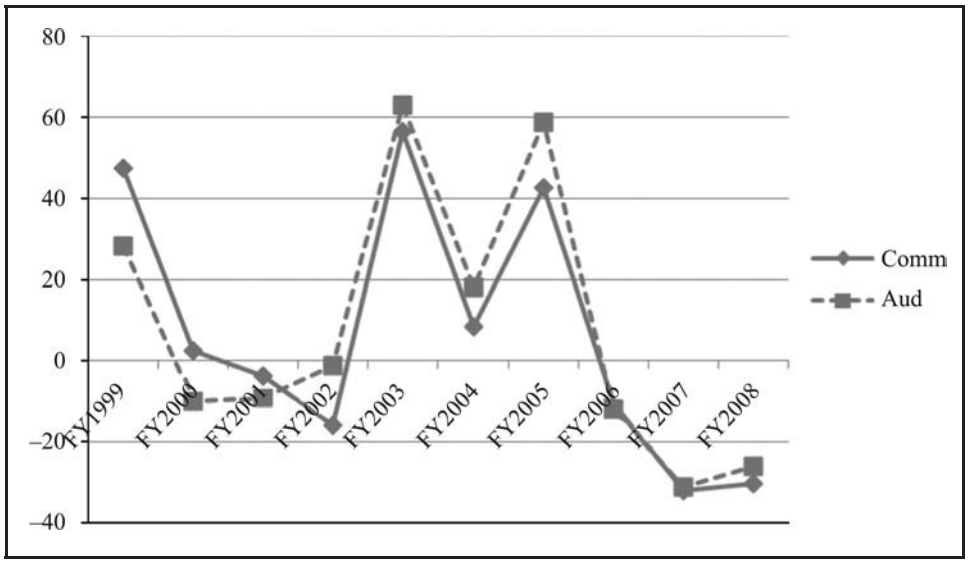
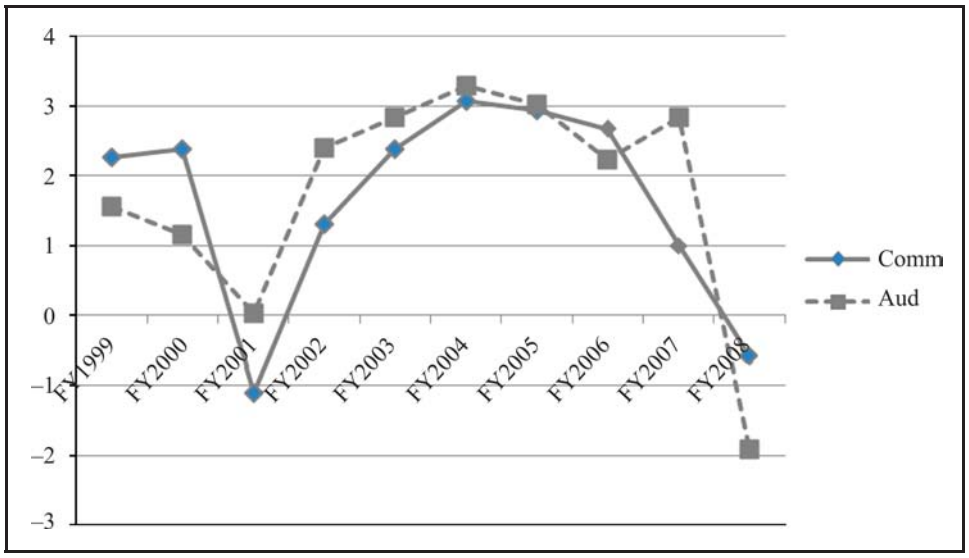


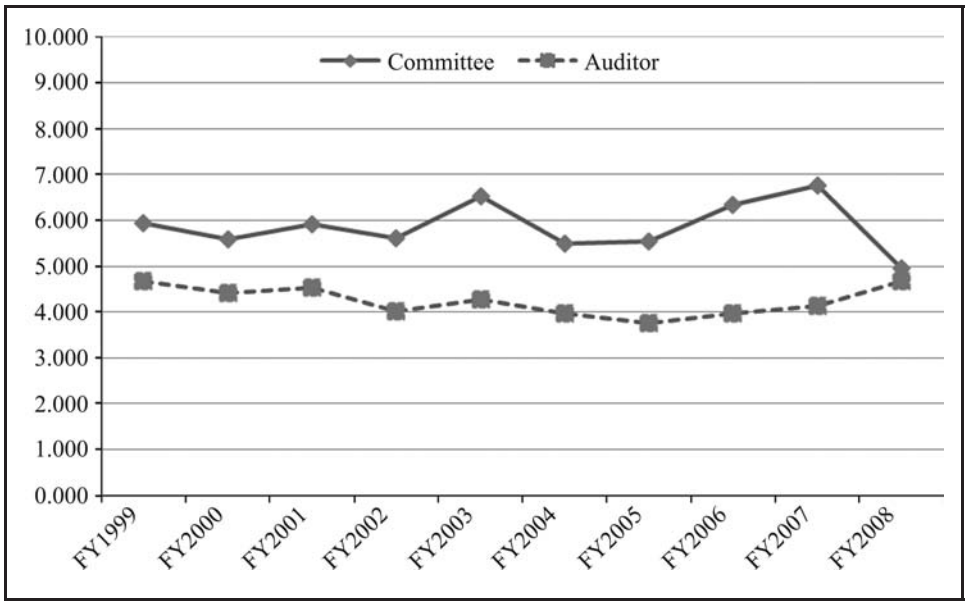
Figure 10 Return on assets



with the only exception being an advantage to auditor firms with respect to foreign income in 2003. Further, while to-be committee firms consistently spend marginally more than auditor companies on research and development, *t*-tests (available from the author) show that the difference is not significant before or after selection of the new system. In short, the univariate analysis does not support the endogeneity argument that firms that selected the committee system may have already had advantages that would be expressed in greater performance or value.

To analyze the temporal and the possibility of unique manifestation of value, and to add further robustness to the idea that firms selecting the committee system are not unique before the selection, we study the data over a longer period, FY1999 through FY2007, using event study methodology. Our null hypothesis is that the event of selecting the committee system has no abnormal, differential affect on the q value of firms that selected it. Said otherwise, we want to find if the selection event affects q values differently than non-selecting

Figure 11 R&D expenditure percentage of sales



firms but that prior events do not. To test this hypothesis, let ''Unanticipated TQ'' be the difference between the measured q value of a firm and its expected value attributable to unexpected variation in q:

$$\hat{Q}_{i,j} Q_{i,j} E\left(Q_{i,j} \middle| X_{i,j}\right) \tag{1}$$

where is the observed Tobin q value for firm i at time j, given by:

$$Q_{i,j} \prod \frac{S_{i,j} \prod (C_{i,j} \prod P_{i,j}) \prod I_{i,j} \prod D_{i,j}}{A_{i,j}}, \text{ after Chung and Pruitt (1994)} \tag{2}$$

$C_{i,j}$ and $P_{i,j}$ are the firm's common and preferred stock issues respectively, $S_{i,j} S_{i,j}$ is the current price of a firm's shares, $I_{i,j}$ is inventory, $D_{i,j}$ is net debt, $A_{i,j}$ is total assets, and $X_{i,j}$ is a vector comprising the financial information, decisions, and outcomes of the firm.

To find the expected q value for a firm, let $F_{i,j}$ be the projected share price of a firm i from time j -1, using the capital asset pricing model, (Sharp 1964), with the coefficient from the Thompson data:

$$F_{i,j} R_{f\ i} (E[R_m]) R_f \tag{3}$$

Since the market returns are known, we can rewrite (3) as:

$$F_{i,j} R_{f\ i} \left(R_{mjl}, R_f\right) \tag{4}$$

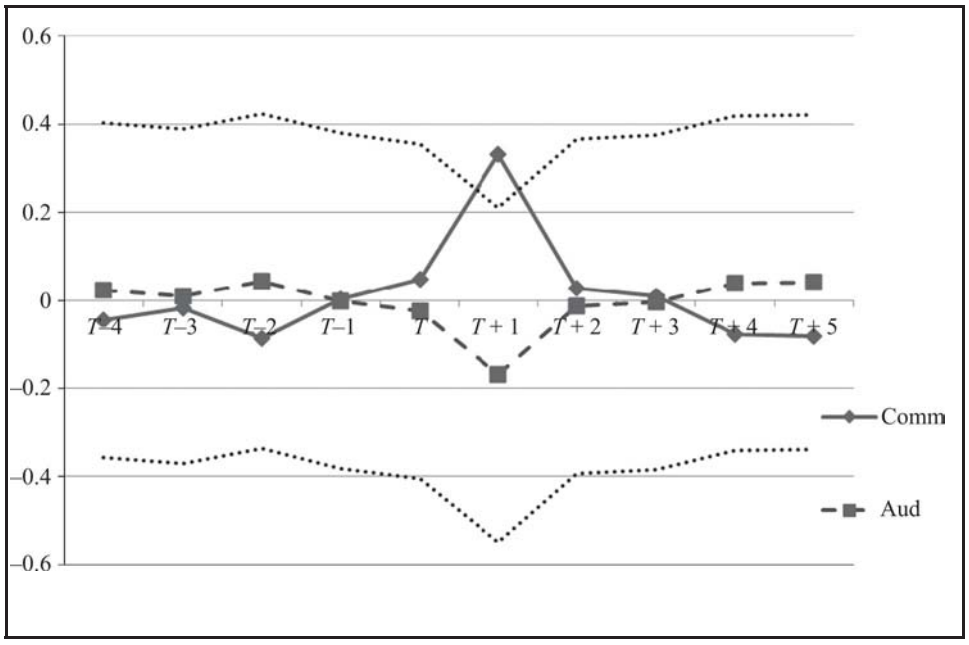
And, substituting, we can write the projected q value as:

$$E\left(Q_{i,j} \middle| X_{i,j}\right) \circ \frac{F_{i,j} \circ (C_{i,j} \circ P_{i,j}) \circ I_{i,j} \circ D_{i,j}}{A_{i,j}} \tag{5}$$

Calculating these values for the years FY1999 though FY 2008, using the Bank of Japan discount rate as R_j, and the Nikkei 225 index to estimate the market returns, average values $\hat{Q}_{i,j}$, of 38 committee system firms and 75 randomly selected auditor firms, (normalized to a market beta of 1), are shown in Figure 9 with $p = 0.05$ limits. At t T, we align the date that committee system firms implement the system. The result is in Figure 12.

Before the announcement, no unanticipated variation in either system is evident, while in the year that firms implement the new system, q values of committee system firm deviate from predicted values at a significant 95 percent confidence level, causing us to reject the null

Figure 12 q value deviations from model



hypothesis that no differential effect would manifest itself. Subsequent non-deviation from predicted values suggests a resumption of variation attributable to anticipated market forces. This data is suggestive of an immediate manifestation of value upon announcement and is consistent with the idea that shareholders' changing evaluations of the firm caused the change in q values[9]. Other exogenous events could cause the deviation of actual q values from predicted but given the artificial alignment of announcement dates for this analysis, that is unlikely. We aligned the announcement dates of all firms at t = 0, regardless of whether it was 2003, 2004 or any year. So, an alternative exogenous event would need to have a temporal effect pattern identical to the adoption years of *iinkai* firms and only affect those particular firms. We view this as a singularly unlikely circumstance.

Conclusions

The objective of the study was to detect if there is empirical evidence of differing company value between differing corporate governance systems co-existing in the same economy. We find that the *iinkai* corporate governance system produces higher corporate value than the traditional *kansayaku* governance. The study also finds evidence that it is the governance signal provided by adoption of the legally credible system, not the financial performance variables, which account for this difference. For, without evidence of clear performance advantages, and with the diminishing advantage as the institutional differences lessened, the value seems to derive from the key difference between the systems, which is the inclusion of outsiders that are independent of board and managerial control on committees. These results provide empirical evidence of the economic efficiency, in terms of investor value, of the *iinkai* system with implications for the corporate governance convergence debate. Moreover, since the new system is a shareholder-oriented model of governance, as opposed to the incumbent stakeholder-oriented model, some support is offered to the cross-country research that has yielded similar findings.

The detection of increased value from the western, shareholder-oriented style governance system in Japan leads to two issues that we wish to probe. First, it seems important to determine what might cause the increased value. Second, why did so few companies adopt the system given that greater value follows adoption of the *iinkai* system? Efficiency should

motivate companies, but little more than 100 adoptions from some 3,000 public companies in Japan over five years seems hardly a remarkable phenomenon.

To analyze the first question, we adopt the framework of Gilson and Milhaupt in their 2004 paper where they argue that there might be four reasons why a difference in performance or value might exist between firms using different Japanese governance systems. The first potential reason is signaling of perceived good corporate governance practice improves shareholder value if the new system is perceived as superior because of a belief that US systems are superior. Secondly, endogeneity may account for a value difference if the firm adopts the *iinkai* system because it is simply more efficient and appropriate for the focal firm. The third potential reason to adopt an *iinkai* system is to permit a corporate group to express group control over subsidiary firms since the legal definition of outsiders permits parent companies to supply parent company employees as ''outsiders.'' The final proposed motivation is simple indeterminacy, because the rule was legislated as a compromise in the political economy context of Japan, and similar processes may be involved in the selection of a governance system at the firm level.

Subsidiary groups because controlled subsidiaries were not examined in this study and indeterminacy cannot be analyzed since the adoption process is beyond the scope of the study. However, this study can add insight to the endogeneity and signaling arguments and we suggest that it is indeed signaling that motivates adoption. First, our study does not support the idea that the direction of causality favors better firms selecting the committee system. Our univariate and event study seems to confirm that the value gain benefited both lesser performing and better performing firms manifesting value upon announcement independent of performance.

The data, on the other hand appears consistent with the idea that management signals improved corporate behavior by adopting a perceived superior governance system. Signaling is particularly well supported by the data from the initial adopters when the value increase occurred upon the 2002 announcement as opposed to implementation in 2003. While it seems reasonable that adopting the *de facto* standard of corporate governance – the Anglo-American shareholder oriented system – during the time of rising US equity prices affected initial selection of an *iinkai* system, the narrowing of the difference in value between systems in subsequent years – as the functional differences decreased – suggests that perhaps it is the features of the *iinkai* system, as opposed to congruency with Anglo-American standards, that are attractive to shareholders.

We argue that the *iinkai* system reduces information asymmetries between management and shareholders given the inclusion of outsiders on three critical board functions. Organizational changes that are associated with a new cohort of outside directors certainly entail some cost, but if the effect of outside directors is the reduction of tunneling and shirking agency costs (Johnson *et al.*, 2000), then the signal is associated with higher cost from the perspective of managers and a benefit from the perspective of shareholders. We further argue that shareholders can credibly rely on the signal because it is costly for management to send (Farrell and Rabin, 1996), and cannot be secretly revoked. Moreover, outsider participation on audit, compensation and nomination committees can certainly be associated with a greater risk of detection of inappropriate behaviors and an increased risk of sanctions. Overall, the adoption of the committee system is a credible signal that assures shareholders of lower agency costs from asymmetric information.

The nature of the signal is further illuminated by the gradual decline in the difference between systems as measured by Tobin's q is consistent with the reduction of the structural differences between the systems in law. If, on the other hand, it were the system's American-ness that drove valuation, it would be inconsistent that q differences declined during the time of increased equity market valuation in the US. We conclude, then, that it is likelier that the shareholders respond to the agency cost aspects of the new system when management signals the adoption.

A remaining puzzle, however, is why most companies resist adopting the committee system in Japan. Further research may investigate what mechanisms might account for the slow pace of

adoption: is path-dependence deterrence operating? Do controlling interests block adoption? Are switching costs too high? This may lend support to earlier literature arguments that when switching costs are high, suboptimal choices can result even if rational processes are followed (Schmidt and Spindler, 2002). While this study does not provide demonstration of shareholder gains beyond firm valuation in a public market, our data support the central idea that corporate governance laws have consequences and encourages additional study of the effects of corporate signaling and the consequences of increased shareholder orientation of agents.

Notes

1. Interestingly, in addition to Nomura, 47 private, newly-formed companies have also adopted the *iinkai* system as of 2008 (Teikoku Data Bank, 2008).
2. In Japanese corporate law, additional rules exist for the auditing system, depending on the size of the company, Takahashi and Madoka (2005). For small firms, for example, the full *iinkai* structure is not required. In addition, the role of a corporate auditor in a small company is only to audit accounting and does not include the corporate auditor function. For this study, examines only public firms, which are all large by legal definition, and the commentary is restricted to those features of Japanese law that are relevant to large companies.
3. Starting in 2006, committees of *kansayaku* were required to include more outside auditors.
4. In this paper, ''president'' or ''CEO'' is more technically correctly called the ''representative director'' or *daihyo torishimariyakyu*. We adopt the common CEO term to more effectively communicate the parallel role.
5. In Japanese law, ''outside'' directors are legally distinct from the more Anglo-American concept of ''independent'' directors. In Japanese law, ''outside,'' while meaning the officer is not, and never has been, employed by the subject company; family ties, affiliation, and being the employee of a parent firm, conform to the legal definition of ''outside'' director.
6. As of April 11, 2009, 114 public, or subsidiaries of public firms have selected the *iinkai* system as reported by the Japanese Corporate Auditors Association. Few adoptions occurred after 2007 after the law was amended to minimize the difference between the two systems.
7. Chung and Pruitt (1994) found that their method of calculating q explained at least 96.6 percent of the variability in Tobin's q obtained via Lindenberg and Ross's more complex model Lindenberg and Ross (1981).
8. Entrenchment, in this regard, means structures and mechanisms of corporate governance that impede the replacement of managers who control the assets.
9. The q-value can be increased through its denominator, if, for a given market value, less assets are used, or through the numerator, by increasing the market value on the stock market. Since value increased in anticipation of *iinkai* system adoption, sufficient time for changing the productivity of assets is unlikely.

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